# An Analysis of the Psychosocial Factors on the Post-Disaster Psychological Recovery Process of Foreign Residents in Japan

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(Degree)
博士（学術）

(Date of Degree)
2022-03-25

(Date of Publication)
2023-03-01

(Resource Type)
doctoral thesis

(Report Number)
甲第8380号

(URL)
https://hdl.handle.net/20.500.14094/D1008380

**20 December 2021**

# An Analysis of the Psychosocial Factors on the Post-Disaster Psychological Recovery Process of Foreign Residents in Japan

(日本における外国人居住者の災害後の心理的復興に与える社会心理的要因の研究)


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# Summary of the Doctoral Dissertation

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**Background**

Disaster victims may experience a variety of psychological reactions, and some factors are identified to influence psychological recovery. There are some groups of people who are considered as vulnerable groups in disaster. Foreign residents are one of these vulnerable groups, particularly due to their difficulties in terms of language barriers, limited policy access, and access to empathetic support. In disaster studies, a sufficient amount of literature has focused on vulnerable groups such as the elderly, women, and children, but relatively little attention has been given to foreign residents. Only in recent years, perhaps due to the increase of immigration across national borders as the globalization of socio-economic progress, a stream of arguments has looked into the strength of foreign residents, proposing the possibilities of enhancing their resilience in disasters. To achieve the purpose to meet with the present needs of our changing world, more studies need to be conducted to explore the potentiality of this group.

The present study also aims to examine the situation of foreign residents in Japan and to detect the social intervention through the experiences of mega-disasters such as the 1995 Hanshin-Awaji Earthquake and the 2011 East Japan Earthquake. There are certain variations of the status of foreign residents in Japan reflecting each historical background. Some foreign residents, Korean residents as an example, came to Japan before the war, have been living in Japan for generations, they are called old-comers. Those who came in recent years are called newcomers, including Vietnamese refugees who came to Japan during 1970s and 80s. A certain degree of these newcomer residents are concentrated in the Nagata ward of Kobe city, mostly working in the chemical shoe industry. In 1995, Hanshin-Awaji Earthquake destroyed most of the industry and their houses in Nagata. The disaster revealed the pre-existing social issues in the area, where the struggle of foreign residents became visible. Support activities were started to address the needs of foreign residents, and finally evolved

into daily life support and became the founding stone of "multicultural society" in Japan.

When East Japan Earthquake hit the Tohoku region, some volunteer organizations involved in the support activities during the Hanshin-Awaji Earthquake provided their expertise in supporting foreign residents in Tohoku. Other organizations and volunteers also flow to the disaster-affected area to help disaster victims. Religious organizations played a very important role in supporting foreign residents, especially the Filipino women, who married into Japanese families. They gathered in Ofunato Church and formed a Filipino ethnic community called PAGASA. With the support provided and the efforts of Filipino residents, they became part of the community and had been active in the recovery process.

**Research Purpose and Question**

This research intends to analyze the social factors which affect the process of psychological recovery of foreign residents in Japan as vulnerable category of disaster victims. Experiencing disaster not only threatens the physical and economic well-being of the disaster victims, but also, expanding literature focuses on the psychological impact of disasters, indicating that disasters can cause some psychological reactions. Such literature has suggested that some potential risk factors can prolong these psychological reactions into more serious mental health problems. There are accumulated literature suggesting that social support prevents negative mental health outcomes and promotes post-traumatic growth after disasters. This research claims a novelty in its focus on the foreign residents in Japan as a vulnerable category of disaster victims which has rarely covered in the previous psycho-sociological researches. Also, this research has its uniqueness in focusing on the social support by not only social actors but also the government, which is expected to be more responsible for extending equal support to the foreign residents in the inclusive society, particularly because the government has the ability to allocate the necessary

resources to reconstruct the lives of disaster victims. This study also has significance in paying attention to not only the vulnerability but also the resilience of disaster victims, including their access to supportive environment with a close social tie which enable their access to the social support.

Another characteristic of this research is its attempt to analyze the result of a long-term process of psychological recovery. Over the 26 years since the occurrence of the Hanshin-Awaji Earthquake, progress has been made by various actors in supporting foreign residents. Researchers have focused on the issues such as multilingualization of disaster information, easing the policy barriers, and promoting self-help and mutual help, however, most of such researches deal with the data on the psychosocial intervention in the relatively earlier stages of the disaster recovery, while the foreign residents' long-term psychological recovery remains less clear. This study purports to identify the types and characteristics of the social support which can affect the long-term post-disaster psychological recovery of foreign residents in Japan.

The proceeding researches suggest that people who have a higher level of perceived social support would report a lower level of mental distress and a higher level of post-traumatic growth; that people who have higher satisfaction with government support would report a lower level of distress and a higher level of post-traumatic growth; this study holds major hypotheses that the types and sources of effective social support for the post-disaster psychological recovery may be different for foreign residents, and also that they can change according to the stages of post-disaster recovery. By focusing on Japan as a country aiming at inclusive society, and as one of the most disaster-prone countries in the world, we will be able to analyze the peculiar status of the main concerns of foreign residents on their safety and well-being in disasters.

**Method**

Both quantitative and qualitative methods are used to test the hypotheses. In the first step, 64 people participated in the questionnaire survey, including 20 Korean residents in Nagata Ward in Kobe, 34 Vietnamese residents in Nagata Ward in Kobe, and 10 Filipino residents in Rikuzen-Takata and Ofunato in Iwate. This questionnaire survey consists of three parts: (1) demographic domain including items as age, gender, educational background, occupation, income, length of staying Japan and disaster experience; (2) mental health domain including the revised version of Impact of Event Scale to assess mental distress symptoms related to disaster experience and the Post-Traumatic Growth Inventory to assess the positive changes experienced since the disaster; and (3) disaster support domain including the Multidimensional Perceived Social Support Scale to evaluate the perceived level of social support and the Satisfaction with Governmental Support Scale to assess participants satisfaction level with government recovery support. The analysis methods of questionnaires include descriptive analysis, regression analysis and factor analysis.

After the first wave assessment, the second wave assessment was conducted in semi-structured interviews. Interview questions are designed based on the result of the questionnaire survey to further investigate the impact of social support on positive psychological recovery.

**Result**

1. Case study of foreign residents in Nagata

As a result of 26 years of recovery, no significant mental distress symptom is reported by disaster victims. Meanwhile, moderated level of Post-Traumatic Growth is reported, particularly in the aspect of appreciation of life and spiritual change. The Vietnamese residents have relatively higher scores in both mental distress and post-traumatic growth. All participants report a high level of perceived social support, the primary source of support is family. Participants also reported a moderate level of

satisfaction with government support. Significant ethnic difference is found with the satisfaction level with government support; Korean residents reported a lower level of satisfaction. Further detailed analysis of the Satisfaction with Governmental Support Scale revealed that people pay more attention to the communication with the government during the recovery process. Their satisfaction level is largely influenced by the transparency of information and government respect for public opinion. Regression analysis of disaster support with mental health recovery showed that perceived social support and government support with non-structural recovery and government assistance with the common needs of disaster victims are related to post-traumatic growth.

Based on these findings, further investigations are conducted with the interview. Findings from the interview revealed that while the main concern in the short-term recovery is information access and reconstruction of life, the concern is shifted to community development and industrial recovery over the years. Korean residents tend to use their ethnic ties as the primary source of support, especially during the short-term phase. The shared experience strengthened the intra-ethnic tie, positive change in the relationship of different ethnic communities is confirmed. Vietnamese residents, who lacked established ethnic ties, sought help from the Japanese-led voluntary organization. Disaster experience contributed to recognizing the importance of social networks, which positively influenced foreign residents' active participation in the community. People who are more involved in the community are more likely to access wider resources, which positively affect psychological recovery. Additionally, the case study result suggests that satisfaction with government support influences people's evaluation of disaster recovery. People expect better communication with the government during the recovery. However, due to inadequate communication, people developed a lower satisfaction with government support and a lower sense of recovery.

2. Case study of PAGASA Filipino community

In the result of questionnaire, Filipino residents who experienced the Great East Japan Earthquake and Tsunami didn't report a significant level of mental distress, except one participant reported a higher score in mental distress. They also reported a moderate level of post-traumatic growth, a higher level of social support, and a higher level of satisfaction with government support. Based on the findings from the questionnaire survey, we assumed that high-level social support might promote positive psychological recovery. Three members of the Pagasa Filipino Community were interviewed for further analysis. Findings from this case study are similar to the Hanshin-Awaji Earthquake. Filipino residents emphasized the importance of social ties. This tie is not limited to the ethnic community; it also includes the tie with the wider community. There are some differences from the Hanshin-Awaji Earthquake case.

First of all, Filipino residents reported family support in accessing disaster information and government support. Secondly, the establishment of the PAGASA Filipino community played a vital role in the long-term recovery. Forming an ethnic community is one of the lessons learned from the Hanshin-Awaji Earthquake. It has been promoted as a practical way to improve the resiliency of ethnic communities. PAGASA Filipino community was established with the help of support agencies, and it has been a source of emotional support to its members. Thirdly, Filipino residents reported their positive evaluation of the disaster recovery. Help from co-ethnic friends and church played a positive role in this process. They reported appreciation to government agencies and perceived support from local government agencies. There are two possible explanations for this result: Experiences from the Hanshin-Awaji Earthquake emphasized the importance of the network. Some progress has been made in building a connection with foreign residents at all levels of society, including government agencies. Or, the Filipino community has been very active during the

recovery; their active participation and cooperativeness may help them extend their connection to the government level.

Although some progress has been identified, it is still not enough to extend this conclusion to all foreign residents in disaster, especially those in a smaller community or more marginalized. However, the case study of Filipino residents once more confirmed the positive role of social support and increased social network. They feel they're visible and empowered, and this helped them to re-appraise the disaster experience as a meaningful experience.

**Conclusion**

The positive impact of social support on the psychological recovery of foreign residents is identified through these two-disaster case analyses in Japan. Social support extended by both social and governmental sources generates positive psychological recovery by providing more access to the crucial resources for the reconstruction of life. Social support can be drawn from the network with co-ethnic members, other ethnic community members, and public institutions. This finding highlighted the role of social capital in post-disaster psychological recovery.

The primarily available social network to foreign residents is embedded in their bonding social capital. It can provide them with tangible support for immediate needs and emotional support. Bonding social capital can be strengthened by forming ethnic community groups. However, bonding social capital alone is not enough for the long term. Bridging social capital can provide more opportunities to foreign residents and benefits their coping ability. It can be strengthened by various community activities and active participation in those activities. The connection with government agencies increases linking social capital, which is vital for the empowerment of foreign residents. In the case of foreign residents, linking social capital is still weak. Future tasks require improving the connection with the government and formal collaboration of the foreign residents with government agencies.

The social support provided to foreign residents has been evolved since Hanshin-Awaji Earthquake. Before the earthquake, support activities were concentrated on legal consultation, and the disaster experiences extended the activities to daily life support, including multilingual information support, financial and medical assistance. After the East Japan Earthquake, support activities have been developed into capacity building. In the future, support activities can focus on increasing social capital. The recovery experience of foreign residents showed their strength; despite the vulnerable position in the disaster, the positive recovery revealed resiliency. They can be an indispensable member of an inclusive society and contribute to the community's resilience if their knowledge, skills, and capacities are used in disaster risk management. Social support aims to improve their participation in the community, and government level activities are most beneficial to the empowerment of foreign residents.

Academic advisor: Professor Yuka Kaneko

# Acknowledgments

Throughout the writing of this dissertation, I have received a great deal of support and guidance.

First, I would like to express my deepest gratitude to my supervisor, professor Yuka Kaneko, who is a role model with her passion and hard work. It was a real honor to have you as my academic advisor. During the field trips and interviews, your company gave me confidence in conducting this research; your insightful feedback helped me improve my work to a higher level.

I also would like to thank professor Akihiko Hokugo, who was there in all the seminars and workshops. Thank you for always offering good solutions when I encountered obstacles in this research process.

I also would like to thank professor Yuichi Honjo, who contributed to this study by providing his time and expertise in data analysis. I couldn't make it without your help. I am also thankful to professor Seiichi Saito, who always attended my examinations and offered invaluable insights. And, professor Toshihisa Toyoda, Professor Nobuhito for their inputs and comments during seminars. I would like to express my gratitude to the examination committee for contributing their time and comments. I am also indebted to my fellow students in zemi for their continuous friendship.

I would like to also express my gratitude to Ms. Chiaki Kim, Ms. Emi Nogami, Mr. Keiichi Sugawara, Ms. Kumiko Yamaji, Mr. Shigeo Nakamizo, Professor Shizuyo Yoshitomi, Mr. Sinyong Kim for providing me with valuable information and networks. Your help made it much easier for me to continue this research despite the restrictions in the pandemic. Moreover, my thanks go to all the participants and interviewees, I was very fortunate to have their willing participation.

I would also like to thank the Japan Ministry of Education, Culture, Sports, Science, and Technology (MEXT). I would not be able to pursue doctoral study without the scholarship program 2018-2021.

Last but not least, my gratitude goes to my mother, who is the source of my strength. Thank you for always believing in me and encouraging me.

December, 2021

Kobe.

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# Chapter 1 Research Framework

## 1. Introduction

While the term "disaster recovery" has been defined in various ways, and the current feature is "Build Back Better" or the creation of a more resilient society, we may recognize that it should at least include the restoration of normalcy in the sense that disaster-affected people and places return to the normal functioning of daily lives that were disrupted by the disaster. Such restoration of normalcy may include the reconstruction of physical infrastructures and facilities, but the "soft side" of the recovery, such as individual livelihood and social functioning, is also an indispensable element. Psychological well-being has been a focus of post-disaster recovery studies since the 1995 Hanshin-Awaji Earthquake. Various scholarly works have been reflected in the improvement of the increased governmental and social awareness of this aspect, as mentioned in the Hyogo Framework for Actions (UN, 2005) in the Priority 4 (Reduce the underlining risk factors) at section (ii) (g) as an element of enhanced recovery schemes including psychosocial training programs in order to mitigate the psychological damage of vulnerable populations in the aftermath of disasters.

Psychological recovery can include various aspects, as often defined as "enabling a person to live a meaningful life while striving to achieve his or her full potential" (Ellison *et al*., 2018), but at least it should include some psychosocial factors which are identified as impacting the post-disaster mental health status. For the post-disaster recovery of mental health status, an emphasis has been made on the importance of prompt intervention, as evident in some international principles and practice guidelines which appeared in the same period as the HFA, such as the United

Nations' affiliated initiative of the Interagency Standing Committee (IASC) *Guidelines on Mental Health and Psychosocial Support in Emergency Settings* (IASC, 2007) and the World Health Organization (WHO) 's *Assessing Mental Health and Psychosocial Needs and Resources* in 2012 (WHO, 2012). These guidelines offer advices on responding to disaster victims' mental health and psychosocial needs by facilitating psychosocial interventions. However, although these guidelines are giving the matrix of response such as needs assessment, consideration of legal and human rights, facilitate community mobility, provide information, supportive education, the inclusion of cultural appropriateness into basic relief, these are general minimum action which is short of consideration of the specific contexts, such as the nature of the disaster, the categories of disaster victims, and the socio-cultural characteristics of the disaster-affected area. Contextual difference may result in different emotional reactions and different levels of access to disaster support, as has been reported in previous disaster experiences such as the 2005 Hurricane Katrina where residents in Mississippi Gulf Coast reported higher social support, while residents in New Orleans reported higher discrimination; as well as the studies conducted in Aceh and Jakarta after the 2004 Indian Ocean Tsunami which reflected the cultural and historical differences[1].

As emphasized in the aforementioned Hyogo Framework for Action Priority 4 (2) (g), it is known that some groups, such as children, women, the elderly, people with disabilities, and minorities, have special needs during and after the disaster, and there's a practical need that those who support the psychological recovery of disaster victims should pay more attention to ethnic, language, culture and religious aspects,

[1] See, for example, Brintnell & Cahya (2009) Culture and Psychosocial Elements Impacting on Disaster Recovery: Response in Indonesia, Asian Journal of Occupational Therapy, 7, pp: 35-42.

Weems, C. F., Watts, S. E., Marsee, M. A., Taylor, L. K., Costa, N. M., Cannon, M. F., Carrion, V. G., & Pina, A. A. (2007). The psychosocial impact of Hurricane Katrina: contextual differences in psychological symptoms, social support, and discrimination. Behavior *research and therapy*, *45*(10), 2295–2306. https://doi.org/10.1016/j.brat.2007.04.013

as well as the social context which may constitute the basis of psychological recovery of victims. There are researches which have been studying these vulnerable groups' specific needs (Flangan *et al.,* 2011), but the focus on the post-disaster recovery process of immigrants or ethnic minorities is relatively few. Accordingly, a significance of this study is in targeting on post-disaster psychological recovery of foreign residents as a research gap.

Moreover, the majority of the previous studies has been focusing especially on the psychosocial factors that affect the psychological recovery of relatively shorter period of five to ten years, while only a few studies have examined the long-term recovery up to 20 years of process (Tanaka *et al*., 2019; Thoresen *et al.,* 2019). Accordingly, a significance of this study is also vested in its focus on the long-term process of the post-disaster psychological recovery.

Also, these preceding studies didn't examine the government support as another dimension of post-disaster disaster support which may influence the recovery of the affected population. Accordingly, one of the significances of this study is in its attention to wider range of possible psychosocial factors, including not only the social support which is provided by various categories of communities but also by the government support that interact with and impact the psychological recovery of foreign residents.

On the other hand, while the majority of arguments on the immigrants and ethnic minorities in the post-disaster recovery used to deem them as a vulnerable category of people because of the language barrier, lack of economic and social resources, there is also a stream of arguments to look into the positive aspects of the psychosocial factors of immigrants and ethnic minorities which may also enable them to have more strength than the pre-disaster situation, until making them being an indispensable member of the society and contributing to the resilience of communities if their knowledge, skills, and capacities are used in disaster risk management. Immigrants are cited in the item 36-6 of the Sendai Framework for Disaster Risk

Reduction (UN, 2015) as an important factor in enhancing recovery toward the slogan of build back better. So, more studies on immigrants or ethnic minorities are needed to be conducted, understanding the specific factors which result in not only negative but also positive results on the mental status of the post-disaster immigrants and minorities. Accordingly, a newness of this study is in aiming to examine not only negative but also positive results of the post-disaster psychological recovery of foreign residents.

The reason of the author's choice of focus on the foreign residents in Japan, in particular the disaster victims in the Hanshin-Awaji Earthquake in 1995 and the East Japan Earthquake in 2011, are in two folds: first, Japan has been known as a homogeneous society aiming the construction of an inclusive society to meet with global era, where the potentiality of social factors that result in the psychological pressure seem to be evident since the normal time, which enables the evaluation of post-disaster changes to mental status of foreign residents either negative or positive, including both old-comers who already constitute the local community for generations and the new-comer immigrants such as refugees and foreign wives.; second, Japan is one of the world's most disaster-prone countries, and it is possible to detect the changes of social intervention by the government and the communities meant for the psychological aspects through the repeated experience of world-class disasters, such as the Hanshin-Awaji Earthquake and the East Japan Earthquake.

## 2. Literature Review

### 2.1 Theoretical Issues of Disaster Psychosociology

This study intends to contribute to a stream of psycho-sociology. In disaster literature, psycho-sociology had been the discipline that has paid constant attention to the relationship between psychological issues and social issues. While disasters can cause serious mental health consequences, these consequences can range from mild

stress symptoms to other psychological disorders, reflecting the different degree of stress received. The vulnerability of the disaster victims to the stress reflects the various contexts. In the following, the possible factors which have been identified by the previous literature as influencing the mental health consequences after disasters will be discussed in detail.

### *2.1.1 Psychosocial Factors Affecting Psychological well-being after disasters*

WHO estimates that, after a disaster, the prevalence rate of mild to moderated psychological disorder is about 20%, and the severe mental disorder rate is around 3-4% of the affected population (Davidson, 2006). It is normal for victims to experience fear, sadness, anger, feeling numb or overwhelmed immediately after disaster. Some of them even experience memory flashbacks or short-term memory loss and sleep disorders. And one other typical reaction among survivors is guilt, and this reaction happens among those who lost a family member or friend. These reactions will be shown immediately after disaster and will disappear with time (Norris *et al.,* 2002). Some feel discomforts several months later instead of having it immediately after disaster, and some others are at the risk of experiencing more long-lasting problems. The psychological reactions appear in the acute phase called Acute Stress Disorder (ASD). If the symptoms continue for more than a month and affect daily functions and social activities, it will be considered as Post Traumatic Stress Disorder (PTSD). In addition to this, people also may experience complicated grief and major depression.

This differentiation between those who experience serious post-disaster mental distress and those who are not are further explored by the theoretical stance that explains the psychological reaction of victims by the stages of post-disaster mental health recovery: for example, in Zunich & Myers (2000)' theory of emotional phases

of disasters[2], the normal course of changes of mental status takes the path starting from the pre-disaster mental phase is mainly characterized by the uncertainty and fear, the extent of emotional feelings strongly related to the type of disaster, early warning, and previous experiences; the Second phase is impact phase as of the occurrence of disaster, when people reaction range based on the scope of the disaster, they feel confusion, disbelief, focus on the survival and their physical well-being. If family members are separated geographically, they feel more anxiety. In the immediate aftermath, people become hyperactive, victims help each other, offering supplies to each other, sometimes they are even willing to give priority to others, this phase is called the heroic phase because the heroic act is common among survivors. After several days of disaster, the honeymoon phase starts. In this phase, support from the government and volunteers are available for survivors, the community has a strong feeling of togetherness, people from outside the disaster-affected area are willing to raise funds for survivors, media's attention is on the disaster-affected area, disaster victims have high optimism and expectancy about their recovery; But over time, people realize they couldn't expect much from limited sources and assistance, and become disappointed because of the delay of recovery, they feel stressed because of financial problems, relocation, housing issues, loss of socioeconomic status make this process even worse. And they are no longer the focus of media and organizations, so they feel they are abandoned and isolated. Finally, survivors get into the reconstruction phase, and this phase can last for several years. Survivors realize that they are responsible for reconstructing their lives, in the best case, people regain a sense of control, and they feel their lives are recovering. However, some of the victims cannot take these normal phases toward recovery, and in the worst case, more dysfunctional symptoms would appear and last for a longer period.

[2] Cited in *Textbook of Disaster Psychiatry,* edited by Ursano et al. (2007)*,* p: 8.

Japanese Red Cross Society (2008) (See **Table 1**) developed a similar view of the different phases of the psychological reactions of disaster-affected individuals. It also questions the difference between the people who developed prolonged reactions and those who recovered.

**Table 1 Psychological Response after Disaster**

| | **Immediate phase**<br><br>Several days after disaster | **Reaction phase**<br><br>1-6 weeks | **Recovery phase**<br><br>1-6 months |
|---|---|---|---|
| Physical | Increased heartbeat, high blood pressure, sweating, distraction | Headache, back pain, fatigue, nightmares, sleep disorder | Symptoms at the reaction phase will slowly fade |
| Cognitive | Couldn't think properly, decreased concentration, memory loss, poor decision making | Aware of the toughness of the life after disaster | Gradually developing independent-thinking |
| Emotional | Feel lost, fear, anxiety, sadness, anger | Grief, fear, feeling lost, guilt, depression, or over excitement | Grief, anxiety |
| Behavioral | Frustration, poor communication | Afraid to be back to the affected area, substance abuse | Avoid being near a disaster-affected area |
| Characteristically | Fight- or- flight reaction | Revealing of suppressed emotions | Start to have plans about the future but still be bothered by memories |

(Adapted from the guideline of Japanese Red Cross Society)

Accordingly, the question here is the factors that decide the different outcomes of psychological recovery between individual victims. These factors can be explained

by broadly divided into three categories: pre-disaster risk factors, peri-disaster risk factors, and post-disaster risk factors.

Disaster preparedness is one of the pre-disaster factors impacting post-disaster mental health outcomes. According to the empirical studies, disaster preparation like storing water and food, preparing first aid kids would help individuals to feel calmer and increase their ability to cope (Lamond *et al.,* 2015) . Pre-disaster mental health is also found to be a predictor of PTSD (Neria *et al.,* 2008). Demographic factors such as gender and age are also predicting the different levels of post-disaster psychological outcomes. Females generally are at a higher risk of developing psychopathology, and they have a worse outcome in PTSD and depression after disaster (*Galea et al., 2005*). On the other hand, males are at a greater risk of developing substance abuse (Van & Kleber, 2009). In the different age groups, the middle age group shows higher distress after disaster (Thompson *et al.*, 2009), and children are also more vulnerable to disasters due to their lack of experience and coping skills. Another pre-disaster risk factor is the socioeconomic status of disaster-affected individuals, which indirectly impacts their access to resources such as social support (Jones, 2011). Personality factors as neuroticism, avoidance have also been associated with negative mental health outcomes, while openness, optimism, higher perceived adaptability is related to positive outcomes (Lawrence & Fauerback, 2003; Shakespeare *et al.,* 2005; Paris, 2000).

Peri-disaster risk factors are mainly the disaster experience of the victims and the damage they received due to the disaster. As the impact of disaster agent, we could consider the intensity, duration, and scope of the disaster (Gist & Lubin, 1989). A person's individual experience has a strong impact on the perception of duration and intensity. For example, earthquakes usually are under 60 seconds, but a person who is crushed under the building spends more time in fear and depression. Also, the possibility of aftershocks always has an impact as a chronic stressor.

Post-disaster risk factors include secondary stressors and support. Secondary stressors usually mean disaster-related life events, such as relocation, loss of economic resources, unemployment, community disruption, and so on. For example, East Japan Earthquake and Tsunami evacuees who were without jobs and without support from family/friends reported a higher level of psychological distress 10-12 months after the disaster (Goodwin *et al.,* 2015). Relocation and the frequency of the relocation are always related to PTSD and depression (Fussell & Lowe, 2014). A positive correlation is found between support from family and friends with the quality of life was among flood victims (Maruzaki *et al.,* 2015).

### *2.1.2 Post-traumatic growth*

In contrast to the previous works which focus on the negative impact of disasters on mental health, there is a stream of studies that pay attention to the psychologically positive impact of disasters. There are many different terms are used to describe the positive outcomes after trauma, such as stress-related growth (Park *et. al.,* 1996), perceived benefits and thrive (King & Miner, 2000), and recent works of literature focused on the term "post-traumatic growth" which was forwarded by Tedeschi and Calhoun. Post-traumatic growth "describes the experience of individuals whose development, at least in some areas, had surpassed what was present before the struggle with crises occurred. The individual has not only survived but has experienced changes that are viewed as important, and that go beyond what was the previous status quo." (Tedeschi & Calhoun, 2004)

Tedeschi & Calhoun indicates that post-traumatic growth happens after major traumatic events. These events can be natural disasters, criminal experiences, medical problems like cancer or HIV disease, transportation accidents, or other life events like divorce or bereavement, and conflicts like war or refugee experience (Tedeschi &

Calhoun, 2004). They used the "seismic" metaphor for these incidents, because these traumatic events could shake individuals' "assumptive world", which provides individuals with perspectives or frames to interpret the world they live in. Although post-traumatic growth happens after a traumatic event, it is originated from the cognitive process, not from the traumatic event (Tedeschi & Calhoun, 2004).

There are some terms, such as resilience, resistance, and optimism which are close but different from post-traumatic growth. Resistance means to exhibit normal functioning before, during, and after a stressor; on the other hand, resilience means the ability to "bounce back", which returns to baseline functioning after a stressor; optimism refers to an expectation of positive things (Lepore & Revenson, 2006). On the other hand, post-traumatic growth includes transformation and surpasses the baseline. Post-traumatic growth includes transformation in 5 different aspects: appreciation of life, relationships with others, personal strength, new possibilities, and spiritual change.

- Appreciation of life: after a traumatic event, survivors always value the little things of life which they may have taken for granted. After the traumatic event, survivors realize that it is hard to control everything in life, acknowledging the pain of loss has allowed them to appreciate what they have;
- Relationships with others: through the tough and stressful life events, survivors may experience support and emotional engagement with others, they may have the chance to build a healthy and reliable relationship.
- Personal strength: after getting through a tough life event, survivors may have greater self-reliance and self-respect. They may start to recognize their previously unknown capability and adaptive skills, they have deeper and more accurate of their vulnerability as well as their strength.

- New possibilities: developed new skills and resources provide victims with a new life of possibilities. PTG process helps them to see a new path or goal in life.
- Spiritual change: this domain is an enhanced sense of closeness with or understanding larger forces and their role in the survivor's life. This domain depends largely on the survivor's culture and spirituality.

Post-traumatic growth is a complicated process, includes many different factors. Tedeschi & Calhoul (1998) developed a Model of Post-Traumatic Growth; the model includes "seismic event", which challenges emotional management, fundamental beliefs and goals, and life narrative. After such a challenge, people experience intrusive rumination, which increases the likelihood of distress. People would engage in self-disclosure (such as writing, talking, or praying) and seek social support to reduce the distress, which eventually results in a change of narrative and change of beliefs & goals.

Another model developed by C.L. Park (2010), which is called as Meaning Making Model, includes two levels of meaning: global meaning and situational meaning. Global meaning refers to fundamental beliefs and goals; situational meaning refers to the meaning of a particular context. Particular experience raises a situational meaning; if there's a discrepancy between these two levels of meaning, there will be a reconciliation process happen. Because discrepancies between global meaning and situational meaning cause distress, and this leads to the meaning-making process. Park (2010) mentioned several types of meaning-making processes, including automatic/ deliberate process (unconscious/effortful coping process), assimilation/accommodation process (change of situational meaning/ change of global meaning), searching for comprehensibility/ searching for significance (fit with existing system/ give value in temporal sequence) and, cognitive/ emotional processing (the cognitive aspect of integrating experience with existing schema/

exploring one's emotional changes). As a result of the process of meaning making, people would have a sense of having "sense", acceptance, causal understanding, perception of positive life changes, changed identity, changed global meaning, and adjustment to a stressful event (Park, 2010).

In both models, there's a common recognition of existing beliefs & goals are disrupted by an event, and a new scheme of beliefs &goals emerge from a cognitive process. A very important concept in post-traumatic growth is meaning-making, also called rumination. Rumination is identified as persistent and recurrent thoughts that focus one's attention on one depressive symptom and on the implication of those symptoms (Nolen & Morrow, 1991). Intrusive rumination, which is unwanted, automatic thoughts that appear in the immediate aftermath of the disaster, is associated with negative psychological outcomes. Another type, deliberate rumination-voluntarily engagement with the thoughts related to the event and attempting to make sense of it, is likely to related to post-traumatic growth (Riffle *et al.,* 2020). Besides rumination, there are other factors involved in post-traumatic growth. A review on the research trends of post-traumatic growth from 1996 to 2020 explains that over the past decade, studies found that factors such as trauma type, social support, mental resilience, gender, personality type, past experience, etc., are related to PTG (*Wen et al.,* 2021).

### *2.1.3 Psycho-sociological Approach to the Social Support*

As we can see from the previous section, social support is one of the important factors that influence both the recovery from the negative impact of disaster and the development of positive growth. Social support is the perception that an individual has the assistance available from other people and the individual is part of a supportive social network (Ajoudani *et al.,* 2019). It refers to a social network's provision of

psychological and material resources intended to benefit an individual's capacity to cope with stress (Cohen, 2004). Social support can be in many forms (Sippel *et al.,* 2015): Information support occurs when one individual helps another to understand a stressful event better and to ascertain what resources and coping strategies may be needed to deal with it. Instrumental support involves the provision of tangible assistance such as services, financial assistance, and other specific aid or goods. Emotional support involves providing warmth and nurturance to another individual and reassuring the person that he or she is a valuable person who is cared about.

Studies analyzed the underlying mechanism between social support and psychological outcome, and two models are being promoted: main effect model and stress buffering model. The main effect model claims social support has a direct beneficial effect on outcomes no matter the person is under high or low level of stress, while stress buffering model proposes social support is only beneficial for those suffering high stress (Cohen, 2004). It has been suggested that structural aspects of social relations such as social network and social integration may operate through main effect; functional aspects of social relationships such as perceived social support operate via stress buffering effect (Berkman & Glass, 2000). Social network and integration provide individuals a sense of identity and belonging and self-worth. These positive psychological states would benefit mental health out of increased self-care. Also, participation in a broader social network increases the likelihood of access to social support. Perceived availability of social support in the stressful event may lead to a more benign appraisal of the stressful situation and prevent negative emotional & behavioral reactions (Kawachi & Berkman, 2001).

In disaster literature, social support is examined in the forms of actual received support and perceived support. Perceived social support is a concept that characterizes social support as the cognitive appraisal of being reliably connected to others (Barrera, 1986), it emphasizes the perception of the availability of the support. Received social

support is a specific supportive behavior that is provided by support networks (Haber et al., 2007). Which form of social support measurement can be more effective in assessing the social environment has been a controversial topic in literature. While some suggest received social support measure is more objective without being subjected to the judgment of the support receiver, some others suggest received social support impact on health outcome is less consistent, and the outcome only may be improved if it modifies perceived social support (Haber et al., 2007). Perceived social support has been found to be an important protecting factor against post-traumatic stress and other mental health problems (Thoits, 2011; Barrera, 1986). The relationship of received social support with perceived social support is weak, and only when the provided support matches the need of the support receiver, the correlation between received and perceived social support is stronger (Karen et al., 2015). Indication of the finding is that boosting the perception of social support instead of boosting the quantity of social support would be more effective in influencing psychological well-being (Eagle et al., 2019).

Social support can be received from different sources, it can be from kin or close network, or can be from community or working place. The roles of different sources of support are also different, the result is inconclusive due to the variety of the impact of social support on different demographic groups. A research conducted in the U.S. suggests that social support from friends is a predictor of perceived health among older adults (Nguyen et al., 2016). Another Chinese study result showed, satisfaction with family support is associated with less depressive symptoms (Chi & Chou, 2001). Frequencies of contact with friends were more strongly associated with life satisfaction, happiness, and self-esteem of the elderly compared with the support from children, and served as a primary predictor for morale than family support. In the context of natural disaster, Watanabe, Okumura, Chiu and Wakai (2004) found that support provided from different providers varied in its association with depressive severity across time among the 1999 Taiwan Earthquake victims, family support was

associated with lower depressive symptom severity in the short term while support from both extended family and neighbors were good predictors of better mental health in the long term.

As a prompt and appropriate intervention is necessary and beneficial, researchers also investigated the long-term impact of social support on disaster victims (Thoresen, 2019), they found out that even there was a high level of social support at the initial phase after a trauma, but the level of social support deteriorates over time, level of perceived social support reduced in both male and female. There may be several causes of this: prolonged mental health problems may interfere with social skills and social engagement; sometimes, victims would refrain from seeking support because they fear others will perceive them as weak, or fear of over-burden their family or friend (Smith et al., 2017). Fear of "losing face" is found to be the factor preventing people from seeking support, especially seeking mental health support (Gong et al., 2003). This stigma is stronger in the male in the rural area because of the traditional notions of masculinity (Labra et al., 2019). These findings indicate demographic factors and health conditions can also impact the access to social support.

Social capital, a concept closely related to social support, has been receiving more and more attention because it has a strong relationship with disaster recovery and mental health. For example, Aldrich (2012) found out those who have higher social capital in disasters can recover better because they can access needed support and information, whereas those who lack social capital may lead to a poorer or negative approach to recovery. Social capital's impact on mental health is explained by its influence through individual factors, such as social support and coping behavior. Kawachi and Berkman (2001) claim that these individual factors are contingent on social capital: dense civic association, civic trust, and reciprocity in community-which are the indicators of social capital by Putnam's (Putnam, 2014) definition, provide an opportunity for individuals to establish linkage to social support. In other words, social capital offers an environment which social support is accessible.

The concept of social capital is widely used in different disciplines, such as economy, politics, sociology and health science. Despite the wide range of usage of the concept, there's a lack of a unified definition of social capital. The social network approach defines social capital as resources embedded within the social network, the resources an individual can draw on through social networks and the value ascribed to these resources by the individual refer to social capital, social capital refers to the process which social support is enabled (Dolan & Pat, 2008). The different identification of social capital also contributes to the different indicators. The indicators of social capital are another debate topic in literature because the component of social capital is identified differently by different schools. As similar to Putnam's identification, some studies evaluate the level of social capital by focusing on network, organizational participation, trust, and political participation (Han *et al.,* 2013).

Social capital is further divided into three forms: bonding, bridging, and linking. Bonding social capital describes the connections within a group or community characterized by similar demographic, socioeconomic, or geographical background (Claridge, 2018), including family, friends and neighbors. Bridging social capital describes connections between people across a cleavage that divide society, such as race, class, or religion (Claridge, 2018). Bridging social capital is inclusive across ethnicity, culture and other social groupings, while bonding social capital is exclusive of "outsiders". Linking social capital refers to a trusting relationship between people who are interacting across formal or institutionalized power gradients in society (Claridge, 2018), it may include government agencies, representatives of the public and private sector (Grant, 2001). Aldrich *et al.* (2020) proposed a total of 19 indexes of each form of social capital: index for bonding social capital include race and ethnicity similarity, equality of education, economic and employment, language competency, and communication capacity; the index for bridging social capital include various civic organization; linking social capital index includes political linkage, voting, employment in government agencies and political activities.

In disasters, people also draw resources from their ties with other people or institutions. The most common form of social capital available in disaster is bonding social capital, the existence of bonding social capital may decrease the number of individuals who require assistance from local and public agencies after disaster (Yamaguchi et al., 2017). It could be used in disaster warnings, disaster preparation, identification of shelters, and accessing immediate assistance during and after the disaster. Pfefferbaum, Van Horn, & Pfefferbaum (2017) explain that bonding social capital may play a significant role in the assistance and trust which neighbors offer each other aftermath of the disaster. Bridging social capital may play a key role in social resources and trust, which the support survivors obtain from local social services, such as health, religion, business, and other social groups or networks in their community (Pfefferbaum et al., 2017). Linking social capital may play an important role in disaster management from the disaster-affected groups with social resources available from the government and from various disaster-related organizations and networks (Pfefferbaum et al., 2017). A study conducted after Hurricane Katrina indicates bonding social capital is used for day-to-day interaction, and this is especially true for lower income groups; connection across geographical, social, and economic groups provides access to necessary resources (Hawkins & Maurer, 2013). Yamaguchi et al. (2017) studied how social capital influenced disaster-affected populations in Japan, found out three types of social capital have an influence on health and well-being, including psychological stress of people affected by the East Japan Earthquake; and there are positive and negative changes since the earthquake: Japanese people recognized the importance of social capital to overcome their stress and depression, loss of bridging and linking social capital following the earthquake increased the psychological stress.

Nakagawa & Shaw examined the model for bonding, bridging, and linking social capital developed from the Hanshin-Awaji earthquake (Nakagawa et al., 2004). Communities faced various problems in the reconstruction process, and there were

obvious differences in the performance of communities; Mano district is one of those communities that shows better response and better recovery. In the response phase, Mano district extinguished the fire with the help of community people before the formal rescue team arrived. Then they also took initiatives in evacuation, building community kitchen, and provision of night guards. In the reconstruction phase, Mano district established Machizukuri office, initiated some important activities like signature campaign for construction of public house, lobbying special houses for elderly, construction of model house as collective house, preparing housing proposal and running a daycare center. The success of Mano district was due to community members and their strong social capital. Mano district has had a variety of community associations since before the earthquake, and they were closely connected to each other, they had interactions with stakeholders, including civic organizations, academics, city planning consultants and government officials. Nakagawa & Shaw identified three forms of social capital in Mano: bonding social capital is explained by trust among community members and leaders, democratic decision-making process and formal, informal networks; bridging social capital is explained by the network with adjoining neighborhoods interaction with various stakeholders; linking social capital is explained by the formal collaboration with government official in community development activities.

### *2.1.4 Government support for recovery*

The government's role in the recovery is one of the social supports as would be categorized as a "linking" social capital as aforementioned, which might be considered to be two-folded: the provision of social interactions which can be beneficial to building trust and confidence in the future; and, the provision of the necessary good and services which enable community system functioning (Dibley *et al.,* 2019).

Anecdotes revealed that disaster victims' experience with government response also impacts their psychological well-being. For example, acute stress experienced by victims of Hurricane Katrina was likely to be exacerbated by the disorganized and slow emergency response. Public response to Hurricane Katrina was strongly criticized due to racial inequities, but in the meanwhile, survivors reported positive changes in various aspects of their lives. One study examined white and black survivors' perception of government response and its impact on mental health, result showed a positive evaluation of the quality of government response predicts a higher level of growth; more negative views of the government response were associated with greater post-traumatic stress (Rhodes & Tran 2012). Another research found that satisfaction with governmental recovery is significantly and positively related to life satisfaction and negatively related to depression (Huang & Wong, 2014). These study results indicate that government-led response and recovery activities have a direct impact on the mental health of disaster-affected individuals, the quality of the support service could result in both positive and negative mental health outcomes.

### *2.1.5 Immigrants as Vulnerable population and their Post-Disaster Growth*

There are some groups of people who may be at a greater risk of receiving severe damage, which causes their vulnerability in disaster. Vulnerability is often defined as the diminished capacity of an individual or group to anticipate, cope with, resist and recover from the impact of natural or man-made hazards (Blaike *et al.,* 2004). There are several types of vulnerability: environmental vulnerability such as living in a hazardous area; physical vulnerability as poor health condition or disability; social vulnerability caused by economic and social inequities. Examples of potentially vulnerable groups of people are children, women, the elderly, and people with disabilities. Commonly identified major factors that influence vulnerability are: lack of access to resources including information, knowledge, and technology; limited

access to political power and representation; social capital, including social networks and connections; beliefs and customs; building stock and age; frail and physically limited individuals; and type and density of infrastructure and lifelines (Cutter *et al.,* 2003).

In addition to these generally accepted factors, there are other characteristics as race and ethnicity are also important to understand the vulnerability because these characteristics potentially challenge their access to resources. There are certain researchers identifying a tendency that these ethnic minorities show more post-disaster psychological distress. For example, the follow-up survey on Hurricane Katrina survivors indicates significant racial and gender differences in psychological distress, with black survivors in a higher level of distress compared to white survivors. The reason for the disparity is lacking inadequate social support and low income (Adeola, 2009). The research focused on immigrants or ethnic minorities are relatively less compared to research on other high-risk population such as the elderly, children, or women. In the era with high population mobility, research on immigrants/ethnic minorities would provide valuable information to consist comprehensive disaster management. In disaster literature, some factors are identified in relation to the vulnerability of immigrants/ethnic minorities.

- **Poor living environment.** This is always linked to the hazard-prone area with old and poor structures. Immigrants are always concentrated in such areas due to low housing expenses. Poor living environment causes greater exposure; Hurricane Katrina could be a good example of how some ethnic minorities are more disadvantaged in disasters. On August 25, 2005, Hurricane Katrina struck the gulf coast of the United States, and that was the costliest disaster in U.S. history, also was the disaster that exposed the racial inequalities that existed in the system, according to the survey conducted by New York Times (Dewan, 2006), African Americans more likely to have had their homes destroyed or to

have lost relative or friend. New Orleans was one of the cities devastated by the storm; 60.5% of New Orleans population is composed of African Americans (Nola, 2010), 28% of the total population of the city are in poverty, 84% of these are African American (Seindenberg, 2006). African American community was segregated to less desirable places with poor houses and facilities. Most of the African American people were affected because of the destruction of levees. Poverty made them unable to live in safe areas, and government neglections of keeping the area safe and lack of evacuation plans made the matter worse for this group of people.

- **Language barrier and risk communication.** Disaster information is generally not targeted to meet the needs of immigrants. It is presented in the local language and is normally different from frequently using phrases in daily life. Immigrants, especially new immigrants, couldn't achieve a high level of language comprehension in short time period, and there's a lack of translated disaster information. Ineffectiveness in distribution of information is another factor negatively affecting risk communication. Individuals are more likely to get disaster information from the resources that they usually use, which probably is the source from their home countries. But the gap between different sources causes more confusion among immigrants. For instance, when Great East Japan Earthquake struck Tohoku, foreign residents in the area reported more panic and confusion due to the conflict between the information they got from their home country resources and the Japanese resources (Shah & Murao, 2013).

- **Limited social network.** Due to the lack of language skills, less economic capital, and social capital, in most cases, immigrants have more isolated lives, having difficulty in accessing formal sources. As a result, they rely on their close ties only, which limits their access to social support and public support.

They are in the less favorable position to get necessary tangible and/or non-tangible support in emergencies. Past negative experiences with government agencies, fear of authority, distrust in institutions, and lack of experience with formal organizational services have all been barriers to engagement with aid organizations, and they have contributed to differential access to aid and recovery (Galindo *et al.*, 2018).

- **Culture and immigrant status**. Cultural differences have an influence on every stage of disaster management. Different cultures may have different definitions of "risk", different understanding on what is the "appropriate way to respond". Even the help-seeking behavior is different from culture to culture. Staten Island in the U.S. was one of the suburbs devastated by the Sandy superstorm, Staten Island communities share their unique cultural norms, which sometimes caused their vulnerability. Staten Islanders have a high informal support network and the least tendency to seek help from public institutions includes mental health services and government assistance. The locally held political-economic patterns, ideologies and recent experiences with previous storms led these residents to behave in ways that responding agencies did not anticipate (Dietrich, 2012). In some cases, culture help people to survive during the disaster. For example, the Moken community in Thailand identified signs such as unusual behavior of animals and birds as indications of a Tsunami based on their traditional stories, this enabled the community to move away from the sea towards protective areas (Arunotai, 2008). In recent literature, the relationship between culture and psychological morbidity is becoming more evident. Interviews with survivors of the 2004 Asian tsunami emphasized the positive role of religious beliefs and cultural traditions in sustaining emotional well-being and promoting psychological resilience during the disaster (Ekanayake, 2013).

Along with the shift from vulnerability to resilience in disaster literature, researchers started to rethinking on the relationship between vulnerability and resilience and suggested that these two concepts may not be in an inverse relationship, in fact, they can exist at the same time. For example, Uekusa & Matthewman (2017) conducted research on linguistic minorities in post-disaster Tohoku and Canterbury, explained that immigrants have "earned resilience" that make them resilient to disaster as well, in most of the cases, the everyday hardship, previous conflicts or war, and social inequalities force them to develop unexpected coping skills and partially contributed to their resiliency in disaster.

## 2.2 Psychological Recovery in Disasters in Japan: Hanshin-Awaji Earthquake and Great East Japan Earthquake

### *2.2.1 Disaster Psychosocial Support in Japan*

In Japan, psychosocial problem during short and long-term recovery is recognized as important as another aspect of disaster recovery. To address the importance of mental health, Japan started to support victims since the Hanshin-Awaji earthquake. Thousands of volunteers, psychologists, and psychiatrists came to the disaster-affected area to help. Professional psychiatrists and psychologists based at public health centers delivered mental health services. Ten psychiatric aid stations were established at public health centers (Seto *et al*., 2019). Some of these psychiatric aid stations organized a temporary clinic at public health centers, some others organized teams to visit shelters. Some were psychology graduate students among the volunteers, they organized a team with their professors and visited primary schools in the disaster-affected area, they asked children to draw pictures to explain their experiences and feelings about the earthquake (Breslau, 2000). This intervention

method was called “kokoro-no-kea” (care for the heart), and it became a word that refers to mental health care for disaster victims.

Immediately after the earthquake, priority was given to the previous patients with a psychiatric history (Breslau, 2000). Shortly after the disaster, other psychological effects of the earthquake- such as post-traumatic stress disorder, sleep disturbance, anxiety, and guilt- drove more attention. The term Kokoro-no-kea is associated with technical terms like PTSD and is acknowledged by people as a more neutral term. One of the reasons why PTSD treatment was also called Kokoro-no-kea is the stigma of mental illness in Japanese society, and the term was a euphemism for psychological issues (Benedict, 2016). After Hanshin-Awaji Earthquake, attention was drawn to every ordinary people who experienced a natural disaster. After disaster victims moved into the temporary houses, the need for psychological support was increased due to secondary stressors such as economic burden, community destruction, etc. For the purpose of providing support to the disaster victims who have prolonged symptoms, Kokoro-no-kea center was established in the disaster-affected area. Shinfuku (2002) concluded some lessons from the experience of the Hanshin-Awaji Earthquake, one of them is that the most appreciated mental health service for the victims was the support for their daily life rather than professional psychiatric service. Mental health workers trained some volunteers to help the victims on a daily basis, people found it useful when they talked about their experiences with these volunteers, which is called psychological debriefing with professional terminology.

Since the term Kokoro-no-kea has a wide range of meanings, including professional psychiatric support, specialized counseling service, and daily life support, overall support activities after Hanshin-Awaji Earthquake could be divided into two categories based on the support provider: professional Kokoro-no-kea and Volunteer-based Kokoro-no-kea (Doi, 1998). Both types of support activities aimed to provide psychosocial support to the disaster victims, professional Kokoro-no-kea provided

targeted short-term support, while volunteer-based support provided longer-term support to a wide range of daily issues. For example, Osaka YWCA implemented Kokoro-no-kea Network Project starting from five days aftermath of the Hanshin-Awaji earthquake (Doi, 1998). At first, the main content of their activities was visiting shelters and listening to disaster victims, distributing health-related pamphlets. After disaster victims moved into temporary houses, activity content changed into daily life support such as strengthening interpersonal relationships, helping with cleaning/shopping, listening to victims' complaints, and so on.

On the other hand, professional psychiatric support, ten psychiatric aid stations, for instance, received 2100 cases, among these cases, stress-related or behavioral disorders were around 30%, schizophrenic disorders were around 20% (Hiroshi *et al.,* 2001). After the establishment of Kokoro-no-kea Center, under the Hyogo Kokoro-no-kea Center Headquarter, they established regional centers in 15 places, group homes in 13 places, and workshops in 9 places. Content of the activities, including dispatching team to temporary houses, organizing tea parties, health counseling services, etc. The main working model was to target victims who are having difficulties in rebuilding life, emphasizing outreach and consultation, collaboration with volunteers, conducting research, and providing strategies (Hiroshi *et al.,* 2001).

In addition to professional mental health support and volunteer activities, schools and other institutions also introduced counseling services. For example, according to the author's interview with a former junior high school principal in Kobe, schools were arranged with recovery counselors, aimed to promote mental health among school children and teachers and promote disaster education. Responsibilities of the counselor are preparation of disaster prevention scheme of the school, planning and instructing of disaster prevention education, providing counseling service to disaster-affected children, collecting data on the students dropped school, providing 1o hours of assistance for classes, and instructions, and other disaster recovery works.

After the 1995 earthquake, the post-disaster response was revamped. A rapid response Disaster Medical Team (DMAT) and Disaster Mental Health Team (DMHT) were introduced, policies and regulations were revised (Tanisho et al., 2015). Based on the knowledge learned from the Hanshin-Awaji Earthquake and other disasters such as the Niigata Chuetsuoki Earthquake, a wide range of psychosocial support activities are provided after East Japan Earthquake. The term Kokoro-no-kea was largely a new term before 1995, by the time of the 2011 East Japan Earthquake, it became one of the important aspects that needed to be effectively responded to. Three Kokoro-no-kea centers were established in the Tohoku area in order to meet the psychological needs of the disaster-affected population. These centers were funded by the central government, operated by local universities. In addition to these government-funded organizations, there are other NPO and NGOs that were also involved in support activities. It is known that 107 organizations provided activities related to psychosocial support; 65.4% of them were established before the earthquake, while 34.6% were established after the earthquake; and the majority of these organizations (80.4%) were still continuing their activity in 2015 (Eto *et al.,* 2019). Another paper, written by one of the psychological support teams in the Great East Japan Earthquake, summarized their activity by dividing it into acute phase and prolonged phase (Kawabata, 2014). Support at the beginning was conducted based on the psychological first aid principle, some cases related to complicated grief were identified by the supporter. In addition to that, the paper also indicated that the prevalence of loneliness was high among disaster victims, and it emphasized the importance of social support and healthy interpersonal relationship. The complexity of triple disaster, prolonged duration of staying in the temporary house, family and community destruction and delayed recovery of the economy is increasing the need for long-term psychosocial care. Acute phase psychological support activities mainly are psychological first aid, screening, providing consultation and awareness education to the victims, mid and long-term support activities are identifying high-risk

individuals, listening to the disaster victims and providing support, improving the awareness of the community toward mental health (Orui *et al.,* 2017). In addition to these practical lessons, the Japan Red Cross Society also indicated the importance of prompt response to the psychological needs of disaster victims could prevent acute stress disorder from evolving into PTSD or other prolonged psychological issues. But at the same time, if the relief goods supply is not sufficient, it would impact the efficiency of psychosocial support activities; hence it is important to parallel life support and medical care with psychosocial support (Kaminage, 2015).

### *2.2.2 Literature Review on the Mental health of Disaster Victims in Japan*

Since the Hanshin -Awaji Earthquake, many researchers have examined mental health status and needs of victims. A research studied the emotional change of victims soon after the disaster (Shinfuku, 1996), most victims experienced emotional numbness, they couldn't feel anything, they didn't even feel sad for their loss of family members or friends. This can be explained by the self-defense mechanism that victims developed to protect themselves from psychological shock. Two or three days later, people showed hyperactive reaction, after ten days, life in the shelter became very stressful, people started to have acute stress responses. Two weeks later, people started to face reality, started to have disaster flashbacks and depression symptoms. After moving into the temporary house, the depression continued because their communities were separated and the social network was destructed. A year later, people started to lose hope and started to develop passive attitudes such as anger, frustration and substance abuse. After a year of observation, it was known that the elderly who lost kin, mothers with young kids, physically and mentally disadvantaged people and foreigners from developed countries are the disadvantaged people in the disaster.

Kimura *et al.,* (2005) examined the recovery process of victims based on their psychological timing, victims' behavior at 10hrs, 100hrs, and 1000hrs time points.

The result showed that the time that disaster victims felt they were prepared for an uncomfortable life following the disaster was 10 hours after disaster, which was almost the same time with electricity was restored. Between the period from 10 hours to 100 hours, telephone service was restored and victims could check their family members' safety, and this was the time that victims felt that they understood the entirety of the disaster. People's sense of safety is varied based on the intensity of the earthquake and the level of damage they received. Victims no longer feel they're victims of earthquake was started from 1000 hours and continued even 100,000 hours after disaster struck, victims who lost their house felt they were victims even eight years after the disaster.

Hokugo et al. (2021) conducted similar research on recovery calendar of residents in East Japan (Iwanuma, Kesennuma, Otsuchibun) in 2019-2020, find out that nine years after the disaster, people feel that the regional economy hasn't recovered yet; more than half of the participants (only 39.3% reported they don't feel as disaster victim) still feel as disaster victim; results also showed that at least five years after the disaster, victims started to feel their housing issues have been solved, the increase of the feeling of "life is stabilized" is parallel with the resolving of the housing issue. There are some significant differences in these three regions in the items related to the sense of safety, housing issue, regional economy and stabilization of life, etc, and these differences may be contributed by the different town planning of these three areas.

Kwon *et al*. (2001) analyzed the relationship between earthquake-related life events and post-traumatic stress. Earthquake related life events, including the death of a family member or close friend, injury and illness of family member, income decrease, live apart from family member, income decrease, live apart from family members, loss of employment, changed fellowship or neighborhood, change or repair home damage, house destruction, inconvenience to daily life by destruction of lifeline, life in the shelter, etc., could increase the level of psychological distress. Socioeconomic status

and perceived physical health status are also affecting the level of PTSD. Emotional support is the key factor to mitigate stressful life events.

Kobe city conducted a life recovery panel survey in 1999. From the assessment in 1999, 2001, 2003 and 2005, four recovery patterns are concluded (as in **Table 2**). The best recovery is Type++, females are dominant in this type, jobs as housewife and clerical job are attribution in this type, people didn't receive damage from the earthquake, they have good health condition, strong economic and social resource (Kuromiya *et al.,* 2006). To prevent type-- recovery feeling falling down more, these three factors are crucial: the number of times that person changed house; participation in local activities could increase the life recovery feeling; local environment with high interaction also can increase the life recovery feel (Kuromiya *et al.,* 2006).

**Table 2 Hanshin-Awaji Earthquake Recovery Pattern**

| | |
|---|---|
| Type++ | Attributes:<br>-Female;<br>-Housewife, clerical job/salesperson.<br>Damage:<br>-No physical damage to himself/herself or his/her family in disaster;<br>-No damage to household belongings;<br>-No damage to the workplace.<br>7 Life recovery factors:<br>-Economic/financial situation: household income increased after the earthquake;<br>-Social ties: strongly conscious of being a citizen;<br>-Townscape: strong recognition regarding shared community commons; |

| | |
|---|---|
| | -Mind and body: victims who were relieving stress in an appropriate manner. |
| Type+ | Attributes:<br>-Female;<br>-Manager, specialists and engineer.<br>Damage:<br>-Half of household belongings were damaged in disaster.<br>7 Life recovery factors:<br>-Economic/financial factors: household income did not change in the six years after the earthquake;<br>-Mind and body: victims who suffered no physical or mental stress. |
| Type- | Attributes:<br>-pensioner.<br>Damage:<br>-Household belongings were partially damaged.<br>7 Life recovery factors:<br>-Economic/financial situations & occupation: clerical workers/salesperson or pensioners. |
| Type-- | Attributes:<br>-Male;<br>-Service sector independent business in commerce or industry.<br>Damage:<br>-Physical harm to himself or his/her family in disaster;<br>-Severe damage to household belongings.<br>7 Life recovery factors:<br>-Housing: currently living in public housing; |

| | |
|---|---|
| | -Social ties: weak consciousness of civic-mindedness: general reliability on others was low;<br>-Townscape: weak awareness of urban commons<br>-Mind and body: still having strong stress after earthquake<br>-Economic/financial situations: workers in service sectors or industries, independent business in commerce or industry; damage in the workplace, household income decreased. |

(Source: Kuromiya *et al.,* 2006)

With qualitative research conducted 20 years after the earthquake (Tanaka et al., 2019), it is known that over the years, guilt suppressed the victims' earthquake narrative; on the other hand, earthquake narrative would help them to relieve guilt. Even decades after the earthquake, some victims still hid their feelings and this could negatively impact their emotional reactions.

As seen from the existing research, psychological recovery from disaster is a long process, disaster experience, and disaster-related life events are affecting victims' mental distress level and their sense of recovery. Support from family/friends and interpersonal relationships in the local community are the factors that enhance their well-being. Similar results are found from the research on Great East Japan Earthquake (Goodwin et al., 2015; Kawachi, 2016; Goodwin *et al.,* 2020). With the identification of social support as a buffering factor of negative psychological outcomes of disasters, researchers also attempted to analyze what factors could impact the provision and recipient of social support. As an answer to the question of if personality affects social support (Sugiora *et al.,* 2020), personality factors such as extraversion, agreeableness, consciousness, neuroticism, and openness are found to be not associated with support; but survival-oriented personalities such as problem-solving, altruism, etiquette, and self-transcendence are contributed to the provision of actual help; survival personality such as active well-being contributed to perceived social support.

## 2.3 Foreign Residents in Japan

In Japan, the total population is 126.3 million as of 2019, the total population of foreign residents is 2.93 million which consists 2.3% of the whole population (STATISTA, 2021). Japan is experiencing population decrease and aging of society. Based on the study conducted by Okada (2018), working-age between 15-54 consists 85% of foreign residents living in Japan, this could help to resolve the labor shortage in many industries. Foreign residents in Japan have four different types of status, namely permanent resident, student, technical intern training and engineer/specialist in humanities/international services. In 2018, the government proposed a new residency status, technical trainees will be able to switch to this new residency status after they finish their training and will be permitted to stay for up to 10 years. Expanding the acceptance of foreign workers can solve the labor shortage and, meanwhile, it will cause a rise in the number of long-term foreign residents. Japan Society will face various challenges in responding to their needs in community development and administrative service.

Government authorities and communities should also consider these issues as well. The language barrier is one of the most important issues for foreigners in Japan. At the time of the Hanshin Awaji Earthquake, 30,000 registered foreign residents did not have enough understanding of the Japanese language (Yoshitomi, 2010). Since then, providing multilingual disaster information has become a necessary step for supporting foreigners in disasters. Besides, disaster drills for foreign residents are conducted each year to increase disaster awareness. Knowing their vulnerability and strength helps them to minimize the negative impact of their less favorable socioeconomic status, remove the discriminative treatment, and finally, improve their psychosocial well-being is also important for the long run.

### *2.3.1 Immigration Policy in General*

In the history of Japan, the immigration flow has been very limited for some decades. Kondo (2002) divided the immigration flow into six periods: 1) isolation period from 1639 to 1853; 2) colonial immigration period during 1853-1945; 3) strictly controlled immigration and emigration during 1945-1951; 4) strict immigration during the economic growth 1951-1981; 5) refugee acceptance and improvement of aliens' rights during 1981-1990; 6) unskilled workers immigration since the 1990s.

During the colonial immigration period, a large number of Korean and Chinese residents came to Japan as colonial subjects, these immigrants also are called old-comers. These old-comers stayed in Japan for generations, now consist of the largest ethnic minority communities in Japan (History of old-comer Koreans will be explained in detail in a later section). After World War II, during periods 3) and 4), Japan was relying on the internal source of labor to satisfy the need for manpower. In the 1970s, Japan accepted about 10,000 "boat people" as refugees who came from Indochina, including Vietnam, Laos and Cambodia. In period 6), a new immigration policy allowed South American descendants of Japanese ancestors, such as Japanese Brazilians, to come to Japan with working visas. And in recent years, due to the labor shortage in an aging society, Japan revised its immigration policy to import technical trainees and unskilled, semi-skilled workers as the labor force. In 2019, Japan's immigration policy experienced one more revision that low-skilled and high-skilled worker immigration is planned to increase to 345,000 in five years (Pollmann, 2020).

Japan has an immigration policy that focuses on the controlling of admittance but not on the integration of foreigners into society. Basically, the Japanese government sees immigration as importation of the labor force but neglects the other issues coming with it. Regardless of Japanese government control on immigrant

workers, the number of foreign residents is increasing rapidly. It is known that there are 27 categories of residency status for foreigners to stay in Japan, these 27 categories can be divided into two larger categories: residency status based on the restricted scope of activity, and those with no limitation about working activity, including permanent residents, spouse or kinship of Japanese/permanent residents and long-term residents. Of all the registered foreign residents, approximately 20% are special permanent residents and another 20% are permanent residents, about 30% are skilled workers which can be regulated by the above-mentioned immigration control policy. The remained 30% are living in Japan based on kinship, as spouse or children of Japanese natives or permanent residents (Yoshitomi, 2010), which is not actually regulated by immigration control policy. Yoshitomi (2010) argues that immigration control policy is creating an illusion of filling the labor shortage conveniently, but it is obvious that fully controlling immigration is impossible. Therefore, importing manpower requires consideration of follow-up issues, including how to construct a society that involves various foreign residents with different backgrounds and how to respond to their needs. This also involves their access to social services and participation in society in normal times as well as in emergencies.

### *2.3.2 Foreign Residents in Kobe*

Kobe is one of the international cities in Japan, over 46,000 foreigners are living in the city (details see **Table 3**). It is known that 26 years ago, more than 44,000 foreign residents were living in Kobe, around 170 foreign residents lost their lives due to Hanshin-Awaji Earthquake, Korean residents were most heavily affected with 111 deaths toll, others include Chinese residents (44 deaths), Brazilian residents (8 deaths), Myanmar residents (3 deaths), American residents (2 deaths), Filipino resident (2 death), Austrian resident (1 death), Algerian (1 death) and few others without clear

identification (Mugikuro et al., 1999). Although Vietnamese residents are one of the most populated ethnic communities in Kobe, no one lost life in the earthquake. It was reported that some Vietnamese residents went back to their home country just before the earthquake due to the traditional new year celebration; additionally, Vietnamese community mainly consisted of young people, and they helped each other to escape from the fire (Mugikuro et al., 1999). Hanshin-Awaji earthquake was a start point of adapting the concept of multicultural co-existence into disaster support. The disaster experience of foreign residents revealed their vulnerability in emergencies due to the language barrier, policy barrier, and empathetic barrier. Foreign residents support activities started from Hanshin-Awaji Earthquake, including multicultural disaster information support, hotline consultation service, and medical treatment funding, and so on. In the following sections, the disaster experience of some ethnic community members will be reviewed.

**Table 3 Population of Foreign Residents in Kobe**

| Nationality | 1994 December* | 2021 March** |
|---|---|---|
| Total | 44,282 | 46,987 |
| Korea (North & South Korea) | 27,913 | 15,042 |
| China | 9,481 | 12,582 |
| Vietnam | 759 | 7,988 |
| Philippines | 394 | 1,335 |
| United States of America | 1,281 | 994 |
| India | 955 | 890 |
| Brazil | 588 | 473 |
| England | 484 | 338 |
| Thailand | 143 | 310 |
| Canada | 207 | 236 |
| Australia | 208 | 195 |
| Peru | 179 | 182 |

(Source: * Kobe City Statistics No.590, **Kobe City Homepage (2021)

### *2.3.3 Background of Korean residents*

Korean residents have a long history in Japan, it can be traced back to the colonial period between the 1910s and 1950s, many Koreans came to Japan willingly or by force as colonial subjects. Back then, millions of Koreans were legally Japanese citizens, but socially, they faced discrimination, they were doing the most dangerous and dirtiest jobs. After the end of World War II, even though many Koreans returned to their home country, still about 600,000 Koreans were staying in Japan (Ryang, 2014). When the Japanese occupation of Korea officially ended in 1952 with San Francisco Treaty, Koreans were deprived of their Japanese citizenship. By then, Korea was divided into North Korea and South Korea under the administration of the Soviet Union and the U.S, many Koreans officially became stateless. In 1965, diplomatic relation was established between Japan and South Korea, South Korean nationality became available to Koreans living in Japan. But even the majority of the Koreans in Japan originally came from South Korea, but politically they mainly sided to North instead of South. In addition to this, there was a belief that Korea would eventually reunite again. As a result, very few Koreans acquired the South Korean nationality, the majority still remained stateless. South Koreans were able to get their permanent residence in Japan, but the latter group continued to be excluded from government benefits, including social welfare service, housing loan, and security until 1981. With the Japanese government's ratification of the UN Refugee Convention, the remained stateless Korean were finally given permanent resident status. In the early 1990s, special permanent resident status was issued to Zainichi Koreans (also called cold-comers[3]), as of 2019, about 381,613 Koreans (including South and North Koreans) live in Japan with permanent residency, 308,809 of them hold special permanent

[3] Old-comers: foreign residents who came to Japan before 1950s, such as Koreans and Chinese residents.

residency (Ministry of Japan, 2019). This number doesn't include the Korean residents with Japanese citizenship, the official number of ethnic Koreans with Japanese citizenship is unknown.

Fingerprinting for registration card was required from all Korean residents since 1952. In the 1980s, grassroots movements to refuse fingerprinting spread to Koreans all over Japan, claiming that fingerprinting would remind them as criminals which violate human rights. Various demonstrations and protests were initiated by Koreans, as well as by Japanese students, finally in 1993 fingerprinting for permanent residents was abolished (Ishikida, 2015). In the late 1980s and early 1990s, various human rights activities were initiated to promote the rights of Zainichi Koreans, especially in those Korean residents concentrated area like Osaka and Kanagawa. These movements including the abolition of fingerprinting, requesting voting rights, job openings for civil service, subsidies for ethnic schools etc.

Currently, Zainichi Koreans have special period of re-entry to Japan, which means they can stay overseas up to five years before the residency expires. Compulsory education at public schools are provided to them as free of charge same as Japanese natives. Koreans who do not wish to attend Japanese school can attend Korean ethnic schools, most of these schools are approved by prefectural government since 1999, Korean ethnic school graduates can legally enroll in universities if they pass the enrollment exam. But one thing needed to be noted is that these schools and students here could easily be the target of hate and discrimination due to the political tension with North Korea. To tackle such problems, legal affairs bureaus and district legal affairs bureaus have been taking some measures such as distributing pamphlets, promoting human rights awareness activities and counseling services (Japan Ministry of Foreign Affairs, 2018).

Four generations of Koreans are residing in Japan now. There are some differences between generations. Their experiences in Japan, their socioeconomic status, allegiance to North Korea and educational factors are some of the factors that heightened the diversity among the Korean community. The identity issue is more complicated in the Korean community. There are four different identities (Lee, 2012): pluralists - with the ideology of co-existence with Japanese; Nationalists- who consider themselves overseas citizens and loyal to their ancestral land; individualists- do not think of their identity as Korean or Japanese, consider themselves as individuals; assimilationist- living with the idea of becoming Japanese. Their identities are shaped by their relations with the majority, their socioeconomic status and individual psychological factor. Vice versa, their identity perceptions are also impacting their integration into society and sense of belonging.

### 2.3.4 Background of Vietnamese residents

As one of the newcomers[4] foreigner communities, the Vietnamese community is the third-largest community of foreign residents. The first generation of Vietnamese came to Japan as refugees in the 1970s. At first some religious organizations and Red Cross supported their resettlement, until the first refugee camp was established in Himeji in 1979, followed by Yamato Resettlement center, Tokyo International Relief Center and Omura Refugee Reception Center (University of Commerce Kobe, 1996). These camps provided Japanese financial aid, orientation, language classes and job trainings to the refugees. According to UNHCR, total of 9234 refugees had been accepted by these camps; 9064 of them were resettled in nearby area, and 4441 people were employed among these settlers (University of Commerce Kobe, 1996).

[4] New-comers: foreigners who came to japan postwar and influence multiculturalism in Japan, including Vietnamese, Brazilians, Filipinos etc. This also includes Korean or Chinese residents who came to Japan since 1980s.

The most popular resettlement area was Kanagawa, followed by Hyogo prefecture. There were many small and medium size businesses were concentrated in these areas. Majority of the Vietnamese immigrants employed in factories related to metal processing or shoe industry. Naturally, the number of Vietnamese immigrants increased in Nagata because of the employment chances in chemical shoe industry and cheap private housing. According to Kobe city statistics, as of 1994, 495 Vietnamese residents were living in Nagata ward.

Immigrants, especially the first-generation immigrants, suffered various difficulties adjusting to Japanese society. Most of the refugees were male who were separated with their family until they got the permission to resettle. Being apart from family and the process of reuniting family added to the psychological stress (UNHCR, 2014). Another main issue was the language barrier. Although the resettlement centers provided language education before they came out to society, still the language proficiency was not enough to keep up with the all aspect of life. The communication problem caused issues at work, dealing with social services or when seeking medical treatment (UNHCR, 2014). Additionally, being labeled as "refugee" caused discriminative treatment which made their integration process even harder.

Second generation of Vietnamese residents were born in Japan and received Japanese education. They are fluent in Japanese, but they don't know much about their history and background. As a result, there's a gap between different generations. Vietnamese immigrants have a lower level of educational background. There's one research investigated their occupation before they came to Japan (Nishino & Kurata, 2002), a large number of them were students, and they had to quit school to join the war or escape from it. This study also found out that Vietnamese residents also have a lower rate in forming association and other networks; the existing associations are experiencing aging due to the indifference of younger generation (Nishino & Kurata, 2002).

Religion has been an important part of life of Vietnamese residents. There're two main groups: Catholics and Buddhists. The Catholic Vietnamese are relatively active. They join the churches in Japan, attending Sunday mass, organizing weddings and baptism, and hold Vietnamese-language classes for their children (Kawakami, 2008). Catholic churches are often seen as the centers of Vietnamese people's lives (Kawakami, 2008).

### *2.3.5 Background of Filipino residents*

Among 2,829,416 foreign residents formally registered in Japan as of June 2019, 277,409 are Filipino Residents (Ministry of Justice, 2019). Filipino community forms Japan's fourth-largest foreign community, following the Chinese, Korean and Vietnamese population.

Particularly in East Japan (Tohoku), the number of Filipino residents counts in exceeds 6000, and the majority of them are women, mainly the spouse of Japanese natives (Ikeda & Ozanne, 2016). In the wish of living a better life with better earnings, many Filipino women came to Japan during the 1980-1990s. Some of them came as performing artists and got married here; some others moved to Japan after they married Japanese men. In the rural areas of Japan, families' lives depend on the farm, the whole family involved in farming, especially the eldest child, would succeed in the power of the family and be responsible for the farm and household. Along with the industrialization, younger generation migrated to big cities for work. Women also wanted more economic and social independence, they chose to marry the white-collar in the cities. Under such circumstances, getting married had become a hard task for the eldest son of the family. To solve the "shortage of brides" in the rural area, there's a trend of Japanese men marrying women from foreign countries, these foreign brides were mainly from Korea, China, and the Philippines. In the 1990s, the number of Japanese men married to foreign brides was 20026 cases (Sakurai, 2002).

After Filipino women married into Japanese families, they were expected to be accustomed to Japanese culture, work in both households and outside. Strong patriarchy in the traditional family was one of the difficult things for Filipino women to get accustomed to (Bauzon, 1999). Filipino brides were not prepared to stay with their family in-laws, which often has the custom that they come under the control of their mothers-in-law. In addition to these cultural barriers, the language barrier and not knowing their life partner well enough made the adaptation process even harder (Bauzon, 1999). But still, Filipino women are well known for their loyalty and devotion to the family, their hard work, and hospitality. Day by day, they managed to find their way to integrate into their new life in Japan.

## 3. Research Question and Hypothesis

To address the research gaps shown in the previous literature review, this study purports to identify the types and characteristics of the social support which can affect the long-term post-disaster psychological recovery of foreign residents in Japan. The proceeding researches suggest that people who have a higher level of perceived social support would report a lower level of mental distress and a higher level of post-traumatic growth; that people who have higher satisfaction with government support would report a lower level of distress and a higher level of post-traumatic growth; and that demographic factors such as gender, age, income level can affect mental health outcomes, this study holds major hypotheses that the types and sources of effective social support for the post-disaster psychological recovery may be different for foreign residents, and also that they can change according to the stages of post-disaster recovery.

The types of social support will include the close network of foreign residents such as family, friends, or their co-ethnic members (or “bonding” social capital), and the network with wider community and community organizations, including religious

groups involving other ethnics and socioeconomic groups (or "bridging" social capital), as well as the network with government agencies and other formal institutions (or "linking" social capital). The analysis will be made through the evaluation of how these social supports have functioned in the process of post-disaster psychological recovery. By focusing on Japan as a country aiming at inclusive society, and as one of the most disaster-prone countries in the world, we will be able to analyze the peculiar status of the main concerns of foreign residents on their safety and well-being in disasters.

## 4. Methodology

In order to find the answers to these questions, this study applies a series of empirical methods: first, the method of questionnaire survey will be conducted to identify the relation between the long-term psychological recovery and the disaster supports provided by the government and social support from different sources. Survey object includes old-comer Korean residents; new-comer Vietnamese residents in the post-Hanshin-Awaji earthquake Nagata Ward; and the Filipino wives in Iwate prefecture who were affected by the 2011 Great East Japan Earthquake and Tsunami.

The questionnaire consists of three domains, which are demographic domain, mental health assessment, and social-governmental support.

The demographic domain includes questions about age, gender, educational background, marital status, occupation, income, housing and disaster experience, etc. These items allow us to gain background information of the study participants. According to the literature review, demographic factors such as gender, age, socioeconomic status influence the mental health outcome through modifying their access to social support. Collected demographic information allows us to better analyze the data.

As for the mental health assessment, the revised version of Impact of Event Scale (IES-R) and Post-Traumatic Growth Inventory (PTGI) are used (see Appendix A for full questionnaire). IES-R (Weiss, & Marmar, 1996) is commonly used in Japan for assessing the mental health status of disaster victims. This is a 22 item **(Table 4)** self-report measure that assesses subjective distress caused by traumatic events, respondents are asked to identify a specific stressful life event and then indicate how much they were distressed or bothered during the past seven days. Items are rated on a 5-point scale ranging from 0 to 4. The IES-R yields a total score (ranging from 0 to 88) and subscale scores can also be calculated for the Intrusion, Avoidance, and Hyperarousal subscales (Weiss, & Marmar, 1996).

**Table 4 Items of Impact of Event Scale**

| Intrusion | Avoidance | Hyperarousal |
|---|---|---|
| Any reminders brought back feelings about it. | I avoided letting myself get upset when I thought about it or was reminded of it. | I felt irritable and angry |
| I had trouble staying asleep. | I felt as it hadn't happened or wasn't real. | I was jumpy and easily startled |
| Other things kept making me thinking about it. | I stayed away from reminders of it. | I had trouble falling asleep. |
| I thought about it popped into my mind. | I tried not the think about it. | I had trouble concentrating. |
| Pictures about it popped into my mind. | I was aware that I still had a lot of feelings about it, but I didn't deal with them. | Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea or a pounding heart. |
| I found myself acting or feeling like I was back at that time. | My feelings about it were kind of numb. | I felt watchful and on-guard. |

| | | |
|---|---|---|
| I had waves of strong feelings about it. | I tried to remove it from my memory. | |
| I had dreams about it. | I tried not to talk about it. | |

Source: (Weiss, & Marmar, 1996)

Post-Traumatic Growth Inventory (Tedeschi & Calhoun, 1996) is consisted of 21 items (**Table 5**) includes and divided into five subscales: subscales of new possibilities, relating to others, personal strength, spiritual change, and appreciation of life. Participants are asked to indicate their score on each item on a scale from 0 to 6. A summation of the scores indicates the level of post-traumatic growth (range from 0 to105), a higher score indicates a higher level of growth.

**Table 5 Items of Post-traumatic Growth Inventory**

| Relating to others | New possibilities | Personal strength | Spiritual change | Appreciation of life |
|---|---|---|---|---|
| I more clearly see that I can count on people in times of trouble. | I developed new interests. | I have a greater feeling of self-reliance. | I have better understanding of spiritual matters | I changed my priorities about what is important in life |
| I am more willing to express my emotions. | I established a new path for my life. | I know better I can handle difficulties. | I have stronger religious faith. | I have a greater appreciation for the value of my own life. |
| I am more willing to express my emotions. | I am able to do better things in my life. | I am better able to accept the way things work. | | I can better appreciate each day. |
| I have a greater sense of closeness with others. | New opportunities are available which wouldn't have been otherwise. | I discovered that I'm stronger than I thought I was. | | |
| I learned a great deal about how wonderful people are. | I am more likely to try to change things which need changing. | | | |
| I better accept needing others. | | | | |
| I have more compassion for others. | | | | |

Source: (Tedeschi & Calhoun, 1996)

As for the evaluation of the social support including the government support, the Multidimensional Perceived Social Support Scale (MSPSS) and Satisfaction with Governmental Recovery Scale are used (**Table 6 & Table 7**). The Multidimensional Perceived Social Support Scale was developed by Zimet *et al.* (1988) to assess the level of social support from family, friend, and significant other. The mean score (range from 0 to 7) of the total scale and each subscale refer to the level of perceived social support of each participant. This instrument is widely used and well-validated. The reason for the choice of the scale in this study is: first, perceived social support is linked to better mental health; second, the current study is conducted 25 years after the occurrence of the Hanshin- Awaji Earthquake, the actual received support may decrease over time and may be subjected to memory, the perception on the availability of the support on the hand, can be a more stable factor to analyze the 25 years of psychological recovery process; third, the level of perceived social support refers to the trust and satisfaction of the liability of social network, which may imply cognitive social capital of the survey participants.

This study uses a separate scale to evaluate the satisfaction level with government support because MSPSS only captures the supports come from the individual/community level. To better understand the individual's perception of the institutional level of support, the Satisfaction with Governmental Support Scale was modified from a study conducted after Sichuan Earthquake (Huang & Wong, 2014). The original scale was created based on the consultation with social work academia and frontline social workers, included items of infrastructural recovery, income recovery, housing arrangement, planning for community recovery, resource distribution, transparency of information, respect for public opinion and public participation. Survey participants are asked to rank their satisfaction with each item on a scale from 1 (very dissatisfied) to 6 (very satisfied). In the present study, six more items were added to the original scale based on disaster support services of government in Japan. Nagata was heavily damaged, most of the housing in the area

were either collapsed or partially damaged, the number of evacuees has exceeded the capacity of designated shelters, residents had to stay in schoolyards and parks for months until temporary houses were available. Japanese government housing support includes temporary housing arrangements, disaster public housing, and financial assistance for the reconstruction of permanent housing. The items related to housing recovery, housing financial assistance, and arrangement before permanent housing to understand foreign residents' access to support and their satisfaction level. Items related to health and psychosocial support are added because these aspects received more attention since the Hanshin-Awaji Earthquake, especially the foreign residents' access to medical service was one of the focus of foreign residents' support activities. Another new item is related to multilingual information support because this has been important to foreign residents and has been the main component of support provided to them. The summation of the 16 items refers to the overall satisfaction level (range from 16 to 96).

The collected data from the questionnaire survey is statistically analyzed including the regression analysis, the principal component analysis, and the multiple correspondence analysis. After assessing the mental health status and identifying the relationship of mental health results with government support and social support through the statistical analysis, this study intends to investigate further into the specific contexts of psychosocial approach as the results of social support. Semi-structured interviews are conducted with some of the participants of the questionnaire survey. Interview will allow us to analyze the specific circumstances of foreign residents. The interview focuses on the main concern during the long-term recovery, source of support and community bonding, recovery process evaluation, and mental state of the individuals.

**Table 6 Items of Multidimensional Scale of Perceived Social Support**

| Family | Friends | Significant other |
|---|---|---|
| My family really tries to help me. | My friends really try to help me. | There is a special person who is around when I am in need. |
| I get the emotional help & support I need from my family. | I can count on my friends when things go wrong. | There is a special person with whom I can share joys and sorrows. |
| I can talk about my problems with my family. | I have friends with whom I can share my joys and sorrows | I have a special person who is a real source of comfort to me. |
| My family is willing to help me make decisions | I can talk about my problems with my friends. | There is a special person in my life who cares about my feelings. |

Source: (Zimet *et al.* 1988)

**Table 7 Items of Satisfaction with Government Support Scale**

| Items on original scale | Newly-added items |
|---|---|
| Are you satisfied with the infrastructure recovery? | Are you satisfied with the livelihood recovery? |
| Are you satisfied with the arrangement of your family before moving to permanent house? | Are you satisfied with the housing recovery? |
| Are you satisfied with your family's income recovery? | Are you satisfied with the housing financial assistance? |
| Are you satisfied with the planning of your community's recovery? | Are you satisfied with the livelihood financial assistance? |
| During the recovery, are you satisfied with the fairness of resource distribution? | Are you satisfied with the health assistance? |
| Are you satisfied with the openness and transparency of disaster recovery information? | Are you satisfied with the psychosocial support? |
| Are you satisfied with the government respect for public opinion during the recovery? | Are you satisfied with multilingual disaster support? |
| Are you satisfied with the public participation in disaster recovery planning and implementation? | |
| In general, are you satisfied with government assistance and policies during the recovery? | |

Source: (modified from Huang & Wong, 2014)

## 5. Structure of the Thesis

In the following, Chapter 2 is the case study of foreign residents in Nagata Ward in Kobe, on their long-term psychological recovery from Hanshin-Awaji Earthquake, through the investigation into how various social support including governmental support, have had the impacts on the psychological recovery of foreign residents; Chapter 3 analyses the psychological recovery of the members of PAGASA Filipino community in the area of Ofunato and Rikuzen-Takata cities in Iwate prefecture affected in the East Japan Earthquake-Tsunami, through the investigation of how the community engagement generated positive recovery of the Filipino residents will be discussed; Chapter 4 is an overall discussion on the types and mode of social support that can reach to the psychological recovery of foreign residents; and Chapter 5 will finally conclude the results of this research, with suggestions on what can be done in the future.

# Chapter 2 Case study of Foreign Residents in Post- Hanshin-Awaji Earthquake Nagata Ward in Kobe

## 1. Background

### 1.1 Overview of Hanshin-Awaji Earthquake and Recovery Process

On the morning of 17th January 1995, Kobe city was devastated by an earthquake with a magnitude of 7.3. The damage caused by the earthquake was as follows: the death and missing toll were 6437, economic loss for Hyogo and the surrounding areas were around 10 trillion yen. In Kobe, the downtown area on the south side of Rokko Mountain was most severely affected. 82,000 housing units were lost, and many vital parts of the urban infrastructure such as the port, bridges, railway facilities, and lifelines were severely damaged. In addition to that, industrial structures were heavily damaged to about 7 trillion yen (Honjo, 2011).

According to the Kobe city report (2010), it is estimated that more than 35,000 people were trapped under collapsed buildings. The Search and rescue team was dispatched by public institutions (police, firefighters, and self-defense forces), but local citizens were self-organized to conduct search and rescue until their arrival. The dispatched team rescued 20% of the trapped people, citizens rescued the other 80% (City of Kobe, 2010). The Delay of the public response highlighted the importance of self-help and mutual help. The severity of the disaster and the number of displaced victims heavily exceeded the capacity of designated shelters. Other facilities such as high schools, universities, court buildings, hospitals, religious facilities, and parks were also used as shelters to host the evacuees.

**Table 8 Damage from Hanshin-Awaji Earthquake**

| | | Total area* | Kobe** |
|---|---|---|---|
| Dead | | 6,434 | 4,571 |
| Injured | | 43,792 | 14,678 |
| Buildings | Complete destruction | 104,906 buildings | 67,421 buildings |
| | Partial destruction | 144,274 buildings | 55,145 buildings |
| | Burned completely by fire | 7,036 buildings | 6,965 buildings |
| | Burned partially by fire | 96 buildings | 80 buildings |

(Source: * Ministry of Internal Affairs and Communication Hyogo Prefecture

** The City of Kobe, 2014)

Voluntarism reached its peak at that time, more than a million volunteers worked in the disaster-affected area. They engaged in activities such as cleaning, transporting, relief goods distribution, helping the management of shelters, and giving emotional support to victims. Generally, shelters are open for seven days. However, the evacuees were ended up staying in for seven months until the temporary houses were available. Along with the prolonged life in shelters, the needs of the evacuees had changed over time. To respond to their needs, the quality of the meal was improved, compact kitchens were designed in the shelters. Also, some volunteer organizations provided meals for them. Such voluntary activities always helped to improve psychological recovery rather than dietary improvement.

The distribution of temporary houses was implemented by a lottery system, which led to the destruction of the social network of disaster survivors. Various community activities were promoted to prevent new social problems such as isolation. However, the participation rate in these activities was not high due to the fear of

survivors of the next disaster. As a result, some survivors experienced distress due to the destruction of the social networks.

For the recovery in Kobe, two-stage planning was adapted. The administration determined the reconstruction project two months after the earthquake, residents didn't participate in the formation of the project in the first stage, which caused strong criticism among the citizens. The reconstruction project consisted of land re-adjustment project and urban redevelopment project. In the second stage, citizens participated the land re-adjustment project, and residents-initiated community development. One successful example of community development and community participation in recovery planning is the South District of Rokkomichi station. Machizukuri Organization of South district was established in June 1995. Machizukuri Organization held workshops with residents to draft a plan on park size and residential buildings, and they submitted the final Machizukuri proposal to the city government in December 1996. In addition to general residents' discussions, women's meeting was organized to take opinions from women on the room arrangements and color of the interior, etc. This project was finished successfully in ten years, and factors that contributed to the success are (City of Kobe, 2010):

1. Effective discussion between residents and Machizukuri organization: Machizukuri Organization integrated the opinion of residents, meetings were always open to residents, and residents trusted Machizukuri;
2. Effective cooperation among residents, Machizukuri organization, and city government enabled communication between agencies and ensured the process was implemented smoothly.

Another successful case is the North district of Rokkomichi station (City of Kobe, 2010): The Federation of Rokkomichi Station North District Machizukuri organization was established in April 1996. Under the federation, residents held discussions and worked together to formulate the district planning. To respect public

opinion, they decided to make a stream because lack of water supply was one of the most significant issues during the earthquake emergency phase. Creating a stream can ensure water supply in the emergency phase. In addition to that, the park's size was reduced due to public opinion. The final proposal was sent to the city government and finalized in 1997. With the establishment of the Federation of Machizukuri and on-site advice centers, residents had the chance to have a face-to-face discussion with experts and government officials.

In both cases, residents and community organizations took efforts to promote recovery. The capability to choose and take the initiative in deciding their living environments can complement the government recovery plan and policies. In the process of community development, by taking part in community activities, residents have a strong sense of ownership, which positively impacts their behavior of active involvement, which could also lead to a positive recovery. Women's meeting of South district is one good example of including diverse groups into planning, and women participants give their opinion on what they're most familiar with. And on the north district, people being able to communicate with experts and officials also is a good example of preventing miscommunication between community members and plan makers.

## 1.2 Disaster Experience of Foreign Residents in Nagata

Nagata is one of the nine wards in Kobe city, and it is a home for many foreign residents like Chinese, Vietnamese, and Koreans. As the population decreases all over Japan, Nagata Ward's total population is also decreasing, but the foreign resident population is increasing. Nagata ward is also known as "shoe town" (Kutsu-no-machi) because many chemical shoe factories are here. The industry was started in the 1950s and continues as a local industry. Korean residents began working in those factories as workers; later, some began to run the business independently. After the 1970s,

Vietnamese refugees settled in Nagata, and they also started to work in those factories. Nagata ward was heavily affected by Hanshin-Awaji Earthquake. Streets were congested with poorly constructed wooden houses, a big fire caused by the earthquake burnt down almost all parts of the area. It is known that 55 Korean residents lost their lives in Nagata, approximately 200 chemical shoe factories related properties were damaged (Moon, 1999). After the earthquake, the Nagata recovery plan was aimed to rebuild both industry and livelihood-friendly area. The chemical shoe industry has been in decline since the 1980s. New town planning also sought to recover the sector as well as to build a livable new town.

Korean residents had a traumatic experience in the 1923 Kantō Earthquake when it comes to disaster. The fire spread after Kanto Earthquake, and people were in great fear of aftershocks and tsunami, information sources were shut down. There was a rumor that the fire was caused by Korean residents, and they were trying to poison the freshwater. Word spread quickly, and people were organized to fight Koreans. As a result, at least 6000 Koreans were killed. This traumatic experience has impacted the Korean community's psychology over the years. In 1995, while evacuees registered to shelters for safety checks, Korean residents reported themselves by their Japanese names. Hiding their Korean identity was a way of protection if the same tragedy happens again. But this led to another problem: separated family members and relatives couldn't find each other by the Japanese names. Two weeks after the earthquake, the Korean community brought some broadcasting equipment to Nagata ward, started a radio station called FM Yoboseyo. The primary purpose of this radio station was to broadcast disaster information in Korean and Japanese to keep up the communication. Besides the information sharing, they aired Korean Music daily, which was a great comfort to the victims.

There are two main ethnic Korean associations in Japan, Mindan (Republic of Korean Residents Union in Japan) and Chongryon (General Association of Korean Residents in Japan). After Hanshin-Awaji Earthquake, these two associations also

took some measures to support their members (Hyogo Korea Research Center, 2009). For example, Mindan established the Hanshin Awaji Earthquake reconstruction committee. Support activities included emergency relief, donation, legal consultation, organizing charity events, and other activities to support the Korean-run industry and businesses (Hyogo Korea Research Center, 2009). Chongryon was also involved in temporary housing assistance, medical support, and legal consultation, arranged business re-open funding, and business association meetings to support business in the disaster-affected area, especially in the Nagata ward (Hyogo Korea Research Center, 2009).

Vietnamese residents resettled in Nagata after they were received as refugees; by then, the chemical shoe industry was in its heydays, many Vietnamese found jobs in the shoe factories in Nagata. And Takatori Catholic Church is located in Nagata, was also one reason why Vietnamese residents chose to live there because the area was convenient for their economic and religious activities. After Hanshin-Awaji Earthquake, Takatori Catholic Church members built a fire to keep warm, and the fire attracted people around the area. This was the beginning of Takatori Catholic Church's involvement in disaster relief. Mr. Kanda, the father of this church, started "Takatori Relief Base" (now named Takatori Community Center), engaged in relief activities such as preparing and providing food to disaster victims, cleaning the debris, and providing information to those people who lack Japanese skills.

Takatori Middle school was one of the evacuation shelters in the area. According to the former principal of the school, approximately 2000 people had evacuated here. The Koreans consisted of 20%-30% of the total evacuees, and there were about 100 Vietnamese and some Peru people among the evacuees. Language and cultural differences triggered misunderstandings among different ethnic groups in the shelter. One example is that because the big fire severely damaged the Takatori area, Japanese victims were sensitive about building a fire around the shelter. But Vietnamese residents were not very used to the food provided in the shelter; they tried

to build a fire to cook by themselves, this behavior made Japanese evacuees uncomfortable. Different ethnic groups were provided separated rooms to prevent conflict in such circumstances. Korean residents were mixed with Japanese victims, Vietnamese residents were arranged into two classrooms, one classroom was arranged for Peru people. Because the capacity of the designated shelters was not enough to take all the evacuees, many people had built tents in schoolyards or parks. Even some evacuees in schools moved to the parks because they felt more comfortable with their co-ethnic members. It was easier for them to access the necessary information in their community.

Mr. Kanda and Relief Base members organized meetings to exchange information with different ethnic groups. From exchange meetings, they realized that the biggest problem for the Vietnamese was the language barrier. Relief Committee for Vietnamese decided to start an FM station as the Korean community did. They named this FM radio FM Yumen. This station provided information in Vietnamese, Korean, Spanish, Tagalog, and Japanese. A year later, FM Yoboseyo and FM Yumen combined officially registered as FMYY and continue broadcasting in different languages (Tenruyuki & Matsuda 2013).

Takatori Middle School was operated as a shelter until August; in most cases, Vietnamese residents stayed in tents for about one year until temporary houses were provided. Most of the houses were located out of Nagata, elderly had the priority to choose the nearest ones. Other Japanese evacuees also moved out to the temporary houses or their families or friends' houses one by one. Vietnamese didn't want to move out from Nagata because their community was there, so they stayed in the shelters or tents until the last moment, Takatori Relief Base continued their assistance. The earthquake revealed some social issues existing in the society, the earthquake experience reaffirmed the importance of knowing neighbors and assisting each other. This phenomenon highlighted the situation of foreign residents living as disadvantaged people in disaster-affected areas (Yoshitomi, 2010). Most of the foreign

residents live their segregated lives from the Japanese majority, which caused their lack of understanding of society, the administrative system, and the lack of access to information and other services. Foreign residents' support activities such as assisting permanent residents in legal issues and human rights issues had already been started by the civic organizations long before the earthquake. After the earthquake, these support activities were extended to daily life. In 2000, Takatori Relief Base was officially established as a legal entity and changed its name to Takatori Community Center (TCC). This center now consists of 10 different organizations working together to develop a community where everyone can enjoy their life; people with different languages and cultures can live together as equals. Among these ten organizations (TCC, n.d.). Vietnam Yeu men Kobe, established in 2001, engages in Vietnamese residents' support activities. In 2016, this organization published a report (Seto *et al.,* 2016) on disaster-affected Vietnamese in Kobe. The report reveals that, due to the different backgrounds and characteristics of Vietnamese residents in Kobe, their disaster experiences also vary. But for all of them, the earthquake was a hard hit that ruined their life which they started from scratch in a foreign land, especially for the first-generation refugees who experienced war and then the earthquake in Kobe, at the same time, their challenging experience gave them knowledge and strength to overcome the disaster.

This study focused on the foreign residents in Nagata because Nagata was one of the heavily affected areas by the Hanshin-Awaji Earthquake. Many foreign residents in this area were affected by the earthquake with the experience of losing their house, losing employment, bereavement, and displacement. A load of support activities by volunteers were conducted there, and the concept of multiculturalism was one of the goals of Machizukuri of Nagata. Foreign residents here experienced both the damage of earthquake and post-earthquake support. By this case study, we want to examine how the support for foreign residents impacts their long-term recovery and their satisfaction with the support activities.

## 2. Survey on the foreign residents in Nagata

### 2.1 Survey framework

**Procedure:** The author's first visit to the Nagata ward was in June 2019. The author visited Takatori Catholic Church and Takatori Community Center, had interviews with the head of FMYY and the leader of the Hyogo Latino community, and learned about foreign residents' disaster experience in Nagata and the establishment of FMYY and Takatori Community Center. After several field studies in Nagata, questionnaire distribution was conducted from June to October 2020. Vietnam Yeu Men Kobe and Kobe Korea Education and Culture Center coordinated the distribution of the questionnaire.

**Sample**: 54 foreign residents participated in this study with cluster sampling method. We targeted Vietnamese and Korean residents in the Nagata ward, born in foreign countries and immigrated to Japan, and those born in Japan as the second or third generation of immigrants. Korean residents who participated in this study are special permanent residents (old-comers) and their decedents; the Vietnamese participants are the "boat people" who came to Japan as refugees (some participants already are naturalized Japanese citizens, citizenship status is not considered a detrimental factor in this study, because non-Japanese disaster victims with legal resident status were treated the same with Japanese citizens based on disaster recovery policies.) As of 1994, there were 495 Vietnamese residents and 9193 Korean residents (including both old and newcomers) living in Nagata. However, many of these disaster victims have already moved out of Nagata, and some are already naturalized. Hence the number of foreign residents who experienced the earthquake and still living in Nagata is difficult to be confirmed. Considering the accessibility of the targeted population, the questionnaire survey was distributed with the help of Vietnam Yeu Men Kobe and Kobe Korea Education & Culture Center. 34 of the Vietnamese disaster victims, 20

old-comer Korean disaster victims participated in this study. All of them are witnessed Hanshin-Awaji Earthquake and experienced damage to a certain extent due to the quake and fire, and we would refer to them as disaster victims in the following.

**Hypothesis:** In this study, based on the preceding literatures (Iwasa et al., 2019; Rhodes & Tran, 2012; Koyama et al., 2014), the initial hypotheses are formed that people who have a higher level of perceived social support would report a lower level of mental distress and a higher level of post-traumatic growth; that people who have higher satisfaction with government support would report a lower level of distress and a higher level of post-traumatic growth. To test these hypotheses, we used a questionnaire consisting of three parts:

- Demographic questions and disaster experience: this part includes age, gender, educational background, marital status, employment, and income level. Disaster experience is multiple choice questions, and participants select relative choices based on their individual experience.
- Mental health assessment: Revised Impact of Event Scale (IES-R) is used to assess the distress level of disaster victims. This questionnaire consisted of 22 questions evaluating subjective distress related to a traumatic event. For example, for the item "I tried to remove it from my memory" respondents are given a scale ranging from 0 to 4 and asked to indicate how much they are bothered by this difficulty. Post-traumatic Growth Inventory (PTGI) is used to assess the positive growth after disaster. It is a 21 items self-reported scale, each item ranges from 0 to 5, respondent indicates their growth level for each item. For example, "I have greater appreciation for the value of my own life" is one of the items under the factor of appreciation of life. Respondent is asked to select from 0 to 5 to indicate his growth after trauma.
- Assessment of support: Multidimensional Scale of Perceived Social Support is a self-report measure that includes 12 items used to assess the individual's perception of the availability of social support from family, friend, and significant other. Family support includes items "my family tries to help me", "I got the emotional

support I need from my family", "I can talk my problem with my family", "my family is willing to help me make decisions"; Support from friend include items "my friends really try to help me", "I can count on friends when things go wrong", "I have friends whom I can share my joys and sorrows", "I can talk about my problems with my friends"; support from significant other includes items "there is a person who is around when I am in need", "there is a person whom I can share joys and sorrows", "I have a special person who is a real source of comfort", "there's a special person who cares about my feelings". Respondent identifies his level of perception on the support from these resources. For example: "my family really tries to help me" ranges from 1 (very strongly disagree) to 7 (very strongly agree), respondent indicates his perception based on this range. Mean scores will be calculated for the overall scale and each subscale; this could offer the perceived level of social support and the primary source of support.

- The Satisfaction with Governmental Support Scale is used to assess the governmental support. This scale consisted of 16 items, indicating various aspects of government-led recovery and assistance to disaster victims, such as infrastructure recovery, housing recovery, livelihood recovery, arrangement of the family before moving into the permanent house, income recovery, housing financial assistance, livelihood financial assistance, health assistance, psychosocial support, resource distribution, openness and transparency, multilingual information support, public participation and government respect to public opinion, recovery planning implementation and general recovery policies. Respondents indicate their satisfaction level with each item ranged from 1 (very dissatisfied) to 6 (very satisfied), summation of these 16 items indicates the overall satisfaction level (total score ranges from16 to 96).

## 2.2 Data Analysis

Statistical analysis was conducted with Excel and SPSS version 28. In the first step, we conduct descriptive analysis of each demographic variable and disaster experiences. Secondly, we assessed whether the socio-demographic factors have any association with mental health results. In the third step, we used factor analysis to further examine the impact of government support. Lastly, we conducted regression analysis of perceived social support and satisfaction with government support.

## 2.3 Descriptive Analysis

### *2.3.1 Demographic Characteristics*

As summarized in **Table 9,** the gender distribution is equal, the age of the participants varied from the 30s to 60s, the majority is in their 50s (see **Figure 1**). Educational background is varied from primary school degree to college/ university degree. When compared the two ethnic groups, high school degree holders are the majority in the Korean group, middle school degree holders are the majority in the Vietnamese group (see **Figure 2**). Fisher's exact test was used to determine if there's a relation between ethnicity and educational background, there's a significant association between these two variables ($p=0.001$, Fisher's exact test). 78% of the participants are married, as household size, Vietnamese participants have a relatively larger household size with more kids (see **Figure 3)**, 60% of the Korean group (12 participants) have no child. Fisher's exact test result showed a significant association between ethnicity and household size ($p< 0.001$, Fisher's exact test). 86% of the participants earn less than 3 million annually (see **Figure 4**). There's a significant association between ethnicity and income level ($p=0.004$, Fisher's exact test), income level of the Korean group is relatively higher compared to the Vietnamese group (**Figure 5**). There's also a gender gap in income level ($p=0.002$, Fisher's exact test), female respondents' income is less than the male respondents' income (**Figure 6**).

Participants' pre-disaster occupations were mainly in the manufacturing or construction industry, and their main employment status was part-time employment; 20% of the participants reported they were students when the disaster occurred (see **Figure 7&8**). There's a significant difference of pre-disaster occupation and employment status in different ethnic groups (pre-disaster occupation: $p<0.001$; pre-disaster employment: $p<0.001$, Fisher's exact test). In Korean group, the majority was unemployed or student (participant who chose "other" also explained the occupation as student), while the majority of the Vietnamese residents worked in manufacturing as part-time workers (**Figure 9 & 10**). In both ethnic groups, participants experienced job change or job loss due to the earthquake; in the Vietnamese group, people who changed jobs are the majority, whereas people who unemployed both times are the majority in the Korean community (**Figure 11,** $p<0.001$, Fisher's Exact test). There's no gender difference in pre-disaster occupation ($p=0.051$, Fisher's Exact test), in both gender groups, the majority were working at manufacturing. However, there's a significant gender difference in pre-disaster employment status ($p<0.03$, Fisher's Exact test) while part-time workers are predominant in the female group, regular staff are dominant in the male group (see **Figure 12**). After the earthquake, people who changed job is the majority in female group, people who lost job and changed job are equally high in the male group, but the gender difference in the change of employment is not significant ($p=0.51$, Fisher's Exact test. See **Figure 13**).

As housing status, there's a significant ethnic difference in pre-disaster housing ($p<0.001$, Fisher's Exact test), the majority in Vietnamese group had rental houses in pre-disaster time, while the majority of the Korean groups had public houses (see **Figure 14**). Current housing status showed no significant difference between different ethnic groups ($p= 0.78$, Fisher's Exact test. See **Figure 15**).

**Table 9 Hanshin-Awaji Earthquake Victims' Questionnaire: Demographic Characteristics**

| | | | | | | |
|---|---|---|---|---|---|---|
| | N[5]=54 | | | | | |
| **Age** | 30s | 40s | 50s | 60s | 65 above | **missing** |
| | 4 (8%) | 12 (23%) | 16 (30%) | 12 (23%) | 9 (17%) | 1 |
| **Gender** | Female | Male | | | | |
| | 28 (51.9%) | 26 (48.1%) | | | | |
| **Citizenship** | Korea | Vietnam | Japan | | | |
| | 18 (34%) | 30 (57%) | 5 (9%) | | | 1 |
| **Ethnicity** | Korean | Vietnamese | | | | |
| | 20 (37%) | 34 (63%) | | | | |
| **Education** | Primary Education | Middle School | High School | University/ College | | |
| | 2 (4%) | 17 (32%) | 21 (39%) | 14 (26) | | |

[5] N: sample size

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Marital Status** | Married | Divorced | Widowed | Single | | | | |
| | 42 (78%) | 5 (6%) | 3 (7%) | 4 (7%) | | | | |
| **Children** | None | 1 | 2 | 3 | 4 or more | | | |
| | 12 (22%) | 3 (6%) | 21 (39%) | 5 (9%) | 13 (24%) | | | |
| **Time in Japan** | 21-25 Y | 26-30 Y | >30 Y | | | | | |
| | 1 (2%) | 15 (28%) | 38 (70%) | | | | | |
| **Pre-Disaster Occupation** | **Manufacturing** | Construction | Wholesale/ retail business | Transportation | Accommodation/Food Service | Health/ Welfare/Medical | **Unemployed** | Others |
| | 18 (33%) | 1 (2%) | 5 (9%) | 2 (4%) | 1 (2%) | 4 (7%) | 11 (20%) | 12 (22%) |
| **Pre-disaster Employment Status** | Regular stuff | Part-time employee | Internal employment | Self-employed | Housewife | Student | Other | |
| | 15 (28%) | 19 (35%) | 1 (2%) | 6 (11%) | 7 (13%) | 5 (9%) | 1 (2%) | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Change of Job** | Keep doing the same Job | Disaster related reason | | | Non-disaster related reason | | | Un-employed in both time | Others | 1 |
| | | Job Suspended for a while | Changed job | Lost Job | Changed job | Lost job | Start business | | | |
| | 10 (19%) | 10 (19%) | 14 (26%) | 4 (8%) | 2 (4%) | 3 (6%) | 1 (2%) | 7 (13%) | 2 (4) | |
| **Household Income** | <1 million | 1-2 million | 2-3 million | 3-4 million | >= 5 million | | | | | 2 |
| | 14 (27%) | 19 (37%) | 12 (23%) | 5 (10%) | 2 (4%) | | | | | |
| **Pre-Disaster Housing** | Owned land and house | Rented land owned house | Rental house | Public house | | | | | | |
| | 4 (7%) | 7 (13%) | 31 (57%) | 12 (22%) | | | | | | |
| **Current Housing** | Repair at the original location | New construction at land re-adjustment | Temporary housing | Group relocation | Individual relocation | Disaster public house | Rental house | other | | |
| | 5 (9%) | 4 (7%) | 1 (2%) | 1 (2%) | 10 (19%) | 8 (15%) | 16 (30%) | 8 (15%) | | |

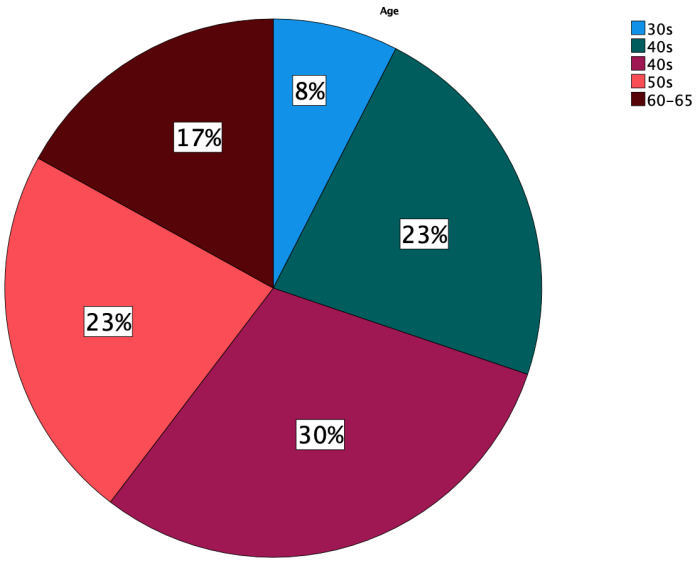



**Figure 1 Age distribution of survey respondents**

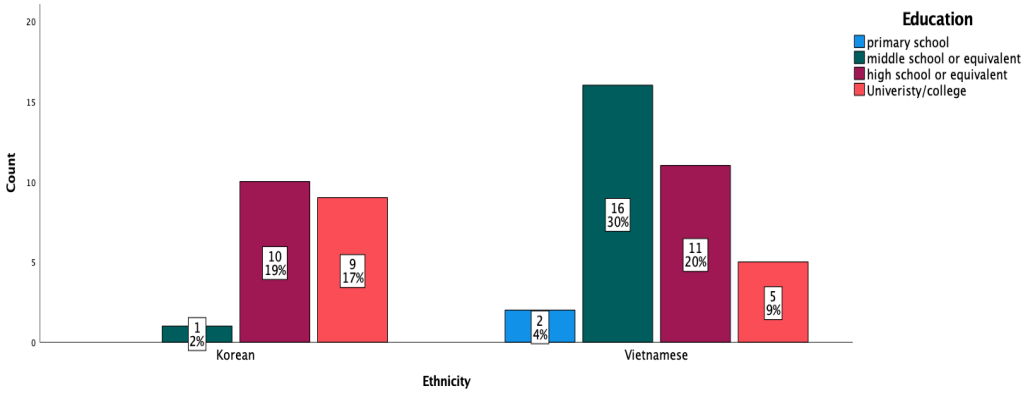



**Figure 2 Educational background distribution in each ethnic group**

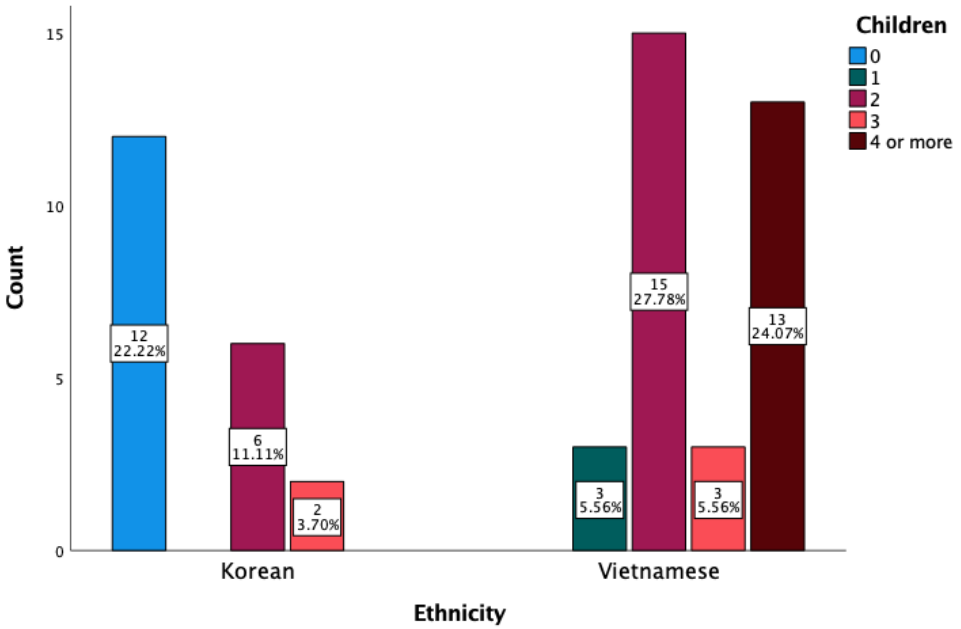



**Figure 3 Number of children by each ethnic group**

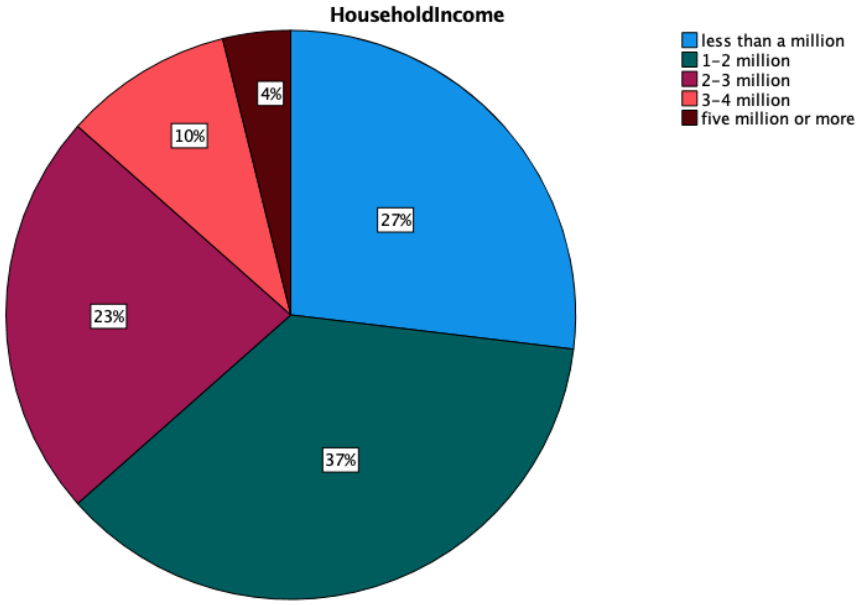



**Figure 4 Household income level**

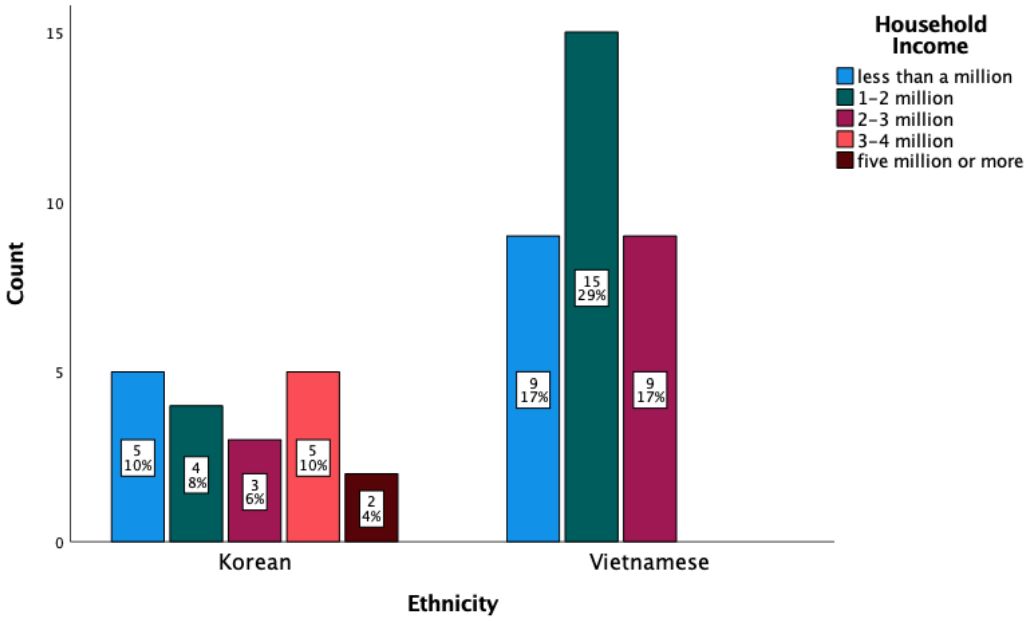



**Figure 5 Income level by each ethnic group**

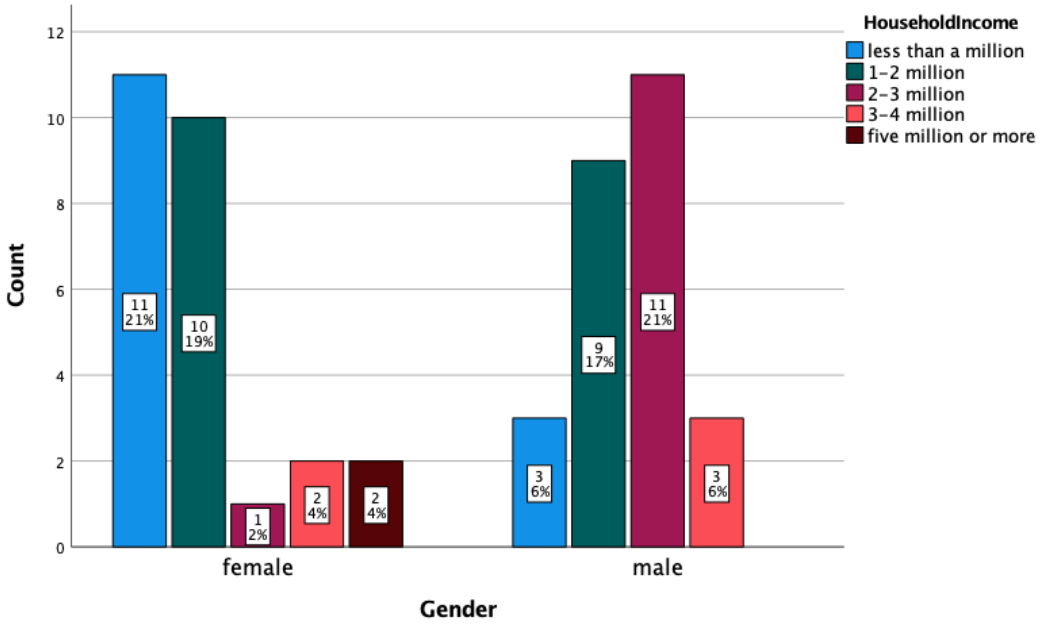



**Figure 6 Income level by gender**

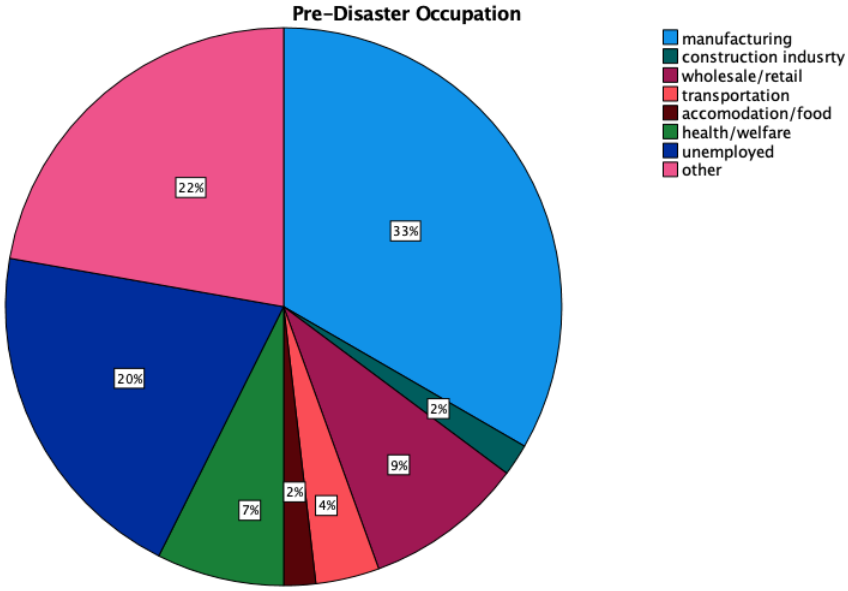



**Figure 7 Pre-disaster occupation**

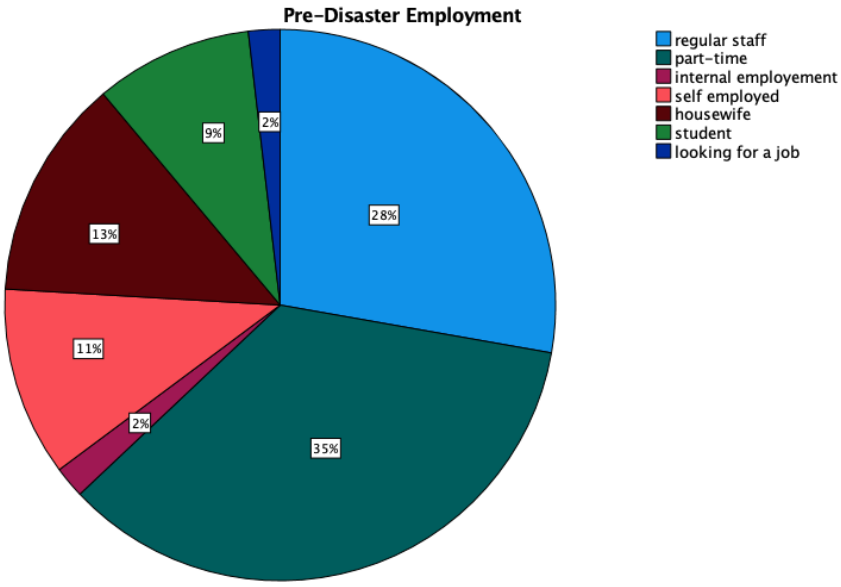



**Figure 8 Pre-disaster employment status**

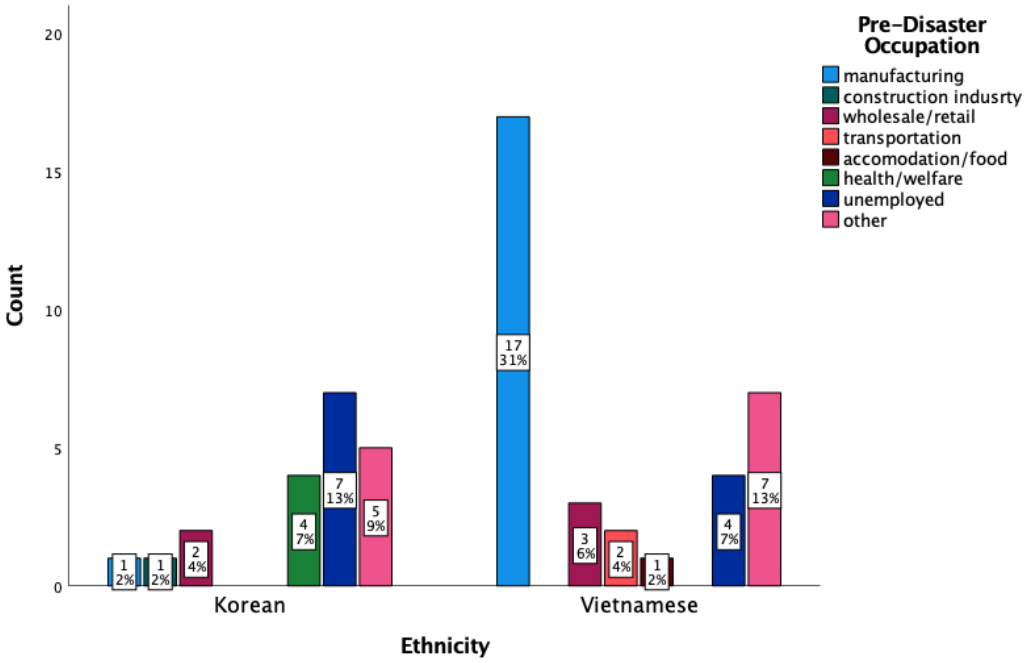



**Figure 9 Pre-disaster occupation by each ethnic group**

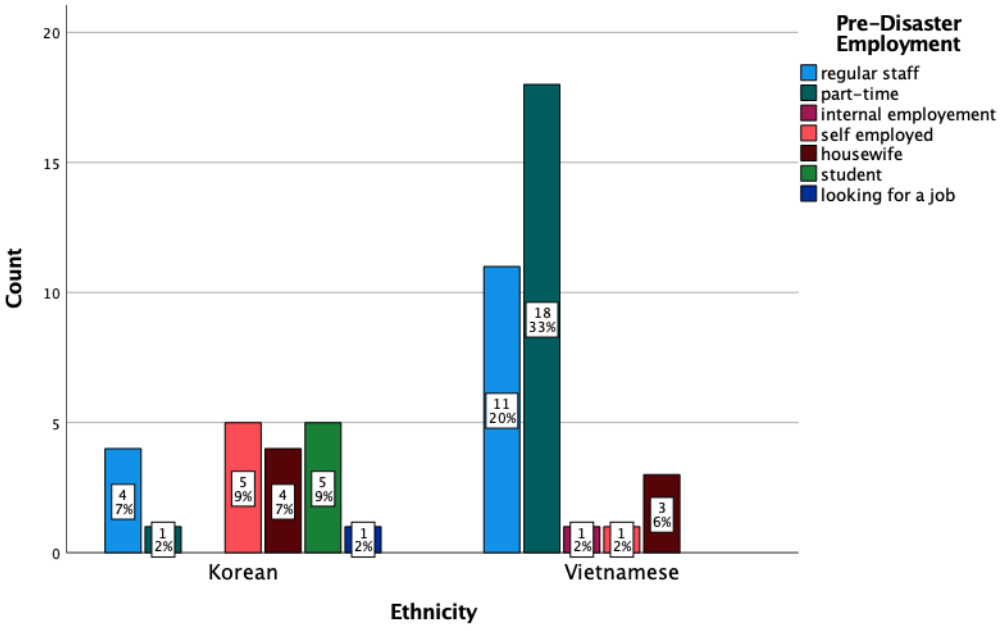



**Figure 10 Pre-disaster employment status by each ethnic group**

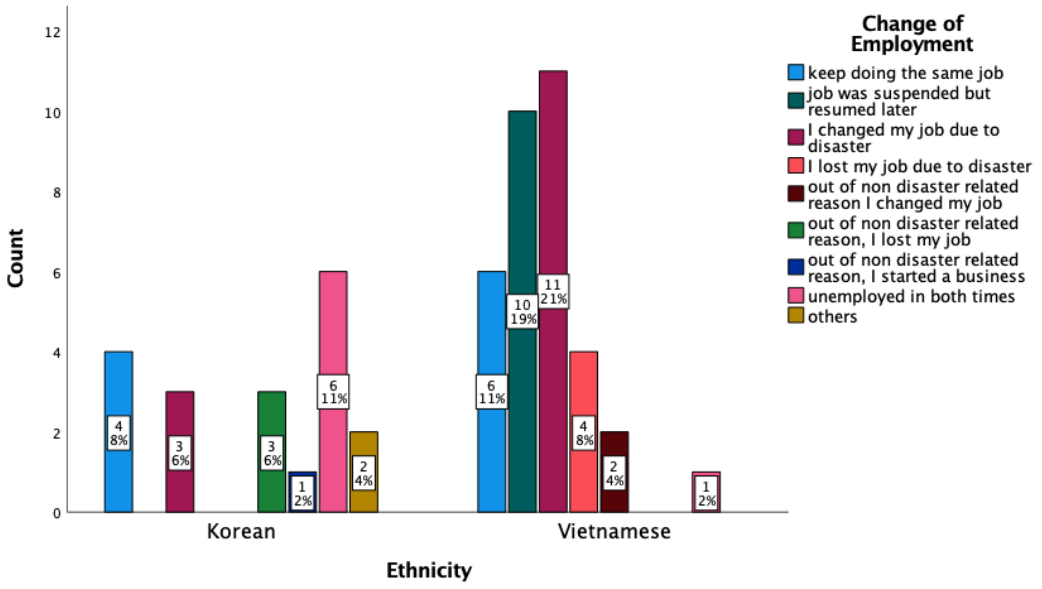



**Figure 11 Change of job after disaster by ethnicity**

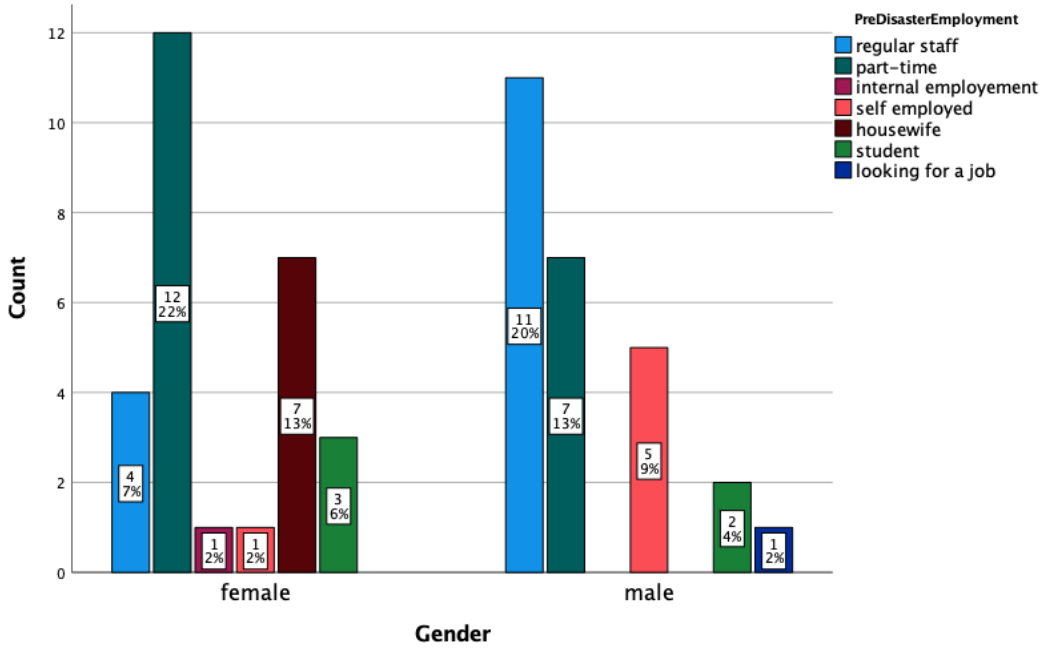



**Figure 12 Pre-disaster employment status by gender**

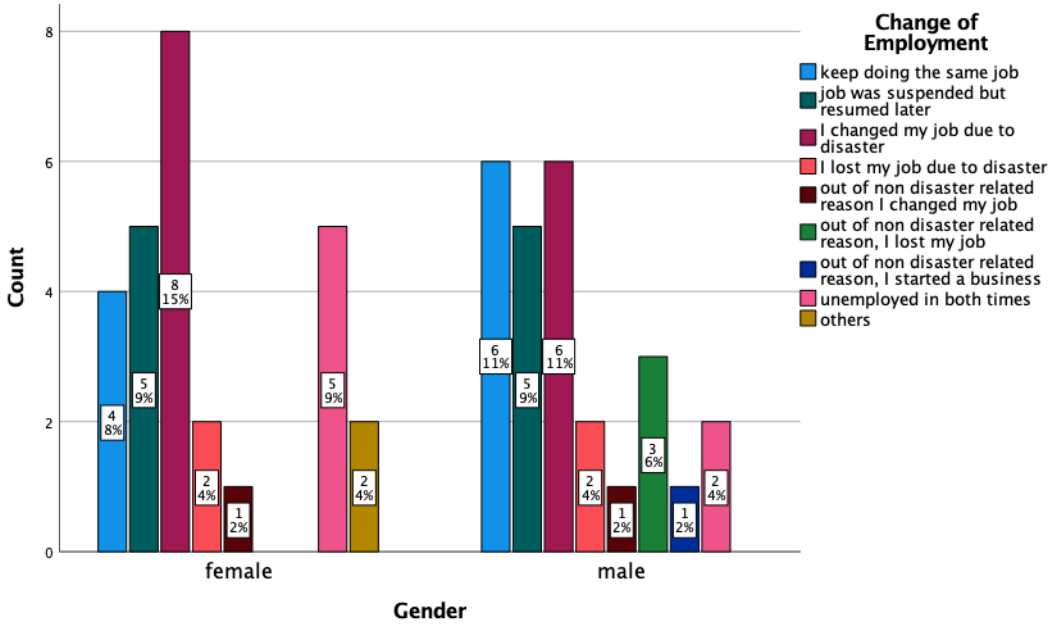



**Figure 13 Change of job after disaster by gender**

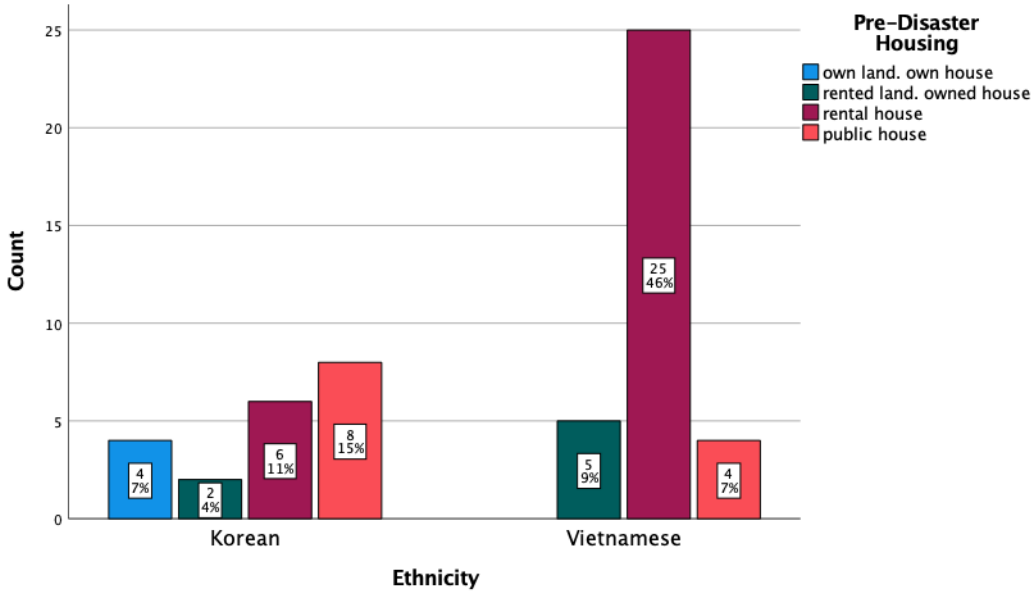



**Figure 14 Pre-disaster housing in each ethnic group**

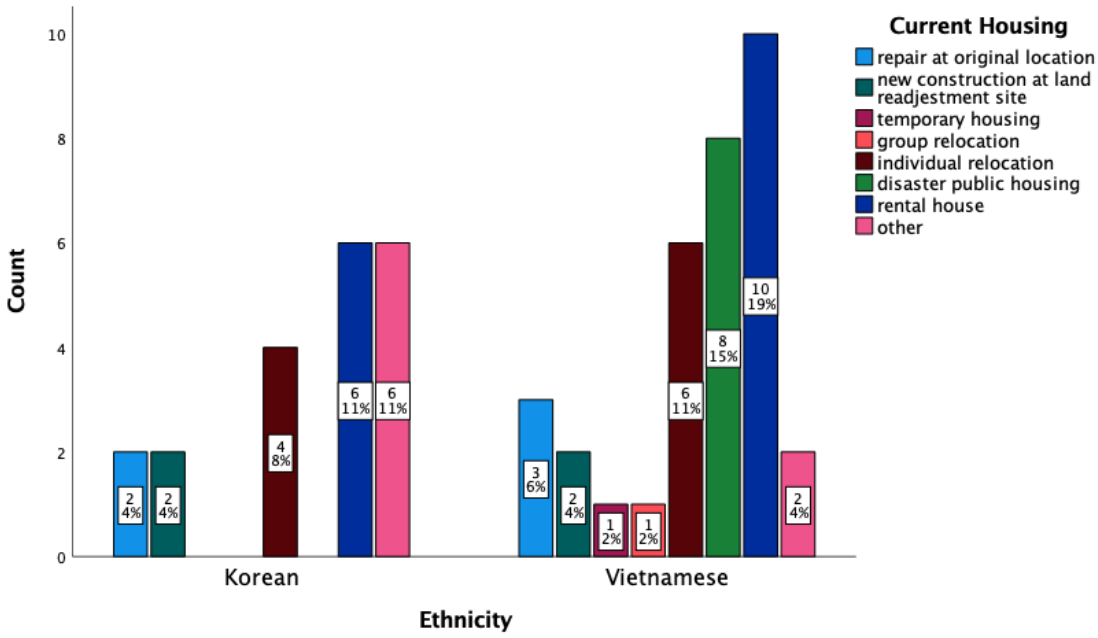



**Figure 15 Current housing in each ethnic group**

### *2.3.2 Disaster Experience*

As seen in **Table 10**, the most common disaster experience is seeing fire, followed by relocation and house collapse. In the Vietnamese group, the most experienced event was house collapse, while house damage was prominent in the Korean community. This could be explained by the differences in financial status in these ethnic groups; Vietnamese residents might be living in relatively poorly structured houses due to lower rental fees. Before 1995, old-style wooden houses were typical in Nagata ward, and they were damaged or ruined by the fire after the earthquake. In the Vietnamese group, no one witnessed the death or injury of a family member; in the Korean group, one participant lost a family member, one experienced the death of relatives (noted by the participant as "other disaster experience"), two experienced the injury of a family member. One Korean participant experienced victimization such as robbery and/or discrimination (see **Figure 13**). Females are dominant in the experience of house collapse, relocation, and loss/decrease of income; males are prevalent in the house damage and fire; only men experienced death or

injury of the family member and victimization. (See **Figure 14**). By testing the relationship of disaster experience with income level, **Figure 15** shows, people with higher income are less likely to experience house collapse, house damage, and relocation, and this may explain why females experienced more house collapse.

**Table 10 Disaster Experience**

| | N | Percent of response/ Percent of cases (%) |
|---|---|---|
| **House collapse** | 21 | 17/ 40 |
| **House damage** | 19 | 16/ 36 |
| **Relocation** | 23 | 19/ 43 |
| **Separated from family/friends** | 6 | 5/ 11 |
| **Loss/decrease of income** | 14 | 12/ 26 |
| **Injury of family member** | 2 | 2/ 4 |
| **Death of family member** | 1 | 1/ 2 |
| **Loss of personal property** | 1 | 1/ 2 |
| **Saw fire** | 32 | 26/ 60 |
| **Victimization** | 1 | 1/ 2 |
| **Others** | 2 | 2/ 4 |
| **Total** | 122 | 100/ 230 |

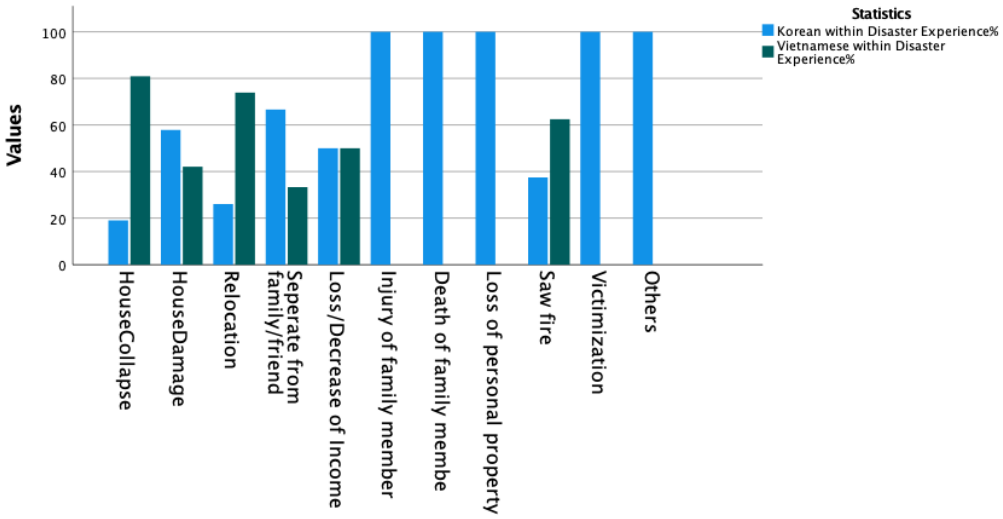



**Figure 16 Ethnic distribution of each disaster experience**

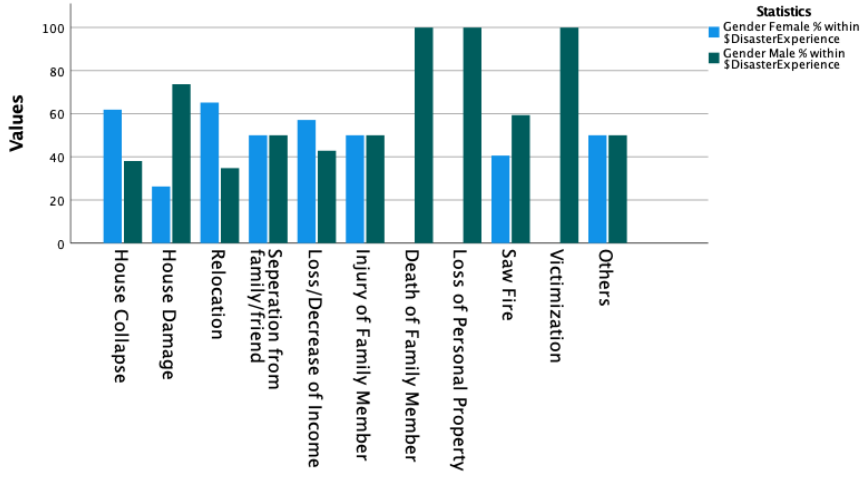



**Figure 17 Gender distribution in each disaster experience**

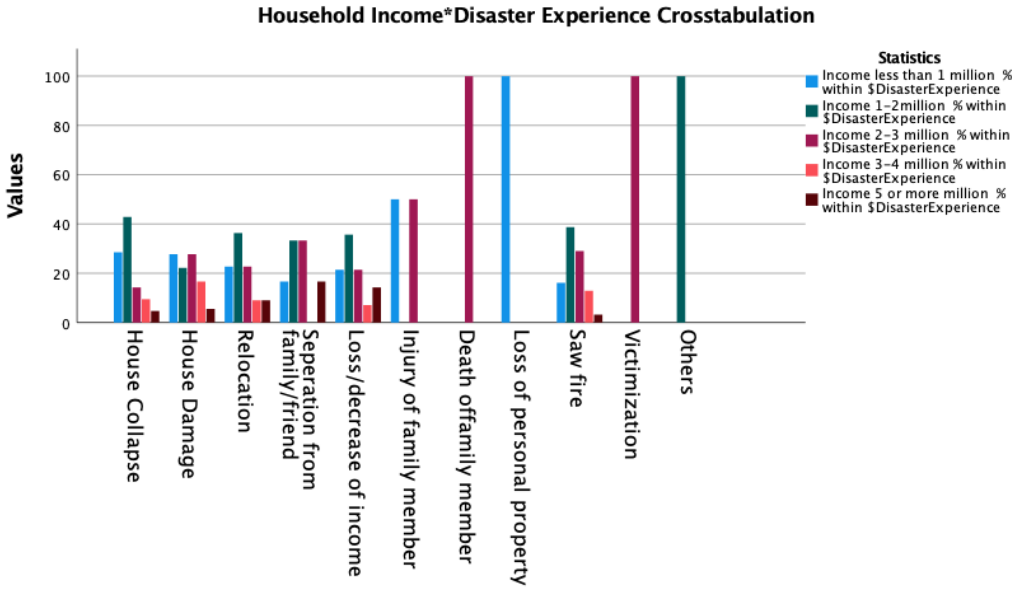



**Figure 18 Income group distribution in disaster experience**

### *2.3.3 Mental health recovery*

The first scale used for mental health assessment is Impact of Event Scale (IES-R), the value for Cronbach's alpha is 0.95 which shows high internal reliability. This scale is a frequently used screening measure in disaster literature. It is an appropriate instrument to measure the subjective response to a specific traumatic event in an adult or senior population. There are three subscales: intrusion (intrusive thoughts, nightmares, intrusive feelings and imagery, dissociative-like re-experiencing), avoidance (numbing of responsiveness, avoidance of emotions, situations, and ideas), and hyperarousal (anger, irritability, hypervigilance, difficulty concentrating, heightened startle), as well as total subjective stress IES-R score. The mean scores for the total score and each subscale indicate the level of impairment from the traumatic event.

IES-R result shows (**Table 11**), mean score of all participants are 17.11, which is lower than meaningful cut point 24. However, it is worth noting that some participants reported higher scores which may indicate the existence of some symptoms. Scores of each subscale are respectively 0.83, 0.81, and 0.68. As seen in

**Table 12**, T-test was conducted to compare the result reported by two different ethnic groups. Although participants generally don't show clinically significant distress levels, the Vietnamese group mean score is significantly higher than the Korean group (*t=3.345, p=0.002*)[6], each subscale score is also higher in Vietnamese group: Intrusion (*t= -3.155, p=0.003)*; Avoidance *(t=2.907, p= 0.005)*; and Hyperarousal *(t= 3.433, p= 0.001*). Then, Fisher's exact test was conducted to test whether there's non-random association between the mental distress level and age factor. Because Fisher's Exact test is used on categorical variables, we categorized the participants records into "0-33" and "34-88" categories based on the IES-R scoring method (33 as probable diagnosis cut point). Test result showed no significant association between higher mental distress level and ethnicity factor (*p=0.234,* Fisher's exact test. See **Figure 19**).

**Table 11 IES-R (Mental Distress Assessment) Result**

| | Sample size (N) | Min. | Max. | Mean (SD[7]) |
|---|---|---|---|---|
| Mental distress **Total score** | 54 | .00 | 65.00 | 17.11 (16) |
| Subscale **Intrusion** | 54 | .00 | 3.63 | .83 (.83) |
| Subscale **Avoidance** | 54 | .00 | 3.00 | .81 (.81) |
| Subscale **Hyperarousal** | 54 | .00 | 2.17 | .68 (.65) |

[6] In t-test, t value indicates a large difference exists between two sample sets, the bigger the t value, the more difference exists; p value indicates whether null hypothesis (no difference between to sample set) can be rejected, lower p value indicates stronger evidence to reject the similarity between two sample sets.

[7] Standard Deviation: is a measure of the amount of variation of a set of values.

**Table 12 Mental Distress difference in ethnic groups**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Ethnicity | N | Mean | Std. deviation | t | df[8] | Sig. (2 tailed) | Mean difference |
| Mental distress **Total score** | Korean | 20 | 8.40 | 11.591 | -3.345 | 52 | .002*** | -13.835 |
| | Vietnamese | 34 | 22.24 | 16.188 | | | | |
| Subscale **Intrusion** | Korean | 20 | .40 | .485 | -3.155 | 52 | .003*** | -.682 |
| | Vietnamese | 34 | 1.08 | .890 | | | | |
| Subscale **Avoidance** | Korean | 20 | .41 | .709 | -2.907 | 52 | .005*** | -.622 |
| | Vietnamese | 34 | 1.04 | .787 | | | | |
| Subscale **Hyperarousal** | Korean | 20 | .32 | .452 | -3.433 | 52 | .001*** | -.571 |
| | Vietnamese | 34 | .89 | .656 | | | | |

***: p< .01

[8] df: degree of freedom, this number is determined by the number of observations in the sample.

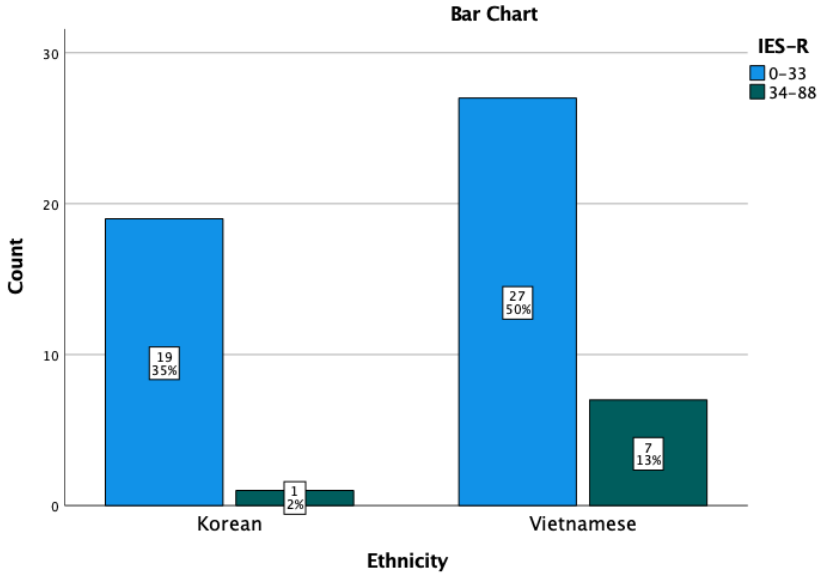



**Figure 19 Mental distress in different ethnic groups**

The comparison of the two gender groups shows that (**Table 13**), in both groups, the mean score of mental distress level is lower than the meaningful cut point. The female group has a slightly higher score than the male group, but it is statistically insignificant (T-test: *t= 0.760, p=0.451*). Fisher's exact test result also showed that the mental distress level is independent from gender factor (*p=1.00,* Fisher's exact test. See **Figure 20**).

We assume that people whose ages are currently over 40 were at least in their adolescent years when the Hanshin-Awaji Earthquake happened, capable of comprehending what was happening and reacting to it. Based on this assumption, we set age 40 as a cut point and checked if those under 40 and over 40 have different mental distress levels. T-test results showed that people over 40 have mental distress levels significantly higher than those under 40 (*t= 2.064, p=0.044.* See **Table 14**). However, Fisher's exact test result didn't show significant association between higher mental distress level and age factor (*p=0.142*, Fisher's exact test. See **Figure 21**).

**Table 13 Mental Distress Difference in Gender Group**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Gender | N | Mean | Std. deviation | t | df | Sig. (2 tailed) | Mean difference |
| Mental distress **Total score** | Female | 28 | 18.71 | 17.073 | .760 | 52 | .451 | 3.330 |
| | Male | 26 | 15.38 | 14.956 | | | | |
| Subscale **Intrusion** | Female | 28 | .91 | .857 | .714 | 52 | .478 | .162 |
| | Male | 26 | .75 | .807 | | | | |
| Subscale **Avoidance** | Female | 28 | .87 | .860 | .628 | 52 | .533 | .139 |
| | Male | 26 | .73 | .764 | | | | |
| Subscale **Hyperarousal** | Female | 28 | .75 | .704 | .871 | 52 | .388 | .154 |
| | Male | 26 | .60 | .583 | | | | |

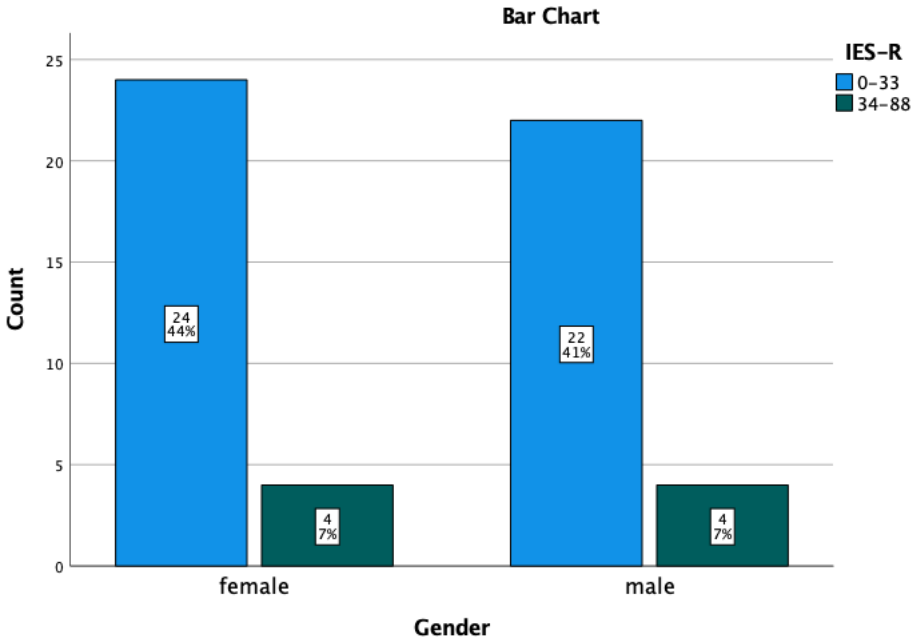



**Figure 20 Mental distress in different gender groups**

**Table 14 Mental Distress Difference in Different Age Group**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Age | N | Mean | Std. deviation | t | df | Sig. (2 tailed) | Mean difference |
| Mental distress **Total score** | ≥ 40 | 49 | 18.55 | 16.118 | .2.064 | 51 | .044** | 16.801 |
| | < 40 | 4 | 1.75 | 2.062 | | | | |
| Subscale **Intrusion** | ≥ 40 | 49 | .89 | .845 | 1.651 | 51 | .105 | .705 |
| | < 40 | 4 | .19 | .239 | | | | |
| Subscale **Avoidance** | ≥ 40 | 49 | .88 | .816 | 2.049 | 51 | .046** | .844 |
| | < 40 | 4 | .03 | .065 | | | | |
| Subscale **Hyperarousal** | ≥ 40 | 49 | .74 | .646 | 2.265 | 51 | .028** | .739 |
| | < 40 | 4 | .00 | .000 | | | | |

**: p< .05

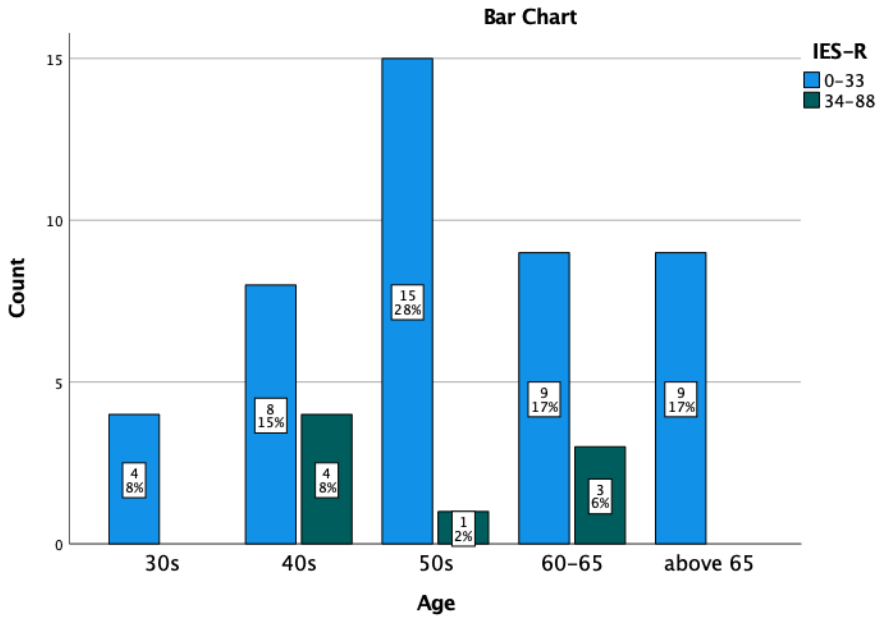



**Figure 21 Mental distress in different age groups**

We also set household income of three million as a cut point, compared the mental distress level of different income groups. T-test result showed that the lower income group has higher level of mental distress at 10% significant level (*t= 1.738, p= 0.88*. See **Table 15**). Fisher's exact test result showed higher mental distress level is independent from income factor (*p= 0.647,* Fisher's exact test. See **Figure 22**).

**Table 15 Mental distress difference in different income groups**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Income | N | Mean | Std. deviation | t | df | Sig. (2 tailed) | Mean difference |
| Mental distress **Total score** | More than3 million | 7 | 7.71 | 12.566 | -1.738 | 50 | .088* | 10.175 |
| | Less than 3 million | 45 | 17.89 | 14.642 | | | | |
| Subscale **Intrusion** | More than3 million | 7 | .38 | .516 | -1.632 | 50 | .109 | .482 |
| | Less than 3 million | 45 | .86 | .751 | | | | |
| Subscale **Avoidance** | More than 3 million | 7 | .39 | .840 | -1.457 | 50 | .151 | 1.322 |
| | Less than 3 million | 45 | .84 | .745 | | | | |
| Subscale **Hyperarousal** | More than3 million | 7 | .26 | .472 | -1.874 | 50 | .067* | .460 |
| | Less than 3 million | 45 | .72 | .619 | | | | |

*: P< .1

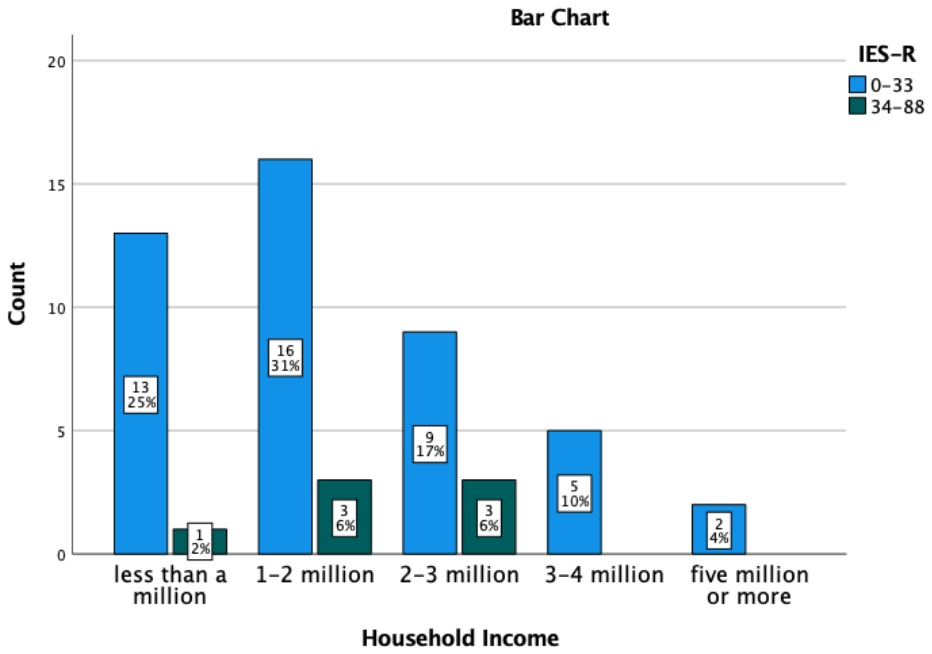



**Figure 22 Mental distress in different income group**

The second scale is Post-traumatic Growth Inventory (PTGI). This is a scale for assessing positive changes and self-improvement after a traumatic event. There are five subscales: relating to others, new possibilities, personal strength, spiritual change, and appreciation for life. Each of the 21 items falls under one of the five subscales; a summation of the scores indicates the level of growth. PTGI result shows that the mean score of all participants is 49.74, which can be considered a moderate level of PTG. Each subscale's score is respectively 2.38, 2.26, 2.22, 2.44, 2.81 (See **Table 15**).

**Table 16 PTGI (Post-Traumatic Growth) Assessment**

| | N | Min. | Max. | Mean (SD) |
|---|---|---|---|---|
| PTGI **Total score** | 54 | 3.00 | 93.00 | 49.74 (23.6) |
| Subscale **Relating to others** | 54 | .00 | 4.71 | 2.38 (1.18) |
| Subscale **New possibilities** | 54 | .00 | 5.00 | 2.26 (1.27) |
| Subscale **Personal strength** | 54 | .00 | 4.50 | 2.22 (1.22) |
| Subscale **Spiritual change** | 54 | .00 | 5.00 | 2.44 (1.62) |
| Subscale **Appreciation of life** | 54 | .00 | 5.00 | 2.81 (1.21) |

Similar to mental distress assessment, for the PTG, we also compared the differences between ethnic groups (**Table 17**), gender groups (**Table 18**), age groups (**Table 19**), and income groups (**Table 20**). T-test result showed that the Vietnamese group mean score is significantly higher compared to the Korean group (*t=-2.335, p= 0.023*). There are significant differences in the two ethnic groups' scores of in the aspect of relating to others, personal strength and spiritual change (Relating to others: *t= -2.023, p=0.48*; Personal strength: *t= -3.319, p=0.002*; Spiritual belief: *t= -5.996, p=0.000*). Vietnamese residents reported a higher level of post-traumatic growth, especially in spirituality, personal strength, and interpersonal relationship. Before conducting Fisher's exact test, PTGI scores of the participants were divided into three categories: lower PTGI score (0-35), Moderate PTGI score (36-70), higher PTGI score (71-105). Fisher's exact test result showed that post-traumatic growth level is associated to ethnicity factor (*p=0.085*, Fisher's exact test. See **Figure 23**).

There's no significant association between gender factor and post-traumatic growth (*p=0.878*, Fisher's exact test. See **Figure 24**), and the two gender groups' mean scores are not significantly different from each other. The comparison of two age groups showed that the older adults reported higher scores in the aspect of personal strength and spiritual change (personal strength: *t=1.959, p=0.056*; spiritual change: *t= 1.926, p= 0.060*). Fisher's exact test result showed no significant association between post-traumatic growth and age factor (*p=0.435*, Fisher's exact test. See **Figure 25**). The comparison of mean score of different income groups showed that only in the subscale of spiritual change, the lower income group has a significantly higher score than the higher income group (*t=2.146, p=0.037*). Fisher's exact test showed no significant association between post-traumatic growth and income factor (*p=0.473*, Fisher's exact test. See **Figure 26**).

**Table 17 Post-Traumatic Growth in different ethnic groups**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Ethnicity | N | Mean | Std. deviation | t | df | Sig. (2 tailed) | Mean difference |
| PTG **Total score** | Korean | 20 | 40.25 | 24.347 | -2.335 | 52 | .023** | -14.915 |
| | Vietnamese | 34 | 55.26 | 21.632 | | | | |
| Subscale **Relating to others** | Korean | 20 | 1.97 | 1.238 | -2.023 | 52 | .048** | -.653 |
| | Vietnamese | 34 | 2.62 | 1.090 | | | | |
| Subscale **New possibilities** | Korean | 20 | 1.92 | 1.497 | -1.514 | 52 | .136 | -.533 |
| | Vietnamese | 34 | 2.45 | 1.081 | | | | |
| Subscale **Personal strength** | Korean | 20 | 1.56 | 1.238 | -3.319 | 52 | .002*** | -1.048 |
| | Vietnamese | 34 | 2.61 | 1.047 | | | | |
| Subscale **Spiritual change** | Korean | 20 | 1.10 | 1.119 | -5.996 | 52 | .000*** | -2.121 |
| | Vietnamese | 34 | 3.22 | 1.327 | | | | |
| Subscale **Appreciation of life** | Korean | 20 | 2.85 | 1.152 | .175 | 52 | .859 | .060 |
| | Vietnamese | 34 | 2.79 | 1.263 | | | | |

**: p< .05, ***: p< .01

**Table 18 Post-Traumatic Growth in different gender groups**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Gender | N | Mean | Std. deviation | t | df | Sig. (2 tailed) | Mean difference |
| PTG **Total score** | Female | 28 | 48.96 | 22.556 | -.249 | 52 | .805 | -1.613 |
| | Male | 26 | 50.58 | 25.087 | | | | |
| Subscale **Relating to others** | Female | 28 | 2.31 | 1.114 | -.414 | 52 | .681 | -.134 |
| | Male | 26 | 2.45 | 1.264 | | | | |
| Subscale **New possibilities** | Female | 28 | 2.14 | 1.189 | -.709 | 52 | .482 | -.245 |
| | Male | 26 | 2.38 | 1.353 | | | | |
| Subscale **Personal strength** | Female | 28 | 2.23 | 1.236 | .061 | 52 | .951 | .021 |
| | Male | 26 | 2.21 | 1.230 | | | | |
| Subscale **Spiritual change** | Female | 28 | 2.68 | 1.657 | 1.152 | 52 | .255 | .505 |
| | Male | 26 | 2.17 | 1.562 | | | | |
| Subscale **Appreciation of life** | Female | 28 | 2.78 | 1.137 | -.200 | 52 | .843 | -.067 |
| | Male | 26 | 2.85 | 1.311 | | | | |

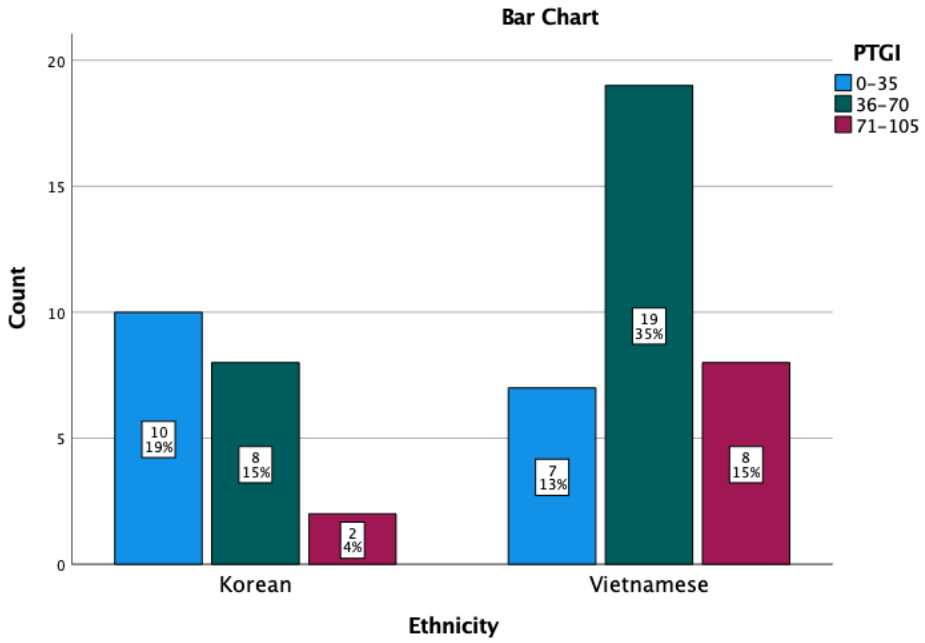



**Figure 23 Post-traumatic growth in different ethnic groups**

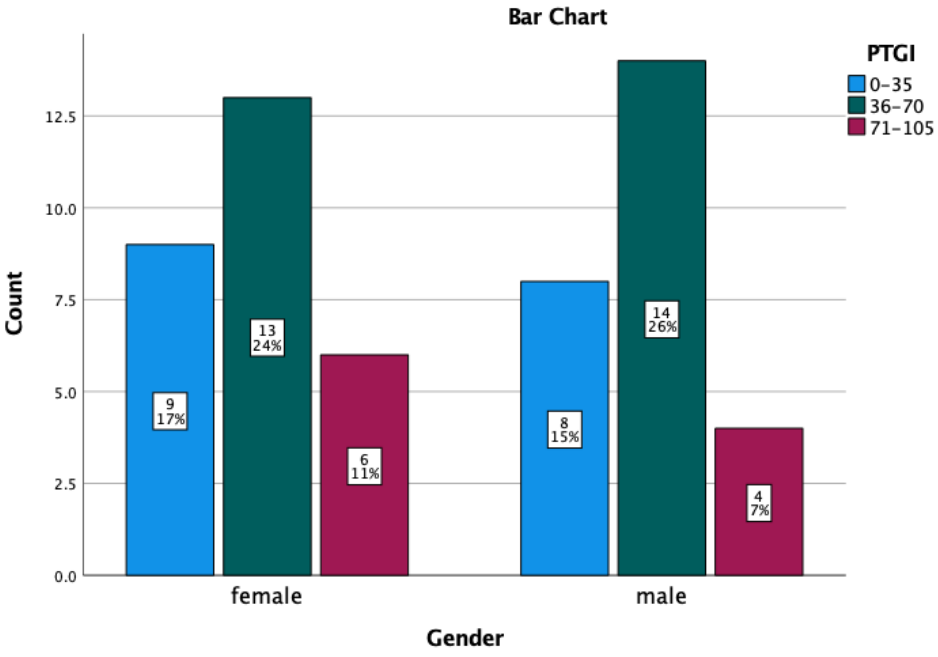



**Figure 24 Post-traumatic growth in different gender groups**

**Table 19 Post-Traumatic Growth in different age groups**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Age | N | Mean | Std. deviation | t | df | Sig. (2 tailed) | Mean difference |
| PTG **Total score** | ≥ 40 | 49 | 51.39 | 23.877 | 1.264 | 51 | .212 | 15.388 |
| | < 40 | 4 | 36.00 | 14.024 | | | | |
| Subscale **Relating to others** | ≥ 40 | 49 | 2.41 | 1.216 | .379 | 51 | .706 | .234 |
| | < 40 | 4 | 2.18 | .653 | | | | |
| Subscale **New possibilities** | ≥ 40 | 49 | 2.36 | 1.259 | 1.549 | 51 | .128 | 1.005 |
| | < 40 | 4 | 1.35 | 1.050 | | | | |
| Subscale **Personal strength** | ≥ 40 | 49 | 2.34 | 1.195 | 1.959 | 51 | .056* | 1.212 |
| | < 40 | 4 | 1.13 | 1.090 | | | | |
| Subscale **Spiritual change** | ≥ 40 | 49 | 2.58 | 1.615 | 1.926 | 51 | .060* | 1.582 |
| | < 40 | 4 | 1.00 | .816 | | | | |
| Subscale **Appreciation of life** | ≥ 40 | 49 | 2.87 | 1.241 | .582 | 51 | .563 | .368 |
| | < 40 | 4 | 2.50 | .637 | | | | |

*: p< .1

**Table 20 Post-Traumatic Growth in different income groups**

| | | | | | T-test | | | |
|---|---|---|---|---|---|---|---|---|
| | Income | N | Mean | Std. deviation | t | df | Sig. (2 tailed) | Mean difference |
| PTG **Total score** | More than3 million | 7 | 50.14 | 19.828 | .015 | 50 | .988 | 19.160 |
| | Less than 3 million | 45 | 50.00 | 23.738 | | | | |
| Subscale **Relating to others** | More than3 million | 7 | 2.45 | .816 | .126 | 50 | .901 | 1.000 |
| | Less than 3 million | 45 | 2.39 | 1.192 | | | | |
| Subscale **New possibilities** | More than 3 million | 7 | 2.51 | 1.264 | .569 | 50 | .572 | 1.322 |
| | Less than 3 million | 45 | 2.22 | 1.262 | | | | |
| Subscale **Personal strength** | More than3 million | 7 | 2.00 | 1.199 | -.579 | 50 | .565 | .700 |
| | Less than 3 million | 45 | 2.28 | 1.206 | | | | |
| Subscale **Spiritual change** | More than3 million | 7 | 1.29 | 1.496 | -2.146 | 50 | .037** | -.085 |
| | Less than 3 million | 45 | 2.62 | 1.538 | | | | |
| Subscale **Appreciation of life** | More than 3 million | 7 | 3.28 | 1.026 | 1.101 | 50 | .547 | 1.544 |
| | Less than 3 million | 45 | 2.74 | 1.247 | | | | |

**: p< .05

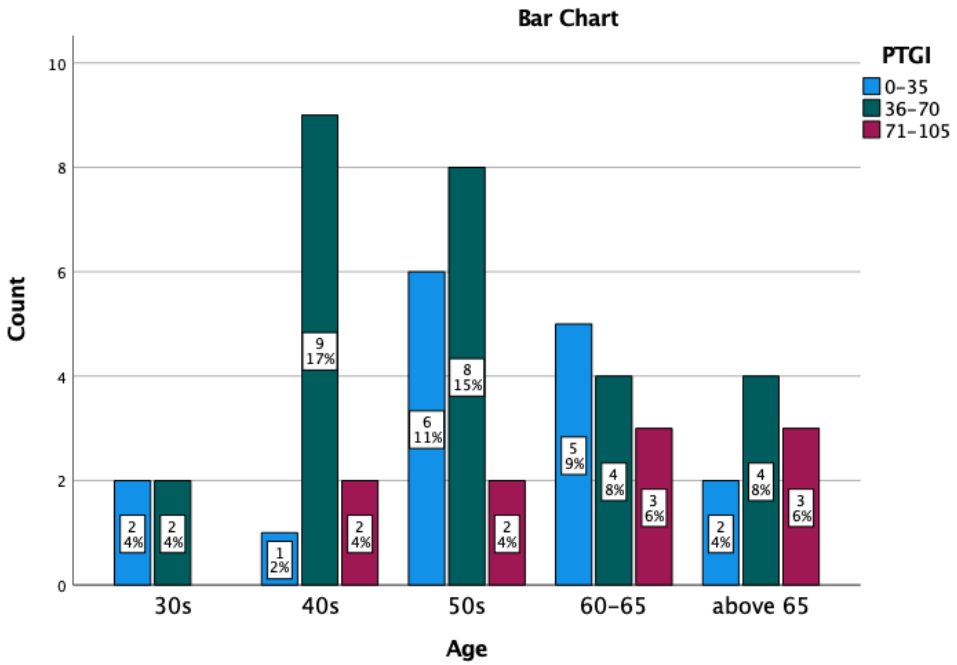



**Figure 25 Post-traumatic growth in different age groups**

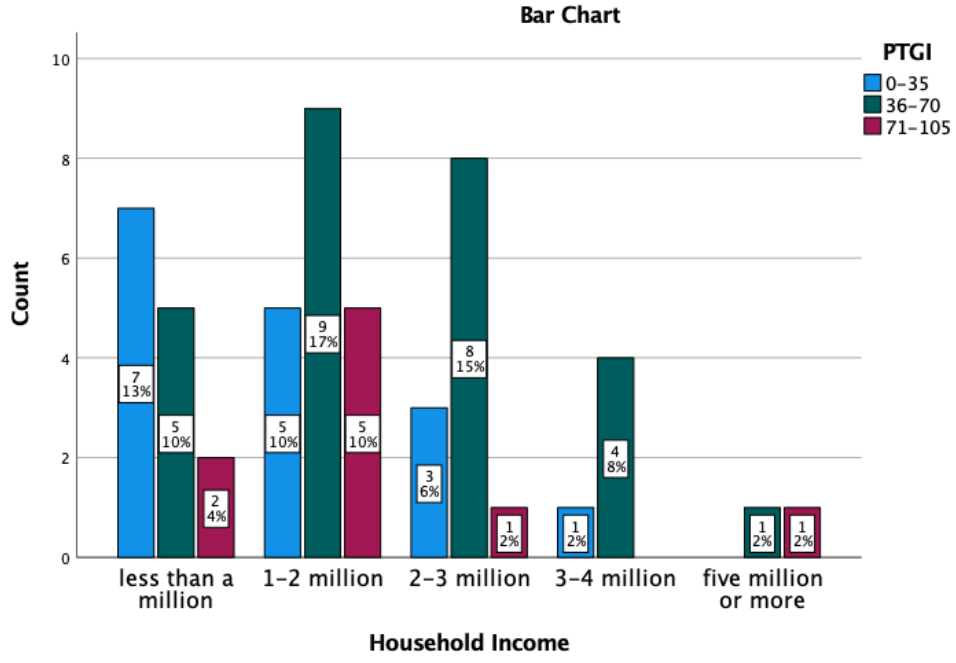



**Figure 26 Post-traumatic growth in different income groups**

### *2.3.4 Perceived social support*

In our sample, the average level of perceived social support is 5.04, support from significant other is 5.16, support from family is 5.30, and support from friends is 4.66. The primary support source is family, and the level of perceived social support from friends is significantly lower than the support from the other two sources (see **Table 21**).

Between the mean scores of two ethnic groups, there's no significant differences (see **Table 22**). Before conducting Fisher's exact test, MSPSS score is divided into two categories: Lower-level social support (1-3) and higher-level social support (4-7). Fisher's exact test result showed the perceived level of social support is not associated with ethnicity factor (*p=0.64*, Fisher's exact test. See **Figure 27**). Comparison by gender (**Table 23**) shows there are no significant differences between females and males except the support from friends, the female group has more support from friends compared to men at the 10% significant level. This is possible because females are more open to asking for support from friends while males tend to open up to intimate relationships. Fisher's exact test result showed perceived level of social support is not associated with gender factor (*p=0.184*, fisher's exact test. See **Figure 28**). Comparison of mean scores of age groups (**Table 23**) and income groups (**Table 24**) are not significant. Fisher's exact test also showed that the association with perceived social support with age (*p=0.37*, Fisher's exact test. See **Figure 29**) and income factor (*p=0.461*, Fisher's exact test. See **Figure 30**).

**Table 21 Level of Perceived Social Support**

| | N | Min. | Max. | Mean (SD) | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|
| MSPSS **Total Score** | 54 | 1.00 | 7.00 | 5.04 (1.31) | | | |
| Support source **Significant other** | 54 | 1.00 | 7.00 | 5.16 (1.34) | .380 | 53 | .706 |
| Support source **Family** | 54 | 1.00 | 7.00 | 5.30 (1.38) | 2.055 | 53 | .045** |
| Support source **Friends** | 54 | 1.00 | 7.00 | 4.66 (1.47) | -2.688 | 53 | .010** |

**: $p < .05$

**Table 22 Perceived Social Support Comparison of Two Ethnic Groups**

| | Ethnicity | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) | Mean difference |
|---|---|---|---|---|---|---|---|---|
| MSPSS **Total Score** | Korean | 20 | 5.01 | 1.107 | -.114 | 52 | .910 | -.042 |
| | Vietnamese | 34 | 5.05 | 1.432 | | | | |
| Support source **Significant other** | Korean | 20 | 5.26 | 1.299 | .418 | 52 | .678 | .160 |
| | Vietnamese | 34 | 5.10 | 1.386 | | | | |
| Support source **Family** | Korean | 20 | 5.24 | 1.096 | -.238 | 52 | .812 | -.093 |
| | Vietnamese | 34 | 5.33 | 1.533 | | | | |
| Support source **Friends** | Korean | 20 | 4.54 | 1.301 | -.456 | 52 | .651 | -.190 |
| | Vietnamese | 34 | 4.73 | 1.579 | | | | |

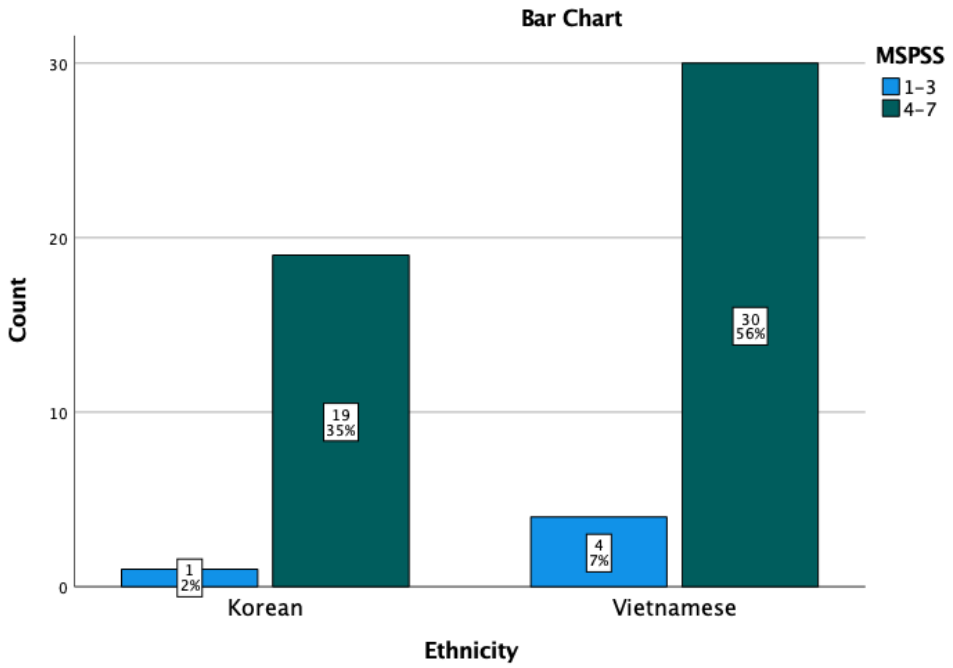



**Figure 27 Perceived social support in different ethnic groups**

**Table 23 Perceived Social Support Comparison by Gender**

| | Ethnicity | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) | Mean difference |
|---|---|---|---|---|---|---|---|---|
| MSPSS **Total Score** | Female | 28 | 5.31 | .776 | 1.580 | 52 | .120 | .556 |
| | Male | 26 | 4.75 | 1.679 | | | | |
| Support source **Significant other** | Female | 28 | 5.31 | .778 | .851 | 52 | .398 | .313 |
| | Male | 26 | 5.00 | 1.768 | | | | |
| Support source **Family** | Female | 28 | 5.59 | .794 | 1.649 | 52 | .105 | .609 |
| | Male | 26 | 4.98 | 1.772 | | | | |
| Support source **Friends** | Female | 28 | 5.02 | 1.007 | 1.913 | 52 | .061* | .749 |
| | Male | 26 | 4.27 | 1.789 | | | | |

*: p < .1

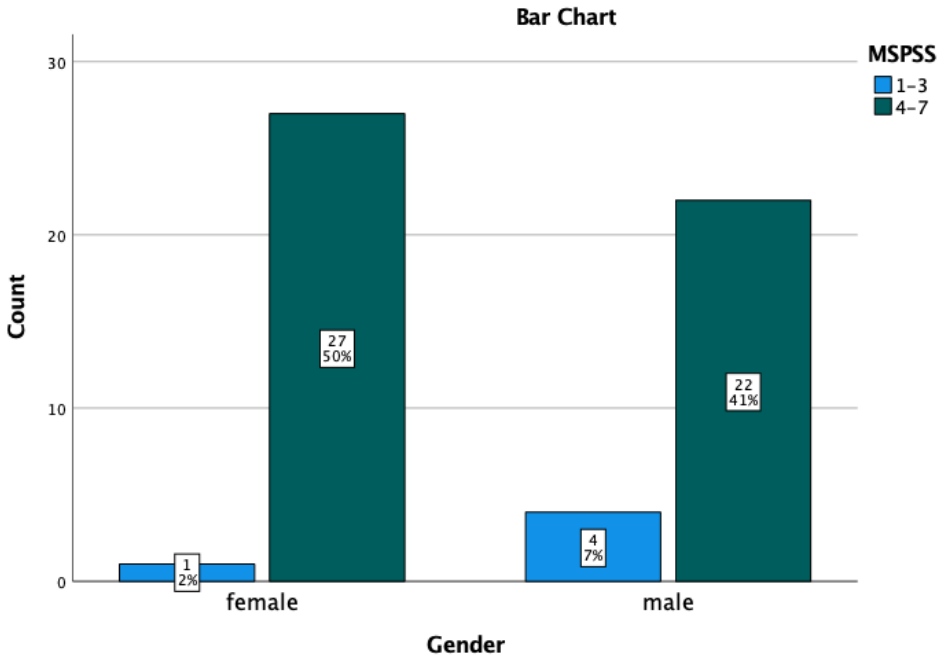



**Figure 28 Perceived social support in different gender groups**

**Table 24 Perceived Social Support Comparison by Age**

| | Age | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) | Mean difference |
|---|---|---|---|---|---|---|---|---|
| MSPSS **Total Score** | ≥ 40 | 49 | 5.05 | 1.357 | .104 | 51 | .918 | .072 |
| | < 40 | 4 | 4.98 | .905 | | | | |
| Support source **Significant other** | ≥ 40 | 49 | 5.16 | 1.394 | -.394 | 51 | .695 | -.279 |
| | < 40 | 4 | 5.44 | .657 | | | | |
| Support source **Family** | ≥ 40 | 49 | 5.30 | 1.442 | -.016 | 51 | .988 | -.011 |
| | < 40 | 4 | 5.31 | .473 | | | | |
| Support source **Friends** | ≥ 40 | 49 | 4.69 | 1.475 | .645 | 51 | .522 | .501 |
| | < 40 | 4 | 4.19 | 1.772 | | | | |

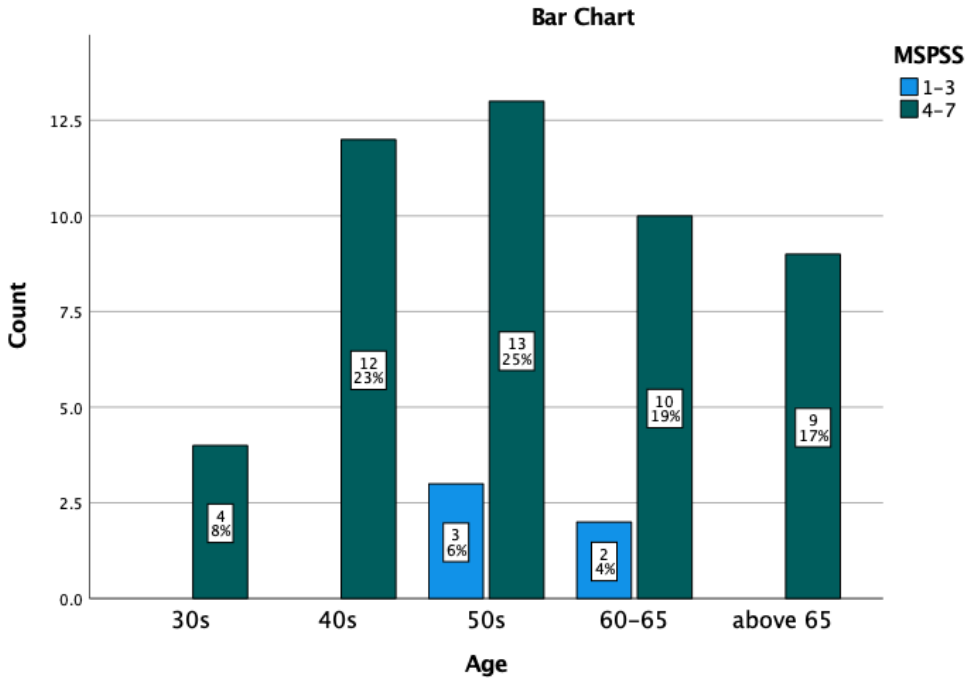



**Figure 29 Perceived social support in different age groups**

**Table 25 Perceived Social Support Comparison by Income**

| | Income | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) | Mean difference |
|---|---|---|---|---|---|---|---|---|
| MSPSS **Total Score** | More than 3 million | 7 | 5.27 | .700 | .527 | 50 | .601 | .287 |
| | Less than 3 million | 45 | 4.99 | 1.406 | | | | |
| Support source **Significant other** | More than 3 million | 7 | 5.43 | .954 | .567 | 50 | .573 | .317 |
| | Less than 3 million | 45 | 5.11 | 1.425 | | | | |
| Support source **Family** | More than 3 million | 7 | 5.68 | .746 | .790 | 50 | .433 | .451 |
| | Less than 3 million | 45 | 5.23 | 1.472 | | | | |
| Support source **Friends** | More than 3 million | 7 | 4.71 | .847 | .150 | 50 | .881 | .092 |
| | Less than 3 million | 45 | 4.62 | 1.579 | | | | |

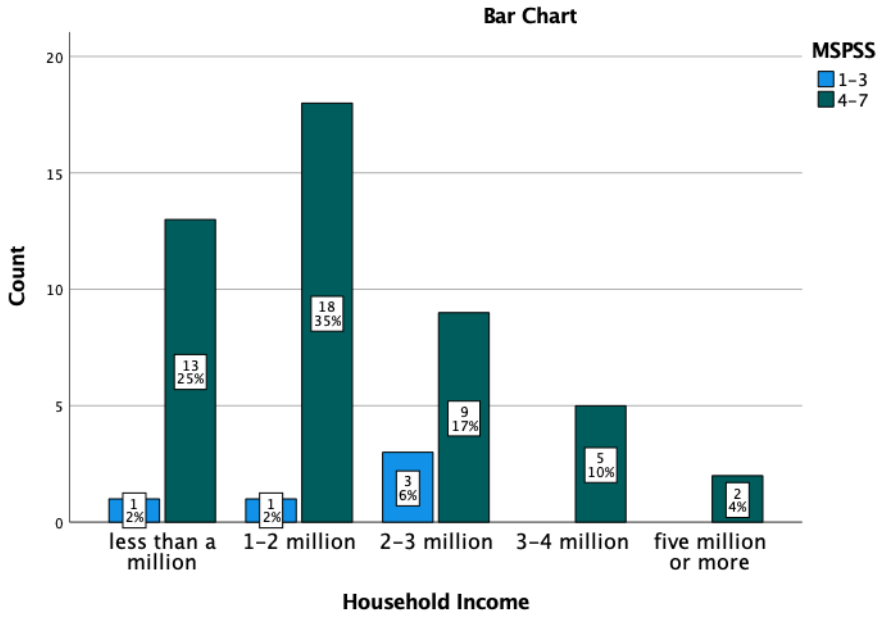



**Figure 30 Perceived social support in different income groups**

### *2.3.5 Satisfaction with governmental support*

This scale is consisted of 16 items, sums of the items refer to the level of satisfaction with governmental support. In general, participants have a moderate level of satisfaction with government disaster support (**Table 26**). As **Figure 31** shows, participants are mostly satisfied with the infrastructure recovery; the least satisfied item is the fairness of resource distribution. Between the two ethnic groups, the Korean group's satisfaction level is significantly lower than the Vietnamese group (**Table 27**). Fisher's exact test result also showed that satisfaction level with government support is associated with ethnicity factor (*p=0.001*, Fisher's exact test. See **Figure 32**). The Korean participants were mostly satisfied with the infrastructure recovery and least satisfied with general government policies. The Vietnamese residents are also highly satisfied with infrastructure recovery, least satisfied with psychosocial support (See **Figure 33** & **Figure 34**). There are no significant differences between different gender and age groups (**Table 28** & **Table 29**). Satisfaction with government support is also not associated with gender and age factors (respectively p=0.174; p=0.952, Fisher's exact test. See **Figure 35** & **Figure 36**).

**Table 26 Satisfaction with Governmental Support**

| | N | Min. | Max. | Mean (SD) |
|---|---|---|---|---|
| **Satisfaction level** | 54 | 16 | 96 | 43.90 (23.6) |

**Table 27 Satisfaction with Governmental Support Comparison by Ethnicity**

| | Ethnicity | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) | Mean difference |
|---|---|---|---|---|---|---|---|---|
| **Satisfaction level** | Korean | 20 | 43.90 | 20.476 | -4.746 | 52 | .000*** | -25.453 |
| | Vietnamese | 34 | 69.35 | 18.151 | | | | |

***: p< .01

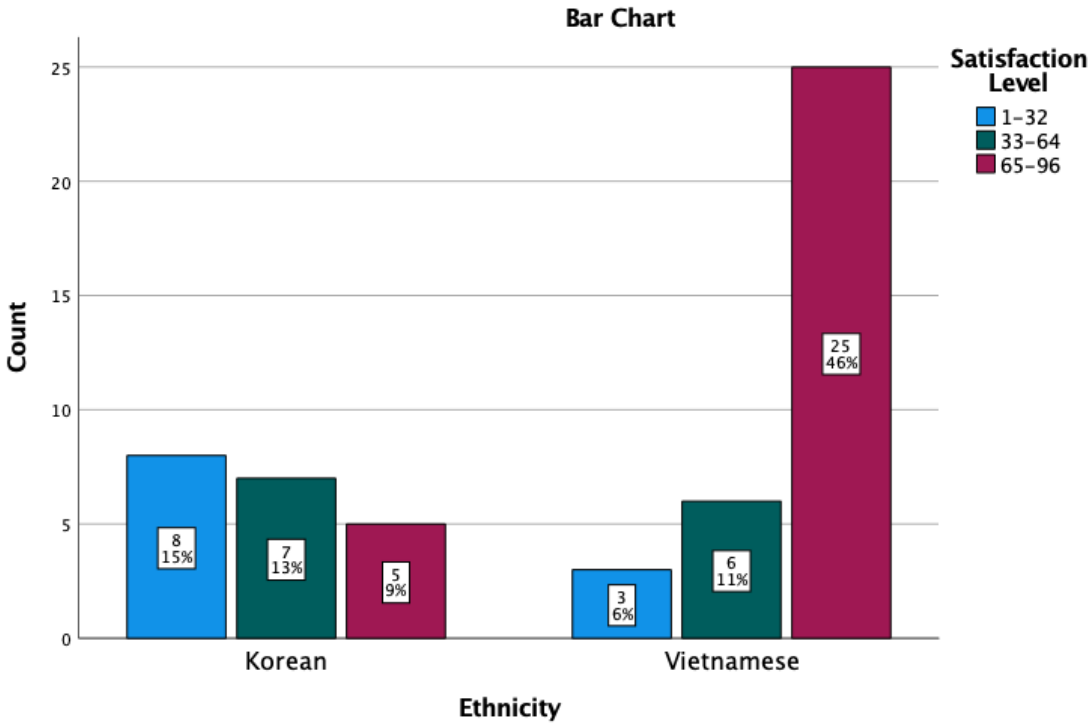



**Figure 31 Satisfaction with government support in different ethnic groups**

**Figure 32 Participants' satisfaction level with each item**

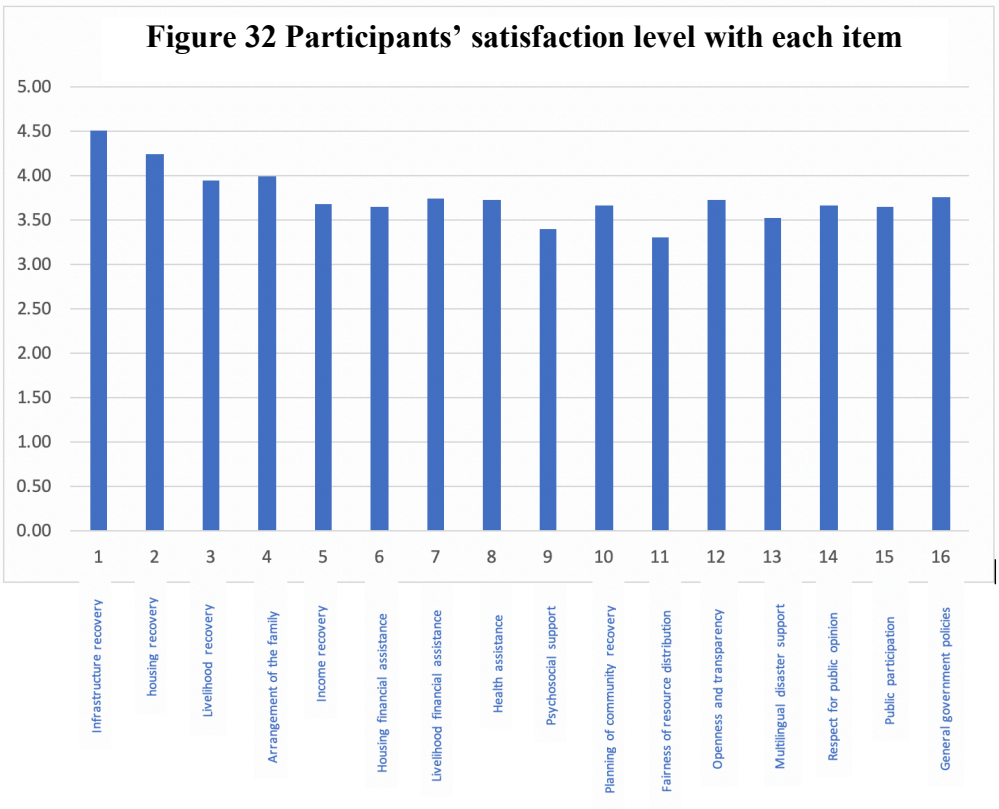
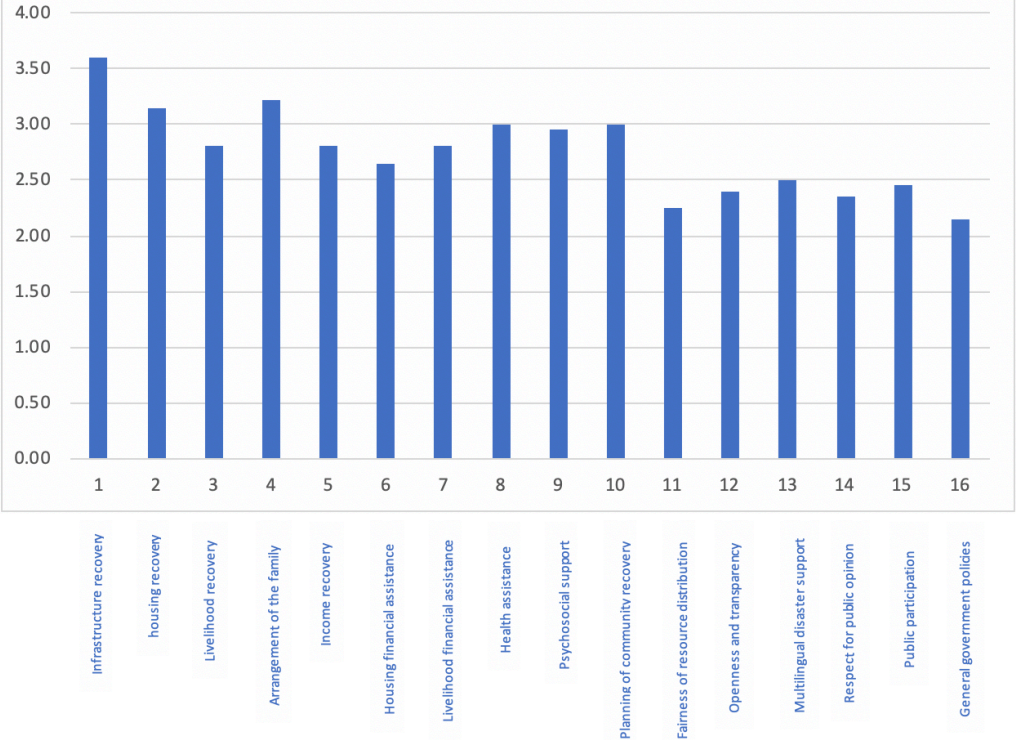



**Figure 33 Korean residents' satisfaction with each item**



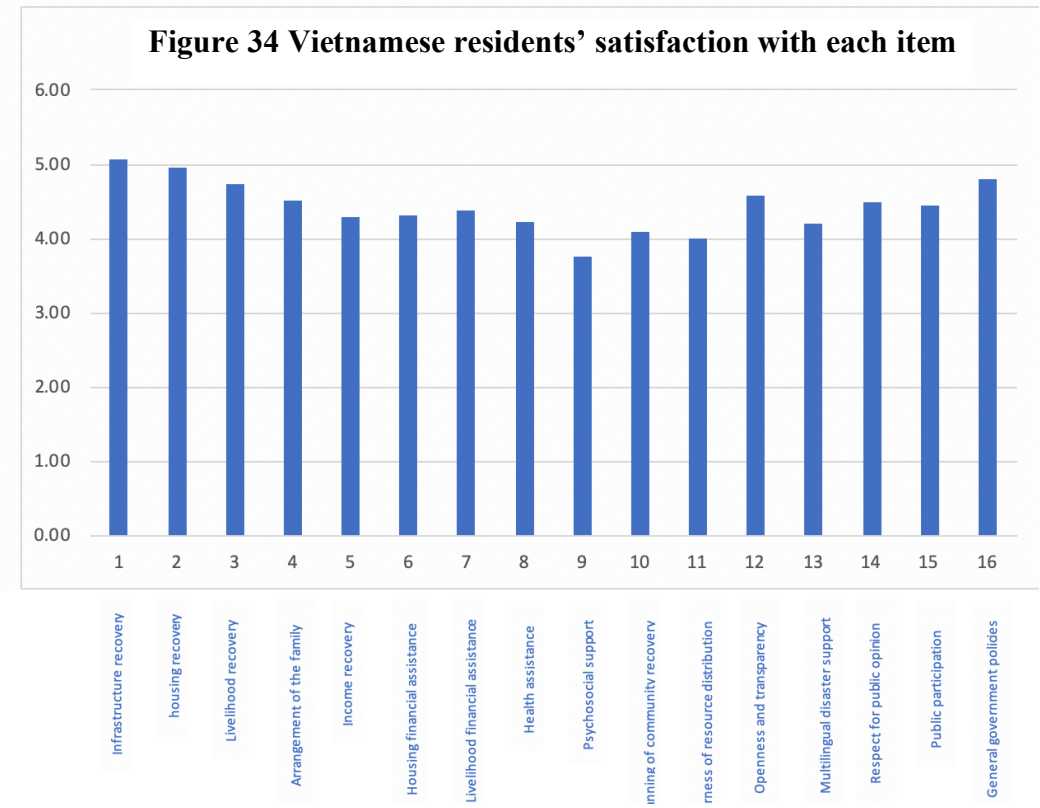



**Figure 34 Vietnamese residents' satisfaction with each item**

**Table 28 Satisfaction with Governmental Support Comparison by Gender**

| | Gender | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) | Mean difference |
|---|---|---|---|---|---|---|---|---|
| **Satisfaction level** | Female | 28 | 63.68 | 19.021 | 1.275 | 52 | .208 | 7.794 |
| | Male | 26 | 55.88 | 25.619 | | | | |

**Table 29 Satisfaction with Governmental Support Comparison by Age**

| | Age | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) | Mean difference |
|---|---|---|---|---|---|---|---|---|
| **Satisfaction level** | Over 40 | 49 | 59.78 | 22.680 | .560 | 51 | .578 | 6.526 |
| | Less than 40 | 4 | 53.25 | 17.933 | | | | |

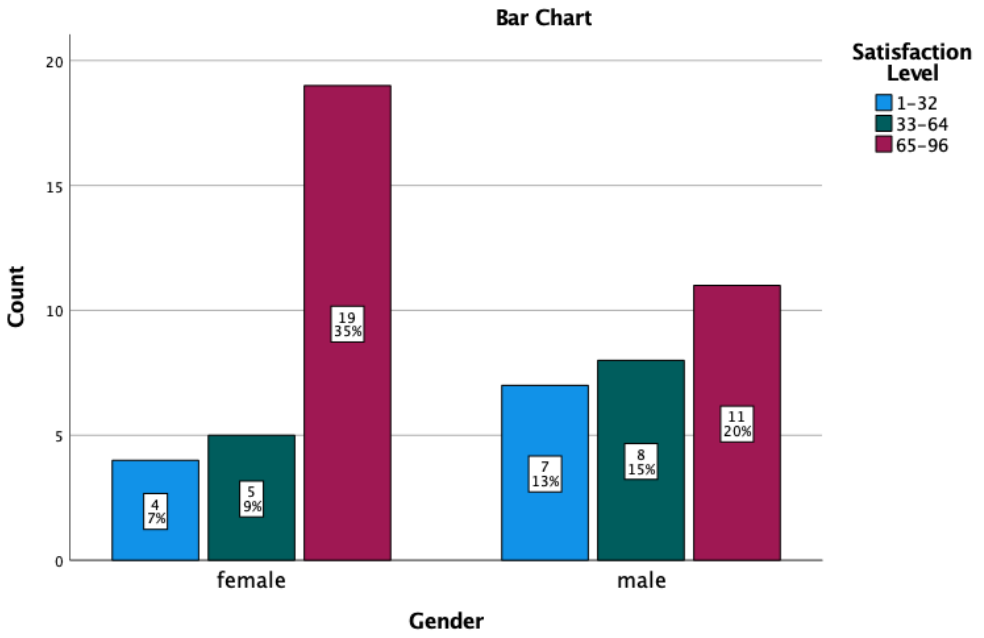



**Figure 35 Satisfaction with government support in different gender groups**

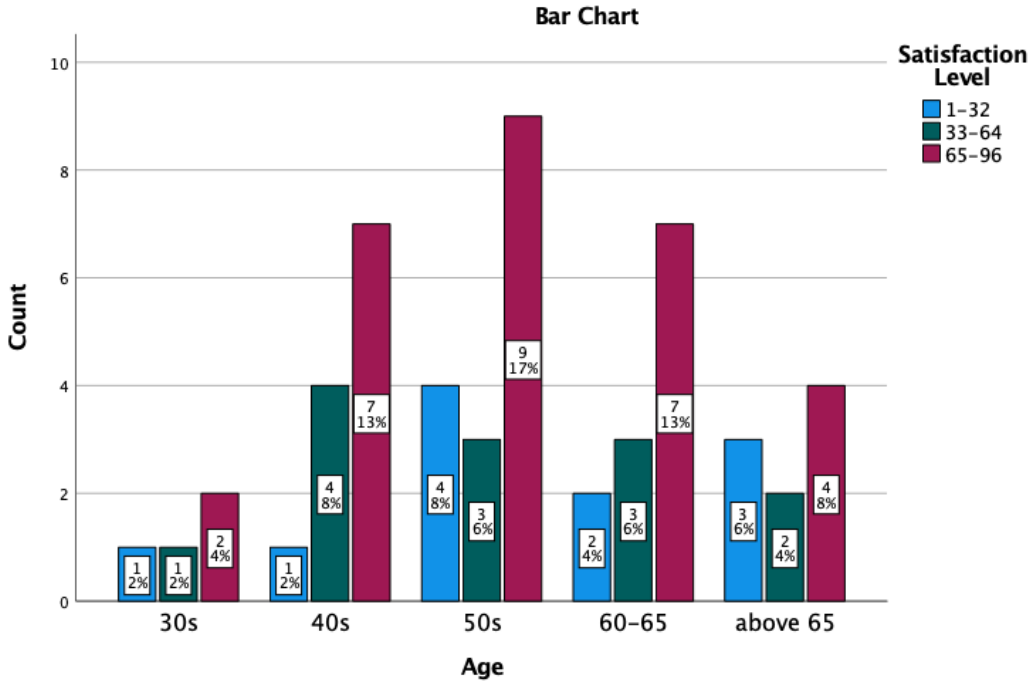



**Figure 36 Satisfaction with government support in different age groups**

## 2.4 Regression analysis

In the first step, all categorical demographic variables are coded as dummy variables to incorporate these nominal variables into regression analysis. For example, education background, marital status, change of employment, and housing are coded as (1,0) dummy variables. In the case of disaster experience, all disaster experience events are categorized into short-term, long-term, and permanent events, based on how long this event would last. For example, events such as "seeing fire", "separated from family members", and "victimization" are categorized into the short-term event; events such as "loss of income", "injury of family member", and "relocation" are categorized into the long-term events; events such as "loss of family members", "loss of property", and "house collapse" are categorized into the permanent event. These categories of events are given scores of 1, 2, and 3, respectively. Based on each participant's choice, the mean score is calculated as a reference for the level of the harshness of disaster experience.

Then, the regression analysis of demographic variables (including disaster experience) with mental health is conducted. In the third step, all demographic variables are controlled, regression analysis of social support and government support with mental distress and PTG are performed separately.

Demographic variables regression analysis with mental distress (**Table 30**) shows, the items "job was suspended but resumed later", "I changed job due to disaster", and "I changed job due to non-disaster related reason" are found to be significantly related to mental distress. Compared to those whose employment wasn't impacted, people who experienced job suspension or job change are more likely to develop negative mental health. The result also showed that the housing items "new construction at land re-adjustment site" and "individual relocation" are negatively related to mental distress at 10% and 5 % significant levels, respectively. This means that in reference to those who newly construct house on original location, people who individually relocated are likely to report a lower level of mental distress. Disaster

experience is also associated with mental distress at 10% significant level, those who have experienced more adverse disaster experience (or those who have higher mean scores in disaster experience) are likely to report a higher level of mental distress.

Demographic variables regression analysis with PTG (**Table 31**) shows the marital status as "widowed" is related to PTG at 5% significant level, which could mean that as compared to those who married, widows are more likely to develop PTG after the disaster; the item "I changed job due to disaster" is related to PTG at 10% significant level; "new construction at land-readjustment site" is found to be negatively related to PTG at 10% significant level. The result of regression analysis with social support (**Table 32**) showed both perceived level of social support and satisfaction with governmental support are not related to mental distress. However, the perceived level of social support is significantly associated with PTG, which indicates people who have a higher level of perceived social support are likely to report a higher level of post-traumatic growth.

**Table 30 Multiple Regression Analysis: Demographic variables indication to mental distress**

| | | Mental Distress | | | | |
|---|---|---|---|---|---|---|
| | | $R^2$ | Unstandardized B | Standardized coefficients β | T | Sig. |
| | | .733 | | | | |
| Constant | | | 3.458 | | .149 | .883 |
| | Age | | -1.573 | -.129 | -.744 | .464 |
| | Children | | 1.08 | .105 | .512 | .614 |
| | Income | | -1.829 | -.134 | -.838 | .411 |
| | Male | | -7.359 | -.249 | -1.529 | .140 |

| | | | | | |
|---|---|---|---|---|---|
| | Vietnamese | -.914 | -.03 | -.113 | .911 |
| Educational background | Middle school | .181 | .006 | .016 | .988 |
| | High school | 20.821 | .684 | 1.618 | .119 |
| | College/university | 9.634 | .293 | .751 | .460 |
| Marital status | Divorced | .467 | .009 | .062 | .951 |
| | Widowed | 3.529 | .057 | .343 | .735 |
| | Single | -4.197 | -.077 | -.423 | .676 |
| Change of Employment | Job was suspended but resumed later | 20.416 | 0.553 | 2.435 | .023** |
| | I changed job due to disaster | 14.907 | 0.453 | 2.329 | .029** |
| | I lost job due to disaster | 18.949 | 0.305 | 1.638 | .115 |
| | I changed job due to non-disaster related reason | 31.124 | 0.413 | 2.628 | .015** |
| | I lost job due to non-disaster related reason | 13.682 | 0.22 | 1.532 | .139 |
| | Start business due to non-disaster related reason | -20.856 | -0.198 | -1.316 | .201 |
| | Unemployed both times | -8.405 | -0.197 | -1.035 | .312 |
| | Other | -16.052 | -0.213 | -1.158 | .259 |
| Current housing | New construction at land re-adjustment site | -20.138 | -.324 | -1.88 | .073* |
| | Group relocation | -15.707 | -.149 | -.768 | .451 |
| | Individual relocation | -21.026 | -.569 | -2.255 | .034** |

| | | | | | |
|---|---|---|---|---|---|
| | Disaster public housing | -13.247 | -.329 | -1.114 | .277 |
| | Rental house | -4.802 | -.152 | -.476 | .638 |
| | Other | -.908 | -.023 | -.091 | .929 |
| | Disaster experience | 7.794 | .294 | 1.845 | .078* |

*: p[9]< .1 **: p < .05

**Table 31 Multiple Regression Analysis: Demographic variables indication to PTG**

| | | PTG | | | | |
|---|---|---|---|---|---|---|
| | | $R^2$ | Unstandardized B | Standardized coefficients β | T | Sig. |
| | | .527 | | | | |
| Constant | | | 10.674 | | .226 | .823 |
| | Age | | 2.926 | .157 | .679 | .504 |
| | Children | | .426 | .027 | .099 | .922 |
| | Income | | 1.053 | .05 | .237 | .815 |
| | Male | | 5.44 | .12 | .555 | .584 |
| | Vietnamese | | .149 | .003 | .009 | .993 |
| Educational background | Middle school | | -6.368 | -.129 | -.269 | .79 |
| | High school | | 3.774 | .081 | .144 | .887 |
| | College/university | | -6.143 | -.122 | -.235 | .816 |

[9] In regression analysis, t value and p value are testing the null hypothesis that are coefficient is 0. T is calculated difference in units of standard error, p value indicates whether the model is sufficient to reject null hypothesis (null hypothesis: independent variable has no effect on dependent variable). The greater t value, the greater the evidence independent variable effects result, lower the p value, the more statistically significant the relationship between dependent and independent variable.

| | | | | | |
|---|---|---|---|---|---|
| Marital status | Divorced | .111 | .001 | .007 | .994 |
| | Widowed | 50.191 | .527 | 2.393 | .025** |
| | Single | -3.378 | -.041 | -.167 | .869 |
| Change of employment | Job was suspended but resumed later | 21.745 | .385 | 1.273 | .216 |
| | I changed job due to disaster | 23.167 | .46 | 1.777 | .089* |
| | I lost job due to disaster | 29.907 | .314 | 1.269 | .217 |
| | I changed job due to non-disaster related reason | 30.183 | .262 | 1.251 | .224 |
| | I lost job due to non-disaster related reason | -11.423 | -.12 | -.628 | .536 |
| | Start business due to non-disaster related reason | 24.562 | .152 | .761 | .454 |
| | Unemployed both times | 16.014 | .246 | .967 | .343 |
| | Other | 10.168 | .088 | .36 | .722 |
| Current housing | New construction at land re-adjustment site | -39.766 | -.418 | -1.823 | .081* |
| | Group relocation | -28.469 | -.176 | -.683 | .502 |
| | Individual relocation | -3.616 | -.064 | -.19 | .851 |
| | Disaster public housing | -8.672 | -.141 | -.358 | .724 |
| | Rental house | 0.042 | .001 | .002 | .998 |
| | Other | -4.508 | -.073 | -.221 | .827 |
| | Disaster experience | 5.592 | .138 | .65 | .522 |

*: p< .1; **: p<.05

**Table 32 Multiple Regression Analysis: social support indication to mental health**

| | | **Mental Distress** | | | | |
|---|---|---|---|---|---|---|
| | | $R^2$ | Unstandardized B | Standardized coefficients β | T | Sig. |
| Constant | | .737 | 9.424 | | .345 | .734 |
| | Perceived Social Support | | -.712 | -.065 | -.399 | .694 |
| | Satisfaction with governmental support | | -.048 | -.071 | -.368 | .717 |
| | | **PTG** | | | | |
| | | $R^2$ | Unstandardized B | Standardized coefficients β | T | Sig. |
| Constant | | .705 | -62.865 | | -1.419 | .17 |
| | Perceived Social Support | | 9.772 | 0.581 | 3.379 | .003*** |
| | Satisfaction with governmental support | | 0.307 | 0.296 | 1.44 | .165 |

***: p< .01

## 2.4 Principle Component Analysis

Principle component analysis is conducted to reduce the Satisfaction with Government Support Scale dimension to see component loading of each item. PCA result shows, all 16 items of the scale are highly correlated, and extracted comprehensive index explains 78% original items (see **Table 33**). By examining the component loading of each item (**Table 34**), we learned, the value of item 12 (openness and transparency) is the largest (0.946), followed by item 14 (respect for public opinion). This shows the satisfaction with openness and transparency have a more considerable influence on the satisfaction level with government support, followed by government respect for public opinion. This can be interpreted as the exchange of information between government and foreign residents is most valued by the participants.

**Table 33 Total Variance Explained**

| Component | Total | Initial Eigenvalues % of Variance | Cumulative % | Extraction Total % | Sum of squared % of Variance | Loadings Cumulative % |
|---|---|---|---|---|---|---|
| 1 | **12.479** | **77.994** | **77.994** | **12.479** | **77.994** | **77.994** |
| 2 | .982 | 6.140 | 84.134 | | | |
| 3 | .621 | 3.883 | 88.017 | | | |
| 4 | .444 | 2.775 | 90.791 | | | |
| 5 | .332 | 2.077 | 92.868 | | | |
| 6 | .287 | 1.797 | 94.665 | | | |
| 7 | .171 | 1.067 | 95.732 | | | |
| 8 | .146 | .912 | 96.644 | | | |
| 9 | .128 | .798 | 97.442 | | | |
| 10 | .120 | .750 | 98.191 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | .084 | .525 | 98.716 | | | |
| 12 | .069 | .432 | 99.148 | | | |
| 13 | .056 | .350 | 99.498 | | | |
| 14 | .039 | .242 | 99.739 | | | |
| 15 | .023 | .145 | 99.884 | | | |
| 16 | .019 | .116 | 100.000 | | | |

**Table 34 Component Matrix**

| Item No. | Component 1 |
|---|---|
| 1 | .851 |
| 2 | .901 |
| 3 | .895 |
| 4 | .880 |
| 5 | .910 |
| 6 | .880 |
| 7 | .913 |
| 8 | .843 |
| 9 | .788 |
| 10 | .875 |
| 11 | .909 |
| **12** | **.946** |
| 13 | .805 |
| **14** | **.915** |
| 15 | .905 |
| 16 | .899 |

## 2.5 Multiple Correspondence Analysis and Regression Analysis

In this step, the Satisfaction with Governmental Support Scale" was analyzed with multiple correspondence analysis to further examine the relationship between 16 items of the scale. This method would show the items in two-dimensional figures, allowing us to grasp the relationship between the items. Then, regression analysis is conducted again with converted variables from multiple correspondence analysis.

In **Figure 38** (with reference to **Figure 37**), items on dimension 2 are noticeably separated into two categories, which items of housing recovery and infrastructure recovery are located on the lower end, and other items such as income recovery, livelihood recovery, health etc. are all located on the higher end. While the items on the lower end of dimension 2 can be categorized as structural recovery, the items on the higher end of dimension 2 can be categorized as non-structural recovery. Hence, we refer dimension 2 as "types of the recovery (structural/non-structural recovery)" in the following.

On dimension 1, the items that related to livelihood financial assistance, transparency of information, housing recovery, income recovery etc. are on the higher end, while psychosocial support, health support and multilingual support etc. are on the lower end of dimension 1. The items located on the higher end are the disaster support needed by every disaster victim； on the other hand, items on the lower end are needed by the disaster victims with specific conditions. Hence, we refer dimension 1 as "characteristics of the need (common/specific needs)" in the following.

After identifying each dimension, regression analysis is conducted with mental health results. Type of recovery (structural or non-structural recovery) impacts mental distress on the level of 10% significance, showing satisfaction level with non-structural recovery can better predict mental distress level (**see Table 35)**. On the other hand, characteristics of the needs (common/specific needs), types of recovery (structural/non-structural recovery) and perceived social support all have significant

impact on post-traumatic growth. Satisfaction with non-structural recovery satisfaction with government assistance with common needs and higher level of perceived social support have impact on post-traumatic growth (see **Table 36**).

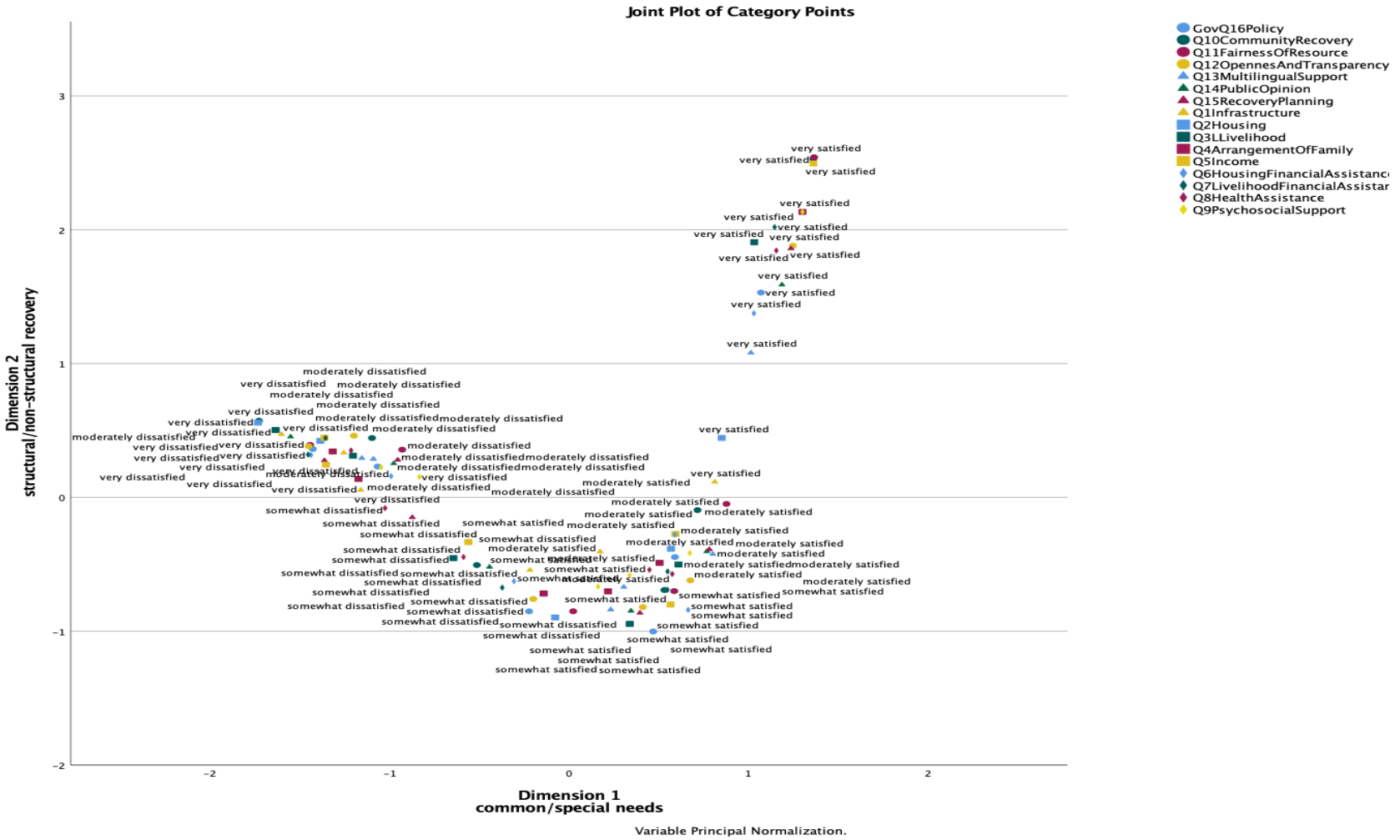



**Figure 37 Join plot of category point**

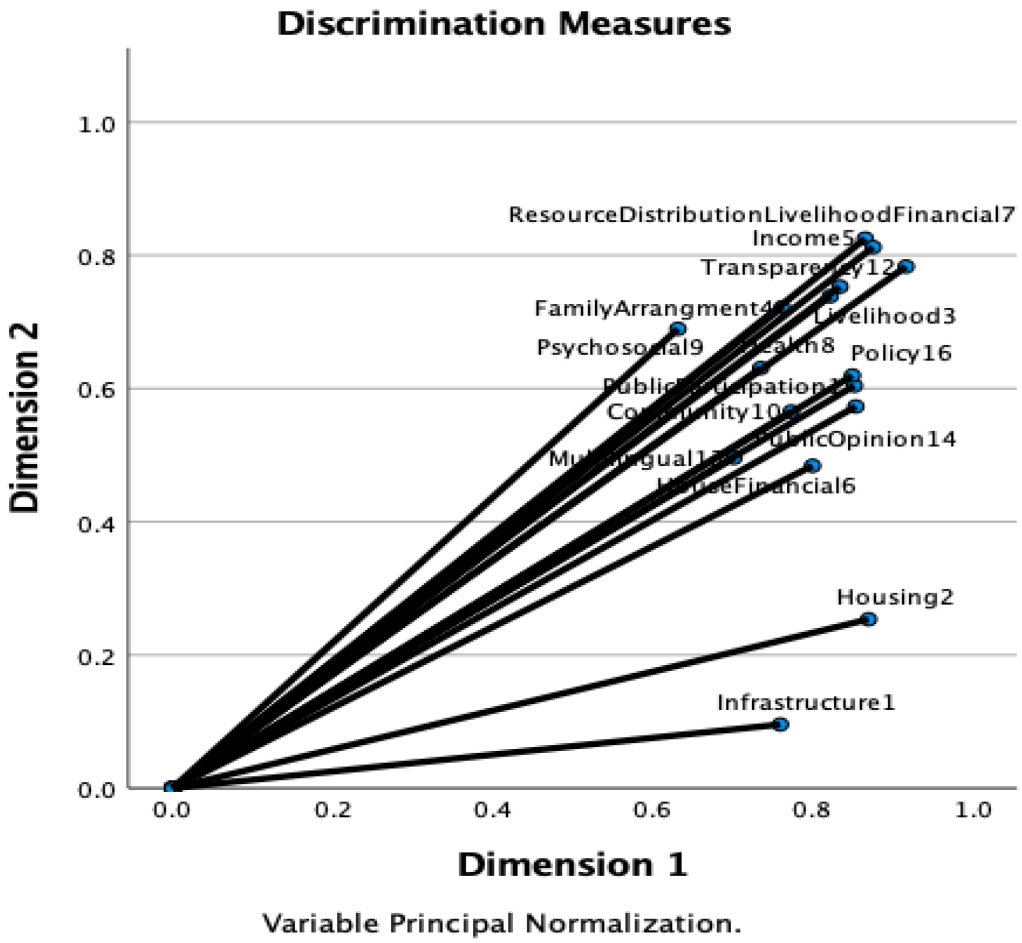



**Figure 38 Discrimination measures**

**Table 35 Social support and governmental support regression with post-disaster mental distress**

| | Mental Distress | | | | |
|---|---|---|---|---|---|
| | $R^2$ | Adjusted $R^2$ | Standardized β | t | Sig. |
| | .113 | .060 | | | |
| Constant | | | | 1.770 | .083 |
| Characteristics of needs (Dimension 1) | | | .199 | 1.501 | .140 |
| Structural/non-structural support (Dimension 2) | | | .269 | 1.978 | .053* |
| Perceived social support | | | .032 | .241 | .810 |

*: $p < .1$

**Table 36 Social support and governmental support regression with post-traumatic growth**

| | Post-Traumatic Growth | | | | |
|---|---|---|---|---|---|
| | $R^2$ | Adjusted $R^2$ | Standardized β | t | Sig. |
| | .422 | .387 | | | |
| Constant | | | | 1.414 | .164 |
| Characteristics of needs (Dimension 1) | | | .225 | 2.087 | .042** |
| Structural/non-structural support (Dimension 2) | | | .435 | 4.017 | .000*** |
| Perceived social support | | | .390 | 3.599 | .001*** |

**: $p < .05$, ***: $p < .01$

## 2.6 Summary of Findings from the Analysis of Questionnaire

The major findings from the analysis of the questionnaire will be summarized as follows:

- 25 years after the Hanshin-Awaji Earthquake, averagely, participants show no significant symptoms of mental distress, at the same time they reported moderate level of post-traumatic growth, the highest growth was reported in the aspect of appreciation of life. As O. M. Riffle (2020) explained, witnessing death and damages by a disaster can increases the life appreciation of disaster survivors (Riffle et al., 2020). Disaster experience may provide a new perspective to evaluate their lives. The survey findings also detected ethnic differences in the mental health outcome. The Vietnamese residents reported a higher level of PTG than the Korean residents; while the Korean residents' highest growth is reported in appreciation of life, Vietnamese residents' is reported in the aspect of spiritual belief. The possible explanation is that religion has been an important part of Vietnamese residents' lives, they use religious practice as one of their main coping strategies while facing difficulties. Previous studies also indicated that people who have experienced traumatic event have the tendency to turn to spiritual sources (Subandi et al., 2014). Disaster disrupts normal life and the way of interpreting the meaning of life. When meaning is disrupted, people adjust their beliefs to minimize the distress. Following a disaster, people may rely on their religious/spiritual beliefs to help them make sense of the unexpected negative event (Daryl *et al.,* 2020).
- No significant gender difference was identified in the mental health outcomes, which contradicted previous research findings that women tend to report higher level of PTG (Vishnevsky *et al.,* 2010).
- Regarding to Perceived level of Social support, no significant differences were identified in different ethnic groups, gender groups, age groups, and income groups. Participants reported a high level of social support in general, with family being the

primary source of support. However, in the perceived level of social support, female participants reported a higher level of perceived support from friends, which is consistent with the previous research findings. Women have larger social network with friends and more social support, while men tend to have more intimate relationship with fewer people (Shey *et al.,* 1995). This may explain why female participants reported higher perceived social support from friends compared to male participants.

- Participants have a moderate level of satisfaction with government support during the recovery, they have high level of satisfaction with infrastructure recovery, lower level of satisfaction with the fairness of resource distribution. Ethnic difference is significant regarding to the satisfaction level with government support. Korean residents reported significantly lower satisfaction. Further analysis of the Satisfaction with Government Support Scale showed that participants' general satisfaction level is largely influenced by their satisfaction with openness and transparency and government respect for public opinion. The process of government transparent disclosure of information and public be able to reflect the opinion to the government refers to a good communication between two agencies. The life recovery survey conducted by Tatsuki (2007) in Hyogo prefecture after the Hanshin-Awaji Earthquake identified seven critical elements of life recovery, and of the elements is “relation to government”. This study also indicates that communication with government is one of the vital elements of evaluating the satisfaction of disaster affected people.

- Although the association of perceived level of social support to mental distress is insignificant in this case study, it is found to be related to post-traumatic growth, which approves the hypothesis. Higher level perceived social support, satisfaction with non-structural recovery, and satisfaction with government support in addressing the common needs of disaster victims are associated with the positive psychological changes during the long-term recovery.

After identifying that the high level of social support including government support is associated with positive psychological recovery, we need to further analyze the process of foreign residents to access to social support. How to secure a high level of social support? While they reporting a high level of perceived social support, they reported lower level of satisfaction with government support. How this impacted the long-term psychological recovery? Further investigation will be conducted through interview to answer these questions, and if possible, to identify which source of support is more beneficial to the long-term psychological recovery.

## 3. Interviews with Hanshin-Awaji Disaster Victims

The second stage of assessment was implemented in January 2021. Interview questions (see **Table 37**) are designed based on the result of the previous evaluation. From the literature review in the first chapter, we learned that the language barrier, policy barrier, and empathetic barrier cause the vulnerability of foreign residents, based on this assumption, questions related to information access and other difficulties during the long-term are asked. Interviewees are also asked about their community participation; the purpose is to identify whether the people active in the community have wider access to social support and how these social supports function in solving the difficulties in the long term. Question related to government support is asked further to analyze the reason for dissatisfaction with government support and, as identified in the first wave assessment, if study participants value communication with government, in which aspect this communication impacts the long-term recovery. Participants' self-evaluation of the disaster recovery experience is also asked to identify what factors generate or hinder positive evaluation. The interviewees included three members of the Korean community (representing old comers); one interviewee is a member of the Vietnamese community (representing newcomers), based on the

results from the questionnaire, which showed the significant difference according to the ethnicity. Interviews were conducted in the Japanese language (with a Japanese-English interpreter).

**Table 37 Semi-Structured Interview Questions**

| | |
|---|---|
| Main concern | What was the biggest problem during the long-term recovery? |
| Information access | Have you experienced any difficulties with accessing disaster information? |
| Mental health support | Is there any individual/organization that provided emotional support? |
| Community | How is your relationship with your community? Have you experienced discrimination? What kind of community activities have you participated in? |
| Government support | What is your opinion on government disaster support? |
| Disaster experience evaluation | Do you think you have recovered from the disaster?<br>Could you evaluate your experience in both negative and positive ways? |
| Vulnerability | Do you think foreign residents are more vulnerable in emergencies? |
| Future Expectation | Is there anything/ any aspect of disaster recovery you want to be improved? |

### 3.1 Data Analysis

Qualitative data analysis is conducted by coding method, involves initial identification of themes and categorization of these themes. Interview transcripts are

prepared on the first step, and short phrases are noted to summarize what is being said in the text. This step is known as open coding (**Table 38** shows the examples of initial coding). In the second step, all initial codes are collected and further analyzed with the concept of the study. As a result, all initial codes are categorized into several main codes (See **Table 40**). In the last step, each interview is colored based on the main codes and achieved an organized dataset divided by color sections (thumbnail is shown in **Figure 39**).

### *3.1.1 Basic information of interviewees*

Interviewee 1, Korean, male, 30 years old, physical therapist, concerned about the recovery of local industry and population decrease. He hadn't experienced language barrier, but he expressed the difficulty of getting reliable information. People had been helping each other, especially the younger people had been helpful to elderlies. Korean communities from the nearby area and Korean organizations came to help, provided relief goods. Regarding government support, he identified the difficulty in communicating with government agencies and the lack of participation in the decision-making process. During these 26 years of recovery, infrastructure recovery is successful, but people are not fully recovered economically and emotionally.

Interviewee 2, Korean, male, 60 years old, retired worker, who lost two family members after the earthquake. After the earthquake, he lost his job and experienced financial difficulties and physical injury. He identified that it was hard to support others or expect support because everyone was in a challenging situation. He expressed that emotionally it has been hard to recover; the interviewee was emotional on the interview day, which was conducted on the 26th anniversary of the earthquake. He also expressed his anger and low trust in the government due to a lack of consideration of local people during the recovery.

Interviewee 3, Korean, male, 60 years old, community leader. He recalled that all ethnic communities came together, and relationships between different ethnic groups improved. People recognized the importance of self-help and mutual help, the community had been the primary source of support. Community should have the power and strength to continue because the government can only give a direction and cannot fully respond to all emergencies. As a result of 26 years of recovery, they live in a safe and beautiful city, but community development is still weak. What important is, learn from the past and prepare for the future. Recovery is not a goal, it is a process, he wants to make it better and better.

Interviewee 4, Vietnamese, female, 40 years old, restaurant owner, community volunteer. Hanshin-Awaji earthquake was her first earthquake experience, lack of experience caused anxiety and fear. She decided to evacuate to Vietnam and came back after three months. She stayed in tents in the park, she got supported by Takatori Relief Base and Vietnamese Relief Committee. She started to actively participate in various community activities as a volunteer, during this process, she learned Japanese and made broader connections. She tries not to think about if she recovered or not, she indicates the importance of looking forward and being prepared for the future. As a result, she has earned experience, which she considers a positive part of it. She realized the importance of making a group and vital information available before the disaster.

### 3.1.2 Qualitative data analysis process

**Table 38 Example of the initial coding framework**

| Interview transcript | Initial coding |
|---|---|
| By then, there were no SNS, no TV, we only had radio as a source of information, even newspaper wasn't distributed. We didn't know how to get information about where to get good, where we could take a shower. Word of mouth is the main way to get information. Another problem was fake news, it was difficult to judge which one was reliable. | Information access<br>Source of information |
| Translation service was not always available, lack of information made me more anxious | Language barrier |
| Korean community acted stronger than the Japanese community. Korean communities from other areas came to help us, they even helped Japanese people. Korean community didn't have to want government support. | Ethnic tie<br>Intra-ethnic tie |
| I learned Japanese and participated in many activities, no matter who or which group initiated the activity, I participated all. I did some voluntary jobs like cooking or cleaning | Community participation |
| Government should make a plan based on communication. People are relying on the government, it is a bad thing, community has to be able to prioritize their own lives and own reconstruction. | Government support<br>Lack of communication |
| The government doesn't consider people, people are the most important thing. I don't have any expectations from the government | Lack of trust |
| After all, we have an experience now. If the same thing happens, we can act better. This is the positive aspect of it. | Meaning-making |
| Everything is different now. I want to go back to before. | Nostalgic thoughts |

**Table 39 Collects of initial codes**

| Interviewee 1 | Interviewee 2 | Interviewee 3 | Interviewee 4 |
|---|---|---|---|
| Loss of house | Loss of family member | Loss of house | Fear of aftershock |
| Loss of job | Loss of job | Intra ethnic community | Lack of disaster experience |
| Population decrease | Injury | Relationship in the workplace | Language barrier |
| Poor industrial recovery | Difficulties in adjusting changes | Ethnic community | Intra ethnic community |
| Source of information | Self-reliance | Coping skills | Participation in community |
| Lack of reliable information access | Sense of helplessness | Pre-disaster experience | Learning new skills |
| Seek mental health support | Ethnic community | Emotional recovery | New opportunities |
| Recognition of the importance of mental health support | Community participation | Self-reliance | Pre-disaster social tie |
| Family | Infrastructure recovery | Mutual help | Discrimination |
| Ethnic community | Emotional recovery | Communication with government | Evaluation of government support |
| Intra-ethnic community | Evaluation of government support | Participation in decision making | Recognition of the importance of network |
| Self-reliance | Lack of trust in government | Infrastructure recovery | Avoidance |

| | | | |
|---|---|---|---|
| Evaluation of government response | | Poor community development | Meaning-making |
| Lack of communication with government | | Appreciation toward public response | Future orientation |
| Government respect for public opinion | | Future orientation | Information access |
| Infrastructure recovery | | Meaning-making | The sense of losing control |
| Nostalgic thoughts | | | |

**Table 40 Example of the final coding framework**

| Final coding | Initial coding | Example |
|---|---|---|
| Main concern | Information access | We didn't know how to get information about where to get good, where we could take a shower. |
| | Language barrier | Translation service was not always available, lack of information made me more anxious |
| | Long-term issues | People moved out to other places, I also moved out from Nagata |
| Source of support and community bonding | Ethnic tie | Korean communities from other areas came to help us |
| | Intra-ethnic tie | Takatori Relief Base distributed information distributed information |
| | Self-reliance | I had to deal with all the problems, I had to endure the pain and go on |
| | Community participation | I realized the importance of being in a group; after I came back from Vietnam, I joined various activities |
| | Discrimination | Some of them refused to answer my question even though they knew the answer. |

| | | |
|---|---|---|
| Evaluation of government support | Lack of communication | It was a top-down management system it was hard to communicate with government agencies |
| | Lack of trust | I don't have any expectations from the government |
| Mental status | Positivity | I set a higher goal every day, every single day is an important process for recovery |
| | Meaning-making | After all, we have an experience now. If the same thing happens, we can act better. This is the positive aspect of it. |
| | Avoidance | I don't want to think about if I am recovered or not. I keep myself busy |
| | Nostalgic thoughts | Everything is different now. I want to go back to before. |
| | Future orientation | preparation is important. We always want to find a solution after we have a problem, it is not right, we have to think of it before something bad happens. |

main concern source of support and community evaluation of government mental status

**Figure 39 Thumbnail image of the interviews**

## 3.2 Results of Interviews

### *3.2.1 Source of support and community tie*

A big fire ruined Nagata; people were not only homeless, but they also lost the factories and their jobs all at once. While their resources were gone, disaster victims needed support from the government and outside communities. However, the government was failed to respond quickly to a large-scale disaster, people showed their power in supporting each other. Old-comer Koreans reported they got support from their ethnic organization immediately after the disaster.

*Because roads were damaged, cars couldn't get into here. We didn't have to wait for public agencies to distribute relief goods. Korean communities from other places came to help. we used bikes to distribute relief goods. (Interviewee 1)*

Because the Korean population is big and there are several Korean ethnic organizations in Japan, they were organized immediately after the earthquake, provided supplies to disaster-affected Korean residents. In addition to the support from the outside, people inside Nagata also supported each other, especially the young generation offered their strength.

*There were children, women, and the elderly in the community. Young people like me, the millennial generation, supported the vulnerable people, like cleaning the debris, helping them to get food and water. The role of the younger generation is very important. (Interviewee 1)*

The scale of the disaster is huge, and resources are limited, disaster victims were struggling to restore their lives. Under such condition, support from family and close ties became necessary. However, people who lost close ties sensed loneliness and helplessness. Interviewee 2 lost two of his family members after the earthquake. He indicated he had to endure all the pain alone.

*No one was actually able to offer help because everyone was in hardship. Only those who still have a job or house can help other people. Everything was collapsed, I had to deal with all the problems myself. I had to endure the pain and go on. (Interviewee 2)*

While Korean residents reported their co-ethnic community supported them, Vietnamese residents, who were in a smaller community with less established social networks, were supported by Japanese-led voluntary organizations. Before Hanshin-Awaji Earthquake, there was no institutionalized Vietnamese organization. Due to the language barrier and cultural differences, Vietnamese residents lived a segregated lifestyle. The majority of the Vietnamese residents were working in shoe factories, which didn't require high language proficiency.

*Before the earthquake, our relationship with the Japanese was not good. Even at work, we barely communicated with each other. Now it is better because the number of foreign residents has increased. Even after the earthquake, I asked some questions to the Japanese people here, they refused to answer me even though they knew what the answer was. Of course, it is not everyone, there are good people too. When I opened a restaurant here, some people blamed the restaurant for causing noise and hygiene issues in the neighborhood. They even throw their garbage at my place. One day I had a confrontation with them, I called Mr. N from KFC (Kobe Foreigners Friendship Center). He came and solved the problem. Every time I have problem, I call them. (Interviewee 4)*

After the earthquake, some Vietnamese residents had evacuated to designated shelters; others evacuated to parks. But it is known that they started to gather at parks in the later phase, even those who evacuated to designated shelters eventually moved out to parks. One of the main reasons was to access disaster information because Takatori Relief Base distiributed information regularly to the evacuees in parks. because of tension between Japanese and Vietnamese evacuees. Another reason was

the tension between Japanese and Vietnamese evacuees in designated shelters. This tension was mainly caused by the language barrier and cultural differences between ethnic groups. Before the earthquake, the interaction between each ethnic group was not sufficient, they lacked understanding and trust in each other. However, the shared disaster experience eventually helped them to overcome these barriers. One of the interviewees reported their interaction with Japanese locals:

*The weather was very cold. Korean ethnic organizations distributed ramen because it is spicy, it can keep us warm. We offered some food to Japanese people around us, they hesitated to take it first, but we kept trying. They finally accepted the ramen, they also shared their stuff with us. Ramen was spicy, it helped keep us warm, but it also warmed people's hearts. (Interviewee 3)*

The adversities during the relief and recovery phase required people to collaborate, people realized the importance of network and cooperation.

*People went through a lot, community was the main source of support. Actually, the disaster caused the collapse of many communities. In crisis, the government didn't have enough capacity, so people had to rely on themselves. We realized the importance of self-help and mutual help. We realized the importance of relationships among communities and people. the government only can give a direction, citizens have to work on themselves, so people have to be strong. (Interviewee 3)*

Interviewees commonly mentioned their source of support was community, and all different ethnic groups, including Japanese natives, came together to fight the difficulties. Ethnic tie, as well as intra-ethnic tie, showed an increase since the earthquake. Many volunteers came to the area to support the disaster, and new community organizations emerged within Nagata, various kinds of activities invited foreigners to join. The realization of the importance of networking also generated

foreign residents' active involvement in community activities. Through these community activities, they expanded their network and extract resources from their networks.

*I am Buddhist, we don't have many group activities like Christians. After the disaster, I realized the importance of being in a group. After I came back from Vietnam, I participated in all the activities organized in the area, no matter who or which group initiated it, I participated all. Now, I have been teaching Vietnamese language to second-generation children. They were born in Japan, they can't speak Vietnamese, even family members can't communicate very well. There's a gap between the first generation and second generation. So, I am teaching Vietnamese to help with this problem. If there are other activities, I join those too, my schedule is packed with all kinds of activities. (Interviewee 4)*

Interviewee 4 also indicated that she improved her Japanese through joining those community activities, active participation also provided her new skills, new chances to expand the network. Even now, she continues to join community activities, and she also is one of the supporters. She also indicated that as preparation for future disasters, making a group can increase the effective response.

*For the future, Information exchange is important, information about where to evacuate, where we can get consultation.it is better to do it before the disaster…And make a group, having a group helps people be better prepared and better react to disaster. (Interviewee 4)*

### *3.2.2 Evaluation of government support*

In general, Hanshin-Awaji Earthquake victims complain about the slow response of the government in the emergency phase. Regarding the emergency

operation in Kobe, the self-defense force was not dispatched until 10. a.m. Limited human resources and the large scale of the disaster worsen the delay of the public response.

*It was a widespread disaster, 6000-7000 disaster victims, it was difficult to allocate human resources to support them all. (Interviewee 1)*

*Twenty-six years ago, we thought it was self-defense responsibility to rescue people. Now we look back on it, we appreciate their work. (Interviewee 3)*

Over the years, people have rationalized the lacks of government response in mega disaster, they even expressed appreciation for the emergency response. But regarding the long-term recovery, especially on the government support to the community, they also expressed their dissatisfaction.

*The whole recovery process was top-down management. It was hard to communicate with the government. Korean people wanted to have a community town, but the plan was canceled because of the city government planning…The government needs to reflect the community's needs. Whether in the Hanshin-Awaji earthquake, Tohoku, or now in this Covid-19 pandemic, government priority to the economy… community and people should come first. (Interviewee 1)*

Lack of communication and lack of access to the decision-making body is the main cause of dissatisfaction with government recovery support. Interviewee 1 also indicates that not being able to access to government is the reason of foreign residents' vulnerability. Interviewee 2 also indicated his dissatisfaction with not being considered by government during the recovery. The perception that the needs of residents being neglected by the government caused distrust and anger towards government support.

*I don't have any expectations from the government, and the government doesn't consider people, the most important thing is local people.* (*Interviewee 2*)

Foreign residents being able to reflect their opinion to government agencies and taking part in the decision making are vital for their community development. Another interviewee expressed his concern on total dependence on the government.

*Government should make plans based on communication with local communities. The government wanted to recover fast, but it was not what citizens wanted. People were totally relying on the government showing community development is very weak, communities should be able to prioritize their own lives and reconstruction. (Interviewee 3)*

### *3.2.3 Mental status and sense of recovery*

The day Author conducted the interview was the 26th anniversary of the Hanshin-Awaji Earthquake. Due to the Covid-19 pandemic, the original memorial program was canceled. People arranged small-scale gatherings. During the interview, interviewees recalled how challenging the experience was. Before the earthquake, housings in Nagata ward were mainly old-type wooden houses, and streets were narrow and vulnerable to hazards. After the earthquake, with the land-readjustment project and urban-planning project, Nagata ward has a new face, it is safer and more organized. Commonly, interviewees positively commented on the infrastructure recovery, that they have a beautiful city and new buildings. However, they also expressed their concerns with other aspects.

*Everything has built up… but you can see these buildings, its price is very high, many people can't afford to live in these buildings. Because the industry is not good, people can't earn enough money. So, the recovery is only on the appearance. From the inside, it is hard to tell…Everything is different now, sometimes I wish I could go back to pre-disaster time. (Interviewee 1)*

Interviewee 1 expressed that during the long-term recovery, population decrease and recovery of local industry are the main problems. People are moving out of Nagata because they can't have enough earnings to sustain their livelihoods here.

He is also one of those who leave Nagata. This has caused the population decline in the area. Only the area around the station looks populated, but inside of the Nagata has many vacant lots. Comparison of old and new Nagata caused nostalgic feelings of the interviewee. Meanwhile, he expressed his positive coping that he became a physical therapist to help people. He thinks this is the way to contribute t to the recovery process.

In contrast to the positive evaluation of the infrastructure recovery, people claimed their lower sense of recovery in the emotional aspect. Because people have suffered a lot, it made it hard to recovery fully. Interviewee 4 indicated some level of avoidance when she was evaluating her recovery experience:

*I am not thinking about if I recovered or not, I keep myself busy. Looking back on it is painful. It is important to focus on what is in front of me. The important thing is what we learn from it. After all, we had the experience now, we can act better if the same thing happens again. That's the positive side of it… I experienced war when I was in elementary school. War is between people, you can expect the relationship between people to go well or go wrong. But disaster is different, you can never anticipate it, it is totally out of human control. (Interviewee 4)*

Based on the narratives, we learned that loss of control over the event is one of the possible reasons for mental distress. However, the unpredictability of the disaster influenced their recognition on the importance of disaster preparedness. The interviewee sees this disaster experience as a learning and preparing for future emergency. Another interviewee also expressed the importance of preparing for the future:

*As a community leader, I want to improve my life and community better and better. In my opinion, recovery is a process, I set a higher goal every day, every single day is an important process of recovery… preparation is important. We always want to find a solution after we have a problem. It is not right, we have to think of it before something bad happens. Young people must learn from our experience, they should*

*learn how to make an exchange with nature and develop better behavior. (Interviewee 3)*

## 4. Discussion and Conclusion

The questionnaire survey result showed that foreign residents in Nagata have a high level perceived social support, and the primary source of support is reported as family. Cano et al., (2003) has proved the negative association of perceived family support to mental distress, family support can be a source of comfort and strength. Interview result show that the greater sense of loss, especially losing family members, and income decrease, increased the possibility of remaining negative emotions. The loss of family members means the loss of primary source of support, which could cause a sense of helplessness.

As a result of interview survey, we learned that community has been an important support source during the long-term recovery. The community provided them with more tangible and informational support. Community tie was strengthened after the disaster, and this strengthening is not limited to the ethnic community. Interviewees indicated a positive change in interpersonal relationships among different ethnic community members. In the questionnaire survey, we have identified an increase in interpersonal relationship as a part of PTG. The interview result confirmed that disaster had brought people closer, which is consistent with the findings of the study on the 2018 Earthquake in Gili Trawangan, Indonesia (Partelow, 2021), the shared disaster experience promoted community identity and reciprocity inside the community. Voluntarism after the Hanshin-Awaji Earthquake, and the emphasize on mutual help are the result of this strengthened community identity and reciprocity.

Foreign residents primarily rely on the support from the ethnic community, which is also found in the case study on former refugees in post-Canterbury

Earthquake settings (Marlow & Lou, 2016). Korean residents used their ethnic tie to cope with the problems after the disaster. The existence of ethnic tie and effective response that came from this tie has decreased the reliance of Korean residents on public support, this fact was more evident in the immediate aftermath of the disaster. On the other hand, smaller new communities like Vietnamese, who lacked established ethnic tie, tend to seek support from Japanese-led voluntary organizations. This case emphasized the importance of the extended social network because it can compensate for the lack of close tie in emergencies and provide the necessary support to the disaster victims. Recognition of the importance of social networks positively influenced community participation. Active participation offered foreign residents a wider social tie, which increased the likability of access to necessary resources. This can improve the mental health recovery as well as the likelihood of development of post-traumatic growth. Similar finding was found in the grassroot assessment of Kobe life recovery survey that, increased social tie can influence the reframing of earthquake experience into positive narratives; and this process is achieved through the increased opportunities to encounter significant others who can offer social and psychological support (Tatsuki, 2007).

Tatsuki (2007) also indicated that in 2003-2005 life recovery assessment, factors such as social tie, community rebuilding, preparedness, and physical and psychological health are identified as critical elements in life recovery. Because empowered social tie and community rebuild efforts facilitate positive event evaluation, which we call it as meaning-making process and identified it as the basis of post-traumatic growth. And, this process led to a sense of life recovery and more civic engagement in disaster preparedness. Indication from this study is that empowered community and social tie impact the sense of recovery by promoting meaning-making process. Interviewees in present case study indicated a poor community empowerment due to poor communication with government. It is reasonable to explain the lower sense of recovery of the interviewees by poor

community empowerment. Although foreign residents in this study have reported a positive evaluation on infrastructure recovery, they also have indicated a lower sense of psychological recovery. They are still experiencing some level of emotional reactions, such as avoidance, anger, and nostalgic feelings. Another qualitative study conducted by Tanaka et al., (2019) targeted the disaster-affected people 20 years after Hanshin-Awaji Earthquake found out that some people may still experience emotional reactions such as fear, sadness, and regret; factors such as interpersonal relationships, hobbies, work, and religion are likely to associate with the recovery. Our finding has identified the government support as another factor that associated with the sense of recovery. In other words, satisfaction with governmental support influence people's evaluation of disaster recovery. This finding is similar with Huang & Wong (2014) finding from the Wenchuan Earthquake, that government policies and actions in disaster recovery are important for the recovery of disaster survivors' life satisfaction.

During the interview, we confirmed that their lacked communication with the government had decreased their satisfaction level with government support. Interviewees indicated that priority was not given to them during the decision-making process. This perception may be caused by their lack of access to government agencies, and their needs may not be reflected appropriately in the recovery planning.

In fact, at the beginning of the Hanshin-Awaji Earthquake reconstruction, the prefectural and city government took some measures to include citizens' opinions into recovery planning. For example, while Hyogo prefecture was planning the Hanshin-Awaji Earthquake Recovery Plan (Hyogo Phoenix Plan), eight different citizen's recovery committees, including Foreign Prefectural Citizen's Recovery Committee, were established to reflect the opinions of citizens. Foreign Prefectural Citizen's Recovery Committee members included consul generals, leaders of foreigner associations, representatives from international schools, entrepreneurs, academics, members of international exchange groups, and media personnel. Of the 41 members, 25 were foreigners (Yoshitomi, 2010). Later on, the prefectural government and

NGO/NPOs engaged in international residents' support activities established GONGO to exchange opinions, especially regarding the medical expense of disaster victims, condolence money, and relief funds. During the recovery period, the prefectural government held a follow up of the Phoenix Plan, to enhance the communication between government agencies and foreign prefectural citizens. Foreign Prefectural Citizen's Monitor was established, their main responsibilities were: distribute daily life information timely to the international residents, purposing of new policies, conduct survey among international residents, etc. (Takezawa, n.d.).

Even though these measures were taken to include the international residents in the recovery process, lack of participation is reported by the foreign residents in current case study. This finding raises a question: to what extent can the representative of international residents represent all the international residents? Even though the government had paid attention to the participation of foreign residents, the study participants' low satisfaction with the communication with the government revealed the gap in the recovery process. This may be caused by the diversity of foreign residents' communities and pre-existing miscommunication between various stakeholders. Foreign residents expect better communication with the government and empowerment of the community as a result of the recovery. This suggests the importance of inclusive recovery policies to build an environment where everyone can participate in their recovery process. This will eventually promote positive mental health outcomes of disaster victims.

# Chapter 3 Case study of PAGASA Filipino Community affected in the Great East Japan Earthquake

## 1. Background

### 1.1 Overview of Great East Japan Earthquake and Recovery

The Great East Japan Earthquake happened on 11th Match 2011, a combination of earthquake, tsunami, and nuclear power plant accidents. Its complexity makes it different from Hanshin-Awaji Earthquake. The affected area was wide from Aomori to Tokyo, tsunami wave reached to maximum of 40m, the inundated site went as far as 5 km inland. It caused the death of 18,571 people, 2,651 missing, damage of 126,602 houses, economic damage was 16.9 trillion yen, 320,000 victims lived in evacuation shelters, 73,000 people were displaced from their home prefectures.

**Table 41 Damage of Great East Japan Earthquake**

| | | |
|---|---|---|
| Dead | | 18,571 |
| Missing | | 2,651 |
| Injured | | 6,150 |
| Buildings | Total collapse | 126,602 |
| | Half collapse | 272,426 |
| | Partial damage | 743,089 |
| Evacuees (Max.) | | 470,000 (as of March 14, 2011) |
| Economic damage | | 210 billion dollars |

(Adapted from Learning from Mega-Disaster: lessons from Great East Japan Earthquake (Ranghieri, 2014) )

After ten years from the occurrence of the earthquake, goals for safer and stronger physical reconstruction have been accomplished, while spatial and community level planning goals have been partially completed, some gorals such as psychosocial recovery and human rights are evaluated as unmet goals (Maly, 2020). Post-disaster reconstruction projects such as sea walls and land re-adjustment projects have continued for a decade and changed the landscape of the affected area and the lives of the affected population. Construction of temporary housing began within 20 days after the earthquake, 50,814 units of temporary houses were constructed. The standard duration to use temporary house is two years up to maximum of five years (Japan Society for Promotion of Science, 2015). But in reality, it is reported that in 2020, roughly 1850 people were still living in temporary houses (Otsuyama & Shaw, 2021).

Unlike Two-steps Machizukuri in Hanshin-Awaji Earthquake Recovery, post-disaster recovery in East Japan is a highly centralized decision-making process under the 2011 Act on Special Red Zone for East Japan Earthquake Reconstruction. Town recovery process of disaster-affected municipalities followed three steps: recovery plan was decided by the mayor with minimal participatory step; relevant urban plans were decided with single decision; affected municipalities decided land re-adjustment and relocation projects on the last step (Kaneko, 2016). Central Disaster Preventive Conference introduced the safety measure of constructing seawall targets level1[10] tsunami around the coastline, despite the higher willingness of local communities to relocate to higher ground. As a result of this decision, only those in the area of inundation risk even after building a sea wall are eligible to relocate to higher ground with governmental funding. Residents in the disaster-affected area have grown

[10] Level 1 tsunami hazard is defined as high frequency but low impact one with a return period from 50 to 150 years; Level 2 is defined as low frequency but high impact one with the possibility of happens in several hundreds or thousands of years.

antipathy toward unilateral governmental decision-making and didn't want to consent to the municipality-led recovery plan. Although Machizukuri councils have been applied to East Japan as well, in the forms of town-planning councils, civic questionnaires, and forums, these processes were observed as nominal procedural steps lacking sufficient information disclosure (Kaneko, 2013 a).

As a result of seawall construction, communities are broken into pieces because some parts of the communities are eligible for government-sponsored relocation while others are not. Residents in the disaster-affected area can be categorized into several groups: those who are eligible to government sponsored relocation; those who are in risk area but not eligible to relocation due to gap between land prices with original location; those who are eligible to government sponsored land filling of a few meters; those who eligible to government sponsored land filling of 15 meters or more; those who outside of the inundation risk area and need to reconstruct their house with self-funding; and, those who outside of the inundation risk area but couldn't afford reconstruction (Kaneko, 2016). The first and second categories needed to wait until the completion of sea wall, the third and fourth categories needed to wait until the completion of land-filling, and the last category had only choice to move to public housing or rental housing. In some cases, inside the same community, members of the community designated into different categories are treated separately, which caused a serious conflict of interest among community members regarding eligibility for fiscal support (Kaneko, 2013 a). In some other cases, communities suffered population drain because of the prolonged and unclear restriction on housing and livelihood reconstruction, or because they couldn't afford the land price on the higher ground due to the gap between government purchased land (original land owned by residents which designated into risk area were purchased by the government) and higher land (which sold by the government to relocated residents). In either case, community bonding and social capital were at the risk of vanishing.

The problematic recovery planning caused difficulties not only in housing reconstruction but also in the livelihood recovery. Based on the guidelines set by the Ministry of Land and Transportation, priority was given to housing land recovery, while the commercial and industrial recovery was put aside. Economic recovery was also under the effects of governmental intervention. The decided heights of the sea wall in each bay unit are capable of protecting the industrial areas, which allows medium and large-scale industries to start their reconstruction activity immediately. Many industrial actors in the sea wall protected areas resumed their economic activities fully utilizing the government measures, on the other hand, industries located in the land-filling or sea wall construction area have to wait until these projects to be finished (Kaneko, 2013b). In the case of small size businesses run by residents, the delay of the housing reconstruction affected the permanent reconstruction of small size business activities (Kaneko, 2013b). Because local people tend to build their businesses close to their housing area, prolonged suspension of housing reconstruction leads to the prolonged reconstruction of commercial activities in the local market.

Unlike Hanshin-Awaji Earthquake, a single pattern disaster that happened in wealthy Urban area, the complexity of the East Japan Earthquake, large scale damage, budgetary issues in affected rural areas, and less transparent, less participatory recovery planning resulted in a prolonged life recovery for residents.

## 1.2 Disaster experience of PAGASA Filipino Community members

There were many foreign residents living in the disaster-affected area, including long-term residents, international students, and short-term technical trainees. The population of international residents decreased after the disaster, many had evacuated to home countries, some country embassies dispatched their team to evacuate their citizens from the disaster-affected area. But still, there is big number of international residents going through the recovery phase with Japanese locals together,

Filipino residents are one of those. As the international marriage rate increased in the rural area of Japan, the number of Filipino women also increased. Usually, immigrants tend to live in the same area with more job opportunities and lower living expenses. But these foreign brides were arranged to the places of their family in-laws, they are scattered around Tohoku.

In April and July of the same year of the Great East Japan Earthquake, the Japan Federation of Bar Association organized a team, conducted legal consultation with the Filipino women in Kesennuma and Ofunato. Contents of the consultation can be divided into house-related issues, loan-related issues, job-related issues, and temporary leaving Japan (Minagawa, 2012). Housing support was the primary concern because most of the disaster victims experienced house destruction or partial damage. Also, some of them wanted a car because it would be very inconvenient for the residents in the rural areas if they had no car. They wanted to take loans to manage these matters, but the financial support policy of the governmental banks was the thing that they were not very familiar with.

Language barrier always causes inconvenience for foreign residents. Still, it can be a severe disadvantage, particularly for disaster victims who do not have a sufficient level of understanding of the local language. As a result, they tend to mainly depend on the information from the source of their native language. Immediately after Great East Japan Earthquake, amid the fear of aftershock and nuclear power pollution caused the main sources of panic, the gap between different information sources caused an atmosphere of uncertainty (Shah & Murao, 2013). Many foreign residents decided to leave Japan in response to the embassies' recommendations to return to their home countries. Such action brought big controversy, led to the categorization of “Fly-jin” (person who returns) and “Stay-jin” (person who stays) (Li, 2012). Criticism was made on "abandoning Japan". For those who married into Japanese families, the decision of whether to leave or not was more difficult to make. On the one hand, their own families at home countries were anxious about their safety and wanted them to

be back; on the other hand, their families-in-law were not very happy about their leaving. Some cases ended up with separation or divorce (Omura, 2012).

In fact, according to the statistics of the Ministry of Justice, the population of "spouses of Japanese "only changed 8%, 6%, and 9% respectively in Iwate prefecture, Miyagi Prefecture, and Fukushima Prefecture (Ministry of Justice, 2011). Spouse of the Japanese natives was not the main part of the population who evacuated overseas, the majority of them decided to stay with their family-in-law. This is a good contrast to the foreign trainees in the region who used to work in fishery business, marine industry factories, or other industries along the coast, whose working places were washed by the tsunami, causing them to lose their jobs. Returning to their home countries or moving to other areas for jobs was not often the option for them because they had to take care of their children or their elderly husbands. Under such circumstances, job and financial issue was another big concern. In international marriage families, the age difference between husband and wife is sometimes over 20 years. The husband has pension money, but the family's main income often depends on the wife (Minagawa, 2012).

Under Japan's system of disaster victims support, foreign households as well the Japanese households with foreign wives were eligible for the governmental support measures, both for the emergency relief phase and for the early recovery phase, such as the subsidies to disaster victims' livelihood reconstruction of one to three million yen, the condolence money of up to 5 million yen, and various subsidies and/or soft loans for farming and fishery household and small-medium enterprises. However, all related information was announced in the Japanese language at the governmentally managed shelters or through mass media, and foreign residents are reported to have difficulties understanding in detail such information on the public support (Minagawa, 2012).

On the other hand, the voluntary support groups, which experienced the Hanshin-Awaji Earthquake, continuously helped the foreign residents in the East

Japan Earthquake. For example, based on the experiences from Hanshin-Awaji Earthquake, multilingual information support was provided to victims, the aforementioned FMYY and FACIL - two NGOs under Takatori Community Center, collaborated and distributed disaster information (Yoshitomi, 2019). Besides the information sharing, FACIL and FMYY started Tagalog language radio broadcasting training to assist the Filipino community named Bayanihan in Kesennuma and nearby affected areas (Yoshitomi, 2019). Such activity aims to provide these Filipino women a stage to use their language, share their disaster experiences, and mentally support each other.

Caritas Japan Ofunato Base and Catholic Tokyo International Center played a crucial role among all the foreign residents' support agencies. According to the authors' interview with the leader of the Caritas Ofunato Base, while victims were evacuated in the shelters during the phase of distribution of emergency relief goods, a member of Ofunato Catholic Church had noticed that there is one Filipino Christian woman among victims, who later on worked catalyst to reach the church activities to more than one hundred Filipino residents in the area. Most of the Filipino women here belonged to the catholic faith. However, they could not go to church because of the church's remote location. The Church members were also not very familiar with how many Filipino women were living there. After this church member reported this to the father of the church Nizomi Shiota, he initiated a series of support activities for Filipino parishioners, including the visit to the evacuation shelters to solicit them one by one to be connected to the Church, as well as providing with 100,000 yen and relief goods for immediate needs. Filipino women used their connections to notify each other, and in the end, all of the nearby Filipinos started to gather at this church every Sunday. By this chance, Filipino women in the area were given the opportunity to find each other, they shared their experiences, comforted each other, got through this tough time together. Also, the Catholic Tokyo International Center dispatched father and sisters who can speak Tagalog, and they organized mass in Tagalog.

Behind this, Japanese parishioners are also observed to develop their positive stance for support to Filipino and other foreign residents. Originally, Catholic Ofunato Church had approximately 100 Japanese parishioners, now with all those Filipino women, the number has doubled. Although at first, the Japanese and Filipino communities couldn't integrate very well, the two groups had united with the help of father and church members. Filipino women organized their team called PAGASA, they joined the church council meetings and organized other activities together. With all the activities they have organized, the Ofunato Church is called the most active church.

Some support came from the Filipino community, the government of the Philippines, and formerly organized Filipino communities in other places like Tokyo, providing relief goods during the immediate phase of the disaster (Yoshitomi, 2012). As the emergency phase passed, the Filipino community in the disaster-affected area started to form their local community-based associations. Pagasa in Ofunato, Bayanihan in Kesennuma are the best examples. Pagasa engaged in safety checks, masses, rosaries, and other local activities; Bayanihan, on the other hand, received certificated helper training with the assistance of the Japanese Refugee Association. As a result of such training, many Filipino women found employment in elderly care facilities (Yoshitomi, 2012).

## 2. Survey on the member of PAGASA Filipino Community

### 2.1 Survey framework

**Procedure:** author visited Catholic Ofunato Church in March 2020, interviewed the leader of the Caritas Ofunato Base, learned the support activity of the church and PAGASA Filipino community. Questionnaire distribution was conducted in March with the help of the Catholic Ofunato Church. After the first wave assessment, in-

depth interviews were taken with the member of PAGASA, interviews were conducted by phone due to the Covid-19 pandemic restrictions.

**Sample**: 10 members of the PAGASA Filipino community participated in the questionnaire survey. All participants experienced tsunami. Interviewees are voluntary participants who also took part in the questionnaire survey.

**Measure:** questionnaire consisted of three parts:

- Demographic questions and disaster experience
- Mental health assessment: Revised Impact of Event Scale (IES-R) is used to assess the distress level of disaster victims; Posttraumatic Growth Inventory (PTGI) is used to evaluate the growth after the disaster
- Assessment of support: Multidimensional Scale of Perceived Social Support; Satisfaction with Governmental Support

**Data Analysis**: statistical analysis was conducted with Excel and SPSS version 28.

## 2.2 Result

### *2.2.1 Demographic Characteristics*

All participants are married females, age range from 30s to 50s, have high school or lower level educational degree. The majority of the participants are part-time employees, annual income ranging from less than one million to five million (three participants didn't reply to this question). Every participant settled into their permanent houses. Some reconstructed new houses, some repaired the original house, some are living in disaster public houses. One participant received mental health support in the first-year aftermath of the disaster. (for detail see **Table 42**)

**Table 42 Demographic characteristics of the Filipino participants**

| | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | No.8 | No.9 | No.10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Age** | 40s | 30s | 40s | 40s | 50s | 50s | 30s | 50s | 50s | 50s |
| **Gender** | Female | Female | Female | Female | Female | Female | Female | Female | Female | Female |
| **Education** | College/university | High school | College/university | College/university | College/university | High school | High school | High school | Middle school | College/university |
| **Children** | 2 | 2 | 2 | 2 | 2 | 3 | 1 | 1 | 1 | 2 |
| **Period staying in Japan** | 16-20 years | 11-15 years | 16-20 years | 6-10 years | 25-30 years | 25-30 years | 11-15 years | 20-25 years | 25-30 years | 16-20 years |
| **Pre-disaster employment status** | Part-time worker | Part-time worker | Part-time worker | Part-time worker | Part-time worker | Regular staff | unemployed | Part-time worker | Part-time worker | unemployed |
| **Current employment** | Part-time worker | Part-time worker | Part-time worker | Part-time worker | Part-time worker | Regular staff | unemployed | Part-time worker | Part-time worker | unemployed |
| **Income** | 5 million or more | 1-2 million | - | Less than a million | Less than a million | 1-2 million | - | Less than a million | Less than a million | - |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Disaster experience** | Loss/decrease of income | House damage | House damage; loss/decrease of income | House damage | House collapse; relocation; saw tsunami; loss/decrease of income | Saw tsunami | House collapse | House collapse; loss of property | Saw tsunami | Family member died; saw tsunami |
| **Pre-disaster housing** | Own house | Own house | Own house | Live with friend | Own house | Own house | Public house | Public house | Rental house | Own house |
| **Current housing** | Own house | Renovation at original site | New construction at original site | New construction at land-readjustment sire | Individual relocation | Original house | Public house | Pubic house | Rental house | New construction at original site |
| **Duration of staying in temporary house** | - | None | 7 | 4 | - | - | 9 | 5 | - | 9 |
| **Whether received mental health** | No | No | Yes | No | No | No | No | No | No | No |

### *2.2.2. Mental health recovery*

IES-R is a 22-item self-report measure that assesses subjective distress caused by a traumatic event; the 22 items can be divided into three subscales which refer to symptoms of avoidance, intrusion, and hyperarousal. In this case study, the value for Cronbach's alpha is 0.93. Participants' mean score is 18, which is lower than the medically meaningful cutoff point of 24. Avoidance subscale score (M=1.16, SD[11]=0.57), Intrusion (M=0.79, SD=0.81), Hyperarousal (M=0.50, SD= 0.50); paired t-test result showed, score for avoidance is significantly higher compared to other two subscales (*$t^{12}$ (9)=2.87, p=0.018 and t (9)= 7.55, p= 0.000*). This result indicates that although the mental distress level and each symptom are not clinically significant, the survey participants are still experiencing some level of avoidance, such as trying not to recall the disaster memory, avoiding talking about the experience, etc. Each participant's detailed score is listed in **Table 43.** According to the questionnaire result, participant No.1 has a low-level indication of mental distress. Participant No.3 has a score high enough to cause clinical concern. As known from the last part of the questionnaire, participant No.3 received mental health support in 2011; she experienced damage to her house, loss of income, and other property. She also reported perceived discrimination due to her health condition. Secondary stressors such as loss of property and employment could increase psychological distress. Perceived health status and discrimination can only worsen the recovery.

Post Traumatic Growth Inventory is a 21-item scale. Each item falls under one of the five aspects of PTG: relating to others, new possibilities, personal strength,

[11] Standard Deviation: is a measure of the amount of variation of a set of values.

[12] In t-test, t value indicates a large difference exists between two sample sets, the bigger the t value, the more difference exists p value indicates whether null hypothesis (no difference between to sample set) can be rejected, lower p value indicates stronger evidence to reject the similarity between two sample sets..

increased spiritual belief, and appreciation of life. As shown in **Table 44**, these 10 participants averaged a score in PTGI of 73.90, which can be considered a moderate level of PTG. Among the five subscales, the highest score is seen in increase in spiritual belief (M=4.05, SD=1.26), followed by appreciation of life (M=3.83, SD=1.17) and personal strength (M=3.68, SD= 1.14) with no significant difference (respectively: *t (9)= 1.259, p= 0.240 and t (9)= 1.449, p= 0.181*) .

**Table 43 Result of Impact of Event Scale-R**

| | | Participants (N[13]=10) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean<br>SD[14] | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | No.8 | No.9 | No.10 |
| Total score | 18.0<br>12.53 | 25 | 14 | 50 | 15 | 11 | 14 | 6 | 20 | 8 | 17 |
| Variables | | Pair | | | T | | df[15] | | Sig. | | |
| Avoidance | 3.40<br>1.05 | Intrusion | | | 2.873 | | 9 | | .018** | | |
| Intrusion | 3.20<br>1.11 | Hyperarousal | | | 1.651 | | 9 | | .133 | | |
| Hyperarousal | 3.68<br>1.14 | Avoidance | | | -7.546 | | 9 | | .000*** | | |

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

[13] N: sample size

[14] SD: standard deviation refers to how much variation there is from the average (mean).

[15] df: degree of freedom, this number is determined by the number of observations in the sample.

**Table 44 Result of Post Traumatic Growth Inventory**

| | | Participants (N=10) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean<br>SD | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | No.8 | No.9 | No.10 |
| Total score | 73.90<br>22.24 | 72 | 87 | 91 | 74 | 105 | 72 | 21 | 65 | 84 | 68 |

| Variables | | Pair | T | df | Sig. |
|---|---|---|---|---|---|
| Relating to others | 3.40<br>1.05 | New possibilities | 1.878 | 9 | .093 |
| New possibilities | 3.20<br>1.11 | Personal strength | -2.757 | 9 | .022** |
| Personal strength | 3.68<br>1.14 | Spiritual belief | -1.449 | 9 | .181 |
| Increase in Spiritual belief | 4.05<br>1.26 | Appreciation of life | 1.259 | 9 | .240 |
| Appreciation of Life | 3.83<br>1.17 | Relating to others | 2.985 | 9 | .015** |

**: $p < 0.05$

### *2.2.3 Level of perceived social support*

**Table 45** shows that participants have a higher perceived support level (M=5.41, SD= 1.06); family is significantly their primary support source (M=5.70, SD= 1.41). More than half of the participants strongly agreed with the items such as "my family tries to help me", "I get emotional help & support from my family", and "I can talk about my problems with my family". In addition to the family, significant other is also reported with a high score (M=5.60, SD= 1.88) with no significant difference (*t (9)= 0.423, p= 0.682*), in other words, family and significant other are reported as main support source.

**Table 45 Result of Multidimensional Scale of Perceived Social Support**

| | | Participants (N=10) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean<br>SD | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | No.8 | No.9 | No.10 |
| | 5.41<br>1.06 | 4.83 | 4.42 | 6.42 | 6.67 | 6.08 | 5.75 | 4.00 | 3.92 | 6.58 | 5.42 |
| Variables | | Pair | | t | | df | | Sig. | | | |
| Significant other | 5.60<br>1.88 | Family | | -.423 | | 9 | | .682 | | | |
| Family | 5.70<br>1.41 | Friend | | 2.514 | | 9 | | .033** | | | |
| Friend | 4.93<br>0.91 | Significant other | | -3.304 | | 9 | | .009*** | | | |

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

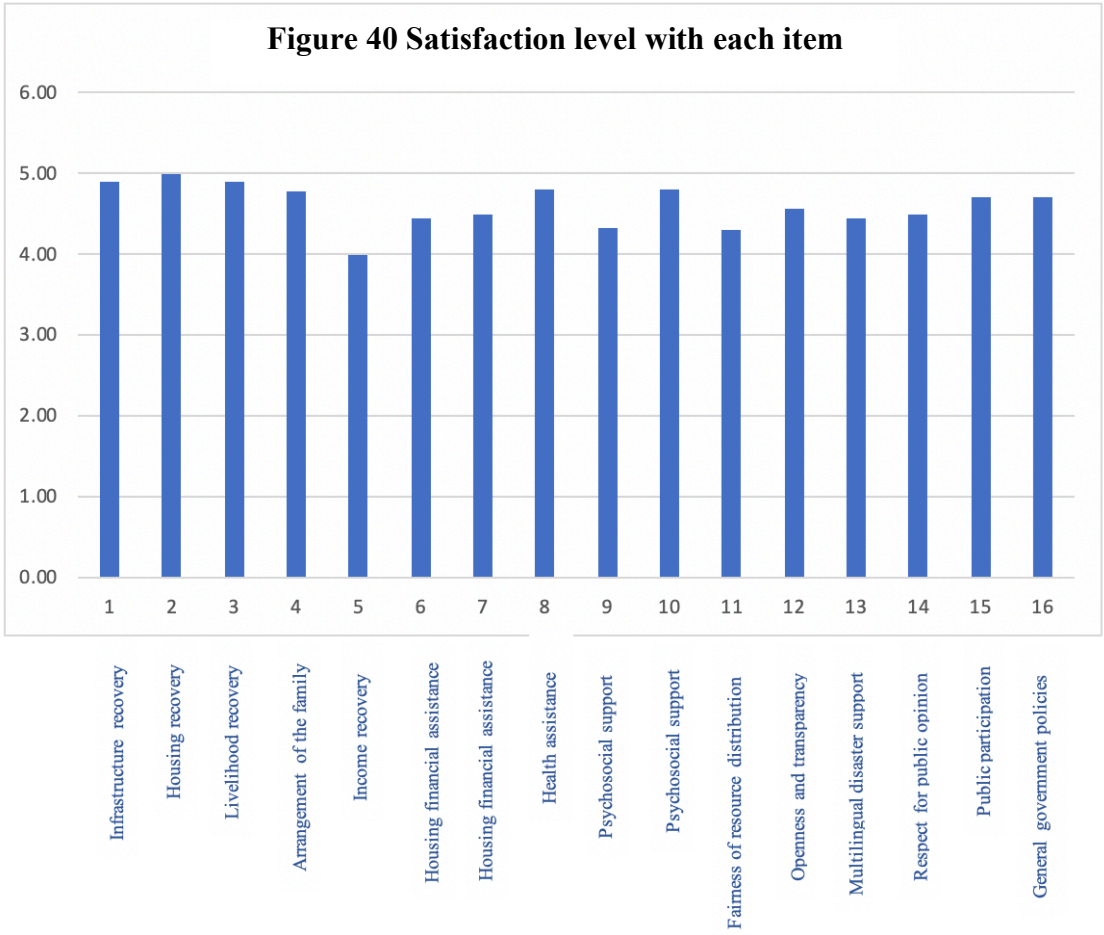
### *2.2.4 Satisfaction with governmental support*

The scale was adapted from previous research conducted in China; some items are added based on Japanese governmental support. Sums of 16 items refer to the level of satisfaction with governmental support (range from 16 to 96). Participants' average satisfaction level is 70 (out of 96). The highest satisfaction is with housing recovery, the least satisfaction is seen in the aspect of income recovery (see **Table 46** and **Figure 40** for detail).

**Table 46 Satisfaction with Governmental Support**

| | Participants (N=10) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mean<br>SD | No.1 | No.2 | No.3 | No.4 | No.5 | No.6 | No.7 | No.8 | No.9 | No. 10 |
| 70<br>16.08 | 32 | 74 | 80 | 81 | 90 | 79 | 60 | 62 | 71 | 71 |

**Figure 40 Satisfaction level with each item**




## 2.3 Summary of Findings from the Questionnaire

Descriptive analysis of the sample showed that after nine years aftermath of the disaster, participants generally recovered from the negative impact of the disaster. However, this result doesn't reject the possibility that some vulnerable individuals may still experience some level of distress, especially those who experienced greater loss due to the earthquake. Secondary stressors such as poor health conditions and negative interpersonal experiences may negatively affect the recovery. Bogart *et. al* (2011) study on HIV patients suggests, perceived discrimination is related to the poor mental health of patients (Bogart *et al.,* 2011). Another study conducted after Sichuan Earthquake (Cao et al., 2015) suggested that chronic illness predicts mental distress and poor quality of life.

A moderate level of Post-traumatic growth is reported by the participants and mainly reported in the aspect of spiritual change, appreciation of life, and personal strength. Due to the small sample size, we couldn't conduct regression analysis to detect the factors that may have an impact on PTG. Participants of this case study also reported a higher level of perceived social support and satisfaction with government support. Ikeda & Ozanne (2016) studied the recovery of Bayanihan Filipino community in Kesennuma, and Filipinos in Canterbury, indicates having support from social networks and communication skills enhance the gathering of valid disaster information, and people who have social network are more likely to talk about their experience openly. Based on this finding, we assume that, in the current case study, a high level of social support has provided the participants more access to the critical information and other resources that necessary to the restoration of life, and may also provide them opportunities to talk about disaster experience, eventually promoted the positive disaster recovery.

To test the above-mentioned hypothesis that a high level of perceived social support and satisfaction with government support promoted positive recovery, we conducted semi-structured interviews with the PAGASA Filipino Community members. What generated the greater level of satisfaction with how this enabled the psychological recovery will be the focus of the next part.

## 3. Interviews with the leaders of PAGASA Filipino Community

The author conducted individual phone interviews with the three members of PAGASA during the period from late September to early October 2020. Interviews are semi-structured interviews. Questions are designed based on the result of the previous questionnaire survey, which was conducted among PAGASA members in March 2020. Interviewees are the key members of PAGASA, all took part in the

questionnaire survey in the first stage. Each phone interview was conducted in English, lasted around 40 minutes.

### 3.1 Data analysis

Qualitative data analysis is conducted by coding method, involves initial identification of themes and categorization of these themes. On the first step, interview transcripts are individually prepared, and short phrases are noted to summarize what is being said in the text. This step is known as open coding (**Table 47** shows the examples of initial coding). In the second step, all initial codes are collected and further analyzed with the concept of the study, which is the identify psychosocial factors impacting the psychological recovery. As a result, all initial codes are categorized into several main codes (See **Table 49**). In the last step, each interview is colored based on the main codes and achieved an organized dataset divided by color sections (thumbnail is shown in **Figure 41**).

**Table 47 Example of the initial coding framework**

| Interview transcript | Initial coding |
|---|---|
| It is our first time encountering such an experience. As foreigners, there are some words we encounter for the first time, we don't understand those words. We have disaster drills at the workplace. But disaster is very different from drills. We need to be trained more. | Lack of disaster experience<br>Language barrier |
| We are living with Japanese families, we are not living by ourselves. In case there is some difficult word, we could ask them. | Family support |
| We trust each other, respect each other. We talk frankly and openly when we have a problem. Besides this, we pray, we go to church. I think this is the most important reason. | Ethnic tie<br>Religious coping |
| The government paid the rent for us for about three years. Right now, we are staying in government housing, we have to pay rent of 40,000 yen or more, it depends on our income level | Support from government |
| We organized various activities and also invited others to join our activities. | Meaningful participation |
| Most of us can quickly recover because Filipinos are happy people. | Sense of recovery |
| I don't take it negatively. Many things happened to me because of the tsunami. Everyone knows me to know. I've been receiving interviews, I go to places, I talk about my experiences. I am lucky, I also have the chance to offer jobs to others. | Expanded network<br>New chances |
| Foreigners must study Japanese because Japanese people cannot adjust to us. We are living in Japan, we have to adjust here. | Active coping |

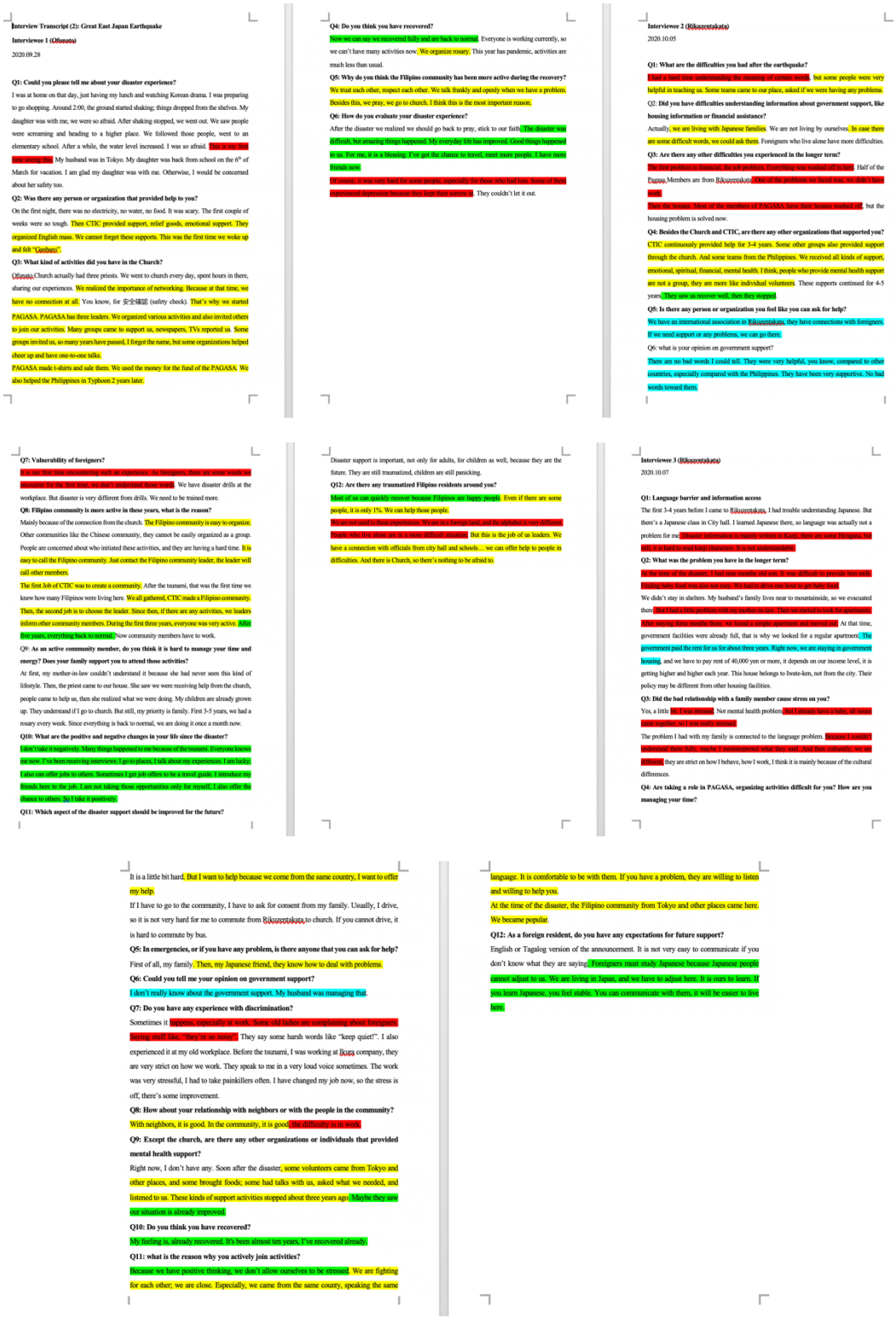
**Table 48 Collection of initial codes**

| Interviewee 1 | Interviewee 2 | Interviewee 3 |
|---|---|---|
| Lack of disaster experience | Language barrier | Language barrier |
| Family support | Support from outside | Having a baby to take care |
| Church | Family support | Bad family relationship |
| Ethnic tie | Church | Received support from the government |
| Support from outside | Perceived support from government agencies | Cultural differences |
| Sense of recovery | Evaluation on government | Meaningful participation |
| Trust | Lack of disaster experience | Family support |
| Religious coping | Active participation | Support from a Japanese friend |
| Increased social network | Meaning-making | Lack of understanding on government support |
| Meaningful participation | Increased social network | Discrimination at work |
| Mental health awareness | Meaningful participation | Support from outside |
| | Positivity | Sense of recovery |
| | Ethnic tie | Positivity |
| | | Ethnic tie |
| | | Increased network |
| | | Active coping |

**Table 49 Final coding framework**

| Final coding | Initial coding | Example |
|---|---|---|
| Vulnerability | Lack of disaster experience | It is our first time encountering such an experience. |
| | Language barrier | there are some words we encounter for the first time, we don't understand those words. |
| Source of support and community tie | Family | We are living with Japanese families, we are not living by ourselves. In case there is some difficult word, we could ask them. |
| | Ethnic tie | We are fighting for each other, we are close, especially, we came from the same county, speaking the same language, it is comfortable to be with them. |
| | Church | And there is Church, so there's nothing to be afraid of. |
| | Support from outside | Many groups came to support us, newspapers, TVs reported us. Some groups invited us. |
| | Meaningful participation | But I want to help, because we came from the same country, I want to offer my help. |
| | Trust | We trust each other, respect each other. |

| | | |
|---|---|---|
| | Increased network | Filipino community from Tokyo and other places came here. We became popular. |
| Evaluation on government support | Received support | The government paid the rent for us for about three years. |
| | Perceived support | We have an international association in Rikuzentakata, they have a connection with foreigners. If we need support or any problems, we can go there |
| | Evaluation | They were very helpful, you know, compared to other countries, especially compared with the Philippines. |
| Mental status | Sense of recovery | My feeling is, already recovered, it is almost ten years, I've recovered already. |
| | Positivity | Most of us can easily recover because Filipinos are happy people. |
| | Meaning-making | The disaster was difficult, but amazing things happened. My everyday life has improved. |
| | Religious coping | After the disaster, we realized we should go back to prayer, stick to our faith. |
| | Active coping | We are living in Japan, we have to adjust here. It is our to learn |



**Interview Transcript (2): Great East Japan Earthquake**

**Interviewee 1 (Ofunato)**

2020.09.28

**Q1: Could you please tell me about your disaster experience?**

I was at home on that day, just having my lunch and watching Korean drama. I was preparing to go shopping. Around 2:00, the ground started shaking; things dropped from the shelves. My daughter was with me, we were so afraid. After shaking stopped, we went out. We saw people were screaming and heading to a higher place. We followed those people, went to an elementary school. After a while, the water level increased. I was so afraid. This is my first time seeing this. My husband was in Tokyo. My daughter was back from school on the 6th of March for vacation. I am glad my daughter was with me. Otherwise, I would be concerned about her safety too.

**Q2: Was there any person or organization that provided help to you?**

On the first night, there was no electricity, no water, no food. It was scary. The first couple of weeks were so tough. Then CTIC provided support, relief goods, emotional support. They organized English mass. We cannot forget these supports. This was the first time we woke up and felt "Ganbaro".

**Q3: What kind of activities did you have in the Church?**

Ofunato Church actually had three priests. We went to church every day, spent hours in there, sharing our experiences. We realized the importance of networking. Because at that time, we have no connection at all. You know, for 安全確認 (safety check). That's why we started PAGASA. PAGASA has three leaders. We organized various activities and also invited others to join our activities. Many groups came to support us, newspapers, TVs reported us. Some groups invited us, so many years have passed, I forgot the name, but some organizations helped cheer up and have one-to-one talks.

PAGASA made t-shirts and sale them. We used the money for the fund of the PAGASA. We also helped the Philippines in Typhoon 2 years later.

**Q4: Do you think you have recovered?**

Now we can say we recovered fully and are back to normal. Everyone is working currently, so we can't have many activities now. We organize rosary. This year has pandemic, activities are much less than usual.

**Q5: Why do you think the Filipino community has been more active during the recovery?**

We trust each other, respect each other. We talk frankly and openly when we have a problem. Besides this, we pray, we go to church. I think this is the most important reason.

**Q6: How do you evaluate your disaster experience?**

After the disaster we realized we should go back to pray, stick to our faith. The disaster was difficult, but amazing things happened. My everyday life has improved. Good things happened to us. For me, it is a blessing. I've got the chance to travel, meet more people. I have more friends now.

Of course, it was very hard for some people, especially for those who had loss. Some of them experienced depression because they kept their sorrow in. They couldn't let it out.

**Interviewee 2 (Rikuzentakata)**

2020.10.05

**Q1: What are the difficulties you had after the earthquake?**

I had a hard time understanding the meaning of certain words, but some people were very helpful in teaching us. Some teams came to our place, asked if we were having any problems.

Q2: **Did you have difficulties understanding information about government support, like housing information or financial assistance?**

Actually, we are living with Japanese families. We are not living by ourselves. In case there are some difficult words, we could ask them. Foreigners who live alone have more difficulties.

**Q3: Are there any other difficulties you experienced in the longer term?**

The first problem is financial, the sofa problem. Everything was washed off in 3/11. Half of the Pagasa Members are from Rikuzentakata. One of the problems we faced was, we didn't have beds.

Then the houses. Most of the members of PAGASA have their houses washed off, but the housing problem is solved now.

**Q4: Besides the Church and CTIC, are there any other organizations that supported you?**

CTIC continuously provided help for 3-4 years. Some other groups also provided support through the church. And some teams from the Philippines. We received all kinds of support, emotional, spiritual, financial, mental health. I think, people who provide mental health support are not a group, they are more like individual volunteers. These supports continued for 4-5 years. They saw us recover well, then they stopped.

**Q5: Is there any person or organization you feel like you can ask for help?**

We have an international association in Rikuzentakata, they have connections with foreigners. If we need support or any problems, we can go there.

Q6: what is your opinion on government support?

There are no bad words I could tell. They were very helpful, you know, compared to other countries, especially compared with the Philippines. They have been very supportive. No bad words toward them.

**Q7: Vulnerability of foreigners?**

It is our first time encountering such an experience. As foreigners, there are some words we encounter for the first time, we don't understand those words. We have disaster drills at the workplace. But disaster is very different from drills. We need to be trained more.

**Q8: Filipino community is more active in these years, what is the reason?**

Mainly because of the connection from the church. The Filipino community is easy to organize. Other communities like the Chinese community, they cannot be easily organized as a group. People are concerned about who initiated these activities, and they are having a hard time. It is easy to call the Filipino community. Just contact the Filipino community leader, the leader will call other members.

The first Job of CTIC was to create a community. After the tsunami, that was the first time we knew how many Filipinos were living here. We all gathered, CTIC made a Filipino community. Then, the second job is to choose the leader. Since then, if there are any activities, we leaders inform other community members. During the first three years, everyone was very active. After five years, everything back to normal. Now community members have to work.

*Q9*: **As an active community member, do you think it is hard to manage your time and energy? Does your family support you to attend those activities?**

At first, my mother-in-law couldn't understand it because she had never seen this kind of lifestyle. Then, the priest came to our house. She saw we were receiving help from the church, people came to help us, then she realized what we were doing. My children are already grown up. They understand if I go to church. But still, my priority is family. First 3-5 years, we had a rosary every week. Since everything is back to normal, we are doing it once a month now.

**Q10: What are the positive and negative changes in your life since the disaster?**

I don't take it negatively. Many things happened to me because of the tsunami. Everyone knows me now. I've been receiving interviews; I go to places, I talk about my experiences. I am lucky. I also can offer jobs to others. Sometimes I get job offers to be a travel guide. I introduce my friends here to the job. I am not taking those opportunities only for myself, I also offer the chance to others. So I take it positively.

**Q11: Which aspect of the disaster support should be improved for the future?**

Disaster support is important, not only for adults, for children as well, because they are the future. They are still traumatized, children are still panicking.

**Q12: Are there any traumatized Filipino residents around you?**

Most of us can quickly recover because Filipinos are happy people. Even if there are some people, it is only 1%. We can help those people.

We are not used to those experiences. We are in a foreign land, and the alphabet is very different. People who live alone are in a more difficult situation. But this is the job of us leaders. We have a connection with officials from city hall and schools… we can offer help to people in difficulties. And there is Church, so there's nothing to be afraid to.

**Interviewee 3 (Rikuzentakata)**

2020.10.07

**Q1: Language barrier and information access**

The first 3-4 years before I came to Rikuzentakata, I had trouble understanding Japanese. But there's a Japanese class in City hall. I learned Japanese there, so language was actually not a problem for me. Disaster information is mainly written in Kanji, there are some Hiragana but still, it is hard to read kanji characters. It is not understandable.

**Q2: What was the problem you have in the longer term?**

At the time of the disaster, I had nine months old son. It was difficult to provide him milk, feeding bottle, food was also not easy. We had to drive one hour to get baby food.

We didn't stay in shelters. My husband's family lives near to mountainside, so we evacuated there. But I had a little problem with my mother-in-law. Then we started to look for apartment. After staying three months there, we found a simple apartment and moved out. At that time, government facilities were already full, that is why we looked for a regular apartment. The government paid the rent for us for about three years. Right now, we are staying in government housing, and we have to pay rent of 40,000 yen or more, it depends on our income level, it is getting higher and higher each year. This house belongs to Iwate-ken, not from the city. Their policy may be different from other housing facilities.

**Q3: Did the bad relationship with a family member cause stress on you?**

Yes, a little bit. I was stressed. Not mental health problem, but I already have a baby, all issue came together, so I was really stressed.

The problem I had with my family is connected to the language problem. Because I couldn't understand them fully, maybe I misinterpreted what they said. And then culturally, we are different, they are strict on how I behave, how I work, I think it is mainly because of the cultural differences.

**Q4: Are taking a role in PAGASA, organizing activities difficult for you? How are you managing your time?**

It is a little bit hard. But I want to help because we come from the same country, I want to offer my help.

If I have to go to the community, I have to ask for consent from my family. Usually, I drive, so it is not very hard for me to commute from Rikuzentakata to church. If you cannot drive, it is hard to commute by bus.

**Q5: In emergencies, or if you have any problem, is there anyone that you can ask for help?**

First of all, my family. Then, my Japanese friend, they know how to deal with problems.

**Q6: Could you tell me your opinion on government support?**

I don't really know about the government support. My husband was managing that.

**Q7: Do you have any experience with discrimination?**

Sometimes it happens, especially at work. Some old ladies are complaining about foreigners, saying stuff like, "they're so noisy". They say some harsh words like "keep quiet!". I also experienced it at my old workplace. Before the tsunami, I was working at Ikura company, they are very strict on how we work. They speak to me in a very loud voice sometimes. The work was very stressful, I had to take painkillers often. I have changed my job now, so the stress is off, there's some improvement.

**Q8: How about your relationship with neighbors or with the people in the community?**

With neighbors, it is good. In the community, it is good, the difficulty is in work.

**Q9: Except the church, are there any other organizations or individuals that provided mental health support?**

Right now, I don't have any. Soon after the disaster, some volunteers came from Tokyo and other places, and some brought foods; some had talks with us, asked what we needed, and listened to us. These kinds of support activities stopped about three years ago. Maybe they saw our situation is already improved.

**Q10: Do you think you have recovered?**

My feeling is, already recovered. It's been almost ten years, I've recovered already.

**Q11: what is the reason why you actively join activities?**

Because we have positive thinking, we don't allow ourselves to be stressed. We are fighting for each other; we are close. Especially, we came from the same county, speaking the same language. It is comfortable to be with them. If you have a problem, they are willing to listen and willing to help you.

At the time of the disaster, the Filipino community from Tokyo and other places came here. We became popular.

**Q12: As a foreign resident, do you have any expectations for future support?**

English or Tagalog version of the announcement. It is not very easy to communicate if you don't know what they are saying. Foreigners must study Japanese because Japanese people cannot adjust to us. We are living in Japan, and we have to adjust here. It is ours to learn. If you learn Japanese, you feel stable. You can communicate with them, it will be easier to live here.

vulnerability Source of support and community tie evaluation of government support mental status

**Figure 41 Thumbnail image of interviews**

## 3.2 Results

The themes described here are the most mentioned answers by interviewees, and some distinct answers also will be explained in the following.

### *3.2.1 Source of Support and Community tie*

Lack of disaster experience is commonly mentioned by all interviewees, which caused panic and confusion at the time of emergency. Separation from family members is known to be one of the risk factors for mental distress. Interviewees reported they were glad their family members were with them when disaster struck.

*I was at home on that day, just having my lunch and watching Korean drama. I was preparing to go shopping. Around 2:00, the ground started shaking, things dropped from the shelves. My daughter was with me, we were so afraid. After stopping shaking, we went out. We saw people were screaming and heading to a higher place. We followed those people, went to an elementary school. After a while, the water level increased, I was so afraid. This is my first time seeing this. My husband was in Tokyo. My daughter was back from school on the 6th of March for vacation. I am glad my daughter was with me. otherwise, I would be concerned about her safety too. (Interviewee 1)*

Interviewees indicated that their family is continued to be a source of support during the following phases of disaster. The language barrier was significant in understanding disaster information. Interviewees reported that they had a hard time understanding disaster information, especially those were written in Kanji, it was difficult to know the meaning of certain words. They also mentioned how their families were helpful regard with getting disaster information.

*We are living with our Japanese families… in case there are some difficult words, we can ask them. Foreigners who live alone have more difficulties. (Interviewee 2)*

One advantage of these Filipino women is that they have their husbands and family in-laws to ask for assistance from them. Especially accessing and understanding public support information, family- mainly the husband can take care of such matters. As known from the questionnaire survey, family is the main source of support for Filipino women. Compared to other foreign residents who live in Japan alone, Filipino women can rely on their families in emergencies and aftermath. As a good family tie can be a source of support for disaster victims, a bad relationship with a family member can be an additional stressor.

*I had a nine-month-old son. It was difficult to provide milk to him, finding baby food was also not easy, we had to drive one hour to get baby food…my husband's family lives near to mountainside, we evacuated to there. But I had problems with my mother-in-law, then we started to look for an apartment… I already have a baby, all issues came together, so I was really stressed. (Interviewee 3)*

All interviewees are active members of the PAGASA community, when they were asked how their family members reaction to their community activities and church activities, interviewees reported that family members show understanding, but their priority still is their family.

*At first, my mother-in-law couldn't understand it because she had never seen this kind of lifestyle. Then, the priest came to our house, and she saw we were receiving help from the church. People came to help us, then she realized what are we doing. My children are already grown up, they understand if I go to church. But still, my priority is family. (Interviewee 2)*

In addition to the support from their family, their connection with Ofunato Church also provided them with resources. CTIC (Catholic Tokyo International Center) continuously provided help for 3-4 years. Ofunato Church had three priests, including the dispatched priests. The church became a gathering space for Filipino residents, they visited church every day during the early recovery. Some other organizations or volunteers also provided support through the church. Media covered

their situation, more and more volunteers and support groups were involved in supporting them in various aspects, including providing mental health support.

*The first couple of weeks were so tough. Then CTIC provided support, relief goods, emotional support. They organized an English mass. We cannot forget these supports. this was the first time for us to wake up and feel "Ganbaro…we went to Church every day, spent hours there, sharing our experiences. (Interviewee 1)*

Another vital contribution of CTIC and the church was that they helped form PAGASA Filipino Community Association. Before the disaster, Filipino residents didn't know their actual community size. After the disaster, around 100 Filipino residents were gathered. To effectively do the safety check and promote their integration, they decided to form an ethnic group association.

*The first Job of CTIC was to create a community. After the tsunami, that was the first time we knew how many Filipinos were living here. We all gathered, CTIC made a Filipino community. Then, the second job is to choose the leader. Since then, if there are any activities, we leaders inform other community members. (Interviewee 2)*

At the initial phase, PAGASA community members were invited to the activities initiated by others. Later on, they started to organize activities and invited others. This positively influenced the interaction of different ethnic community members, which promoted the sustainability of PAGASA. They became well-known inside and outside of the disaster-affected region. As a result, the support provided to them was expanded, including all kinds of tangible and intangible supports.

*We organized various activities and also invited others to join our activities. Many groups came to support us, newspapers, TVs reported us. Some groups invited us, so many years have passed…some organization helped us to cheer up, had a one-to-one talk with us…PAGASA made t-shirts and sale them. We used the money for the fund of the PAGASA. We also helped the Philippines in Typhoon 2 years later. (Interviewee 1)*

In addition to the support they received from others, interviewees commonly mentioned their close ties with their co-ethnic members, which provided them a source of emotional support.

*We are fighting for each other, we are close, especially, we came from the same county, speaking the same language, it is comfortable to be with them. If you have a problem, they are willing to listen and willing to help you. (Interviewee 3)*

PAGASA community members strong connection and trust in each other positively influenced their active participation and cooperativity. Interviewees indicated this could be why they are more active during the recovery.

*The Filipino community is easy to be organized, other communities cannot be easily organized as a group. People are concerned about who initiated these activities, they have a hard time. It is easy to call the Filipino community, just contact the Filipino community leader, the leader will call other members. (Interviewee 2)*

### *3.2.2 Evaluation of government support*

Unlike the case study of the Hanshin-Awaji Earthquake, Interviewees from the PAGASA community have positive evaluations on government support. Under Japan's system of support for disaster victims, foreign households and Japanese households with foreign wives were eligible for government support measures, both during the emergency relief phase and the early recovery phase. For example, an interviewee reported the government paid their rental fee during the early stage of recovery. Another interviewee reported government had been helpful, and the evaluation of the government support is based on the comparison with their home country.

*There are no bad words I could tell. They (government) were very helpful, you know, compared to other countries, especially compared with the Philippines. They have been very supportive. No bad words toward them. (Interviewee 2)*

Interviewee 2 also indicated that if she has any needs in emergencies or daily life, she can ask for help from government agencies in the area. The connection with government agencies and other institutions increased the interviewees' perception of their personal strength with coping with adversities.

*We have an international association, they have a connection with foreigners. If we need support or have any problem, we can go there…We are not used to these experiences. We are in a foreign land, and the alphabet is very different. People who live alone are in a more difficult situation. But this is the job of us leaders, we have a connection with officials from city hall, schools… we can offer help to people who are in difficulties. And there is Church, so there's nothing to be afraid of.*

### *3.2.3 Mental status and recovery*

All interviewees reported that they feel they are already back to normal, their hosing issues were solved, and all of them have been employed.

*Now, we can say we recovered fully and are back to normal. Everyone is working currently, so we can't have many activities now, we organize rosary. This year has pandemic, activities are much less than usual. (Interviewee 1)*

As everyone reconstructed their life, the frequency of visiting the church and organizing activities has decreased, but they continue to organize small gatherings such as rosary. The importance of active participation in community activities and taking a role in these activities has been proven with empirical studies. PAGASA community case also shows the positive role of active participation in psychological recovery. Through all kinds of recovery activities and community activities, the social network of interviewees has expanded since the earthquake, which provided them a positive frame to interpret their experiences.

*I don't take it negatively. Many things have happened to me because of the tsunami. Everybody knows me now. I've been receiving interviews, I go to places, I talk about my experiences. I am lucky, I also have the chance to offer jobs to others.*

*Sometimes I get job offer to be a travel guide, I introduce my friends for the job. I am not taking those opportunities only for myself, I also offer chances to others. So I take it positively. (Interviewee 2)*

From the narratives, it can be understood that the supportive environment, increased interpersonal relationships, and increased new opportunities provide a perspective for disaster victims to attach positive meanings to their disaster experience. The empowerment that they gained after the disaster also helped them to be able to become a supporter. They may demonstrate strength through recovery efforts, whether assisting the reconstruction or supporting others.

Additionally, interviewees also reported some individual coping methods. For example, interviewees reported that they have been sharing their experiences through various events. This method, called storytelling, can function as debriefing and result in better recovery. Interviewees also reported religious coping, as they gathered church every day and practiced their religious activity. One interviewee mentioned the importance of taking actions to reduce vulnerability, which shows a way of active coping.

*It is not easy to communicate if you don't know what they are saying. Foreigners, they must study Japanese because Japanese people cannot adjust to us. We are living in Japan, we have to adjust here. It is our to learn, if you learned Japanese, you feel stable, you can communicate with them, it will be easier to live here. (Interviewee 3)*

## 3. Discussion

Questionnaire surveys and interviews with PAGASA community members revealed that participants positively evaluate their disaster experience despite the difficulties they had in the aftermath of the disaster. Although the reconstruction is

still continuing in some East Japan Earthquake-affected areas, and the economic status hasn't fully recovered yet, participants indicated their sense of normalcy. They also reported appreciation for the support they received since the earthquake. In the following, some factors that may influence the positive recovery perception of Filipino residents will be discussed.

Filipino residents have scattered around the disaster-affected area, they didn't have the chance to form their ethnic community until they gathered at church after the disaster. All interviewees in the present study agreed on the fact that Filipino residents are willing to help each other. They used the narratives like "we fight for each other", "we know how to comfort each other". In addition to getting comfort from their religious practice, they got emotional support from each other by sharing their experiences, experiences that they had since they came to Japan. That was the chance to reveal not only the disaster-related emotions but also the ones they had been suppressing since before the earthquake. Almost all of them are married into Japanese families. They share similar experiences, and their same cultural background provides them with similar ways to interpret the experience and cope with it.

Filipino culture emphasizes the spirit of dependence and connectedness and community interaction (Bauzon, 1999). They socialize by exchanging food, giving visits to each other. Friends and neighbors are providing not only material assistance but emotional support. Families organize activities, all family members and friends attend those activities, children learn the values of the culture in these occasions, ties among relatives and friends enhance in these activities (Bauzon, 1999). Hence, Filipinos are well known for their solidarity and ability to create groups worldwide. This characteristic of Filipino community provides them a more efficient way to respond to the disaster. This situation is not exclusive to disaster-affected Filipino women. Filipino students who were studying in the Tohoku area also had the same performance. After the disaster, Filipino students all over Japan collaborated via social

media, and came up with a plan to provided shelters for students from the disaster-affected areas (Robles *et al.,* 2017). They also organized fundraising activities to support disaster-affected students financially. Disaster support also extended to their co-nationals, they also managed to get support from other formal and informal institutions.

Immigrants, who are at a high risk of isolation, are at a greater risk of being further isolated after the disaster. Because disasters could exaggerate the pre-existing social issues if those are not addressed promptly. If an immigrant ethnic group exists, and its social capital can support its members, it would prevent or at least decrease the risk of isolation. Inside the ethnic group, members would help each other by providing tangible, informational, and emotional support. The support comes from bonding social capital can promote a sense of belonging, safety, and stability (Kawachi & Berkman, 2000). Tie between the co-ethnic members would be strengthened while trying to solve their difficulties together, the ethnic community itself would function as a therapeutic community. And, as immigrants, their main consideration may be different from the residents, they may have different needs to be addressed. In ethnic communities, they have no difficulty finding sympathetic listeners for their struggles, they understand each other because they are going through the same thing. With the accumulation of the same needs and concerns, members can seek a formal and informal way for a solution through the community's social capital. In this process, ethnic tie provides a sense of security and network for their members.

The connection with the broader community offered Filipino residents more resources to reconstruct their lives. Interviewees reported they received financial, informational, and emotional support from the supporters. The supporters include church and CTIC, and volunteers from outside of the disaster-affected region. In the early recovery stage, the church and CTIC supported them financially, by providing 100,000 yen per person. They also arranged people who can speak Tagalog to promote

communication and organized Masses in the Tagalog language to comfort the disaster-affected Filipino residents.

For Filipino residents, the church is not only a religious but also is a gathering place. At first, Filipino residents gathered at church, which provided the basis for the formation of the PAGASA community. Then, the church also became a bridge that connects PAGASA Filipino Community with others, including Japanese residents in the area, volunteers, media, and other support agencies. Church functioned as a space that connected them to wider community. Church functioned as a bridge is not unique to PAGASA. Generally, Filipino immigrants worldwide have been using churches for various occasions, and various functions of churches have been the topic for many studies. Mateo (2000) conducted a study on a catholic church in Tokyo and indicated that the church offers spiritual or religious services to Filipino members but also aid them in the form of legal, medical, and financial aid, shelter, psychological counseling, networking, and emergency support. Jabar (2015) studied the Kaagapay Oita Filipino Association and found that membership in Kaagapay church served as the social capital among its members, and their religious practices and experience in the church offered some psychological comfort. Another study conducted by Fresnoza-Flot (2010) on the immigrant Filipinas in France and found out that church functioned as a space where Filipino migrants could reinforce their religion and ethnic identity, space of exchange information and other economic resources.

In addition to the function as a space of exchange information and social networking, it is known that public gathering places have a positive influence on increasing sense of community (Francis *et al.,* 2012). This community is not only limited inside the ethnic tie, it can be extended to a wider community. A greater sense of community also increases the likelihood of individuals' participation in social activities (Warde *et al.,* 2005). Being a part of a community would provide Filipino residents with a new perspective on life and their relationship with others. It could also

offer them a chance to use their skills and knowledge in community activities. Finally, it would help them to regain the feeling of having control of life, which promotes their sense of recovery.

The case study of the PAGASA Filipino community identified some level of network with government agencies, and the trust in the benefit comes from this network. However, the East Japan Earthquake recovery process is a centralized decision-making without much participation of local residents. PAGASA Filipino community members' formal involvement in the recovery process is also questionable. Although interviewees reported a positive evaluation of government support, their evaluation is rather general and only based on the comparison with their home country. This may indicate that Filipino residents' social network is extended to public institutions, but it is still not enough to form a social capital due to the lack of formal engagement. Filipino residents' meaningful participation may be limited on the community level. Extending this meaningful participation to a greater extent, facilitating the collaboration with government agencies will further empower the foreign residents and increase their resiliency in the long run.

## 4. Conclusion

The case study of the PAGASA Filipino community showed how social support is operated to promote positive psychological recovery from East Japan Earthquake and Tsunami. Once again, the study result emphasized the importance of a supportive environment that people accept and help each other. A high level of social support helps disaster victims to attach a positive meaning to the traumatic experience. Strengthened ties among people provide disaster victims with more resources and encourage them to actively cope with disaster. These active coping may be shown in the forms of religious coping, meaningful participation, and/or improved personal

skills to decrease vulnerability. As a result of these processes, people experienced positive changes in the aspect of religious coping, interpersonal relationships, and personal strength.

Ethnic ties of foreign residents provide disaster victims with emotional support and a sense of safety. This emphasized the importance of forming ethnic groups, especially in the region where foreign residents are not concentrated in one neighborhood. This could provide them an immediate reach for social support in emergencies. For the future, building capacity in the ethnic community should be given more attention. Capacity building would be accomplished by providing the chance of education and employment, and most importantly, strengthening the social capital by various exchange activities between stakeholders. This requires support from civic organizations, religious institutions, and government agencies. While civic associations and religious institutions can assist the formation of ethnic associations and bridge them with the wider community, government agencies can support the empowerment and sustainability of the foreign residents by providing them chances to be involved formally in community development projects.

Filipino residents' positive and active involvement leads to a greater sense of recovery. But this result cannot be generalized to the whole foreign residents' population in the disaster-affected area. The diversity of the foreign residents makes it difficult to come to a unified conclusion. It is known that there are some social problems related to gender issues (Lee, 2012) or human rights issues of foreign workers (Suzuki, 2012), and these existing problems would negatively impact the psychological recovery of disaster victims, also it would hinder the supporter's access to the targeted individuals. Studying and supporting those marginalized individuals requires better connection not only after the emergencies but also in the normal time. Including all foreign residents into the network and supporting them equally would be one of the future tasks.

# Chapter 4 Overall Discussion: Post-Disaster Psycho-sociological Approach from Hanshin-Awaji Earthquake to Great East Japan Earthquake

In the previous chapters, this study has identified that the foreign immigrants in disaster-affected areas in Japan still reveal a certain psychological impact after many years of post-disaster struggles. This study also indicated the trend of post-traumatic growth and implied that social support, including governmental support, can promote a positive psychological recovery. Social support generates smoother recovery and development in terms of post-traumatic growth (PTG) by providing resources and opportunities to participate in the community. Then, the following discussion is dedicated to exploring the possible implications for the discussions of how to promote the participation of the foreign residents in disaster recovery and how to extend their access to more resources.

## 1. Social capital of foreign residents

Case study of foreign residents in post-Hanshin-Awaji Earthquake and post-Great East Japan Earthquake emphasized the positive role of social support on the psychological recovery. Because the individuals who have a higher level of social support are more likely to access social resources to restore their lives. Similar with our finding, Puyat (2013) found out having low social support is a risk factor for mental health of immigrants in Canada while having high social support has protective impact. Recent immigrants are more likely to have low social support which resulted

in a stronger adverse impact on mental health; long-term immigrants with high level of social support may have a relatively successful integration with host country which enables them to benefit from psychosocial resources (Puyat, 2013). In present study, both old-comers and newcomers reported a higher level of social support, this may be contributed by the length of their staying in Japan. Because the participants of this study have at least ten years of history of living in Japan. The differentiation in the level of social support may be evident in more recently immigrated population. Since the beneficial role of the high level of social support on mental health is being established, strengthening the social support system for the foreign residents, especially for recent immigrants, becomes necessary.

Social support can be drawn from various social networks, including ethnic ties, intra-ethnic ties, and connections with the government. This finding highlighted the importance of the social network because people who have a wider network are more likely to cope with the difficulties during the recovery process. Our finding is supported by another study conducted by Foster *et al.* (2013) suggests that among the foreign residents who experienced Great Eat Japan Earthquake and Tsunami, those who have a stronger tie with the community, especially the ones who have Japanese friends, are more likely to cope with disaster-related stress. Foster *et. al* also suggests that foreign residents having Japanese friends is positively related to the sense of belonging.

The sense of belonging increased by the connection between people called ethno belonging. This concept was used by Fozdar & Harley (2014) to describe the refugee's sense of belonging with the host society. It refers to the emotional and affective communication between people (Fozdar & Harley, 2014). There's another type of belonging called civic belonging, which refers to a concept of membership that have access to services and rights, and ability to participate in society (Fozdar & Harley, 2014). Marlow (2015) used these concepts to discuss the post- Canterbury Earthquake recovery of former refugees in New Zealand. Their sense of ethno

belonging also increased due to increased interaction with New Zealanders. Marlow (2015) also suggests that civic belonging promotes a sense of normalcy after the disruption of disaster. In the case study of the PAGASA Filipino community, a higher level of sense of recovery is reported by them. If we apply Marlow's findings to this case, it is reasonable to say that the foreign residents in Japan may also experience a sense of belonging due to the increased interaction between the wider community, which resulted in increased coping ability; and, active participation in community activities may foster their sense of normalcy.

The sense of belonging is outside of the scope of this study. However, foreign residents' post-disaster psychological recovery is influenced by the sense of belonging which associated to their relationship with the wider community. This factor indicates the social capital of foreign residents. Putnam defined social capital as a connection of individuals, including social tie, trust, and reciprocity (Putnam, 2000). The present study examined that foreign residents facilitate their social ties to access social support. The active participants of the community can expand their ties through the interaction with their co-ethnic members, intra-ethnic community members, and even with the interaction with formal institutions. This finding highlighted the importance of social capital in the post-disaster recovery of foreign residents.

There are three types of social capital: bonding, bridging, and linking. In the case of foreign residents, bonding social capital refers to their relationship with family and co-ethnic community members. As seen from the case analysis of the present study, bonding social capital is the primary source of social support, it enables foreign residents to meet their immediate needs in the aftermath of disasters; it is also providing emotional comfort to members. The importance of bonding social capital was especially recognized after Hanshin-Awaji Earthquake (Mugikura, 1999), the establishment of ethnic associations of newcomers has been promoted since then. For example, Vietnamese residents in Nagata established Vietnam Yeu men Kobe in 2001. After East Japan Earthquake, it was reported that 11 ethnic associations were

established in the three disaster-affected prefectures (Lee, 2019). This number includes the PAGASA Filipino community. These ethnic communities aim to provide community members services and organize various activities to promote the interaction between foreign residents and mainstream society. It also increases the resiliency of foreign residents in disasters.

However, having bonding social capital alone is not enough for positive recovery, it also requires bridging social capital. Bridging social capital refers to relationships with other ethnic individuals and communities or community organizations. Two case studies confirmed the increased bridging social capital: the members of different ethnic communities sharing resources, the emergence of Japanese-led foreigners support organizations, and foreign residents' participation in the community activities, all of these are indicating the increase of bridging social capital. Bridging social capital is likely to increase individuals' coping ability by providing them access to more resources.

Similar findings are found in the studies conducted on Brazilian immigrants (Takenoshita, 2015) and Chinese immigrants (Gong *et al.,* 2021) in Japan. These researches have examined how immigrants utilize their social capital in daily life or economic activities. They find out that immigrants benefited from their community's bonding social capital despite lacking socioeconomic resources. In addition to this, bonding social capital is the primary source of emotional support and is directly related to psychological well-being. On the other hand, bridging social capital is indirectly related to psychological well-being by providing socio-economic resources to individuals. Our study on the old-comer Korean residents and new-comers such as Vietnamese and Filipino residents has extended the previous study findings into disaster context, proving the important role of bonding and bridging social capital in the post-disaster psychological recovery.

Linking social capital refers to foreign residents' relationship with government agencies. In the case of the Hanshin-Awaji Earthquake, people have a lower level of trust in government and a lower level of communication with the government, which indicating people have weaker linking social capital. In the 1999 assessment of the Hyogo Life Recovery Survey (Takeda, 2003), disaster victims had a paternalistic view of the government; meanwhile, they had apparent growth in civic-mindedness. People realized that it would be impossible for the government to fulfill all the needs of disaster victims, and they had to take the initiatives to take care of each other. Many people expressed their increasing interests in civic activities such as volunteer activities, community-based organization activities, and engagement in community development. The present study also found a similar pattern: realizing the government's limited capacity promoted self-help and mutual help on the community level. Meanwhile, they identified their lack of access to government and total reliance on the government decision as the reason of their weak community development. Marin et al. (2015) suggests that the linking social capital is critical in determining the disaster recovery trajectory. Or in other words, the level of linking social capital decides the post-disaster ability to improve the development. In line with this finding, the present study also suggests the connection with government influences the recovery process because this connection enables communities and individuals to obtain valuable information and resources to build sustainable livelihood. Yet, linking social capital tend to be weak in foreign residents' community. If this is not addressed adequately, can lead to increased social inequalities (Pelling & High, 2005).

In the case of Filipino residents, they reported appreciation to government support, and they have perceived support from local government agencies. This may indicate an improvement since the Hanshin-Awaji Earthquake regarding the connection between foreign residents and government agencies. There are two possible explanations for this: one is, since the Hanshin-Awaji Earthquake, with the

expansion of the concept of "multicultural co-existence", supporting foreign residents has become one of the focus of each local communities and local governments; some progress may be made to build a connection with foreign residents in all level including government agencies. The second explanation is that the Filipino community has been very active during the recovery process. Their active participation and cooperativeness may help them extend their network to the government level.

Although a positive change was implied on the level of connection with the government over the years, this still is not sufficient to conclude that strong linking social capital is established, especially for those who are less active or marginalized in society. Additionally, social networks are the key component of the social capital, but it also emphasizes engagement and trust. Considering Great East Japan Earthquake recovery process was a centralized decision-making process, even for Filipino residents, their formal engagement in the recovery process is questionable.

If social support is necessary for the positive psychological recovery of foreign residents, and social support is drawn from their existing networks, it is important to consider how to keep the sustainability of existing networks and turning it into asset for foreign residents. Aldrich (2011) suggests social capital can be strengthened through interventions such as organizing regular meetings and advocating volunteer activities.

## 2. Evolution of Post-Disaster Social Support for foreign residents

Hanshin-Awaji earthquake was the biggest urban disaster since the Kanto earthquake. The damage was enormous, revealed the gap that existed in the disaster response mechanism, including all public, community, and individual levels. Many lessons concluded from the recovery experience, assisting disaster-affected international residents and building a multicultural society is one of these lessons.

Kobe has been known as an international city since before the Hanshin-Awaji Earthquake. Many foreigners, including old-comers and new-comers, have been living here for a long time. Some organizations and support activities existed before the earthquake, which made the funding stone of the concept of "multicultural society".

The disaster experience of foreign residents revealed the language barrier, policy barrier, and empathetic barrier (Yoshitomi, 2019). Language barrier not only means the lack of access to disaster information but also includes the lack of understanding of daily life information such as medical service, legal issues or/and community activity information. Policy barrier refers to the extension of residence permit for those who lost jobs or couldn't continue their study due to earthquakes, unequal payment in work, limited social services, insurance and funding for medical treatment, and financing for ethnic schools. Empathetic barrier means the lack of connection, mutual trust, and respect between residents.

The recovery from the Hanshin-Awaji earthquake addressed the above-mentioned issues with the efforts of NGO Network for Foreigners Assistance Kobe (formerly known as Foreigners Assistance Network), Kobe Foreigners Friendship Center (combination of Hyogo Foreign Residents Life Recovery Center & Vietnamese Disaster Relief Committee), and FMYY (combination of FM Yumen & FM Yoboseyo) and other foreign residents support agencies. To ease the language barrier, initiatives like multilingual information dissemination, multilingual signages, translation services, language schools are made available. Some other organizations took measures such as providing medical expense funding to ease the burden of foreign residents who couldn't afford their payments. After that, based on the Medical Expense Compensation Policy, Foreign Prefectural Residents Medical Expense Subsidy Project was included in recovery funding planning. Finally, various exchange events are conducted to increase the meaningful participation of foreign residents.

When Great East Japan Earthquake occurred, multilingual disaster information support was conducted smoothly with the experience of the above-mentioned

organizations. FMYY and FACIL collaborated in distributing disaster information. In addition to this, Tohoku Region Pacific Ocean Multilingual Language Support Center established consultation window services and WEB upload until April 30th of the same year (Tabunmane kyogikai, 2011). Supporters from inside and outside the disaster-affected area were involved in disaster relief, financial support and emotional support. However, the supporters from outside of the area found it hard to grasp the local situation in a short time and develop a support program accordingly. From some anecdotes, it is known that, although some organizations came to support foreign residents in shelters and temporary houses, they had difficulties accessing their targets. Many factors might contribute to these difficulties, including lack of understanding of local characteristics, and foreign residents lack trust in supporters. It is known that only those who interacted with residents since before the disaster could efficiently provide support.

In the case of Tohoku, one thing worth mentioning is that support activities are not only limited on the level of providing support, some activities are initiated to build capacity among foreign residents. For example, FMYY training of Filipino residents with radio broadcasting (Robles & Ichinose, 2017), Japanese Refugee Association training of foreign female residents in elderly care (Yamaguchi, n.d.). Supporting them only in emergencies by providing relief goods and/or disaster information is not a sustainable way of reducing the vulnerability. Capacity building such as education and employment is an effective way of increasing resilience for the long term because it can provide them with more access to social resources.

From the post-disaster recovery experiences, we learned that foreign residents might have special needs, which causes their vulnerability in emergencies. Foreign residents lacking access to information and other socioeconomic resources is called condición migrante (Benight et al., 1999). However, despite all the difficulties, they showed their strength to recover from the negative impact of the disaster, they also developed positive growth over the years. Uekusa and Mattewman (2017) adopted the

concept of “earned strength” to immigrants who experienced the Canterbury Earthquake and Tohoku Earthquake because these immigrants have obtained unintended coping abilities as a consequence of everyday hardship due to social-structural inequalities, their vulnerability gives them strength in a disaster context. Another study focused on the former refugees in New Zealand also found out that not having disaster preparedness and difficulties in accessing information are the possible factors that cause a high level of anxiety; however, despite the negative factors, a moderate level of coping is reported by the former refugees (Osman et al., 2012). Participants in this study also indicated their self-reliance and coping skills, which developed through the experiences with social inequalities in history. They utilized the available social resources to rebuild their lives during the long-term recovery. They are the "people who are vulnerable” during the emergency, but they are resilient during the long-term recovery.

According to Tamura (2017), foreign residents have three characteristics: uniqueness, diversity, and duality. Uniqueness refers to the special needs of foreign residents, they need assistance during the evacuation (避難行動要 援護者 ) due to their lack of understanding of disaster warning and lack of experience (Tamura, 2017). They also can be seen as people who need special consideration (要配慮者) because they may have special needs due to differences in culture and customs (Tamura, 2017). As duality of foreign residents, they need assistance in emergencies, but they can also be supporters (Tamura, 2017). Unlike the elderlies or people with disabilities, foreign residents’ vulnerability is not caused by physical reasons. If they are provided with the trainings and opportunities, they can use their knowledge and coping skills to contribute to the resilience of wider community. As in this study, the Korean ethnic community prompt response in Hanshin-Awaji Earthquake was highly appreciated by Korean residents, and they were able to share their shelters and relief goods with other ethnic groups Vietnamese residents used their survival skills gained from their war experience to get into half damaged houses to get necessary daily life supplies (Seto,

et al., 2016); Filipino ladies training in radio broadcasting and elderly care, all these can be good examples of foreign residents' duality of needing support but at the same time being able to provide support. In consideration of foreign residents' age range being younger than Japanese locals (Nippon.com, 2020), they can be a source of human resources in emergencies, they can also be active members of community activities and volunteer activities. This process will increase the social capital, but it can also increase the sense of belonging and promote psychological well-being.

The diversity of Foreign residents is contributed by the factors such as the period of staying in Japan, residential status, ethnic and cultural background, and integration in mainstream society. In reverse, the diversity of the foreign residents can contribute to their different response to disasters. In present study, we also have seen the different experiences of Korean residents, Vietnamese residents and Filipino residents. For example, having a longer history in Japan provided old-comer Korean residents more established network. Their familiarity with the society provided them with perspectives to analyze the government emergency response and recovery assistance. Born and growing up in Japan may provide them a sense of belonging which impacts their commitment to the society, as a result they can make constructive criticism on the recovery process. Additionally, they are fluent in Japanese, language barrier wouldn't be the factor that hinder their access to available services, so that they can evaluate the service quality based on other criteria such as equity, inclusiveness or/and transparency.

On the other hand, the new comers came to Japan in recent history. They lacked understanding of language, culture and customs, which caused difficulties in accessing support services. In addition to this, before the disaster, both Vietnamese and Filipino residents didn't have their own ethnic community organizations to seek help from. They needed to compensate these shortages by utilizing their social ties, especially the ties with the wider community. Unlike Korean residents, new-comers largely were depending on the Japanese volunteers and Japanese-run support organizations. Even

among the new-comers, some individuals can be more active and have more social networks than others. The factors like personality, awareness, socioeconomic factors can cause these differences. Due to the diversity of the foreign residents, one single form of support cannot be applied to all different cases. An efficient support requires an understanding on the characteristics of the foreign residents, so that it can respond to their needs, and utilizing their skills. This process once more highlighted the necessity of building connection with them.

New Zealand, as a country hosting various immigrants, had some lessons learned in the Canterbury Earthquake regarding how to communicate with diverse communities in emergencies. Community Languages Information Network Group (CLING) have published *Best Practice Guidelines: Engaging with culturally and linguistically diverse (CALD) communities in times of disaster*, giving recommendations to both support agencies and immigrant communities. These recommendations are summarized in **Table 50**.

As seen from the table, the importance of connection that build before the emergencies is emphasized in here. Practices like improving cultural competencies, preparing multilingual disaster information, recognizing community leaders and gathering places can be the efficient ways to enhance the communication in emergencies. Promoting disaster management knowledge, encouraging immigrants to utilize community radio and other media resources are the ways of capacity buildings. Establishing liaison roles in disaster agencies is effective to encourage immigrants to involve in activities. As suggested in current study, these measures are beneficial for increasing the social network and participation of foreign residents. Meanwhile, foreign residents also need to make efforts to enhance their resilience by building more networks, engage with local communities and government agencies, and make emergency plans.

**Table 50 Summary of recommendations from Best Practice Guideline**

| | Support Agencies | CALD Communities |
|---|---|---|
| Challenges | Language:<br><br>Lack of translated information and of plain English, simple to read / translated written information.<br><br>Inadequate use of interpreters<br>Shortage of bilingual workers – lack of diversity in workforces of key agencies | Risk communication:<br><br>Lack of telecommunication.<br>Lack interpreter service<br>Language barrier<br>Underuse of migrant media |
| | Working mechanism:<br><br>Workers and community leaders were survivors<br>Lack of coordination<br>Information overload<br>Loss of key communication mechanism<br>Insufficient CALD liaison roles | Awareness:<br><br>Lack of planned response and poor system<br>Lack of understanding of civil defense<br>Perception that agencies did not want to hear the CALD voices |
| | Cultural Sensitivity:<br><br>Lack of understanding and/or knowledge of the diversity of Christchurch's population<br>Not all CALD communities included in networks<br>Rumor, misunderstanding and panic | Response mechanism:<br><br>Over-reliance on volunteers<br>Tension between paid roles and CALD leader role<br>Different communities have different needs, unable to all be addressed via shared multicultural forum |
| Suggestions | Improve cultural competency within your organization before disaster strikes<br>Develop CALD connections before disaster strikes<br>Some health and safety messages will apply in many disaster scenarios.<br>Have these in CALD community-friendly forms and ready in the preparedness phase.<br>Coordinate the information which goes out to avoid overload, and keep messages simple.<br>Get information out in a timely manner, tailored to the needs of different communities.<br>Have CALD liaison roles in place before disaster, and utilize their knowledge.<br>Promote Civil Defense knowledge to CALD communities - for many it is a very foreign concept.<br>Getting community radio and CALD media up and running following disaster should be a Civil Defense priority.<br>Recognize key CALD community gathering places<br>Avoid over-reliance on web-based information.<br>Always ensure databases of CALD leaders | Developing strong leadership<br>Reach out to local communities and engage with them<br>Develop resiliency and preparedness<br>Know who your vulnerable members are and have a plan in place to ensure they are supported<br>Work in with Government agencies<br>Build good relationships with the local media |

(Source: Wylie (2012) Best Practice Guidelines)

Understanding the characteristics of foreign residents and building connections of diverse communities are the primary steps of establishing inclusive disaster risk management. Specific roles can be disseminated to foreign residents based on their needs and capacities. For example, old-comers like Korean residents, their residential status and access to social welfare are distinguished from other newcomers; they are familiar with the language and society, have a well-established community network. Considering these characteristics of old-comers, they can be part of the coordination of support for other foreign residents. For this model to work efficiently, the communication between old-comer ethnic groups with formal disaster agencies should be improved because this is necessary to reflect foreign residents' needs and opinions to government agencies efficiently. Then, communication amongst each ethnic community needs to be enhanced to share and exchange experiences.

While old-comers coordinate foreign disaster support, newcomer residents can also offer their skills and physical strength during the recovery. Their perspectives on disasters, knowledge of nature, and unique coping skills could provide an innovative measure in disaster management. Young generations can work as interpreters to ease the language barrier or join response and recovery activities. Community-based disaster organizations like Bokomi or Shobodan are having difficulties attracting the younger generation into their activities. Foreign residents can be part of these community-based organizations to provide their strength. This can be an effective way to increase their meaningful participation in society and promote their psychosocial well-being.

## 3. Conclusion

In this chapter, we had tried to establish the fact that foreign residents are not simply the vulnerable group but also can be a source of support in disasters. Cases analysis showed that, even though they had difficulties in emergency and response

phases, but they showed their strength in the long-term recovery, some even showed a high level of post-disaster growth. Their vulnerability and resilience are generated from their connection within the community. They are vulnerable because they don't have enough connection to access resources, but they use their networks to overcome the difficulties. Being able to integrate into the wider community and participate in the community is beneficial for enhancing their coping abilities.

From Hanshin-Awaji Earthquake to Great East Japan Earthquake, disaster support for foreign residents developed into a "multiculturalism co-existence" initiative. It made some achievements in recognizing the foreign residents as members of Japanese society. These supports are also beneficial to the psychological recovery of foreign residents. However, with the possibility of an increasing number of foreign residents and the case of future disasters, empowering foreign residents and recognizing their strength can be an approach to building a more resilient society. Having a role in the community and participating in the recovery process also will positively impact their growth. To accomplish this, forming ethnic communities, coordination within and among the various organizations, and good leadership are essential. The strength of diverse ethnic communities should be well used and incorporated into disaster management. Having social capital and participating in recovery activities mutually promote one another and promote the positive psychological growth of foreign residents.

# Conclusion of the study

This study aimed at a psycho-sociological analysis to identify the factors that affected the long-term psychological recovery of foreign residents, particularly through the examination of the impact of social support for Korean and Vietnamese residents in the post Hanshin-Awaji Earthquake recovery process, and Filipino residents in the post East Japan Earthquake recovery process.

Over the long-term recovery process, foreign residents in Japan developed a positive recovery with non-significant level of mental distress and moderate level of post-traumatic growth. However, this result doesn't reject the possibility that they may still experience some mild psychological symptoms. This study identified the positive role of social support and governmental role in long-term psychological recovery, which is consistent with the hypothesis. Foreign residents with higher level of social support are more likely to report higher level of post-traumatic growth. In terms of government support, the satisfaction with non-structural recovery and satisfaction with the support that responds to the common needs of disaster victims are connected to a positive mental health outcome. Social support including government support generates positive psychological recovery by providing more access to important resources for the reconstruction of life.

Social support is available to foreign residents through their social networks. The social capital among foreign residents has been found to enabled themselves to access necessary resources. Bonding, bridging, and linking social capitals are identified as important for foreign residents in ensuring the availability of the necessary support for the recovery. Foreign residents were found to primarily rely on close ties such as family and ethnic community in emergencies, which is a typical of "bonding social capital" that essential to meet the immediate needs, and also provide emotional support to the ethnic community members. Old-comer foreign residents can

utilize their ethnic networks to cope with the adversities after disaster. The newcomer foreign residents who lack of such an established network, they needed more support from volunteer organizations. In the long-term recovery, “bridging social capital” increases the coping ability of foreign residents by providing more tangible and intangible supports. As a positive result of disasters, the connection among people showed an increase. Foreign residents became visible in the community, their relationship with the wider community is also improved. Community voluntary organizations have also shown efforts to enhance the connection between various communities. Being an active participant in the community is found to be a positive factor that can expand social networks, increase access to resources, and generate a sense of normalcy. Meaningful participation promotes post-traumatic growth in interpersonal relationships, new possibilities, and personal strength.

Foreign residents’ connection with government agencies, which is “linking social capital” is also found relevant to the empowerment of foreign residents' communities. Over the long term, people pay more attention to their community development and communication with government agencies, which refers to “linking social capital”. The lack of linking social capital, particularly the lack of means to communicate with government agencies, is seem to hinder foreign residents' participation in recovery and resulted in poorer satisfaction with the recovery process.

Usually, foreign residents are considered under a greater risk of being marginalized from the mainstream due to language barriers, limited policy access, and limited access to empathetic support, which may put them at greater risk of the negative impact of disaster. However, despite these difficulties, foreign residents targeted in this study have shown a well recovery over the long term, which showed their strength and coping abilities. We have seen emerging social support such as voluntary activities and community organizations have supported foreign residents in information sharing, financial aid, legal consultation, and assisting for medical treatment. After the disaster, these activities evolved into daily life support to promote

a multicultural society. There are even some initiatives to build capacity by providing education and training which are beneficial for foreign residents to enhance their resiliency.

This study has identified that the community activities which aim to increase the exchange between community members are beneficial to increasing foreign residents' social capital. This finding implies that social workers or foreign residents' supporters can initiate more activities and promote the participation of foreign residents. Additionally, future assistance is suggested to pay more attention to facilitating the formal collaboration of government agencies with foreign residents in the process of community development. These activities should be arranged before the emergency happens to build mutual trust among individuals and communities. The empowerment of foreign residents by forming ethnic associations has been implemented since the Hanshin-Awaji Earthquake. This can be a practical approach to address the needs of particular community and to encourage their participation in wider society. Resiliency can be enhanced by promoting the engagement of foreign residents, strengthening the tie among community members, enhancing the interaction of diverse communities, and linking new communities with other organizations and government agencies.

This study claims its contribution as the first study that examined the post-disaster long-term mental health recovery of foreign residents in Japan. A new finding includes the positive effect of the government support as an important dimension of support networks that facilitate a positive recovery. This study provides some good implications for disaster support agencies and psychosocial support organizations to proceed their efforts to build a multicultural and disaster-resilient society through the cooperation of all diverse communities in Japanese society. This goal can only be achieved through an enhanced connection, deeper understanding, and collaboration by considering the foreign residents as a part of the inclusive society. Encouraging foreign residents to participate in wider communities and connecting them with all

levels of stakeholders are critical future tasks as the fundamental for the successful post-disaster recovery.

This study also has some limitations. First of all, the small sample size of this study makes it harder to identify a significant relationship between variables. Fisher's exact test conducted in this study didn't showed non-random association of mental health results with demographic factors. However, ethnic difference is identified in the results of post-traumatic growth and government support. It is suggested to further investigate the mediating impact of demographic factors on the link of social support and mental health. Secondly, the possibility of survivorship bias may cause overlook on some factors. Many of the participants of this study were selected from foreign-residents concentrated areas, which might be relevant to the tendency of all showing better recovery. In reality, there remains a possibility that people at greater vulnerability may be further marginalized and harder to access. Therefore, there's a need for research to focus on marginalized immigrants or technical workers whose population is expected to increase more in the future, particularly on the aspect of building mutual trust which could be the critical factor for those marginalized individuals and communities. Also, for future studies, it is suggested to investigate more on the side of providers of social support, in collaborate with individuals or organizations who are particularly mentioned by foreign residents during the research process. Future studies can also set a controlled group to conduct comparative studies, in order to identify the factors which would be beneficial to the vulnerability and strength of foreign residents.

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# Appendix A

Questionnaire survey

**Thank you very much for agreeing to take part in this survey.**

This questionnaire survey will be used in a study about the post-disaster recovery of foreign residents in Japan. Although there have been some researches focused on post-disaster psychosocial recovery, there are very few researches particularly analyzed the long-term recovery of foreign residents. By this study, we aim to fill the gap in the research field and contribute to develop a better psychosocial support system.

This questionnaire survey including four parts, your general information and disaster experiences; your mental health status, perceived social support and your satisfaction level of government support. Please answer the questions based on your situation concerning the Great East Japan Earthquake. Please assure to answer all the questions. Your cooperation would be very much appreciated.

**All the answers you provided will be kept in strict confidentiality.**

2020 July

If you have any questions, feel free to contact with me through bulbulnaz1991@yahoo.com

Graduate School of International Cooperation Studies, Kobe University
Bulbulnaz Jalaldin (PhD Candidate)

## Tell us about yourself

1. Age: 20-29 30-39 40-49 50-59 60-65 65+
2. Gender: Female Male
3. Your nationality:

4. Place of birth/Ethnicity:

5. What is the highest level of education you completed?
   No formal education Elementary school. Middle school or equivalent
   High school or equivalent 2 Years /4 years college program or equivalent
   Graduate or professional study

6. What is your marital status?
   Married (Nationality of your spouse: Ethnicity of your spouse: )
   Divorced Separated Widowed Never married

7. Do you have any child?
   0 1 2 3 4 or more than 4
8. How long have you been living in Japan?
   Less than 1 year 1-5 years 6-10 years 11-15 years 16-20 years
   21-25 years 26-30 years 30+ years

9. What was your occupation/ business type before the disaster?
   Agriculture/Forestry Fishery Manufacturing Construction industry
   wholesale/ retail business Finance/ Insurance Real-estate/ Rental business
   Transportation. Information and communications Accommodation/Food service
   Health/Welfare/Medical related job Education Government office unemployed
   Others, please specify:

10. Circle the one that best describes your employment status before the disaster?
    Regular staff Temporary staff Part-time employee Internal employment Officer Self-employed Live with annuity/subsistence allowance
    Housewife Student Looking for a job
    Others, please specify:

11. Did your occupation changed since the occurring of the disaster?
    Keep doing the same job
    The job was suspended but resumed later. The time of resumption:
    I changed my job/business due to the disaster.
    I lost my job/business due to the disaster.
    I started a business because of the disaster.
    Out of non-disaster related reason, I change my job/business.
    Out of non-disaster related reason, I lost my job/business.
    Out of non-disaster related reason, I started a business.
    Unemployed in both times.

Others, please specify:

12. What is your yearly household income? (including tax and social charges)
    Less than 1 million yen  1-2 million yen  2-3 million yen

    3-4 million yen  5 million yen or more than 5 million yen

13. Please indicate any of the following you experienced as a result of the disaster? (you can choose several choices)
    House collapse  House damage
    Relocation  Live apart from family/ friends.
    Injury/ physical illness  Loss of business/ employment
    Loss/ decrease of income  Family member injured
    Family member died  Loss of personal property (other than house)
    Saw tsunami wave  Caught by wave
    Victimized (robbery, physical assault, sexual abuse, insult etc.)
    Others, please specify:

14. What was your pre-disaster housing status?
    Own land/owned house  Rented land/ owned house  Rental house
    Public house  Other, please specify:

15. What is your current housing status?
    New construction at original location  Repair/renovation at original location
    New construction at land readjustment site  Temporary housing
    Group relocation  Individual relocation  Disaster public housing  Rental house
    Other, please specify:

16. Have you ever received mental health support (e.g. emotional support, psychological counseling, psychiatric treatment)?
    No.  Yes, please indicate when and how long?

17. How long have you stayed in temporary house?
    _____Years

## Impact of Event Scale- Revised (IES-R)

**Instructions:** Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you DURING PAST SEVEN DAYS with respect to **Great East Japan Earthquake** (東日本大震災). How much have you been distressed or bothered by these difficulties?

| | Not at all<br>0 | A little bit<br>1 | Moderately<br>2 | Quite a bit<br>3 | Extremely<br>4 |
|---|---|---|---|---|---|
| 1. Any reminder brought back feelings about it | | | | | |
| 2. I had trouble staying asleep. | | | | | |
| 3. other things kept making me think about it. | | | | | |
| 4. I felt irritable and angry | | | | | |
| 5. I avoided letting myself get upset when I thought about it or was reminded of it. | | | | | |
| 6. I thought about it when I didn't mean to. | | | | | |
| 7. I felt as it hadn't happened or wasn't real. | | | | | |
| 8. I stayed away from reminders of it. | | | | | |
| 9. pictures about it popped into my mind. | | | | | |
| 10. I was jumpy and easily startled. | | | | | |
| 11. I tried not to think about it. | | | | | |
| 12. I was aware that I still had a lot of feelings about it, but I didn't deal with them. | | | | | |
| 13. My feelings about it were kind of numb. | | | | | |
| 14. I found myself acting or feeling like I was back at that time. | | | | | |
| 15. I had trouble falling asleep. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 16. I had waves of strong feelings about it. | | | | | |
| 17.I tried to remove it from my memory. | | | | | |
| 18.I had trouble concentrating. | | | | | |
| 19.Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea or a pounding heart. | | | | | |
| 20. I had dreams about it. | | | | | |
| 21. I felt watchful and on-guard. | | | | | |
| 22. I tried not to talk about it. | | | | | |

## Post-Traumatic Growth Inventory

**Instructions**: Indicate for each of the statements below the degree to which this change occurred in your life as a result of Great East Japan Earthquake, using the following scale.

0 – **I did not experience this change as a result of my crisis.**
1 – **I experienced this change to a very small degree as a result of my crisis.**
2 – **I experienced this change to a small degree as a result of my crisis.**
3 – **I experienced this change to a moderate degree as a result of my crisis.**
4 - **I experienced this change to a great degree as a result of my crisis.**
5 - **I experienced this change to a very great degree as a result of my crisis.**

| | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1. I changed my priorities about what is important in life | | | | | | |
| 2. I have a greater appreciation for the value of my own life. | | | | | | |
| 3. I developed new interests. | | | | | | |
| 4. I have a greater feeling of self-reliance. | | | | | | |
| 5. I have better understanding of spiritual matters. | | | | | | |
| 6. I more clearly see that I can count on people in times of trouble. | | | | | | |
| 7. I established a new path for my life. | | | | | | |
| 8. I have a greater sense of closeness with others. | | | | | | |
| 9. I am more willing to express my emotions. | | | | | | |
| 10. I know better I can handle difficulties. | | | | | | |
| 11. I am able to do better things in my life. | | | | | | |
| 12. I am better able to accept the way things work. | | | | | | |
| 13. I can better appreciate each day. | | | | | | |
| 14. New opportunities are available which wouldn't have been otherwise. | | | | | | |
| 15. I have more compassion for others. | | | | | | |
| 16. I put more effort into my relationships. | | | | | | |
| 17. I am more likely to try to change things which need changing. | | | | | | |
| 18. I have stronger religious faith. | | | | | | |
| 19. I discovered that I'm stronger than I thought I was. | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 20. I learned a great deal about how wonderful people are. | | | | | | |
| 21. I better accept needing others. | | | | | | |

## Multidimensional Scale of Perceived Social Support

**Instructions:** We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**
Circle the "2" if you **Strongly Disagree**
Circle the "3" if you **Mildly Disagree**
Circle the "4" if you are **Neutral**
Circle the "5" if you **Mildly Agree**
Circle the "6" if you **Strongly Agree**
Circle the "7" if you **Very Strongly Agree**

| | Very Strongly disagree | Strongly disagree | Mildly disagree | Neutral | Mildly agree | Strongly agree | Very strongly agree |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1.There is a special person who is around when I am in need. | | | | | | | |
| 2.There is a special person with whom I can share joys and sorrows. | | | | | | | |
| 3.My family really tries to help me. | | | | | | | |
| 4.I get the emotional help & support I need from my family. | | | | | | | |
| 5.I have a special person who is a real source of comfort to me. | | | | | | | |
| 6.My friends really try to help me. | | | | | | | |
| 7.I can count on my friends when things go wrong. | | | | | | | |
| 8.I can talk about my problems with my family. | | | | | | | |
| 9.I have friends with whom I can share my joys and sorrows | | | | | | | |
| 10.There is a special person in my life who cares about my feelings. | | | | | | | |
| 11.My family is willing to help me make decisions. | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12.I can talk about my problems with my friends. | | | | | | | |

## Satisfaction with Government Support

**Instructions:** We are interested in how you feel about the government support during the disaster recovery. Read each statement carefully, indicate how you feel about each statement.

Circle 1 if you **very dissatisfied**
Circle 2 if you **moderately dissatisfied**
Circle 3 if you **slightly dissatisfied**
Circle 4 if you **slightly satisfied**
Circle 5 if you **moderately satisfied**
Circle 6 if you **very satisfied**

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Are you satisfied with the infrastructure recovery? (e.g. roads, levees) | | | | | | |
| 2. Are you satisfied with the housing recovery? | | | | | | |
| 3. Are you satisfied with the livelihood recovery? | | | | | | |
| 4. Are you satisfied with the arrangement of your family before moving to permanent house? | | | | | | |
| 5. Are you satisfied with your family's income recovery? | | | | | | |
| 6. Are you satisfied with the housing financial assistance? | | | | | | |
| 7. Are you satisfied with the livelihood financial assistance? | | | | | | |
| 8. Are you satisfied with the health assistance? | | | | | | |
| 9. Are you satisfied with the psychosocial support? | | | | | | |
| 10. Are you satisfied with the planning of your community's recovery? | | | | | | |
| 11. During the recovery, are you satisfied with the fairness of resource distribution? | | | | | | |
| 12. Are you satisfied with the openness and transparency of disaster recovery information? | | | | | | |
| 13. Are you satisfied with multilingual disaster support? | | | | | | |
| 14. Are you satisfied with the government respect for public opinion during the recovery? | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15. Are you satisfied with the public participation in disaster recovery planning and implementation? | | | | | | |
| 16. In general, are you satisfied with government assistance and policies during the recovery? | | | | | | |

# Appendix B

## Interview Transcript (1): Hanshin-Awaji Earthquake

**Interviewee 1**

Mr. K (Age: 30s) physical therapist (Mr. Kou is currently working in Amagasaki, at a rehabilitation center. He changed his job after the earthquake because he wanted to help people, contribute his effort to recovery.)

**Q1: What was the main problem you had during the long-term recovery?**

There were many chemical shoe factories. People were working in those factories, had houses around them. Nagata is an industrial area. But everything was burnt; it is not only the houses that were ruined, working places all gone, which means livelihood was gone. People lost their houses and jobs. Now, 26 years have passed, buildings are recovered, but there are two problems. One is population decrease, people moved out to other places, I also moved out from Nagata. The second problem is that the industry hasn't recovered. Nagata is far less recovered than city centers like Sannomiya or Motomachi. Only the area around shin Nagata station looks recovered and populated, but when you go inside the town, it is like a ghost town.

**Q2: Did you have difficulties in accessing disaster information?**

By then, there were no SNS, no TV. We only had radio as a source of information; even newspaper wasn't distributed. We didn't know how to get information about where to get good, where we could take a shower. Word of mouth is the main way to get information. Another problem is fake news, and it was difficult to judge which one is reliable. One year

after FMYY was established, they distributed information about where to evacuate and get supplies.

This was especially hard for people who couldn't speak Japanese.

**Q3: Is there any person or organization that provided emotional support?**

About three months after, organizations came to help. During the first three months, it was hard to support other people because I had to take care of myself. Everyone was struggling with their own problem. I didn't have the mindset to think of my mental health.

But I agree on the importance of mental. People lost their job, houses, and some lost their families. It was a very stressful situation. Mental health support is important after the emergency aid.

**Q4: Who was the main source of support after the earthquake?**

Children, women, and the elderly are particularly vulnerable. After the earthquake, the millennium generation became a source of help in the community. They took care of the elderly and helped them with cleaning and other stuff. The role of the younger generation became important.

**Q5: How about the people's relationship in the community?**

People got much closer than before. As for the family relationship, I saw many family relationships get strong. But there're some cases whose relationship was destroyed. It depends on the people.

Community bonding was strong. All of us were together, people helped each other, fought together. But it lasted 3-5 years. As memories faded, community relationships also got weak, not as earlier.

**Q6: Have you experienced discrimination in the recovery process?**

Personally, I didn't experience discrimination. I know there may be some newcomers and international students who experienced it. Because they can't understand Japanese well, it could cause some misunderstanding.

**Q7: How do you evaluate the government support?**

First of all, it was slow. It was a widespread disaster with 6000-7000 victims. it was hard to support all areas, allocation of human resources was difficult.

Second, it was a top-down management system  it was hard to communicate with government agencies. Korean people wanted to have a community town, but the plan was canceled because of the city government planning.

Actually, the Korean community acted stronger than the Japanese community. Korean communities from other areas came to help us, they even helped Japanese people. Korean community didn't have to wait for government support. Roads were blocked due to the damage of the earthquake, and we distributed relief goods by bicycle.

**Q8:  How do you evaluate the recovery process? Do you think you have recovered yet?**

Twenty-six years passed now; everything has been built up. Physically it is recovered.

But, you can see these buildings, their price is very high, there are many people who can't afford to live here. Because the industry is not good, people can't earn enough money.  So, the recovery is only on appearance. But from the inside, it is hard to tell.

Compared to before (pre-disaster), everything is different. I want to go back to before. Especially the industry is not as before.

The Japanese-Korean relationship got stronger. We built a co-livelihood.

**Q9: Do you think foreign residents are more vulnerable in disaster?**

Foreign residents get more vulnerable because they can't reflect their opinion to authority. Priority is Japanese. For example, Korean people were planning to make a Korean town, but the government didn't approve it, they always postponed.

**Q:10 Do you have any expectations regard to future disaster support? Is there anything you want to be improved?**

The government needs to reflect local community needs. Whether in the Hanshin-Awaji earthquake, or Tohoku, or now in this pandemic, the government always prioritizes economic recovery. You know there was a time city government and town-making committee were planning to build an airport, but it is not the first thing to consider. Community and people should come first. At this time of corona, it still is the same.

**Interviewee 2:**

Mr. P (age of 60s), a retired worker, income source is pension money. (Mr. P still has strong emotions. The anniversary reaction may cause this because the interview was conducted on January 17th, 2021. (some questions are not asked in detail due to the consideration of the interviewee's reaction.)

**Q1: What was the main problem you had after the earthquake?**

The difficulty I had after the earthquake was the death of a family member. I lost my job because every company here was closed. I was jobless for six months, then found a new job, income decreased by about 30%.

My grandmother took suicide after the earthquake. She had a mental problem. I got a back injury, and my father was sick. Because of our financial situation, getting medical treatment for him was difficult for us. Then he passed away. It is hard for me to talk about these.

**Q2: Have you experienced a language barrier? Any difficulties in accessing disaster information?**

I didn't have difficulty understanding Japanese. But after I changed my job, I had trouble getting used to the new environment. There were many new technical terms I couldn't understand.

**Q3: Was there any person or organization that provided support to you?**

No one was actually able to offer help because everyone was in hardship. Only those who still have a job or house can help other people. Everything was collapsed. I had to deal with all the problems myself. I had to endure the pain and go on. Later on, I participated in some activities, helped Koreans in the community.

**Q4: Do you think you have recovered yet? How do you evaluate the recovery process?**

From the outside, it looks recovered. It is just an appearance; emotionally, it is the same.

My evaluation of the recovery is negative. For the future, I don't have any expectations from the government because the government doesn't consider people. Local people should be the most important thing.

**Interviewee 3:**

Mr. C (Age of 60s), community leader. (He is an active member of the community, he had experience in giving reports to media)

**Q1: What do you think about the community after the earthquake?**

Houses and other properties have gone at the same time; the rebuilding process was long and tough. But discrimination was also gone. All communities, including Korean, Japanese, Vietnamese, Chinese… all gathered together. The relationship of workers in the industry also had some changes.

**Q2: Was there any individual or organization that provided support to you?**

Korean community organizations provided noodles. Because the food was spicy, it can help us keep warm in that cold weather. Korean people also offered food to Japanese people. At first Japanese people were hesitant to get the food. But we kept offering it, and finally, they received it. Since then, we have shared food and other goods back and forth. That spicy ramen also warmed people's hearts.

**Q3: Have you experienced discriminative treatment after the earthquake?**

In history, Korean people and other ethnic groups experienced discrimination, but we have a coping mechanism now. We know how to deal with this kind of problem. The disaster was nothing compared to past experiences.

Q3: **What is your opinion on the recovery? Do you think you have recovered?**

Psychologically, it is hard to recover fully.

People have gone through a lot. The community was the main of support. Actually, the disaster caused the collapse of many communities. In such a crisis, the government didn't have enough power, so people had to rely on themselves. We realized the importance of self-help and mutual help. We realized the importance of relationships among communities and people. The government only can give a direction, citizens have to work on themselves, so people have to be strong.

**Q4: What is your opinion on government support?**

Government should make plans based on communication. People are totally relying on the government, it is a bad thing. The community has to be able to prioritize their own lives and own reconstruction. As a positive evaluation, we got a beautiful city. But when we look into it, community development is weak. The government tried to recovery fast, but it was not what people wanted.

Twenty-six years have passed now, we have more appreciation for civil defense. Back then, we thought it was their responsibility to do so. But now we appreciate their work.

As a community leader, I want to improve my life and the situation of the community better and better. In my opinion, recovery is a process. I set a higher goal every day, every single day is an important process for recovery.

**Q5: Is there anything you want to be improved for the future?**

Preparation is important. We always want to find a solution after we have a problem. It is not right, we have to think of it before something bad happens. Even now, we are thinking about how to overcome Corona. We need to take a lesson from these experiences. Young people should learn from our experience. They should earn how to exchange with nature, and develop better behavior.

**Interviewee 4**

Ms. O (Age of 40s) Vietnamese newcomer, restaurant owner; community volunteer

**Q1: What kind of difficulties did you have after the earthquake?**

After the disaster, I was mainly afraid of aftershocks for nearly a month. This was my first time experiencing an earthquake, we didn't know how to react. Some Vietnamese evacuated to other places, and some went back to Vietnam. I also went back to Vietnam for three months. After I came back to Kobe, I started to join community activities, I did some voluntary activities like cleaning, cooking.

**Q2: Have you experienced difficulties in accessing information?**

Translation service was not always available, lack of information made us even more anxious.

Everyone lived together in tents without considering ethnicity. Later, the Takatori church started to distribute information.

**Q3: Did you receive support from anyone or any organization?**

Many other organizations also came to support us, but we couldn't understand anything. I don't know which organization provided what kind of support.

Getting medical services was also difficult. I visited doctor once, I tried to communicate in English, but we couldn't understand each other.

**Q4: How is your relationship with the community?**

During the participation in voluntary activities, I learned Japanese. I opened a restaurant after the earthquake. Nakamura san from Japanese- Vietnamese committee helped me a lot. I am Buddhist, unlike the Christian community, we don't have group activities like mass. I realized the importance of being in a group. So I actively participated in all the activities organized in the area. No matter who or which organization initiated it, I participated all. Now I have been teaching Vietnamese to second-generation children. They can't speak Vietnamese, even family members, can't communicate very well. I want to help with this problem. I have other works too. My schedule is packed with all kinds of activities.

**Q5: Do you think the people's relationships in the community have changed?**

Before the disaster, the relationship between Japanese people was not good. Even at the job, we didn't have any communication with colleagues. Now, the number of foreigners is increasing, so the relationship is also good.

**Q6: Have you experienced discrimination?**

Yes, I have. Even after the disaster, some people refused to answer my question even though they knew the answer.

After I opened her restaurant, some people blamed the restaurant for causing noise and hygiene issues in the neighborhood. They even throw their garbage at my place. One day I had a confrontation with them, I called Nakamura san again (from KFC). He came and solved the problem. Every time I have something, I call them.

**Q6: What do you think about the government support for recovery?**

I think government support was good, we got relief goods from the government.

**Q7: Do you think you have recovered? How do you evaluate your recovery?**

I am not really thinking about if I am recovered or not. I always keep myself busy; looking back to it is painful. It is important to focus on what is in front of me. The important thing is what we learn from it. After all, we have the experience now, so they can act better if the same thing happens again. That's the positive side of it.

I experienced war when I was in elementary school. War is between people, you can expect the relationship between people can go well or go wrong. But disaster is different, you can never anticipate it. It is totally out of human control.

**Q8: Could you please tell us your expectation for future disaster support?**

For the future, Information exchange is important, information about where to evacuate, where we can get a consultation. It is better to do it before the disaster.

And make a group, having a group helps people be better prepared and better react to disaster.

**Interview Transcript (2): Great East Japan Earthquake**

**Interviewee 1 (Ofunato)**

2020.09.28

**Q1: Could you please tell me about your disaster experience?**

I was at home on that day, just having my lunch and watching Korean drama. I was preparing to go shopping. Around 2:00, the ground started shaking; things dropped from the shelves. My daughter was with me, we were so afraid. After shaking stopped, we went out. We saw people were screaming and heading to a higher place. We followed those people, went to an elementary school. After a while, the water level increased. I was so afraid. This is my first time seeing this. My husband was in Tokyo. My daughter was back from school on the 6th of March for vacation. I am glad my daughter was with me. Otherwise, I would be concerned about her safety too.

**Q2: Was there any person or organization that provided help to you?**

On the first night, there was no electricity, no water, no food. It was scary. The first couple of weeks were so tough. Then CTIC provided support, relief goods, emotional support. They organized English mass. We cannot forget these supports. This was the first time we woke up and felt "Ganbaro".

**Q3: What kind of activities did you have in the Church?**

Ofunato Church actually had three priests. We went to church every day, spent hours in there, sharing our experiences. We realized the importance of networking. Because at that time, we have no connection at all. You know, for 安全確認 (safety check). That's why we started PAGASA. PAGASA has three leaders. We organized various activities and also invited others to join our activities. Many groups came to support us, newspapers, TVs reported us. Some groups invited us, so many years have passed, I forgot the name, but some organizations helped cheer up and have one-to-one talks.

PAGASA made t-shirts and sale them. We used the money for the fund of the PAGASA. We also helped the Philippines in Typhoon 2 years later.

**Q4: Do you think you have recovered?**

Now we can say we recovered fully and are back to normal. Everyone is working currently, so we can't have many activities now. We organize rosary. This year has pandemic, activities are much less than usual.

**Q5: Why do you think the Filipino community has been more active during the recovery?**

We trust each other, respect each other. We talk frankly and openly when we have a problem. Besides this, we pray, we go to church. I think this is the most important reason.

**Q6: How do you evaluate your disaster experience?**

After the disaster we realized we should go back to pray, stick to our faith. The disaster was difficult, but amazing things happened. My everyday life has improved. Good things happened to us. For me, it is a blessing. I've got the chance to travel, meet more people. I have more friends now.

Of course, it was very hard for some people, especially for those who had loss. Some of them experienced depression because they kept their sorrow in. They couldn't let it out.

**Interviewee 2 (Rikuzentakata)**

2020.10.05

**Q1: What are the difficulties you had after the earthquake?**

I had a hard time understanding the meaning of certain words, but some people were very helpful in teaching us. Some teams came to our place, asked if we were having any problems.

Q2: **Did you have difficulties understanding information about government support, like housing information or financial assistance?**

Actually, we are living with Japanese families. We are not living by ourselves. In case there are some difficult words, we could ask them. Foreigners who live alone have more difficulties.

**Q3: Are there any other difficulties you experienced in the longer term?**

The first problem is financial, the job problem. Everything was washed off in here. Half of the Pagasa Members are from Rikuzentakata. One of the problems we faced was, we didn't have work.

Then the houses. Most of the members of PAGASA have their houses washed off, but the housing problem is solved now.

**Q4: Besides the Church and CTIC, are there any other organizations that supported you?**

CTIC continuously provided help for 3-4 years. Some other groups also provided support through the church. And some teams from the Philippines. We received all kinds of support, emotional, spiritual, financial, mental health. I think, people who provide mental health support are not a group, they are more like individual volunteers. These supports continued for 4-5 years. They saw us recover well, then they stopped.

**Q5: Is there any person or organization you feel like you can ask for help?**

We have an international association in Rikuzentakata, they have connections with foreigners. If we need support or any problems, we can go there.

Q6: what is your opinion on government support?

There are no bad words I could tell. They were very helpful, you know, compared to other countries, especially compared with the Philippines. They have been very supportive. No bad words toward them.

**Q7: Vulnerability of foreigners?**

It is our first time encountering such an experience. As foreigners, there are some words we encounter for the first time, we don't understand those words. We have disaster drills at the workplace. But disaster is very different from drills. We need to be trained more.

**Q8: Filipino community is more active in these years, what is the reason?**

Mainly because of the connection from the church. The Filipino community is easy to organize. Other communities like the Chinese community, they cannot be easily organized as a group. People are concerned about who initiated these activities, and they are having a hard time. It is easy to call the Filipino community. Just contact the Filipino community leader, the leader will call other members.

The first Job of CTIC was to create a community. After the tsunami, that was the first time we knew how many Filipinos were living here. We all gathered, CTIC made a Filipino community. Then, the second job is to choose the leader. Since then, if there are any activities, we leaders inform other community members. During the first three years, everyone was very active. After five years, everything back to normal. Now community members have to work.

Q9: **As an active community member, do you think it is hard to manage your time and energy? Does your family support you to attend those activities?**

At first, my mother-in-law couldn't understand it because she had never seen this kind of lifestyle. Then, the priest came to our house. She saw we were receiving help from the church, people came to help us, then she realized what we were doing. My children are already grown up. They understand if I go to church. But still, my priority is family. First 3-5 years, we had a rosary every week. Since everything is back to normal, we are doing it once a month now.

**Q10: What are the positive and negative changes in your life since the disaster?**

I don't take it negatively. Many things happened to me because of the tsunami. Everyone knows me now. I've been receiving interviews; I go to places, I talk about my experiences. I am lucky; I also can offer jobs to others. Sometimes I get job offers to be a travel guide. I introduce my friends here to the job. I am not taking those opportunities only for myself, I also offer the chance to others. So I take it positively.

**Q11: Which aspect of the disaster support should be improved for the future?**

Disaster support is important, not only for adults, for children as well, because they are the future. They are still traumatized, children are still panicking.

**Q12: Are there any traumatized Filipino residents around you?**

Most of us can quickly recover because Filipinos are happy people. Even if there are some people, it is only 1%. We can help those people.

We are not used to these experiences. We are in a foreign land, and the alphabet is very different. People who live alone are in a more difficult situation. But this is the job of us leaders. We have a connection with officials from city hall and schools… we can offer help to people in difficulties. And there is Church, so there's nothing to be afraid to.

**Interviewee 3 (Rikuzentakata)**

2020.10.07

**Q1: Language barrier and information access**

The first 3-4 years before I came to Rikuzentakata, I had trouble understanding Japanese. But there's a Japanese class in City hall. I learned Japanese there, so language was actually not a problem for me. Disaster information is mainly written in Kanji, there are some Hiragana, but still, it is hard to read kanji characters. It is not understandable.

**Q2: What was the problem you have in the longer term?**

At the time of the disaster, I had nine months old son. It was difficult to provide him milk. Finding baby food was also not easy. We had to drive one hour to get baby food.

We didn't stay in shelters. My husband's family lives near to mountainside, so we evacuated there. But I had a little problem with my mother-in-law. Then we started to look for apartments. After staying three months there, we found a simple apartment and moved out. At that time, government facilities were already full, that is why we looked for a regular apartment. The government paid the rent for us for about three years. Right now, we are staying in government housing, and we have to pay rent of 40,000 yen or more, it depends on our income level, it is getting higher and higher each year. This house belongs to Iwate-ken, not from the city. Their policy may be different from other housing facilities.

**Q3: Did the bad relationship with a family member cause stress on you?**

Yes, a little bit. I was stressed. Not mental health problem, but I already have a baby, all issues came together, so I was really stressed.

The problem I had with my family is connected to the language problem. Because I couldn't understand them fully, maybe I misinterpreted what they said. And then culturally, we are different, they are strict on how I behave, how I work, I think it is mainly because of the cultural differences.

**Q4: Are taking a role in PAGASA, organizing activities difficult for you? How are you managing your time?**

It is a little bit hard. But I want to help because we come from the same country, I want to offer my help.

If I have to go to the community, I have to ask for consent from my family. Usually, I drive, so it is not very hard for me to commute from Rikuzentakata to church. If you cannot drive, it is hard to commute by bus.

**Q5: In emergencies, or if you have any problem, is there anyone that you can ask for help?**

First of all, my family. Then, my Japanese friend, they know how to deal with problems.

**Q6: Could you tell me your opinion on government support?**

I don't really know about the government support. My husband was managing that.

**Q7: Do you have any experience with discrimination?**

Sometimes it happens, especially at work. Some old ladies are complaining about foreigners. Saying stuff like, "they're so noisy". They say some harsh words like "keep quiet!". I also experienced it at my old workplace. Before the tsunami, I was working at Ikura company, they are very strict on how we work. They speak to me in a very loud voice sometimes. The work was very stressful, I had to take painkillers often. I have changed my job now, so the stress is off, there's some improvement.

**Q8: How about your relationship with neighbors or with the people in the community?**

With neighbors, it is good. In the community, it is good, the difficulty is in work.

**Q9: Except the church, are there any other organizations or individuals that provided mental health support?**

Right now, I don't have any. Soon after the disaster, some volunteers came from Tokyo and other places, and some brought foods; some had talks with us, asked what we needed, and listened to us. These kinds of support activities stopped about three years ago. Maybe they saw our situation is already improved.

**Q10: Do you think you have recovered?**

My feeling is, already recovered. It's been almost ten years, I've recovered already.

**Q11: what is the reason why you actively join activities?**

Because we have positive thinking, we don't allow ourselves to be stressed. We are fighting for each other; we are close. Especially, we came from the same county, speaking the same language. It is comfortable to be with them. If you have a problem, they are willing to listen and willing to help you.

At the time of the disaster, the Filipino community from Tokyo and other places came here. We became popular.

**Q12: As a foreign resident, do you have any expectations for future support?**

English or Tagalog version of the announcement. It is not very easy to communicate if you don't know what they are saying. Foreigners must study Japanese because Japanese people cannot adjust to us. We are living in Japan, and we have to adjust here. It is ours to learn. If you learn Japanese, you feel stable. You can communicate with them, it will be easier to live here.