

The Effects of Natural Disaster on the Resilience of PTSD Victims

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Abstract

Natural disasters are calamitous events caused by the effects of nature that may result in the destruction of property, environment, or the loss of a human life. Typhoons, earthquakes, landslides, volcanic eruptions, floods, drought, blizzards, and other occurrences on and within Earth. Natural disasters are considered to be widespread negative psychological and physical health consequences. PTSD victims tends to live in fear and threat in their everyday lives after the disaster. Having moments of remembering the tragic events that have occurred in their lives and never wanting to relive the experience again. Affecting them on having to live a life without tremendous fear as each day passes by them. The aim of the study is to understand the effects of natural disasters on the resilience of PTSD victims: (1) how natural disasters affect the resilience of PTSD victims; (2) how individuals cope in the face of a disaster; (3) The demographics of individuals (age, gender, civil status, and living arrangement) are affected by a natural disaster. The research design of the study conducted a non-experimental predictive cross-sectional study. The participants of the research are individuals, ages 18 and above, who are living in areas inside Metro Manila, has experienced the effects of natural disasters, and victims of PTSD. The results showed PTSD not being a significant predictor to resilience. Possible factors to why PTSD could not be a significant predictor to resilience may be due to individual differences. Other results showed that the interactive effects between PTSD and demographic factors (gender, age, civil status, and living arrangement) are not significant predictors to resilience. In conclusion, the study of PTSD predicting an individual's resilience to the effects of natural disasters. Results showed that the interactive effects between PTSD and demographic factors, and PTSD solely is not a significant predictor of an individual's resilience. Recommendations for future researchers should consider is finding a different variable in predicting resilience. External factors can also be considered that could affect individuals such as the intensity of the disaster, living environment, or the level of resources in providing mental healthcare in the

area.

Keywords

PTSD, Resilience, Natural Disaster, Demographic Factors

1. Introduction

Natural disasters are calamitous events caused by the effects of nature that may result in the destruction of property, environment, or the loss of a human life. Typhoons, earthquakes, landslides, volcanic eruptions, floods, drought, blizzards, and other occurrences on and within Earth. Natural disasters are considered to be widespread negative psychological and physical health consequences (Brown et.al, 2018). In the Philippines, natural disasters are highly prone to occur with estimations showing that 60% of its land area and 74% of its population are affected. Since 1990, the Philippines has been affected by a natural disaster for 565 times that killed 70,000 individuals and costed 23 billion dollars in damages (World Bank Climate Change Knowledge Portal, 2021). Individuals in the face of a disaster will often suffer from mental health issues such as post-traumatic stress disorder (PTSD). PTSD victims tend to live in fear and threat in their everyday lives after the disaster. Having moments of remembering the tragic events that have occurred in their lives and never wanting to relive the experience again. Affecting them on having to live a life without tremendous fear as each day passes by.

PTSD is a mental health disorder where an individual experiences a traumatic event that causes them to show signs of avoidance, negative thinking and mood, hyperarousal, and intrusive thoughts. Affecting individuals from feeling significant distress that may affect their everyday life. The severity and duration of individuals with PTSD may vary different from each individual (APA, 2023). In the Philippines, local providers of mental health and psychosocial support are known to be costly in terms of treatment and services (40%) making it the top barrier in accessing and providing mental health care to individuals in the Philippines. Other concerns include feeling ashamed or embarrassed (35.9%), concerns of being treated as “crazy” (31%), being weak (30.3%), family being concerned (23.3%), and the reaction of other people (22.1%) (PHILSTAR; Cabico, 2023). This shows how individuals in the Philippines were not able to be provided with proper mental health services due to this stigma that may in the future affect their mental health and well-being, especially when in face of a disaster. With not enough proper mental health services this could affect the resilience of PTSD victims.

Resilience is the ability of an individual to be able to adapt and recover from difficulties in life. Being able to bounce back from challenges to one’s mental health, emotions, behavior, and adjustments to our current life (APA, 2023).

For this study, the research intends to learn the effects of natural disasters on the resilience of PTSD victims. The purpose of the study is to understand: (1) how

natural disaster affects the resilience of PTSD victims; (2) how individuals cope in face of a disaster; (3) the demographics of individuals (age, gender, civil status, and living arrangement) affected by a natural disaster. The value of this study is for us to understand the effects of natural disaster to the resilience of PTSD victims and give awareness to the general public of the importance of providing mental health services to victims of a natural disaster for it is never easy for one to move past the pain and suffering from the traumatic experience they felt during the disaster

2. Review of Related Literature

Natural Disaster are in relation to spreading negative physical health consequences and psychological health that led to individuals with financial stress, poor dietary intake, chronic respiratory concerns, insomnia, reduced access to vaccinations (Brown et al., 2018). In the eyes of world societies, being one step ahead in being prepared and to respond to the needs of individuals worldwide are the challenges faced in a disaster (Arnberg et al., 2013). Natural Disaster are events that do not only take the lives of others and damage property, but also destroy social order and trust between individuals who are hurt the most by the disaster. Trust can differ across different countries for it can be influenced by other cultural factors making trust a complex phenomenon (Schilpzand, 2023). Disaster is known to be traumatic events that the social and personal life of an individual can be disrupted due to the cause of nature that can impact on the lives of humans, environments, and societies. Individuals who are affected by this natural catastrophe may be physically alive but are mentally shaken that may lead individuals to having the risk of developing PTSD, where chances of depression and anxiety come along as well (Limone & Toto, 2022).

The experience of an individual of a traumatic event can lead them to suffer from both post-traumatic stress disorder and depression. The previous study showed that a majority of PTSD after a traumatic event where signs of symptoms such as being intrusive and hyperarousal are seen (Cheng et al., 2020). People with post-traumatic stress disorder (PTSD) typically display suicidal ideation and comorbid illnesses. These results in PTSD are similar in comparison to other studies in face of a disaster (Arnberg et al., 2013). If PTSD were not addressed as early as possible, it may lead to long term consequences to one's mental health. In a long period of time, being affected by psychological distress and trauma may lead individuals having memory loss and damage due to the community remains in relation to a disaster (Lamond et al., 2015). Interventions are performed such as the use of Malteser Aid Service (MAS) as a network that provides professionals and volunteers to help flood victims by provides financial compensation, psycho-social counseling, and other specific needs to help the victims of flooding. In immediate and mid-term phases, the impact of a disaster on one's mental health may manifest causing an individual to feel intense stress. In long term phases, secondary stressors may appear and trigger in an individual (Daniel & Michaela, 2021).

The effects of natural disaster may still be rooted in one's memory even after a long period. These catastrophes may affect the cognition of an individual that may enable them to remember self-related consequential events that have occurred before in their lives. A study showed how individuals remembered what it is like for them to be there. Clearly remembering them on what it looked, smelled, and felt made the individual feel more enraged, emotional, and anxious that changed their view of their life (Knez et al., 2021).

The experience an individual has after a disaster may end up them having a hard time bouncing back. How strong of a resilience one must have in order to live a life without traumatic fear. A study showed the difference of individuals who have experienced a disaster and haven't resulted that individuals who have experienced suffers more mentally (depression, anxiety, and stress) that lead them to have lower levels of resilience in comparison to individuals without any experience of a disaster resulting in higher levels of resilience (Philip & Vithya, 2023). In order for one to have a strong resilience, social support is a factor in improving one's resilience. A study showed that the having a proper community level of resources allows healthcare to provide proper medical and by improving health resilience it will help people to have the courage to seek for hospital care (Shin & Ji, 2021).

3. Methodology

3.1. Research Design

The research design of the study conducted a non-experimental predictive cross-sectional study (Johnson, 2001). The idea of choosing this design is because the study is to predict how PTSD affects an individual's resilience in effects of a natural disaster. It also collects data from the past experiences of individuals being affected by a natural disaster.

3.2. Participant & Sampling

The participants of the research are individuals, ages 18 and above, who are living in areas inside Metro Manila, have experienced the effects of natural disasters, and victims of PTSD. The reason of choosing Metro Manila as its setting is known to be one of the three major metropolitan areas in the Philippines and is prone to several natural disasters such as typhoons, flooding, earthquakes, storm surges, and other natural occurrences. The study recruited a total of 153 participants with PTSD who have experienced the effects of natural disasters within the Metro Manila area. A purposive sampling technique will be utilized for the study. A purposive sampling is a non-probability sampling technique that finds participants that can give detailed insights on their intake on how natural disaster affects their resilience in regards of them having PTSD.

3.3. Instruments

- Traumatic Screening Questionnaire (TSQ) (Brewin et al, 2002)—is a 10-item

symptom screen designed to collect data on personal reaction on one's experience to a traumatic event. The TSQ will measure the levels of PTSD an individual is feeling in the face of a disaster. The Cronbach alpha of the scale ($\alpha = 0.85$) resulting in having a good reliability in measuring PTSD.

- The Brief Resilience Scale (BRS) (Smith et al, 2008)—was created to assess the perceived ability to bounce back or recover from stress. The scale was developed to assess a unitary construct of resilience, including both positively and negatively worded items. It is a 6 item 5 Likert scale questionnaire with a Cronbach Alpha of $\alpha = 0.71$.
- Self-Questionnaire for Demographic Factors—the data collected for the individual's demographic factors (age, gender, civil status, and living arrangements) will be collected via Google Forms

3.4. Procedure



In conceptualizing the idea, the researcher thought of how natural disasters affect an individual, especially towards their mental health. The researcher came up with the idea of focusing on how the effect of natural disasters affects one's resilience of PTSD victims. The researcher will conduct an online survey via Google Forms to collect data on PTSD resilience, and their demographic factors (age, gender, civil status, and living arrangement) of individuals who experienced the effects of a natural disaster. Participants will be given a consent form agreeing to be a part of the research study on their own volition. The data gathered by the researcher will only be used for the purpose of the study and nothing more. The data will be analyzed using Statistica as its means to answer the question of how natural disaster affects the resilience of PTSD victims.

3.5. Data Analysis

In addressing the three research questions in the current study, Statistica will be utilized to analyze the descriptive data of the variables (PTSD, resilience, and demographic factors) in answering the research questions on how natural disaster affects the resilience of PTSD victims.

- Objective 1—the data will be analyzed using multiple regression in answering if PTSD can significantly predict resilience.
- Objective 2—the data will be analyzed using a factorial ANOVA in answering if the interactive effect between PTSD and demographic factors in predicting resilience.

4. Results

4.1. Descriptive Statistics

In **Table 1**, the results show the frequency and percentage distribution of the par-

ticipants according to their age. The majority of the group are from ages 31 to 40 with a frequency of 41 or 26.8%. The 2nd majority of the group are from ages 51 to 60 years old with a frequency of 36 or 23.53%. The 3rd majority of the group are from ages 41 to 50 years old with a frequency of 35 or 22.88%. The 4th minority of the group are from ages 18 to 30 years old with a frequency of 28 or 18.3%. The minority of the group are from ages 60 years old and above with a frequency of 13 or 8.5%.

Table 1. Frequency and percentage distribution of the participants according to their age.

Category	Frequency	Percent
18 to 30 years old	28	18.30065
31 to 40 years old	41	26.79739
41 to 50 years old	35	22.87582
51 to 60 years old	36	23.52941
Above 60 years old	13	8.49673

In **Table 2**, the results show the frequency and percentage distribution of the participants according to their gender. The majority of the group are male participants with a frequency of 81 or 52.94%. The minority of the group are female participants with a frequency of 72 or 47.06%.

Table 2. Frequency and percentage distribution of the participants according to their gender.

Category	Frequency	Percent
Female	72	47.05882
Male	81	52.94118

In **Table 3**, the results show the frequency and percentage distribution of the participants according to their civil status. The majority of the group are married with a frequency of 74 or 48.37%. The 2nd majority of the group are single with a frequency of 48 or 31.37%. The minority of the group are widow/widower with a frequency of 31 or 20.26%.

Table 3. Frequency and percentage distribution of the participants according to their civil status.

Category	Frequency	Percent
Married	74	48.36601
Widow/Widower	31	20.26144
Single	48	31.37255

In **Table 4**, the results show the frequency and percentage distribution of the

participants according to their living arrangements. The majority of the group are living with their family with a frequency of 89 or 58.17%. The 2nd majority of the group are living with other people with a frequency of 39 or 25.49%. The minority of the group are living alone with a frequency of 25 or 16.34%.

Table 4. Frequency and percentage distribution of the participants according to their living arrangements.

Category	Frequency	Percent
Living with family	89	58.16993
Living with others	39	25.49020
Living alone	25	16.33987

4.2. Objective 1

In **Table 5**, the results showed that the interaction between PTSD and resilience has a negative correlation. Results also showed that PTSD is not a significant predictor with its relation to resilience.

Table 5. Multiple regression summary of PTSD in predicting resilience.

	b*	Std Err of b*	b	Std Err of b	t(151)	p-value
Intercept			1.589	0.071	22.535	0.000
Rmean	-0.069	0.081	-0.021	0.025	-0.853	0.395

4.3. Objective 2

In **Figure 1**, the results showed the interactive effects between PTSD and gender in predicting resilience. According to the graph, individuals who are female and has low PTSD levels has a resilience of slightly below 2.8. Individuals who are female and has high PTSD levels has a resilience of slightly above 2.7. Individuals who are male and has low PTSD levels has a resilience of slightly below 2.9. Individuals who are male and has high PTSD levels has a resilience of slightly below 2.8. The p-value of the interactive effects of PTSD and gender in predicting resilience is $p = 0.81534$. This results in the interactive effects of PTSD and gender not being a significant factor in predicting resilience.

In **Figure 2**, the results showed the interactive effects between PTSD and age in predicting resilience. According to the graph, individuals who are ages 31 to 40 and has low PTSD levels has a resilience of slightly above 2.8. Individuals who are ages 31 to 40 and has high PTSD levels has a resilience of 2.8. Individuals who are ages 41 to 50 and has low PTSD levels has a resilience of 3. Individuals who are ages 41 to 50 and has high PTSD levels has a resilience of slightly above 2.6. Individuals who are ages 51 to 60 and has low PTSD levels has a resilience of slightly above 2.6. Individuals who are ages 51 to 60 and has high PTSD levels has a resilience of slightly below 2.8. Individuals who are ages 60 and above and has low PTSD levels has a resilience of 2.8. Individuals who are ages 60 and above and has

high PTSD levels has a resilience slightly below 2.8. Individuals who are ages 18 to 30 and has low PTSD levels has a resilience in between 2.8 and 3. Individuals who are ages 18 to 30 and has high PTSD has a resilience of 2.8. The p-value of the interactive effects of PTSD and age in predicting resilience is $p = 0.47980$. This results in the interactive effects of PTSD and age not being a significant factor in predicting resilience.

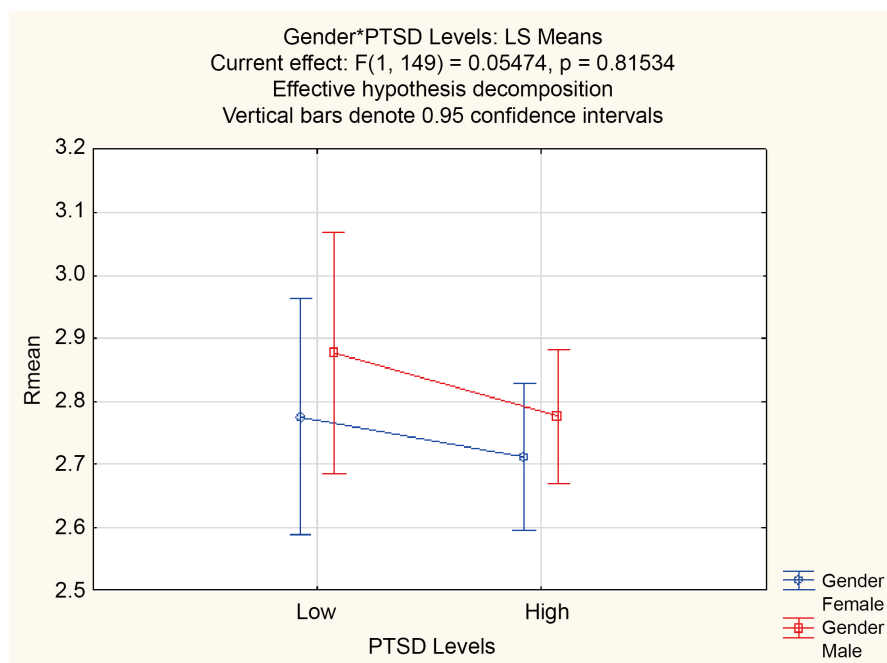


Figure 1. Analysis of variance of PTSD and gender towards resilience.

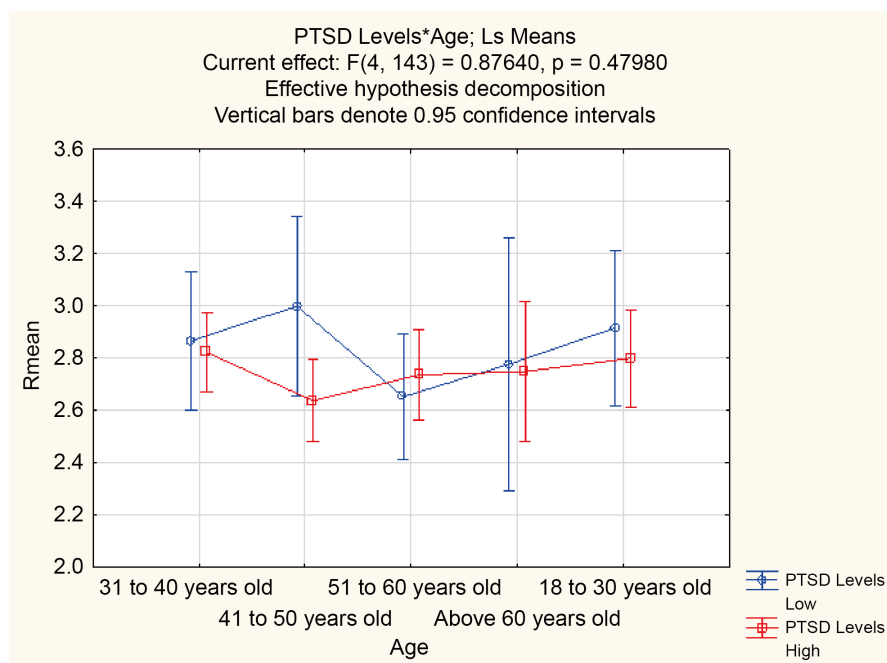


Figure 2. Analysis of variance of PTSD and age towards resilience.

In **Figure 3**, the results showed the interactive effects between PTSD and civil status in predicting resilience. According to the graph, individuals who are married and has low PTSD levels has a resilience slightly above 2.8. Individuals who are married and has high PTSD levels has a resilience of 2.7. Individuals who are widows/widowers and has low PTSD levels has a resilience slightly above 2.7. Individuals who are widows/widowers and has high PTSD levels has a resilience in between 2.7 and 2.8. Individuals who are single and has low PTSD levels has a resilience in between 2.8 and 2.9. Individuals who are single and has high PTSD levels has a resilience slightly above 2.8. The p-value of the interactive effects of PTSD and civil status in predicting resilience is $p = 0.82739$. This results in the interactive effects of PTSD and civil status not being a significant factor in predicting resilience.

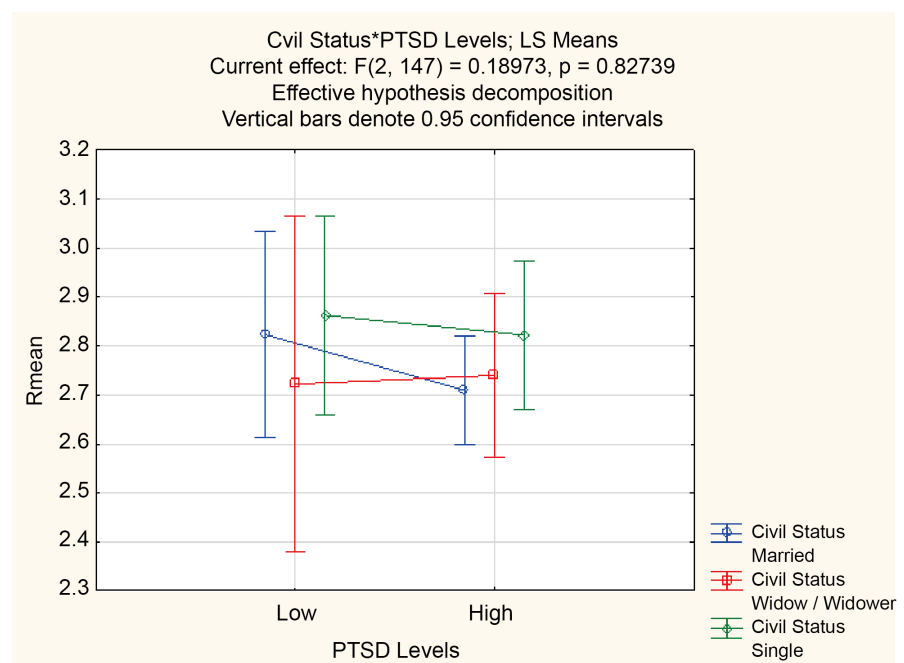


Figure 3. Analysis of variance of PTSD and civil status towards resilience.

In **Figure 4**, the results showed the interactive effects between PTSD and living arrangement in predicting resilience. According to the graph, individuals living with their family and has low PTSD levels has a resilience of 2.8. Individuals living with their family and has high PTSD levels has a resilience in between 2.7 and 2.8. Individuals living with other people and has low PTSD levels has a resilience of 2.9. Individuals living with other people and has high PTSD levels has a resilience slightly above 2.7. Individuals living alone and has low PTSD has a resilience in between 2.8 and 2.9. Individuals living alone and has high PTSD has a resilience slightly above 2.8. The p-value of the interactive effects of PTSD and living arrangements in predicting resilience is $p = 0.78741$. This results in the interactive effects of PTSD and living arrangements not being a significant factor in predicting resilience.

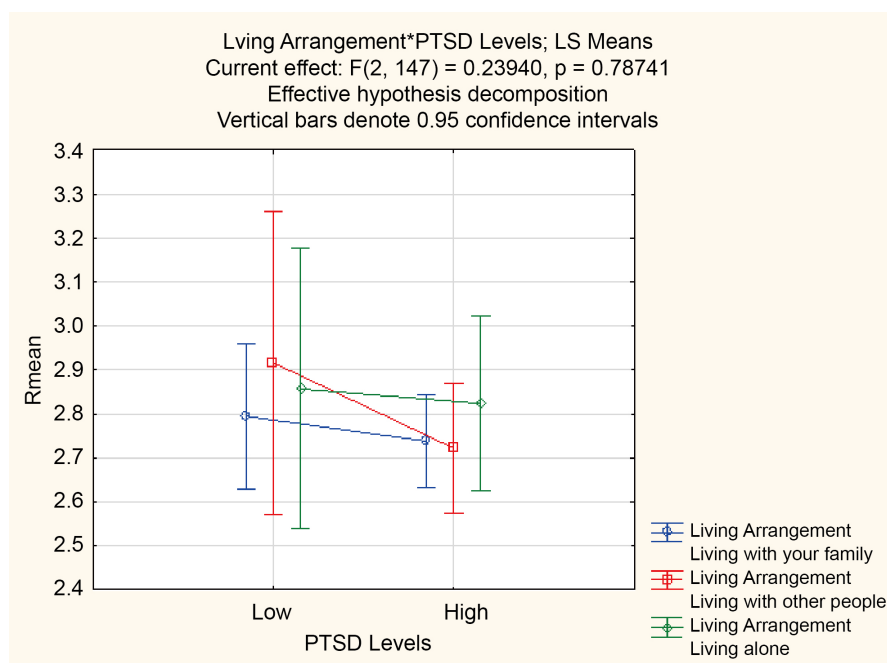


Figure 4. Analysis of variance of PTSD and living arrangements towards resilience.

5. Discussion

5.1. Post-Traumatic Stress and Its Impact on Human Resilience

The results showed PTSD not being a significant predictor to resilience. Possible factors to why PTSD could not be a significant predictor to resilience may be due to individual differences. Individuals, despite experiencing the same traumatic event, may respond differently. Some may be developing mental illnesses such as PTSD, while others would not and instead show resilience. Other possibilities may include having different coping strategies and social support. Despite having shown signs of PTSD due to the traumatic event of a disaster, individuals who have strong social support and effective coping strategies may affect them differently which leads them to develop resilience, unlike those who do not have strong social support and an effective coping strategy.

5.2. Intersecting Influences: PTSD, Demographics, and the Shaping of Resilience

The results showed that the interactive effects between PTSD and demographic factors (gender, age, civil status, and living arrangement) are not significant predictors to resilience. These results may be due to demographics not being a huge influence in predicting resilience. Individuals in the face of disaster have different responses to the event, despite being male and female or any age. In times of disaster, people will feel scared and worried regardless of who they are. This may be why most studies did not consider demographic factors as a significant variable in its interactive relation to PTSD in predicting resilience.

6. Conclusion

In conclusion, the study of PTSD predicts an individual's resilience to the effects of natural disasters. Results showed that the interactive effects between PTSD and demographic factors, and PTSD solely is not a significant predictor of an individual's resilience.

7. Recommendations

Recommendations for future researchers should consider is finding a different variable in predicting resilience. Mental illnesses such as anxiety, depression, suicidal ideation, or stress may be considered in predicting resilience. Consider external factors that could affect individuals such as the intensity of the disaster, living environment, or the level of resources in providing mental healthcare in the area.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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