Long-Term Adversity-Activated Development in Individuals and Families who Survived the 921 Chi-Chi Earthquake in Taiwan.

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I would like to express my deepest gratitude to my interviewees for openly sharing their

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Abstract

This thesis examines long-term Adversity-Activated Development (AAD) in individuals and families affected by the 921 Chi-Chi Earthquake in Taiwan. Employing a qualitative approach, the study utilises in-depth interviews, the Adversity Grid, and the Adversity Index Form to investigate the complex recovery and personal development trajectories post-disaster. The research focuses on the narratives of three family members, exploring the interplay of psychological, social, and cultural factors in their recovery. The coexistence of negative, unchanged, and positive responses underscores the unique and complex nature of each recovery journey.

The findings reveal that Adversity-Activated Development (AAD) manifests in diverse ways, influenced by the interplay of personal experiences, family dynamics, and community support. This development emerged across three domains: External AAD through increased resources and opportunities, Interpersonal AAD through strengthened family and community bonds, and Intrapsychic AAD through enhanced self-awareness and broadened worldviews. These transformative processes were fundamentally shaped by and embedded within the cultural and social contexts of Taiwanese society.

The thesis highlights the importance of considering long-term developments beyond immediate disaster responses, advocating for a holistic approach that encompasses psychological, social, and cultural dimensions. By providing insights into long-term development post-disaster, this research contributes to disaster psychology and offers valuable lessons for mental health practitioners and disaster response strategists worldwide, demonstrating how adversity can catalyse profound personal and communal transformation.

Keywords: Adversity-Activated Development, AAD, Adversity Grid, disaster recovery, qualitative research, cultural impact

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Introduction

Overview of the Current Study

The catastrophic 921 Chi-Chi Earthquake that struck Taiwan on September 21, 1999, marked one of the most pivotal events in the country's history (Gong et al., 2023). The magnitude of the earthquake and the extent of its devastation provided a sombre context for exploring the recovery and adaptive capacities of individuals and communities. This thesis delves into the phenomenon of Adversity-Activated Development (AAD), a concept that examines the positive changes and developments that occur in individuals, families, community, and society as they navigate through the long-term aftermath of such a devastating event (Papadopoulos, 2021a, pp. 268-279).

At the core of this exploration is a recognition of the intricate and multi-layered human response to adversity. The study focuses on the nuanced experiences of survivors, particularly through the lens of Indigenous Psychology, which emphasises understanding individuals within their unique cultural context. This perspective is critical in acknowledging and honouring the diverse coping mechanisms and developmental trajectories that emerge in the face of adversity. By employing a qualitative methodology, including in-depth interviews and the innovative use of the Adversity Grid and Adversity Index Form, the research presents a textured mosaic of human resilience and transformation.

The Adversity Grid, a principal tool for evaluating the multiplicity of responses to traumatic events, categorises these into negative, unchanged, and positive outcomes at individual, interpersonal, community, and social/cultural levels (Papadopoulos, 2021a, pp. 268-279). Such a comprehensive approach reveals the depth of AAD as it manifests across these various domains. External AAD, for instance, is evidenced through additional resources such as financial aid and

infrastructural developments gained from the outside world due to the devastating events; whereas Interpersonal AAD emerges in the strengthened bonds and solidarity among families and communities. Intrapsychic AAD, perhaps the most intimate, reflects the internal psychological transformative development and reconfiguration of personal identities and worldviews (Papadopoulos, 2021a, pp. 268-279).

Furthermore, the concept of Onto-ecological Settledness, applied in the research process, describes the dynamic interaction between the individual's evolving self-perception and the environmental context. It champions the continuous, active negotiation of identity that is not merely reactive to adversity but is also proactive in embracing and integrating the changes that life's vicissitudes impose (Papadopoulos, 2021a, pp. 130-133).

As the study unfolds, it becomes evident that the journey post-disaster is neither linear nor homogenous. The variability in responses of survivors in the aftermath of the Chi-Chi Earthquake is not simply due to a single event but rather a constellation of factors that interplay to shape the survivors' experiences. This thesis brings forth the complexity of these journeys, showing how the various responses to disaster co-exist and contribute to the unique narrative of each individual and family involved.

By drawing on the rich, lived experiences of the participants, this research not only contributes to the theoretical landscape of disaster psychology but also has profound implications for the practical realm of mental health interventions. It calls for culturally sensitive approaches that are attuned to the intricate realities of post-disaster environments. This includes acknowledging the importance of community support systems, advocating for long-term engagement in mental health strategies, and recognising the need for holistic care that addresses the psychological, social, economic, and cultural dimensions of recovery.

In essence, this thesis offers a panoramic yet detailed view of how adversity can act as a potent catalyst for growth and development. It invites mental health practitioners, researchers, and policymakers to re-evaluate and refine their strategies to foster environments where Adversity-Activated Development can thrive, contributing to a more resilient and adaptive society in the face of natural disasters.

Reflexivity

During the 921 Chi-Chi Earthquake, I was a first-year secondary school student living in Taipei with my family. Following the earthquake, Taiwan experienced a nationwide power outage, and it took several days for power to be gradually restored across the island. Schools throughout Taiwan were also closed due to the significant damage caused by the earthquake. Although Taipei was not one of the areas worst affected, I vividly remember the days without electricity and no school, listening to disaster reports on the radio, and seeing the startling images of deformed roads and collapsed buildings in newspapers, as well as watching the death toll rise. At that time, I did not realise the profound impact the 921 Chi-Chi Earthquake would eventually have on Taiwanese society and its government and disaster response systems, and I certainly never imagined that it would become the subject of my doctoral thesis.

Twenty years after the 921 Earthquake, I became a psychotherapist, primarily working with trauma cases, and driven by my passion for psychology, I pursued my doctorate in the UK. During my doctoral studies, I was introduced to the concepts of Adversity and AAD. This new, comprehensive perspective deepened my understanding of trauma and trauma work, moving beyond merely addressing the damage caused by trauma to focusing on the potential for future development following traumatic experiences.

Simultaneously, I realised that the 921Chi-Chi Earthquake was a perfect example of societal AAD in Taiwan. It transformed Taiwan from a developing country into one with a robust system and capabilities for disaster response. Just a few days before submitting this thesis, on 3 April 2024, another strong earthquake with a magnitude of 7.4 struck Hualien, Taiwan, second only to the 921 Earthquake, resulting in 17 fatalities, 1,155 injuries, and 2 persons missing. Although the loss of life and injuries are regrettable, and many factors contribute to the scale of the disaster, the extent of damage and the post-disaster response this time were vastly different from the 921 Earthquake. This is yet another display of Taiwan's societal AAD.

Taiwan is a country under the threat of war, with international political disputes that obscure its developments from the international stage. Therefore, I chose the experience of the 921 Chi-Chi Earthquake as the research topic for this thesis. On one hand, to highlight Taiwan's significant development following a major natural disaster to the international community, and on the other hand, to showcase the long-term development of Taiwanese people after experiencing the 921 Chi-Chi Earthquake. At the same time, I am introducing the theory of the Adversity Grid and AAD to the field of Mental Health in Taiwan. This theory, which thoroughly explores the characteristics from individual to societal levels, emphasises the coexistence of negative, unchanged, and positive responses, and complements the healing concepts within Taiwanese culture. Understanding this theory will greatly assist Taiwan in responding to potential future natural and man-made disasters.

Research Questions that the Current Study Aims to Answer

1. How do the responses and developments of individuals and families manifest across multiple layers after the 921 Chi-Chi Earthquake, and how are their uniqueness and complexity presented?

2. To what extent is AAD reported by individuals and families?

3. How do individuals and families exhibit Adversity-Activated Development (AAD) in the aftermath of the 921 Chi-Chi Earthquake in Taiwan?

4. What patterns emerge in the different layers (External, Interpersonal, Intrapsychic) of AAD, and how are these shaped by cultural and societal factors?

5. In what ways do communal and familial dynamics contribute to the AAD processes following the earthquake?

Definitions of Key Terms

The key terms included in this study are defined as follows:

1. The 921 Chi-Chi Earthquake:

    A catastrophic 7.7 magnitude earthquake that struck Taiwan on 21 September 1999, leading

to widespread destruction, casualties, and a profound impact on the nation's disaster management

and psychological health frameworks (Gong et al., 2023, pp. 3-10).

2. Natural Disaster:

    A destructive event resulting from natural environmental phenomena that significantly harms

human society, often requiring a complex response from various systems and community

resilience (Chaudhary & Piracha, 2021, p. 5).

3. Adversity-Activated Development (AAD):

    A positive response to adversity signifying the personal development that arises directly as a

result of being exposed to challenging circumstances. AAD encompasses changes that enhance

lives at individual, family, community, and societal/cultural levels (Papadopoulos, 2021a, p.

303).

4. Resilience:

    The capacity of individuals to maintain a stable trajectory of healthy functioning after

significant adversity, different from AAD in that it emphasises recovery to a baseline of pre-

adversity functioning rather than transformation through adversity (Papadopoulos, 2021a, p.

274).

5. Post-Traumatic Growth (PTG):

    A process where individuals experience significant positive change after struggling with

major life crises or trauma, taking forms such as improved relationships and personal strength.

Unlike AAD's broad spectrum of response to adversity, PTG specifically denotes growth from trauma, sometimes bypassing the complex, ongoing nature of individual experience (Papadopoulos, 2021a, p. 279).

6. Adversity Grid:

A conceptual framework categorising responses to adversity into negative, unchanged, and positive responses at individual, family, community, and societal/cultural levels. It aims to capture the full range of human reactions and developments following traumatic events (Papadopoulos, 2021a, p. 269).

7. Adversity Index Form:

A self-assessment tool adapted from the Asylum Seekers' Protection Indices (Papadopoulos, 2010), used to gauge the psycho-social resources of individuals after traumatic events. It examines personal, interpersonal, and social experiences in adversity, providing subjective insight rather than diagnostic measures.

8. External AAD:

Developments arising from increased access to external resources and opportunities following adversity (Papadopoulos, 2021b).

9. Interpersonal AAD:

Positive changes in interpersonal relationships and bonds strengthened through shared adversity (Papadopoulos, 2021b).

10. Intrapsychic AAD:

Internal psychological development and expanded worldviews stemming from experiences of adversity, reflecting personal inner transformation (Papadopoulos, 2021b).

11. Meaning-Attribution Processes (MAPs):

MAPs refer to the cognitive and emotional frameworks through which individuals interpret and give significance to adverse or traumatic events. These processes are constructed from a myriad of factors including personal traits, relational dynamics, sociocultural background, and the specific circumstances of the event, shaping the individual's long-term response to adversity (Papadopoulos, 2021a, p. 283).

12. Onto-ecological Settledness:

This concept describes the dynamic interplay between an individual's evolving sense of self and their environment, reflecting the continual process of identity construction. Onto-ecological Settledness is not a static state but an active, ongoing interaction, inclusive of psychological, physical, personal, and interpersonal aspects that respond to significant life events (Papadopoulos, 2021a, p.130).

13. Indigenous Psychology:

A psychological approach that emphasises the importance of understanding individuals within the context of their own culture and life-world, especially relevant for disaster recovery as it incorporates local cultural perspectives and practices (Yu et al., 2004).

PART ONE - Review of the Literature

Chapter 1.

The 921 Chi-Chi Earthquake

On September 21, 1999, at 01:47:12, a seismic event measuring 7.7 on the Richter scale struck Taiwan, resulting in widespread devastation across the island (Gong et al., 2023, p.3). This event, later referred to as the 921 Chi-Chi Earthquake, not only constituted a collective traumatic experience etched into Taiwanese memory but also served as a pivotal moment prompting the Taiwanese government to institute more systematic emergency disaster mobilisation and prevention measures through legislative and policy frameworks. Additionally, mental health professionals began to develop treatments and conduct research on trauma and recovery tailored to the cultural context of Taiwan (Chang & Lin, 2013). The 921 Chi-Chi Earthquake can indeed be considered one of the most significant examples of Adversity-Activated Development (AAD) in the history of disasters in Taiwan.

While the 921 Chi-Chi Earthquake has significantly transformed Taiwan's government and society, making them better equipped to respond to major disasters, there is a scarcity of literature published in English on post-disaster reconstruction and trauma and recovery related to this event, due to language barriers and Taiwan's unique political situation. Chapter One of this literature review will provide a basic overview of the background to the 921 Chi-Chi Earthquake, as well as developments made by both government and civil society in response to this event. This chapter will also introduce the coping frameworks and relevant psychological research into the recovery of those affected by the disaster.

The subsequent literature review section will discuss the development of disaster psychology research in the aftermath of the 921 Chi-Chi Earthquake, focusing on multicultural and gender perspectives. Additionally, it will explore the relationship between the emergence of

indigenous psychology inspired by the 921 Chi-Chi Earthquake and the concept of Adversity-Activated Development (AAD).

1.1   Background to the 921 Chi-Chi Earthquake

1.1.1. General Background to the 921 Chi-Chi Earthquake

Taiwan is an island of earthquakes due to its location in the Circum-Pacific seismic zone, making seismic activity an integral part of Taiwanese life. According to data from monitoring undertaken by the Taiwanese Central Weather Bureau's earthquake, there are approximately 2,200 earthquakes in Taiwan each year, with around 214 of these being noticeable (*FAQ for Earthquake-15. What Is the Frequency of Earthquake Occurrence in Taiwan? - Central Weather Bureau Seismological Center*, n.d.). However, one earthquake that will forever hold a place in every Taiwanese person's heart and in the records of Taiwanese history is the 921 Chi-Chi Earthquake.

On September 21, 1999, at 01:47:12, a devastating 7.7 magnitude earthquake struck the entire island of Taiwan. This earthquake later became known as the 921 Chi-Chi Earthquake. It took a tragic toll, with 2,415 fatalities, 29 individuals reported as missing, and 11,306 people suffering severe injuries (Gong et al., 2023, pp.3-10). The earthquake caused the complete destruction of 51,711 buildings, while an additional 53,768 buildings suffered severe damage. Over 100,000 individuals were either temporarily or permanently displaced as a result, and the overall economic impact was estimated at a staggering US$10 billion ('1999 Jiji Earthquake,' 2020). This event stands as the most severe natural disaster to have struck the island (*921 10th Anniversary of the 1999 Chi-Chi Earthquake*, n.d.).

The epicentre of the 921 Chi-Chi Earthquake was located in the central region of Taiwan, and counties in this central area, including Taichung, Nantou, and Yunlin, experienced severe

damage. However, due to the immense energy release associated with the 921 Chi-Chi

Earthquake, equivalent to 44.7 atomic bombs ('1999 Jiji Earthquake,' 2020), the impact of this

earthquake was felt across the entire island.

The terms "hazard" and "disaster" often appear in research into natural disasters. 'Natural

hazard' refers to natural environmental phenomena that have the potential to pose risks to human

environments and societies. It's important to distinguish between a natural hazard and a natural

disaster. A natural hazard represents a threatening event that may have adverse impacts on

human society, while a natural disaster describes the negative consequences of natural hazards

that significantly harm society (*Natural Hazards | National Risk Index*, n.d.). Researchers and

other experts often assess the risk associated with both primary and secondary hazards before

and after a natural disaster.

Primary hazards are the main phenomena that occur immediately, while secondary

hazards refer to the negative impacts that result from primary hazards (Gill & Malamud, 2014).

Common primary hazards associated with earthquakes include ground shaking, landslides (the

downward sliding of dry masses of earth from mountains or cliffs), liquefaction (where the soil

takes on a liquid-like quality), surface rupture (the breaking of the surface along a fault), and

tsunamis (Goda et al., 2018). Common secondary hazards of earthquakes encompass fires and

damage to structures such as buildings, roads, and bridges (Marano et al., 2010).

The 921 Chi-Chi Earthquake generated surface ruptures extending approximately 90 km

along the north-south trending Chelungpu fault, resulting in surface displacements of up to 12 m

in central Taiwan (Li et al., 2019). Landscape devastation led to severe damage to critical

infrastructure, including the transportation system, water supply network, power grid,

telecommunications infrastructure, and educational facilities, impacting the entire island of

Taiwan (Gong et al., 2023, p.3).

The location of the Chelungpu fault, which extends across central Taiwan, meant that

primary roads, including highways that connect to central Taiwan, endured extensive damage.

More than 20 bridges suffered severe impacts from the earthquake. This disruption of the

transportation system had a significant adverse effect on disaster relief efforts, rendering many

affected areas impassable. Furthermore, the water supply system in Taichung was entirely

compromised. The reservoirs of this region sustained substantial damage, leading to flooding;

additionally, the water transportation pipes also suffered damage during the earthquake (Yeh et

al., 2017).

The earthquake also had a profound impact on Taiwan's power system, affecting

approximately 6,800,000 households (Taiwan Power Company, 2000). At that time, Taiwan

relied on power generation from power plants located in the southern part of the island to supply

electricity to northern Taiwan. Landscape damage in central Taiwan significantly affected the

entire power generation system.

The telecommunication system also suffered severe damage, with approximately 41% of

the telecommunications network was becoming disconnected (Chunghwa Telecom Central

Regional Branch, 2000). Coupled with the disruption of the transportation system, this resulted

in the isolation of townships, notably Dongshi and Puli, which experienced severe damage that

remained unknown to the outside world.

A total of 1,759 schools saw various levels of damage due to the earthquake, and 293 of

these schools required complete reconstruction. The damage sustained by   school buildings had

a profound impact on the educational rights of approximately 1,800,000 students (Ministry of

Education, 2004). Luckily, the fact that the 921 Chi-Chi Earthquake occurred during night-time hours meant that there were fewer casualties among students or school staff, than might have occurred during daytime hours. Nevertheless, the extensive damage to school buildings underscored the general vulnerabilities in their construction and prompted a comprehensive review of the structural safety of educational facilities (Gong et al., 2023, p.10).

1.1.2. Media Responses to the 921 Chi-Chi Earthquake

As the deadliest natural disaster in Taiwanese history in over 30 years, the 921 Chi-Chi Earthquake has received extensive attention both nationally and internationally. Internationally, the earthquake elicited global sympathy for the affected population, with over 700 rescue workers from over 20 countries offering immediate assistance with rescue efforts. The 921 Chi-Chi Earthquake made headlines in major international media outlets such as the BBC, CNN, The New York Times, and The Asahi Shimbun ('1999 Jiji Earthquake', 2020). The international media portrayed the earthquake as a devastating event in Taiwan's history, referring to it as a once-in-a-century occurrence. Images of collapsed buildings were widespread in the media. International media coverage primarily focused on the scale and impact of the earthquake, the response of the Taiwanese people, and the international aid provided by countries reporting the news (Ke et al., 2005).

Nationally, news about the 921 Chi-Chi Earthquake dominated 90% of the news coverage in Taiwan for the 10 days following the earthquake (Ke et al., 2005). The majority of media coverage was focused on the calamitous situation and disaster relief efforts (Chen, 2000; Hsu & Fung, 2000; Ke et al., 2005). However, the attention of mass media significantly waned after the disaster relief stage, and the recovery phase of the earthquake received far less coverage by the mass media than the disaster stage (Hsu & Fung, 2000).

It is a common phenomenon in crisis communication that the attention of mass media diverts when a story no longer exhibits attractive developments (Hsu & Fung, 2000; Ke et al., 2005). For instance, if the number of casualties no longer increases, a story may lose its newsworthiness for mass media reporting. Furthermore, researchers in disaster sociology have pointed out that mass media often portrays affected areas and people with disaster myths. These common myths include panic, psychological shock, looting, increases in crime rates, and material convergence to describe the reactions of disaster victims and post-disaster scenarios, yet these myths are often found to be inaccurate (Nogami & Yoshida, 2014). However, when public attention is directed toward the tragedies and devastations brought about by a disaster, the positive impacts and developments triggered by such events often go unnoticed. The 921 Chi-Chi Earthquake serves as a specific example of this phenomenon. September 21st is now commemorated as National Disaster Prevention Day in Taiwan, signifying that the 921 Chi-Chi Earthquake acted as a turning point for Taiwan in its journey toward developing a more resilient and disaster-ready society.

1.1.3. Taiwanese Governmental and Societal Systems Responses to the Earthquake and Subsequent Developments

The following examples demonstrate the fundamental development of disaster resilience in Taiwan after the 921 Chi-Chi Earthquake. First, the concept of Disaster Management was established by the Federal Emergency Management Agency (FEMA) of the U.S. in the 1970s (*About Us | FEMA.Gov*, 2023). This framework divides the disaster management cycle into four phases: mitigation, preparedness, response, and recovery; each phase requires unique procedures, stages, and plans (Sawalha, 2020). These four phases are interconnected and interdependent,

requiring society and communities to work on developments which enhance disaster readiness.

The 921 Chi-Chi Earthquake was the first disaster where the Taiwanese government

systematically applied the disaster management cycle to mitigate damages, using the

international FEMA framework.

Following this framework, the Taiwanese government established a response phase lasting

approximately three weeks. During this phase, they implemented measures such as search and

rescue operations, emergency medical assistance, and setting up emergency shelters to stabilize

the situation and minimize the potential for further harm (*What Is a Disaster Management

Cycle?*, 2023). Following the response phase, the Taiwanese government initiated a seven-month

resettlement phase for affected people and communities. Subsequently, after the resettlement

phase, the country embarked on a six-year recovery phase, focusing on the restoration of

damaged infrastructure, the ongoing provision of medical assistance and social services, and

aiding individuals and families in their financial recovery.

The 921 Chi-Chi Earthquake catalysed significant legislative changes in Taiwan's

disaster management framework. Whilst initial relief efforts were coordinated through

presidential emergency decrees, the disaster's magnitude prompted the Legislature to enact the

comprehensive Disaster Prevention and Protection Act in 1999. This landmark legislation

established the fundamental legal framework for disaster preparedness, response, and recovery in

Taiwan, marking a crucial shift in the nation's approach to disaster management.

In terms of medical assistance, the 921 Chi-Chi Earthquake disaster was also the turning

point for re-structuring the medical system. Around 1990, Taiwan's emergency medical system

began to rapidly develop, with advancements such as creating a specialization in emergency

medicine and the gradual improvement of training for 119 emergency medical technicians (Chuang, 2019). However, in 1999, the 921 Chi-Chi Earthquake exposed significant shortcomings in Taiwan's medical system when it came to disaster preparedness. Without a clear chain of command, when communication systems were disrupted by the disaster, a lack of information about the extent of the damage resulted in the misallocation of medical resources. Medical personnel at that time also had insufficient knowledge of disaster relief, leading to misjudgements regarding the medical needs of the affected areas. For instance, medical practitioners expected to treat trauma cases, but many victims with severe trauma had already perished in the collapsed buildings. Survivors in the devastated areas required medications for chronic conditions. Moreover, due to a lack of knowledge about the supplies needed for affected areas, the emergency medical teams found themselves facing shortages in basic living provisions such as food and water (Chuang, 2019).

After the passing of the Emergency Medical Services Act a year after the earthquake, the National Disaster Medical Assistance Team and Regional Disaster Medical Assistance Team was established, allowing a chain of command in emergency medical service to be formed (Chuang, 2019). Taiwan's disaster medical response teams have begun to learn from other countries and have gradually developed over the past 20 years. They have primarily implemented two distinct operational models in order to respond to different types of disasters. One model is based on the Japanese approach, organized at the hospital level, consisting of three to four members, including physicians, nurses, paramedics, and logistics personnel (Lin et al., 2021). Its major objective is to rapidly support on-site disaster medical work following emergencies. The other model, derived from the American system, primarily involves community-based organizations with 30 to 40 or more diverse professionals, including healthcare workers,

psychologists, and logistics personnel. The main goal of this model is to establish a short-term

medical unit in areas where medical resources are insufficient or demands are exceptionally high

following disasters (Lin et al., 2021). Building upon these training program and developments,

the disaster medical response teams have since been actively engaged in disaster relief efforts for

various disasters, both within the nation and on the international stage. (Chuang, 2019).

Following the 921 Chi-Chi Earthquake, there was a significant surge in civil society

involvement, with non-governmental organisations and institutions, particularly religious groups,

responding promptly to disaster relief efforts (Gong et al., 2023, p.224). For example,

immediately following the earthquake, the Buddhist Tzu Chi Medical Foundation, one of the

biggest religious groups in Taiwan, autonomously provided emergency relief assistance, urgent

medical aid, material support, provision of hot meals, dispatch of emergency funds, funeral

assistance, and emotional support and companionship in end-of-life matters in 31 locations in

Taiwan (*Tzu Chi 921 Relief Chronicle*, n.d.). In the first month after the earthquake, more than

260,000 volunteers from various organisations participated in disaster relief and recovery efforts

in the affected areas. A total of over 38 billion New Taiwanese Dollars was raised within

Taiwan, and civil society contributed to 42% of the reconstruction of damaged schools (Gong et

al., 2023, p.228).

Cooperating with civil society and efficiently managing the substantial influx of

resources while adhering to the rule of law posed a challenge for the government to address this

challenge, the 921 Earthquake Relief Foundation was established three weeks after the

earthquake (*the 921 Earthquake Relief Foundation*, n.d.). This foundation, which included

representatives from civil society, public opinion representatives, earthquake victims, and

government officials aimed to foster collaboration across various sectors of society and facilitate the recovery of affected areas (*the 921 Earthquake Relief Foundation*, n.d.). Additionally, the Charity Donations Destined for Social Welfare Funds Implementation Regulations were established in the aftermath of the 921 Chi-Chi Earthquake (Gong et al., 2023, p.228).

The earthquake disaster also underscored the specific needs of some affected community sectors, prompting a coordinated response from the legal system and civil society to cater to these needs. For example, among the earthquake survivors, 134 individuals aged 18 and below lost their parents, becoming orphans after the earthquake. Notably, 52% of this proportion consisted of adolescents aged 12-18 (Child Welfare Bureau, Ministry of the Interior, 2000). Most of these children and adolescents, were adopted by relatives; however, the social care and legal systems were involved to ensure the welfare of this population. The Children's Welfare League Foundation established the "Family Reconstruction Centre" in the month of 921, conducting monthly visits to these bereaved children and their caregivers until they reached the age of 20 (Tsao, 2019). Moreover, in November of that year, the Disaster Reconstruction Foundation also approved another innovative initiative called the "Orphan Trust Fund" for 921, assisting single-parent or orphaned children under 18 to establish trust accounts with the government's post-disaster relief funds (Yeh ,2019). The foundation fully subsidises the annual trust management fees. More importantly, the Orphan Trust Fund also led to an amendment to Article 1094 of the Civil Code which allowed local social welfare authorities to be appointed as guardians for minors in cases where the legally appointed guardian is absent (Shih, 2020). These initiatives subsequently proved beneficial for children and adolescents facing similar adversity in other disasters or accidents.

The emergence of civil society played a pivotal role in fostering civic awareness in Taiwan. A significant milestone in this democratic evolution occurred in 1996, when Taiwan held its first direct presidential election—an unprecedented event that marked the nation's first free and direct democratic exercise ('1996 Taiwanese Presidential Election', 2023). This democratic transformation preceded the earthquake and established a foundation for civil participation. Subsequently, in 2000, just one year after the earthquake, Taiwan held another direct election and achieved the first change in the nation's ruling party, signifying a pivotal moment in the country's political landscape ('2000 Taiwanese Presidential Election', 2023). From a long-term perspective, Taiwan was in a period of actively implementing democracy and a rule of law society. The occurrence of the 921 Chi-Chi Earthquake revealed many shortcomings in the legal system and procedures of the time, both directly and indirectly pushing Taiwan towards a more democratic and law-abiding society that values the well-being of all its citizens. While it is regrettable that these norms and professional systems were not fully developed when the earthquake occurred, reconstruction efforts following the earthquake were not without controversy, including concerns regarding fairness. Nevertheless, the 921 Chi-Chi Earthquake undeniably provided an opportunity for transformation, leading Taiwan towards becoming a nation that prioritizes democracy, the rule of law, and the well-being of its entire population. It also marked a turning point where Taiwan, in an international context, started to be seen as distinct from China, with notable differences in political conditions.

The evolution of legislation, institutional frameworks, and enhanced capabilities within both governmental and civil society systems—catalysed by disaster response—strengthens a nation's capacity to address future catastrophic events. This systemic development represents a crucial form of collective learning and adaptation. From the historical institutionalism

perspective, the changes in natural disaster risk can be seen as a risk governance cycle shaped by the continuous impact of disasters on human communities (Lin, 2022). Reducing pre-disaster hazards, exposure, and vulnerability largely depends on scientific disaster preparedness, especially the technological advancements and governance capabilities of individual nations. Resilience in post-disaster reconstruction, on the other hand, relies to a great extent on information dissemination, mobilization, psychological support, and self-regulation within civil society. In other words, the improvement of national capabilities can mitigate pre-disaster risk factors, while the active participation of civil society can enhance post-disaster reconstruction resilience. The interplay between these two, characterized by cooperation and competition, can create a positive mechanism for disaster prevention and response (Lin, 2022).

After the 921 Earthquake, Taiwan's path was not without challenges as it faced various disasters, both natural and human-made, in the following years. The outbreak of SARS in 2003, devastating earthquakes in Tainan in 2016 and Hualien in 2018, the TransAsia Airways Flight 235 crash in 2015, the Kaohsiung gas explosions in 2014, the Formosa Fun Coast dust explosion in 2015, and most recently, the COVID-19 pandemic, all posed significant challenges. However, in response to these diverse disasters, Taiwan has continuously improved and expanded its disaster response systems. Especially during the COVID-19 pandemic, Taiwan's performance in managing the epidemic remains quite commendable compared to neighbouring East Asian countries (Lin, 2022).

1.1.4. The Mental Health System Response to the Earthquake and Subsequent Developments

In contrast to governmental and societal systems, which required the establishment of fundamental disaster response structures during the 921 Chi-Chi Earthquake, Taiwan's mental

health services were comparatively well-developed and equipped with both theoretical

knowledge and practical expertise. The mental health profession's robust framework had been

previously tested and refined through responses to earlier disasters, reflecting the recurring

nature of catastrophic events in human history.

In 1998, Taiwan experienced a tragic aviation disaster known as the "Taiwan Taoyuan

International Airport Crash." This incident involved China Airlines Flight 676, which crashed

while attempting to land at Taiwan Taoyuan International Airport, resulting in 202 fatalities and

marking a significant aviation disaster in Taiwan's history ('China Airlines Flight 676', 2023).

This event drew public attention to the need for mental health support in response to disasters.

The Department of Health subsequently brought together seven major psychiatric medical

hospitals to collaborate on researching and developing a disaster mental health rescue service

model, which was implemented and has been consistently utilised to this day (Li et al., 2000).

Nevertheless, since the 921 Chi-Chi Earthquake is deemed to be the most severe natural

disaster in the history of Taiwan this century, it was still a huge challenge for mental health

professionals to respond to the disaster. The experience of the 921 Chi-Chi Earthquake and

subsequent developments of mental health responses led to the designation of the year of the

earthquake as "Taiwan's Inaugural Year of Disaster Mental Health" (Gong et al., 2023, p.359).

During the time of the 921 Chi-Chi Earthquake, the mental health profession's response

was coordinated by academia. Taiwan University assembled the "National Taiwan University

921 Psychological Rehabilitation Team" to respond with a campus-wide and nationwide

emergency response system (Shiau et al., 2009). The team divided their action plan into four

phases: the Crisis Phase, Stabilisation Phase, Reconstruction Phase, and Research Phase. The

Crisis Phase started from one week to three months after the earthquake, the Stabilization Phase

spanned the three to four months after the earthquake, and the Reconstruction Phase extended

from three to four months after the earthquake to a year after the earthquake. Reconstruction is,

in fact, a prolonged process, and to this day, the Psychological Rehabilitation Team continues to

be involved in the community's recovery, indicating that the Reconstruction Phase is an ongoing

phase. In contrast, the Research Phase commenced two years after the earthquake and also

continues to the present date.

During the initial phase, the Crisis Phase, the National Taiwan University 921

Psychological Rehabilitation Team took three key actions to prepare for and respond to disaster

relief. First, it conducted a three-day training program for workers, equipping them for outreach

services in the devastated areas. The training covered understanding possible physical and

psychological responses in disasters, considering practical approaches to post-disaster

psychological rehabilitation, and preparing workers for the challenges they might encounter in

the devastated areas (Shiau et al., 2009). Additionally, the team collected information to create

self-help brochures, including 'Social and Psychological Rehabilitation Manual - Individual

Psychology,' 'How to Help Children,' and 'Volunteer Self-Help Manual,' which were distributed

by workers in the affected areas (Gong et al., 2023, p. 360).

Second, the team established a toll-free number to offer a psychological counselling

hotline service providing counselling and information for individuals across Taiwan affected by

the earthquake (Shiau et al., 2009). The outreach service and hotline were primarily staffed by

senior undergraduate students and graduate students from mental health-related departments, led

and supervised by professors from various Taiwanese universities (Gong et al., 2023, p.359).

Third, on the 27th of September, 1999, six days after the earthquake, the rehabilitation team arrived at the devastated areas (mainly in Dongshi) and joined the disaster relief team's healthcare workers and volunteers in these areas (Shiau et al., 2009). The targets for the rehabilitation team were both direct and indirect victims, including temporary shelter residents and shelter management personnel, teachers, students, and healthcare workers. The team's aim was to mitigate the impact of secondary trauma (Gong et al., 2023, p.359; Shiau et al., 2009). They introduced ways to process physiological and psychological response to disaster events, crisis intervention methods, coping strategies for traumatic events, and emotional identification and relief. The approaches included lectures, group counselling, group discussions or activities, seminars, on-site services, and individual case management (Shiau et al., 2009).

After transitioning through the crisis phase, the focus of the rehabilitation team moved/progressed from psychological crisis intervention to psychological education during the Stabilisation Phase. In this phase, the team combined with other national psychological professional organisations in order to continue/with the aim of continuing to provide intervention for people affected by the earthquake and to empower the community to establish a mental health-supportive township (Gong et al., 2023, p.361; Shiau et al., 2009). Development plans involved training seed teachers, collaborating with local health centres to establish a mental health counselling and assessment outpatient centre, and organising local volunteer groups, including members of "Mum's Classroom," to leverage local resources for active participation in reconstruction efforts (Shiau et al., 2009).

Based on the plans established during the Stabilisation Phase, the rehabilitation team initiated long-term developments in the Reconstruction Phase. The team accomplished four significant initiatives during this phase to actualize the empowerment concept of "locals helping

locals": the training for seed teachers, the establishment of the "Dongshi 921 Post-Disaster

Mental Health Joint Outpatient Clinic," the implementation of long-term training programs for

"Dongshi Township Community Health Volunteers," and contributing to the long-term

revitalization of Dongshi (Shiau et al., 2009). These long-term rehabilitation initiatives provided

the affected areas with long-term resources for training and education, addressing not only

disaster recovery but also general mental health. Further, these empowering initiatives aimed to

let the community to create sustained resources to the community which emphasized the

importance of local culture and the value of community. Community work/programs included

book clubs, summer camps for local children and art projects The local media started to thrive

during this period (Gong et al., 2023, pp.361-363.; Shiau et al., 2009).

During the research phase, the team proposed a two-stage integrated study on

psychological reconstruction (Shiau et al., 2009). The first stage was the "921" Psychological

Rehabilitation Longitudinal Integrated Study. The team's research logic is based on a process

approach to traumatic experiences and consists of three main aspects. Firstly, the development of

psychological assessment tools that can sensitively distinguish different psychological responses

at various stages after facing a disaster. Secondly, in addition to focusing on negative outcomes

triggered by the event, such as physical and mental symptoms, it incorporates positive strategies

and methods used by individuals in the adaptation process. Lastly, disaster intervention must be

integrated with local culture and social customs. In the second stage of the research, based on the

team's exploration of psychological trauma responses and their rehabilitation processes in natural

disasters, a conceptual model for preventing and treating psychological trauma in natural

disasters was established (Shiau et al., 2009).

It should be noted that, although the actions and rehabilitation plan of the "National Taiwan University 921 Psychological Rehabilitation Team" had a national scope, the primary focus and community development occurred in Dongshi, one of the areas most devastated by the earthquake. As mentioned earlier, the 921 Chi-Chi Earthquake had immense destructive power, significantly impacting various regions. The community development in Dongshi serves as a noteworthy example of post-disaster community mental health development. However, it also highlights concerns regarding the uneven distribution of resources.

Despite this, it is fair to say that the focus on empowerment and localisation in the rehabilitation plan transformed the 921 Chi-Chi Earthquake from a collective traumatic event ingrained in people's memories into a pivotal moment for the mental health professions. It marked the initiation of the development of treatments and research on trauma and recovery tailored to the local culture of Taiwan. (Chang & Lin, 2013). To this day, research on the 921 Chi-Chi Earthquake has made substantial contributions to the field of mental health and disaster psychology in Taiwan.

1.2. Previous Studies of the 921 Chi-Chi Earthquake

Previous research on the 921 Chi-Chi Earthquake in the field of mental health and disaster psychology ranges from epidemiological studies of mental disorders after the earthquake, treatment-related studies, to research on grief, trauma and recovery. The researched population included individuals and families from various backgrounds and age groups. As mentioned earlier, the 921 Chi-Chi Earthquake provided the impetus for the mental health profession to establish a more holistic framework in the practice and research of disaster psychology. However, looking back 23 years later, there are aspects that still require further development. The following section will review previous research on the 921 Chi-Chi Earthquake and discuss

its impact on subsequent developments in the fields of trauma and recovery, disaster psychology, and indigenous psychology in Taiwan.

1.2.1. *Previous Studies on the Prevalence of Post-Traumatic Related Disorders following the 921 Chi-Chi Earthquake*

In the field of disaster and trauma research, the prevalence rate of mental disorders following major disasters is a consistent focal point. In previous studies on the 921 Chi-Chi Earthquake, the prevalence rate of mental disorders following the earthquake varied substantially due to differences in research time, population, research methods, and tools. Taking the research on the prevalence rate of Post-Traumatic Stress Disorder (PTSD) after the 921 Chi-Chi Earthquake as an example, PTSD is one of the best-known stress disorders caused by traumatic events, and most of the previous studies about the survivors of natural disasters concentrate on this disorder. Of the published research on survivors of the earthquake, 50% focus on PTSD, 27.5% on Depression, and 17.5% on Post-Traumatic Reaction (PTR) (Young & Li, 2004). Various assessment tools were employed in these studies, with most grounded in the diagnostic criteria for PTSD as outlined in the Diagnostic and Statistical Manual of Mental Disorders (Black & Grant, 2014). The clinical criteria for PTSD encompass intrusion symptoms, avoidance, negative alterations in cognition and mood, and alterations in arousal and reactivity. The symptoms must be severe enough to impair the functions of an individual and persist for more than one month (Black & Grant, 2014). According to Young & Li (2004), 48.1% of the previous studies on the prevalence rate of PTSD following the earthquake utilised self-designed questionnaires, 14.8% used the Chinese Version of the Mini International Neuropsychiatric Interview, 14.8% used the Davidson Trauma Scale, 7.4% used the Children Interview for Psychiatric Syndromes, and 3.7% used the UCLA PTSD Index for DSM-IV. Although these

tools might be based on the same diagnostic criteria for PTSD, some are designed to assess several trauma-related disorders of which PTSD is one, some are tailored specifically for PTSD, and some are designed for specific populations such as children or adolescents.

The populations studied in these previous research endeavours are also diverse. According to Young & Li (2004), among the published research on this topic in the first four years after the earthquake, 40% focused on general earthquake survivors, 20% on adolescent survivors, 17.5% on professional workers (including disaster relief workers, medical personnel, mental health workers, and soldiers), 7.5% on female survivors, 5% on child survivors, 5% on elder survivors, 2.5% on indigenous survivors, and 2.5% on bereaved survivors.

Studies conducted between 2001 and 2011, reported prevalence rates of PTSD after the earthquake ranging from 8% to 34.3% (Gong et al., 2023, p.371). The significant variation in these reported rates is not surprising, considering several factors. Firstly, PTSD is a disorder with symptoms strongly linked to the passage of time. For instance, data collected by Chang & Lin (2013) indicated that the prevalence rate of PTSD among adult survivors of the 921 Chi-Chi earthquake was 32% one month after the event. This rate decreased to 10% after three years and further reduced to 3% by the fourth year. Although 30% of survivors still experienced psychological and somatic symptoms four years after the earthquake, only 3% met the clinical criteria for PTSD.

Research indicates considerable temporal variation in the mental well-being and stress symptoms experienced by disaster survivors. Studies demonstrate that PTSD prevalence rates among earthquake survivors significantly correlate with the timing of post-disaster assessment. A small-scale study conducted three months after the earthquake, focusing on middle-aged survivors in central Taiwan's devastated areas, revealed that the majority of participants

exhibited persistent acute stress responses, including flashbacks and physical symptoms such as a racing heart or sweating (Chen et al., 2000). Correspondingly, research involving 120 bereaved survivors in central Taiwan, undertaken two months post-earthquake, reported that 37% of participants met PTSD diagnostic criteria (Kuo et al., 2003). However, a longer-term study conducted three years after the earthquake, comprising 405 participants aged 16 years or older in a devastated central Taiwanese village, documented a markedly lower PTSD prevalence rate of 4.4% (Wu et al., 2006).

Additionally, different researched populations also show differences in the prevalence rate of PTSD. For example, a study investigated the prevalence of PTSD among 167 professional and 85 non-professional rescue workers one month following the earthquake, revealing prevalence rates of 19.8% and 31.8%, respectively (Guo et al., 2004). Another study assessed the exposure experience and prevalence of PTSD among 323 adolescent survivors aged 12-14 living in the severely damaged village in central Taiwan, revealing a prevalence rate of 21.7% six weeks after the earthquake (Hsu et al., 2002). However, at the same time point, in the same village, the prevalence rate of PTSD in the elderly population was 10.3% (Ouyang ,2010).

Further, research results on prevalence rates could be affected by the design of the research, the assessment tools used in the research, the conduct of the research, and the analysis of the data. Previous studies on the prevalence rate of PTSD have utilised numerous assessment tools, ranging from self-designed questionnaires to various trauma indexes. The examiners conducting the assessments also varied, including doctors, researchers, students, and trained volunteers Ouyang ,2010).

These methodological variations preclude standardised comparison of research outcomes. Furthermore, as previously noted, 48.1% of these studies employed self-designed questionnaires that may lack comprehensive validation and reliability testing.

The review of disaster psychology and trauma recovery research related to the 921 Chi-Chi Earthquake reveals that mental disorder prevalence has been a primary focus. However, meaningful comparison of findings is hindered by variations in assessment timing, study populations, and methodological approaches. This divergence in reported mental disorder prevalence following major disasters is not unique to Taiwan; international studies have documented rates ranging from 1.5% to 74% (Chou et al., 2006). Similar inconsistencies in prevalence rates have been observed in subsequent Taiwanese disasters, including Typhoon Morakot and the Formosa Fun Coast Dust Explosion (Gong et al., 2023, p.374).

1.2.2. Previous Studies on Process Trauma, Grief and Recovery Post the 921 Chi-Chi Earthquake

Complexity has always been an essential element in understanding the journey after the disaster. A prevalence rate means nothing without knowledge of the context and the people behind the statistic. Many survivors of the 921 Chi-Chi Earthquake were severely injured, many lost their loved ones; their properties were destroyed, their schools, their workplaces, and their community were also destroyed. For these survivors, the losses and changes from the earthquake are multi- dimensional; their responses to the traumatic events are also complex. With all the factors influencing pre-devastating events, the actual devastating events, the post-devastating events, and the variables constituting layers of systems, it is almost impossible to understand each individual's responses and experiences in adversity by means of the statistics alone.

In order to help demonstrate the ongoing interaction between the inner and other factors that form the responses to adversity in individuals, Papadopoulos (2019) introduced the Meaning-Attribution Processes (MAPs). Personal, relational, age, gender, race, disability, power position, the circumstances of actual devastating events, religions, current conditions, social and others' responses, social systems, and many other factors constructed the MAPs. They affected the individual's long-term response to adversity (Papadopoulos, 2019).

As highlighted previously, the 921 Chi-Chi Earthquake stands out as a pivotal moment in the development of mental health research and practice within disaster psychology and trauma recovery. One of the key contributing factors is that, following the earthquake, both research and practice expanded beyond mere diagnoses and prevalence rates to explore the experiences of survivors from more diverse perspectives.

Grief and loss are inevitable consequences of natural disasters. In the 921 Chi-Chi Earthquake, more than 23 million people in Taiwan were forced to directly or indirectly endure the pain of loss. The earthquake resulted in approximately 2,444 fatalities, with over 11,000 people sustaining severe injuries and more than 100,000 buildings severely damaged. In the field of disaster relief, addressing grief and loss emerged as a significant challenge for mental health professionals. Before the 921 Chi-Chi Earthquake, Taiwan had not accumulated much empirical research on the experience of loss and grief (Wong, 2006a). The earthquake presented a unique opportunity for researchers to delve into the diverse and complex experiences associated with grief and loss in the context of disasters.

Previous studies on the 921 Chi-Chi Earthquake employed diverse research methods (mostly qualitative research methods) and perspectives to examine and depict the distinct experiences of grief and loss among different individuals and populations. These unique populations included

earthquake orphans, bereaved parents, and individuals who had experienced complex loss. These pioneering studies not only contributed valuable insights at the time but also stimulated reflection on the conflicts between Western psychological perspectives and local cultural and religious beliefs, given the inherently cultural and personal nature of grief and loss. These studies later became valuable assets in understanding grief and loss in disaster contexts, which possess individual uniqueness while simultaneously exhibiting human and cultural commonality over time.

As outlined in the preceding section, 134 children and adolescents were orphaned in the aftermath of the earthquake. The social care system conducted long-term follow-ups with these youngsters, meanwhile documenting their unique experiences of grief. Although there have been a few studies on the bereavement process of children, there is limited national and international research on the bereavement process of orphans (Li & Leung, 2002). Li & Leung (2002) utilised qualitative research methods to delve into the participants' experiences in depth.

Li & Leung (2002) re-examined mourning process theories from Western scholars, compared them with the actual experiences of adolescent participants who had lost their parents in the earthquake, and created a new understanding of the bereavement process of adolescent and orphans. They divided the bereavement process into four stages: the first stage, "Early Grieving Stage," covers the two weeks from the earthquake to two weeks after; the second stage, "Intense Grieving Stage," covers the period from two weeks to four months post-earthquake; the third stage, "Fading Grieving Stage," covers the period from five to nine months post-earthquake; and the fourth stage, "Adaptation Stage," covers the ten months to a year and a half post-earthquake. At each stage the survivor will have corresponding thoughts, feelings, behaviours, and

physiological responses; each stage will also entail tasks that need to be accomplished (Li & Leung, 2002).

Li & Leung (2002), based on their case study results, suggested that the bereavement process does follow a chronological order. When the participants complete the tasks in a particular stage, the gains and growth in that stage will help them move into the challenges of the next stage. The completion of the mourning process also simultaneously assists the participants in overcoming the challenges of the adolescent developmental stage. For instance, adolescence is a critical period for developing self-identity, and those adolescents who lost their parents in the earthquake may also have developed their unique self-identity and future life goals. This may include taking on the responsibility of caring for younger siblings, developing future goals to continue the family lineage, gradually affirming their abilities in everyday life events, and more (Li & Leung, 2002).

Shi (2003) also explored the unique experience of grief and loss within this group of adolescents; however, she conducted in-depth interviews to explore the holistic experiences of grief and loss of the adolescent participants in adversity and attempted to identify their recovery factors without trying to fit these experiences into theories. Similar to Li & Leung (2002), Shi's research outcomes also indicate that the passage of time is indeed a crucial factor in the adolescent grieving process. Participants exhibit different physiological and psychological responses at different time points in the grieving process. With the passage of time, they gradually come to accept the reality of their parents' passing and develop new interpersonal relationships (Shih, 2003).

It's worth noting that while both studies found the grieving process to be temporal and phased, they also discovered that, at each stage, emotional and physiological grief responses

varied among individual participants. The participants had experienced the shock and trauma of the 921 Chi-Chi Earthquake, making their grief responses and coping behaviours more complex than those of individuals who experienced simple parental loss (Li & Leung, 2002; Shih, 2003). Neria & Litz (2004) proposed the concept of "traumatic bereavement" to describe the unique experiences of survivors who have lost significant others due to sudden, violent, or unexpected events. Those who undergo traumatic bereavement not only need to cope with the psychological mourning process for the deceased but also have to deal with the stress and trauma triggered by the event.

Lin& Wu (2004) and Lin (2011) investigated the traumatic bereavement experience among individuals who had undergone complex loss. In their 2004 research, Lin & Wu delved into the experiences of ten women who lost their family members and homes in the 921Chi-Chi Earthquake that occurred four years prior to the study. The research identified diverse experiential phenomena within survivors' inner psychological processes, categorised as: rumination (characterised by internal processing without expression), denial (manifested as reluctance to communicate), attachment (involving both cognitive processing and expression), and sublimation (reflecting renewed engagement in both thought and expression). Lin and Wu (2004) found that limited verbal articulation of traumatic experiences, whether manifesting as internal rumination or communicative reluctance, correlates with poorer overall psychophysical adaptation.

Moreover, upon closer examination, the participants experienced a transition between "thinking" and "speaking," with crucial turning points being "supportive listening from others" and "rebuilding the homeland in the same location (Lin &Wu, 2004)." Further analysis reveals that those who were able to rebuild their homes in the same location and form weak ties (such as

community connections and religious connections) exhibited the most optimal psychophysical

adaptation. When the homeland was not rebuilt but weak ties were formed, the clients'

psychophysical adaptation did not deteriorate significantly. However, for those who relocated

their homes, the psychophysical adaptation of the clients appeared to be the least favourable

(Lin& Wu, 2004).

In his later research in 2011, Lin explored the experience of a participant who lost his wife

and daughter and also lost his ability to walk due to the earthquake. Unlike the findings of Li &

Leung's (2002) and Shi's (2003) studies into earthquake orphans, Lin (2011) posits that the

traumatic bereavement experience is not temporal and phased; rather, it is more akin to a

circulatory limbo state. This suggests a paradoxical process involving remembering and

forgetting, destruction and survival, rebuilding connections within oneself and with the external

world, and establishing new relationships with both the deceased and the reality of the world

(Lin, 2011).

While both of Lin's studies and the research (such as the studies by Li & Leung in 2002

and Shi in 2003) on bereaved children explore the dual or even multiple losses experienced by

earthquake survivors, it is evident from these studies that each individual's experience of loss and

recovery is unique. As mentioned by MAPs, pre-disaster personality resources, the extent of loss

during the disaster, post-disaster internal and external resources, life stage, gender, and other

factors can influence the recovery process. Additionally, time is a crucial variable in the post-

traumatic development process, and these studies may only represent the participants' condition

at the time of the research, with their post-traumatic development and life continuing to progress.

Furthermore, the Lin's (2004) conclusions about the relationship between rebuilding the

homeland, forming weak ties and the recovery process deserve further exploration.

These findings align with Papadopoulos's (2021) Meaning Attribution Processes (MAPs) framework. Shih (2003) demonstrated that an individual's capacity to cope with and access resources during adversity is influenced by multiple factors: personality traits, existential perspectives on life and death, belief systems regarding life's meaning, emotional regulation capabilities, learning aptitude, external support networks, and religious orientations.

Both articles also uncover positive developments in earthquake orphans in their grieving process. For example, some interviewees mentioned feeling increasingly independent in this process, trying different things for survival, and simultaneously growing to appreciate themselves more. Others discussed how the experience of the earthquake and parental loss made them aware of life's uncertainty and limitations, motivating them to create more diverse life experiences for themselves and seek to contribute meaningfully to society (Shih, 2003). Li & Leung (2002) found that positive thoughts and behaviours emerged in the third stage of the study (two weeks to four months after the earthquake), while positive feelings appeared in the fourth stage of the study (ten months to one and a half years after the earthquake). Therefore, positive thoughts and behaviours precede positive feelings. It is suggested that in practical work, encouraging individuals to develop positive thoughts and behaviours can promote the generation of positive feelings. These positive behaviours or thoughts do not necessarily have to be related to the issue of the deceased family member; they can also be initiated in the survivors' daily lives (Li & Leung, 2002). The academic theories and international research related to post-disaster positive development will be discussed in detail in later chapters.

It's worth noting that both researchers in the aforementioned studies have been working with earthquake orphans long-term, some of them from the immediate aftermath of the earthquake up to today. They have established long-term relationships with these adolescents, consistently

being part of their support network. The publication of these academic articles also provides

valuable reference resources for future researchers and practitioners. However, the two studies

mentioned were conducted one and a half years and four years after the earthquake, respectively.

Although these studies represent relatively long-term post-earthquake research in the context of

the 921 Chi-Chi Earthquake, the subsequent life development of these orphaned adolescents is an

aspect worthy of ongoing academic attention.

Another group that had the opportunity to be studied for their experience of loss and grief

due to the 921 earthquake is the parents who lost their children. Before the 921 Chi-Chi

Earthquake, Taiwan had not accumulated much empirical research on the experience of loss and

grief, and studies specifically focusing on the mourning process of parents who lost their

children were even more scarce (Wong, 2006b).

Grief is a natural phenomenon that individuals experience when losing a loved one.

However, in the context of adult bereavement, the loss of a child is often considered more

unbearable and challenging than losing a spouse or parent, perhaps even representing the most

profound form of loss (Wong, 2006b).

Wong (2006a) employed an ethnographic approach to view a grieving father as a whole

entity, seeking to understand his transformation over the course of nearly four years after the loss

of his child. This exploration included examining the changes that arose through various forms

of interactions with the researcher.

In her portrayal of the grieving process of the father who lost his child, Wong not only

depicts the ongoing, indescribable sorrow associated with the loss but also uncovers positive

aspects of post-traumatic development. The participant described how his life had been smoothly

orchestrated by external forces until the earthquake took an unexpected turn, causing him to reset

his life to "page two" (Wong, 2006a). Determined to become the author of his own life narrative, he focused his energy on creating inventions. Reclaiming the skill he had neglected for over two decades, he began to acknowledge himself as a subjective individual (Wong, 2006a).

A second study by Wong (2006b) focused on parents who lost their children in the 921 Chi-Chi Earthquake. In this study she adopted a different perspective to explore the impact of Taiwan's traditional funeral culture on the grieving process of parents who lost their children. She reflected on whether psychological counselling as practised in Western cultures could be helpful in the practical work of mourning in the face of disasters. Traditional Taiwanese funeral culture emphasizes that parents who have lost a child should not frequently mention the child's name in daily life and should not express excessive grief. This creates a situation where they "cannot be thought of internally and cannot be expressed externally". This approach sharply contrasts with Western grief therapy methods that emphasize working through the grief (Wong, 2006b).

Wong (2006b) urges mental health professionals to adopt a holistic approach; that is, to be both a helper and a human being. By following the mourner's process, respecting their traditional culture, and simultaneously addressing their psychological needs during mourning, mental health professionals should provide a therapeutic experience for the bereaved (Wang, 2006b).

1.2.3. Previous Research on Families Involved in the 921 Chi-Chi Earthquake

Trauma and grief experienced in the context of natural disaster are often related to the loss of loved ones. However, in post-921 psychological studies, research conducted at the family level is limited, with only four publications as of 2023. Among these, only two have been published in academic journals. The four articles respectively investigate into post-921 family

stress levels and resource needs, changes in family resilience, research on family cohesion, and post-traumatic growth in families.

In 2001, Tsai and Hong conducted a relatively large-scale quantitative study focusing on families, representing the only quantitative study related to family units and the 921 Chi-Chi Earthquake. The study targeted 52 dislocated families living in prefabricated houses, aiming to understand changes in family stress levels and to assess the need for family resources one year after the earthquake. Regarding changes in family stress levels, among the interviewed families, 48% reported that since the disaster, there had not been significant impacts or changes in overall functioning and relationships within their families. On the other hand, 19% of families indicated that immediately after the earthquake, they faced intense stress which disrupted family functioning and relationships. However, with some time for adjustment, the adaptive situation gradually improved. Nonetheless, 13% of families experienced negative pressures without signs of imminent reversal.

In the assessment of family resource needs, for 70% of the interviewed families, resources were generally sufficient; there was a high adequacy in specific material resources, followed by personal resources and situational resources, with energy resources being relatively lacking.

Regarding insufficient material resources, the focus was on housing, furniture, daily necessities, and clothing. Insufficient personal resources included job skills and attitudes, social skills and attitudes, and self-esteem and confidence. The lack of situational resources mainly referred to stable employment and a harmonious family environment. In terms of deficient energy resources, issues such as a lack of savings, difficulties in obtaining loans, resources being frequently misappropriated by the government, and a decrease in income were prominent.

Tsai and Hong (2001) posit that based on the aforementioned research results, more than half of the families exhibited the ability to navigate through post-disaster stress, either by stabilizing themselves during crises, improving stress disruptions, or even enhancing family functioning and relationships compared to pre-disaster conditions. Moreover, in terms of family resource needs, the majority of affected families perceived the various resources as largely sufficient.

Nevertheless, it is crucial to consider the aspects listed by disaster-affected families as deficient, as the areas are essential considerations for future disaster management and mitigation efforts (Tsai& Hong, 2001).

In 2004, Tsai utilized the same family stress assessment tool as in the previous study, employing a qualitative research approach to understand the development patterns of resilience within families affected by the 921 Chi-Chi Earthquake over a two-year period. She identified four main phases in the development of family resilience over time: the "Shock Phase," the "Placement Phase," the "Reconstruction Phase," and the "Stabilization Phase." Additionally, the family resilience patterns were categorized into four distinct developmental curves: 1. Bottom and gradually up; 2. Flat line; 3. Ups and downs; and 4. Incline (Tsai, 2004). In the first type of movement, family functioning went to the bottom after the earthquake and inclined gradually. Within these families, some family functioning inclined but was still lower than the level before the earthquake; for some of the families, functioning went even higher than the level before the earthquake (Tsai, 2004).

From this qualitative research, it was also observed that each family's resilience pattern involved a unique interplay of internal and external resources. Key factors promoting the development of resilience within affected families include making improvements in basic aspects

of family life such as housing and economic issues, fostering family relationships by enhancing emotional connections and communication, creating flexible organisation within the family by reconstructing domestic routines, engaging in mutual cooperation to assume new roles and responsibilities, and establishing meaningful family development with beliefs and future prospects. External factors influencing resilience include social support, the impact of social culture, the passage of time, and the stability of the physical environment.

In Huang's (2001) study on the cohesion of families living in temporary housing (prefabricated houses) after the 921 Chi-Chi Earthquake, phenomenological interviews were conducted with seven such families. Huang (2001) identified two major categories of family cohesion after the earthquake: "Change" and "Unchanged," further divided into five phenomena: "Change" - 1. "Becoming Closer," 2. "From Closeness to Alienation," 3. "From Alienation to Closeness," 4. "Becoming Alienated," and "Unchanged." Regarding parent-child relationships and family cohesion, "Giving and Receiving" was used as an overall description of parent-child interaction, divided into parents' interactions with their children and changes in children's behaviour. The observed phenomena included expressions of affection and responsibility, indifference and helplessness, understanding and empathy, insecurity and a desire for affection, and maintaining a childlike innocence. Huang (2001) also noted that sibling relationships were affected by disputes arising from the limited space. Economic pressure, the ability to actively use resources, perception of the earthquake event, communication, and sharing were identified as factors influencing family cohesion in these prefabricated house families.

In the latest study focusing on family units after the 921 Chi-Chi Earthquake, Chen (2021) employed an in-depth reporting approach to explore post-traumatic growth and the transformation of family relationships in the context of journalism research. The cases

interviewed were family units. The study primarily investigated two questions: 1. Over the past two decades, what is the individual's perception of trauma and the self-adjustment process? How do they cope with the loss of a family member? 2. How do traumatic experiences and bereavement affect family relationships? What are the long-term positive and negative impacts? (Chen, 2021)

Narration and reflection were identified as crucial turning points in the growth process. When traumatic experiences can be articulated, it opens the door to transformative growth (Chen, 2021). Through the process of narration, interviewees became self-aware, exchanged perspectives, felt the traumatic experiences of other family members, reflected on the long-term effects of the earthquake on the family, and contemplated how to imbue trauma with a new meaning. Regarding the loss of a family member, the article reflects the individual's journey from numbness and resistance to accepting the reality of the trauma, enduring painful reflections, to eventually establishing new connections with the deceased. Age and gender were found to influence the occurrence of post-traumatic growth. Children and adults facing the same traumatic event had different experiences. Grieving and coping strategies varied with gender, involving not only inherent gender differences but also societal expectations regarding gender roles, which proved to be significant factors in determining post-traumatic growth or lack thereof (Chen, 2021).

Post-disaster studies at the household level after the 921 Chi-Chi Earthquake, while limited in number, reveal attempts to explore earthquake impacts beyond negative trauma experiences. These studies employ a systemic perspective to investigate the developments and changes brought about by the earthquake, emphasising the uniqueness and complexity of these changes. They avoid interpreting post-earthquake family development through a singular framework.

Moreover, these studies align with the concept of "Adversity Activated Development," which will be discussed in more detail in subsequent chapters.

1.2.4. Overall Reflections on Previous Studies in the Field of Psychology on the 921 Chi-Chi Earthquake

As mentioned in the previous section, the Taiwanese psychology community and gathered and mobilized at the onset of the 921 Chi-Chi Earthquake to provide services in affected areas. Many of the researchers involved in the studies discussed above were also frontline mental health workers who began working when the earthquake occurred, continuing their efforts in the disaster-stricken areas for several years as part of the reconstruction projects. Such practical experience in disaster response has prompted scholars to reflect on a few key aspects.

Firstly, it highlighted the division between expert and common knowledge that emerged during the response to the disaster. This division created challenges in the choice of focus of psychological rehabilitation work (Lin, 2000). The issues underscored may not be the result of inadequacy of experts or the ignorance of residents; rather, they may stem from the epistemological challenges faced by the fields of psychological counselling and therapy themselves. These challenges call for creative transformations to align discipline aims with contemporary trends of thought and societal changes. Such transformations are necessary to better suit the concerns of the disciplines to human beings and their environments (Lin, 2000).

Secondly, when researchers are simultaneously long-term mental health workers in the practical field of disaster response, their research design, involvement in the research, and relationship with the participants undergo a transformation, in contrast to the experience of researchers using traditional methods. During the 921 Chi-Chi Earthquake, a significant natural disaster in Taiwan's history, the boundaries between helpers and those being helped became

blurred after the collective trauma (Lin, 2000). Many scholars value such experiences and, through immersive research methods, gain valuable insights and research outcomes (e.g., Wong, 2007). At the same time, they also acknowledge the impact of the researcher's intervention on the participants' experiences and research outcomes (e.g., Wong, 2006a).

Thirdly, the landscape of psychology has shifted from a singular approach to one which embraces the possibilities of plurality (Lin, 2000). In the past, the field of psychology and counselling in Taiwan predominantly adopted "American-style" theories and techniques, emphasizing pragmatism. However, influenced by the diverse philosophical trends of continental Europe, there is now a shift toward the use of interpretive and critical methods alongside empirical approaches when addressing issues related to human nature. More importantly, after experiencing the 921 Chi-Chi Earthquake, scholars and mental health workers began to reflect on what constitutes an appropriate psychological therapy for Taiwan. They considered how psychological research and interpretations could navigate the diverse cultural landscape and psychological processes within Taiwan's local communities. This has led to the emergence of indigenous psychology as a prevailing trend.

1.2.5. Limitations of previous research on the 921 Chi-Chi Earthquake

The response to the 921 Chi-Chi Earthquake marked a significant intersection between academic discourse and grassroots implementation in Taiwan. This period catalysed the adaptation of Western psychological concepts and counselling terminology into culturally consonant approaches, establishing a new paradigm in Taiwanese psychology. However, despite these developments, several limitations persist in the mental health research related to the disaster.

A primary limitation concerns the scope of demographic representation. While existing studies have examined age and gender variables, research addressing linguistic and ethnic diversity remains notably limited. This gap is particularly evident in the case of Taiwan's indigenous communities who, despite being significantly impacted due to their mountainous locations, are underrepresented in research examining post-disaster recovery processes. The disparity in the proportion of research studies allocated to diverse populations may indicate differences in post-disaster resource allocation.

Similarly, there is limited research on the recovery status of immigrants affected by the earthquake, highlighting the need for Taiwan to enhance its awareness of the diverse cultural groups within its borders. Studies on disaster psychology for multicultural groups significantly increased after subsequent disasters like Typhoon Morakot, perhaps reflecting some progress in Taiwan's academic awareness of multiculturalism. However, it could also be influenced by the fact that Typhoon Morakot primarily affected indigenous communities.

Secondly, after the earthquake, several psychological professional teams were stationed in key towns and villages. In addition to gaining mental health resources, a significant proportion of research on the 921 Chi-Chi Earthquake psychological recovery focused on survivors in these specific towns. This situation not only highlights the uneven distribution of resources but also results in a loss of diversity in research. Furthermore, due to the relationship between community reconstruction resources and research funding allocation, most studies concentrated on survivor responses within the first four years after the earthquake, leading to a noticeable lack of data for longer-term recovery development research.

Lastly, research on the post-921 recovery process at the family level is also limited. Qualitative studies focusing on families amount to three, and there is only one quantitative study

in this area. This indicates a need for more attention and research within the Taiwanese academic community on disaster psychology studies conducted at the family level.

1.3 Developments in Diversity in Research into Natural Disaster Psychology Post-the 921 Chi-Chi Earthquake

Natural disasters are an inherent part of human existence. Since the 921 Chi-Chi Earthquake, various large and small disaster events have continued to occur in Taiwan. However, following the expansion of disaster psychology after the earthquake, research in disaster psychology post-921 has become more diverse. This diversity arises from a consideration of the different types of disasters and the coping strategies employed, touching upon various ethnic groups and related issues. This section will discuss the issues of diversity among ethnic groups, the implications of permanent resettlement of the disaster survivors, as well as the development of gender and family roles and functions after the 921 Chi-Chi Earthquake.

Previous research on the 921 Chi-Chi Earthquake has lacked diversity in exploring ethnic groups. However, the studies conducted after Typhoon Morakot have shown more ethnically diversity. In August 2009, Typhoon Morakot wreaked havoc in southern Taiwan, causing severe disasters such as landslides, mudslides, and flooding. Unlike the 921 Chi-Chi Earthquake, where the majority of affected households were ethnically diverse, over 70% of households affected by the Morakot typhoon were indigenous peoples (Hong& Hsu, 2021). In its reconstruction policies following Typhoon Morakot, the government did not adopt the interim resettlement scheme used in the post-921 earthquake reconstruction policy. Instead, it opted for direct construction of permanent houses, sparking controversies regarding the ethnic and subjective identities of

indigenous peoples. Consequently, studies indigenous post-disaster reconstruction and research on permanent housing policies emerged in response to these issues.

These studies found that disaster victims who chose to reside in permanent houses had relatively fewer resources before the disaster compared to those who chose to rebuild on-site, relocate elsewhere, or rely on family and friends. However, after moving into permanent houses, they received a higher proportion and variety of resources from government or civil institutions, indicating that the permanent housing policy favoured the allocation of resources to the housed victims (Chuang, 2023). In the short term, disaster victims living in permanent houses reported higher levels of life satisfaction and post-disaster recovery. However, in the long term, the concept of a 'permanent house' represents only the physical infrastructure and not the rebuilding of a "home" (Hsieh et al., 2011). The indigenous cultures of Taiwan are deeply connected to the mountains and forests, and the relocation caused by the typhoon-induced displacement has led to changes in tribal societies and altered the relationship between people and land (Hsieh et al., 2011). Moreover, the concentration of multiple tribes in the same permanent housing community has led to cultural conflicts and other issues affecting the long-term recovery of the housed victims (Chen, 2012; Taiban, 2012). The issues of multiculturalism and cultural subjectivity, as well as the relocation of disaster victims, require continuous attention in disaster psychology and ongoing improvements in policies.

In addition to issues concerning cultural subjectivity and permanent resettlement policies, the post-disaster recovery process of indigenous peoples, along with the cultural and existential differences from the dominant Han Chinese culture, has garnered increased research attention due to Typhoon Morakot. Many studies on Typhoon Morakot have found that indigenous peoples exhibit better overall adaptation, life perspectives, and resilience post-disaster (Chen, et

al., 2013; Wong, 2013). Indigenous individuals tend to employ an adaptive coping style known as "changing oneself," aimed at mitigating negative emotions (Chen, et al., 2013). For these individuals, effective self-transformation coping is associated with positive psychological adaptation post-disaster. Conversely, Han Chinese tend to utilize an adaptive coping style known as "changing the situation," aimed at restoring pre-disaster living conditions.

However, this coping style is only associated with positive psychological adaptation post-disaster, while avoidance and emotional coping may lead to longer-term negative psychological outcomes. Overall, indigenous individuals exhibit lower levels of depressive emotions post-disaster compared to the Han Chinese, suggesting that their cultural background and past life experiences contribute to their resilience in facing disasters (Chen, et al., 2013).

For indigenous peoples, the memories of past ancestral natural disasters and hardships are transmitted through mythological narratives, making suffering a "facticity" of their existence rather than just a statement of empirical facts (Lin& Chang, 2017). In interviews conducted after Typhoon Morakot, indigenous women were found to experience the following: (1) a sense of deep connection through returning to their homeland; (2) recognition of both changes and constants in relationships over time; and (3) attempts to transform their experiences of suffering through action. This journey towards psychological healing unfolds gradually through three layers: the sense of home (spatial context), navigating through trauma (temporal perception), and meaningful action (practical wisdom) (Lin& Chang, 2017).

Although Lin and Chang's (2017) research focused on interviews with indigenous Paiwan women in Taiwan, the study did not extensively explore gender differences in the post-disaster recovery process. This highlights the need for Taiwan's disaster psychology research to continuously delve into and deepen the study of diverse cultural and gender dimensions.

Regarding issues of gender roles in post-disaster recovery, research on Typhoon Morakot has also found a significant correlation between gendered household chores and disaster adaptation and recovery. Pre-disaster household chore division is significantly correlated with post-disaster psychological adjustment and spiritual well-being, especially during the adjustment and recovery phases (Wong, 2013). Regardless of gender, households with traditional gender role divisions exhibit poorer psychological health and spiritual adaptation post-disaster. Post-disaster division of household chores is also correlated with post-disaster psychological and spiritual adaptation, particularly for men, with a tendency for traditional gender roles to lead to poorer adaptation. Pre-disaster household chore models significantly impact psychological health and spiritual adaptation in post-disaster adjustment and recovery. Moreover, gender-equal family decision-making models may benefit both men and women in post-disaster adaptation (Wong, 2013).

From the aforementioned studies, it is evident that research following the 921 Chi-Chi Earthquake has seen an increase in diversity of the choice of research focus due to factors such as the type of natural disaster and the demographics of affected areas. However, there is still a significant lack of research focusing on gender and family-based post-disaster recovery. The aforementioned studies have also prompted reflection within the field of indigenous psychology. Taiwan, with its diverse cultural background and historical context, raises questions about what constitutes indigenous psychology. The next section will introduce and examine the indigenous psychology movement sparked by the 921 earthquake and its relationship with the process of disaster recovery.

1.4. Adversity Activated Development and Indigenous Psychology in Taiwan

The 921 Chi-Chi Earthquake stands as one of Taiwan's most devastating natural disasters in recent history, marking a pivotal moment in the nation's approach to mental health care. This catastrophic event catalysed the development of specialised mental health care systems designed specifically for post-disaster intervention (Li et al., 2000). Significantly, the earthquake also accelerated the indigenisation of psychology in Taiwan, fostering the development of culturally responsive psychological treatments that integrated Taiwanese cultural perspectives—a departure from predominantly Western psychiatric approaches (Yee et al., 2004).

Over four years of exploration, researchers in Taiwan started to realise that instead of comparing mental health treatments in Taiwan and the western world, the key to developing indigenous psychology in Taiwan is to return to the "life-worlds" of Taiwanese; to understand the constituting process of everyday life and to find the healing path within (Yee et al., 2004). The perspectives of indigenous psychology in Taiwan are compatible with Adversity Activated Development and its related theories. These two approaches can complement each other in providing a clearer understanding of adversity and in pointing out a path to healing that accords with Taiwanese cultural beliefs/perspectives/practices. The following passages explore Indigenous psychology in Taiwan and Adversity Activated Development (AAD) from three points of view: the systemic world view, disconnection and reconnection, and therapeutic attitude.

Taiwanese culture draws from beliefs based in Confucianism, Buddhism and Taoism combined with western cultural beliefs/norms (Hwang, 2013a). In understanding the lifeworld of Taiwanese, one first has to understand that in the Taiwanese cultural perspective, the idea of "self" is different from the idea of "individual" of the western cultural perspective. The "self" in

Taiwanese culture is closer to the sociological and cultural concepts that a person is a human being in the universe and is not different from other species (Hwang, 2013b). Self is the locus of experience that reflects and responds in different contexts (Hwang, 2013a).

In the traditional Taoism astrology birth chart, one's "calling" is decided by astrology at the time the person is born. From the content of the birth chart (see Figure 1), one can tell that in Taoism, "calling" does not only mean the path for individuals to achieve in their lives; but is also related to the elements around the individual. The elements are: Friendship, Late life, Housing/Land, Fortune, Parents, Destiny, Siblings, Marriage, Children, Property, Sickness, and Moving/settlement. The structure of the traditional Taoism astrology birth chart constitutes the collective life-world of Taiwanese (Hwang, 2013a). This lifeworld consists of interpersonal elements (Friendship, Parents, Siblings, Marriage, and Children), life condition elements (Housing/Land, Property, Sickness, and Moving/settlement), and fate elements (Late life, Destiny, and Fortune) that surround a person. With this collocative understanding of lifeworld, the systematic perspective and the value of AAD is easy for Taiwanese to understand and to practice.

Figure 1.

Taoism Astrology Birth Chart

Fortune	Housing/Land,	Late life	Friendship
Parents			Moving/settlement
Destiny			Sickness
Siblings	Marriage	Children	Property

Adversity Activated Development (AAD) and its related concepts from Papadopoulos (2021) aim to develop a substantial framework to capture the multifaceted and multi-layered nature of the phenomena of adversity. From individual experience to social/political acts; from ordinary suffering to diagnosed PTSD; from the actual house to the home of the heart; from practice-to-theory to theory-to-practice, the complexity and totality of AAD and its related concepts are coherent with the Taiwanese lifeworld. The two research tools that are utilised in the current research: the Adversity Grid (see Table 1) and The Adversity Index Form (see Appendix A) are practical tools based on AAD and its related concepts that can help researchers

and participants to explore and reflect on the breadth and depth of the lived experiences of the participants. The Adversity Grid presents negative, unchanged and positive responses to a personal, close relationship (such as family), community and social/cultural level in adversity (Papadopoulos & Gionakis, 2018). The Adversity Index Form (see AppendixA) is adapted from the Asylum Seekers' Protection Index (ASPI) Form in the *Trainers' Handbook: Enhancing Vulnerable Asylum Seekers' Protection* (Papadopoulos, 2010) to make it suitable for the scenario of within-country involuntary dislocation. The index covers eight dimensions: 1. External Circumstances, 2. Family Constellation, 3. Physical Health, 4. Psychological / Psychiatric State, 5. Community Connections, 6. Wider Society Connections, 7. Degree of Difference, 8. Daily Routine. Participants evaluated their concern level in each category on a scale of 0 to 10, where 0 indicates no concern and 10 indicates maximum concern. The results of, and reflections on utilising these tools to explore long-term developments post the 921 Chi-Chi Earthquake will be presented in later chapters.

There are three levels of adversity responses classified in the Adversity Grid: Negative, Unchanged and Positive. Negative responses in relation to the individual have three degrees of severity: psychiatric disorders, distressful psychological reactions, and ordinary human suffering (Papadopoulos & Gionakis, 2018). This perspective of classification is closer to Taiwanese indigenous psychology, since psychiatric diagnosis is a concept from western medicine. As previously mentioned, Taiwanese cultural beliefs are a mixture of Confucianism, Buddhism and Taoism combined with western cultural perspectives (Hwang, 2013a). The ideas of "symptoms" and "mental disorders" do exist in modern Taiwanese society. However, if we see negative response to adversity on the life-world layer, these negative responses are related to

disconnections: disconnection between humans and nature, disconnection between body and

soul, and disconnection in interpersonal relationships.

Ethic is one of the major concepts in Confucianism. Ethic means order; that is, people

should behave according to the roles they are playing in society, "let the king be a king, the

minister (be) a minister, the father a father and the son a son" (Confucius & Watson,

2007). Interpersonal ethic is an important component of the Taiwanese lifeworld; when the

interpersonal ethic is distorted, people suffer (Yee et al., 2004). Hence, "Completion" is the

ultimate goal of the Taiwanese life-world. Rather than "working the things through", Taiwanese

people are more oriented towards the aim "to reconnect" when the interpersonal ethic is out of

order (Yee et al., 2004). In research into the recovery process of immigrant widows in Taiwan,

Yee (2005) discovered that instead of working through the personal grief process of losing the

spouse, it was more important for the immigrant widows to restore their interpersonal ethics with

in-laws, their family of origin, and their children. The absence of the late spouse changes the

essence of the interpersonal relationships that are bonded by the marital relationship. When a

woman loses her role as a wife, she faces a dilemma between interpersonal division and

connection. This recovery process is collective rather than individual; it belongs to the domain of

network healing (Yee, 2005).

However, even when people long for completion, there are scenarios in which the loss

and hurt cannot be replaced or repaired. Moreover, everyone has different ideals of orders which

can contradict each other (Yee et al., 2004). Sometimes, the rupture of loss is so severe that

people fall out of the network of interpersonal ethic and this creates a disconnection between the

individual's inner and outer world. Onto-ecological Settledness, a concept first used by

Papadopoulos (2021a) and outlined below, echoes these processes of disconnections and reconnections.

Papadopoulos (2021a) uses the concept of Onto-ecological Settledness to describe the dynamic process of an individual's composition of identity (the sense of self) in adversity. For Papadopoulos, individual identity is not a fixed concept but a dynamic interaction between the two parts of one's perceptions of self and the mosaic substrate (Papadopoulos, 2021a, pp.130-133). It values the wholeness of an individual in the process of change. Wholeness includes but is not limited to the following aspects: psychological/physical; personal/interpersonal; external/internal. Onto-ecological Settledness is not a state; rather, it is an ongoing dynamic process between individuals and environments in responding to specific events in life, e.g. adversity. Onto-ecological Settledness does not only describe an individual's dynamic integrating process when facing specific life events; family can also be seen as a unit that has its own dynamic constellation created by family members collectively in the process (Papadopoulos, 2021a, pp.130-133). In other words, individuals have their own Onto-ecological Settledness when facing significant life events; at the same time, collectively the individuals in the family create the family Onto-ecological Settledness which has its own unique narrative.

The concept of Onto-ecological Settledness shares some similarities with the Buddhist concept of dhyana. The philosophy of dhyana is that life is a dynamic process that occurs between two counter parts in the world, the inner world and the outer world. This dynamic process people can try to describe but it cannot be named; when people name it, it loses the essence of being. Lin (2005) applied the idea of dhyana to look at the individual and collective healing process of survivors of the 921 Chi-Chi Earthquakes who lost their next of kin in the earthquake. The research results suggest that healing exists not only in therapy sessions but in

life; the unfinished business of individuals, struggles in life, bonding with others, and social networks interweave into different healing strategies. The research results also point out that healing is a dynamic process, moving between spontaneity and reactivity, individuality and collectiveness; therefore, the idea of creating a therapeutic environment that enhances the healing process is crucial (Lin, 2005).

The indigenous psychology of Taiwan also calls attention to pragmatic aspects of the lifeworld. Education, food, work, finance, safety etc. are the functional realities of the lifeworld (Yee et al., 2004). When people locked in either mental or substantial deprivation states, the possibilities of healing are also restrained; a new way out is essential in this situation. AAD and its related concepts do not overlook those real-world aspects in adversity; amongst the eight dimensions of the Adversity Index Form, the dimension External Circumstances is placed first in the index, stressing the importance of realistic settlement for the care of people in adversity. It can be seen that scholars that indigenous psychology in Taiwan and Papadopoulos have very similar views on taking psychotherapy out of the therapy room, letting healing happen in life, being therapeutic in life, in the bureaucratic system (Papadopoulos, 2021a, p.295; Yee et al., 2004).

In summary, the AAD approach that is adopted in the current research helps the researcher and the research participants to explore the layers of their life-worlds in their development after the 921 Chi-Chi Earthquake. Its systematic perspective does not contradict the Taiwanese perspective of individual, interpersonal and social orders; on the contrary, it provides a modern structure to explore the totality of the lived experiences of the participants in adversity. The distinguishing features of indigenous psychology in Taiwan such as interpersonal ethics,

wish for completion, and disconnection and reconnection in the lifeworld appear as themes in the

interviews with the participants that will be elaborated in the Discussion Chapter.

Chapter 2.

The Dynamics of Trauma, Recovery, and Resilience in the Aftermath of Natural

Disasters

2.1 Overview

Chapter 2 of this thesis constitutes a multifaceted exploration into the phenomena of

trauma, recovery, and resilience in the context of natural disasters, with a particular focus on

family dynamics. It begins by providing a historical background of how natural disasters have

influenced the trajectory of human development and the emergence of the concept of trauma

within the mental health domain. The Chapter 1 on the 921 Chi-Chi Earthquake examines its role

as a catalyst for the evolution of disaster mental health frameworks, both internationally and

within Taiwan, and identifies limitations in mainstream disaster psychology research, which has

predominantly centred on negative trauma responses.

The review of natural disaster and family studies underscores the complexities inherent in

defining 'family' and navigates through the challenges that natural disasters impose on family

systems. It discusses prior research on family and post-natural disaster-related disorders,

highlighting how families' dynamics are transformed in the aftermath. The chapter also

scrutinises the concept of resilience, differentiating it from Adversity Activated Development

(AAD) and Posttraumatic Growth (PTG), and presents it as a widespread and multifaceted

phenomenon.

The section on family resilience brings into focus the adaptive processes that families

engage in during and after natural disasters. It emphasises the importance of considering the

family as a unit within the recovery process, acknowledging that the resilience of families cannot

be fully understood by focusing solely on individual members. The chapter then extends the

discussion to community resilience, illustrating how collective responses to disasters play a crucial role in the wider social recovery narrative.

2.2. The Evolution of Trauma Understanding and Mental Health Responses to Disasters

Earthquakes, floods, typhoons, storms, wildfires, volcanic eruptions, and landslides are natural phenomena that have been present on Earth over millennia. In the course of human civilisation's development, these natural phenomena inevitably interact with human habitats, agricultural lands, infrastructure, and other constructions, leading to disasters. Consequently, natural disasters have consistently been an integral aspect of human civilisation's development from ancient times to the present day (Chaudhary & Piracha, 2021).

However, the concept of "trauma" began to be explored by experts in the field of mental health only towards the end of the 18th century, primarily due to its association with warfare (Papadopoulos, 2021a, p.208). Freud attempted to integrate the term "trauma" with psychological experiences, expanding its meaning beyond physical injury. According to Freud, any experience which calls up distressing affects - such as those of fright, anxiety, shame, or physical pain - may operate as a trauma' (Breuer & Freud, 1895, p. 6, as cited in Papadopoulos, 2021a, p.235). This interpretation of trauma shifted the focus towards the psychological experiences of individuals in response to traumatic events, rather than placing it solely on the objective occurrence of external events (Papadopoulos, 2021a, p.235).

From then until the 1970s, scholars continued to study the devastation, casualties, mourning, and grief brought about by disasters, as well as their impacts on the psychological and physiological responses of individuals and on human society (Raphael & Maguire, 2012, p.8). However, research during this period focused heavily on the harm and helplessness experienced

by disaster victims, emphasising their differences from "ordinary people," leading to a tendency to victimise and label them. There was also a tendency to deny the potential effects of disasters.

In 1980, the diagnosis of post-traumatic stress disorder (PTSD) was established in DSM-III based on the significant distress symptoms found among Vietnam War veterans (Leys, 2000, p.2). This diagnosis began to be widely used in research on various disaster events internationally (e.g., the Australian forest fires in 1988). However, studies during this time mainly focused on negative responses such as distress symptoms and their relationships with different types of stressors, such as displacement, the loss of loved ones, and the scale of disaster destruction (Raphael & Maguire, 2012, p.9).

During this period, scholars also began to differentiate between the impacts of natural disasters and human-made disasters. They recognised that natural disasters potentially have a greater impact on human society because they affect all people living in the area, whereas human-made disasters such as war may have more specific victims (Raphael & Maguire, 2012, p.9). They began to differentiate the varied impacts of different disasters on distinct populations of victims, including children and the elderly. Additionally, they explored effective intervention strategies (Raphael & Maguire, 2012, p.10).

In the 1990s, the World Health Organization (WHO) and other international groups began to recognise the importance of disaster preparedness from both practical and academic perspectives. In 1991, the WHO published the Psychosocial Guidelines for Preparedness and Intervention in Disasters to underscore the global significance of addressing psychosocial and mental health aspects in disaster response (WHO, 1991). During this period, understanding of trauma stress responses continued to expand. The International Handbook of Traumatic Stress Studies was first published in 1993, covering a wide range of studies across countries and

various types of disaster events and populations of victims (Wilson & Raphael, 2013). It addressed the complexity inherent in this field of study. The Journal of Traumatic Stress, along with the efforts of societies such as the European and International groups of Traumatic Stress Studies, emerged during this period. Additionally, the establishment of the National Centre for Post-Traumatic Stress Disorder and the Child Traumatic Stress Networks in the United States contributed to the accumulation of both the quantity and quality of publications in the field of traumatic stress studies (Raphael & Maguire, 2012, p.10).

Alongside the increased resources and attention devoted to the field of traumatic stress and disaster, researchers began employing diverse methods and perspectives to examine responses to disaster events. Researchers also began to consider various factors that might influence responses to traumatic events. Social context, social bonds, cultural variables, and pre-existing background factors such as poverty and conflicts began to be recognized as either buffering factors that mitigate the impact of traumatic events or as factors that increase the vulnerability of survivors (Norris & Kaniasty, 1996).

In the 2000s, numerous devastating natural disasters have occurred worldwide. The Southeast Asian Tsunami on December 26, 2004 resulted in approximately a quarter of a million deaths; the Kashmir/Pakistan earthquake of 2005 claimed an estimated 54,000 lives, and Hurricane Katrina in 2005 led to a death toll of 1,464 (Raphael & Maguire, 2012, p.15-16). These significant natural disasters heightened international awareness of the extensive impacts they can have on health, mental well-being, individual survival, and community vulnerability. Non-governmental and international agencies began to gather and provide relief resources, including medical and mental health support, to address the needs of devastated areas globally. These catastrophes also prompted researchers to consider cultural diversity, as well as the

varying political and financial conditions of affected countries, and the influence of these factors on the recovery of individuals and societies. The unequal distribution of world resources, along with disparities in wealth among disaster-affected countries and the presence of conflicts, can compound natural disasters, resulting in even greater calamities for people and societies. Moreover, there is a significant disparity in the reconstruction and research resources available to wealthy and impoverished nations in the aftermath of such disasters (Jang et al., 2021).

2.3. International Disaster Mental Health Development and the 921 Chi-Chi Earthquake

The 921Chi-Chi Earthquake occurred in 1999. Prior to this event, the field of mental health had not experienced a disaster of such magnitude in Taiwan. However, because the mental health division is a relatively new field in social development, response frameworks were established early on that closely resembled those of Western countries. Additionally, many scholars in the field of mental health in Taiwan at the time had received education in the West and returned to Taiwan, enabling them to immediately reference established international models for disaster response (Gong et al., 2023, pp357-387). Consequently, response centres were swiftly established, response networks were put in place, and disaster mental health manuals were rapidly compiled to mitigate the psychological impact of the earthquake (Hsiao et al., 2009).

In a certain aspect, the 921 Chi-Chi Earthquake became the cornerstone of disaster psychology research in Taiwan. It embraced the existing development of disaster psychology internationally, paving the way for domestic scholars to begin creating psychological therapies tailored to Taiwan's social and cultural context. This pivotal moment marked a significant shift in Taiwan's psychological health and disaster psychology practices and research.

2.4. Limitations of the Mainstream Development in Disaster Psychology

However, similar to international trends, research development in disaster psychology in Taiwan still predominantly focuses on trauma responses to disasters and related vulnerability factors. There is a tendency to differentiate and to label between affected and unaffected areas, disaster survivors and non-survivors, and to define those who have experienced trauma versus those who have not, meaning that a more comprehensive theoretical framework for understanding the experience of trauma is lacking. Furthermore, the impacts of disasters are complex and multifaceted. Emphasising solely negative responses among disaster survivors (such as PTSD) may hinder psychological professionals and researchers from recognizing the diversity of disaster experiences and the potential for growth and development they can bring.

Adversity Activated Development (AAD), Resilience, and Posttraumatic Growth (PTG), are theories within trauma-related theories that focus on development beyond negative responses. Although these theories were established relatively recently, the positive development activated by traumatic events is an indispensable part of human history. The following chapter will discuss the manifestation of these theories in the literature of disaster psychology. Additionally, similarly to existing international research on disaster trauma, previous studies of the 921 Chi-Chi Earthquake also lack research at the family level. The subsequent chapters will also discuss how these three theories manifest at the individual, family, and societal levels in disaster psychology.

2.5 Review of Natural Disaster and Family studies

2.5.1. Definitions of Family

"Family" is a term that encompasses a multitude of origins and definitions. According to the Oxford English Dictionary (2022), the original meaning of family is "a group of people or

animals." However, in a more relatable societal context, the concept of family can be further

defined as follows:

> A group of people living as a household, traditionally consisting of parents and their
>
> children, and also (chiefly in early use) any servants, boarders, etc.; any household
>
> consisting of people who have long-term commitments to each other and are (usually)
>
> raising children; such a group as a fundamental social unit or institution (Oxford English
>
> Dictionary, n.d.).

This definition is also close to the legal definition of family adopted in Common Law as seen in

Black's Law Dictionary (2011):

> A family comprises a father, mother, and children. In a wider sense, it may include
>
> domestic servants; all who live in one house under one head. In a still broader sense, a
>
> group of blood-relatives; all the relations who descend from a common ancestor, or who
>
> spring from a common root.

Based on the aforementioned definitions, "family" can be understood as a social unit consisting

of individuals who are connected by either biological or legal ties. These definitions also

emphasise the significance of shared residence within the same household, and they imply that

family plays a nurturing role in terms of reproduction and raising children. Furthermore, the term

"family" also extends to a broader group of people bonded by blood relations, legal bonds, or

social agreements, such as relatives or social units.

However, defining and generalising the concept of family proves to be challenging due to

its inherent complexity and because family definitions vary across different perspectives,

cultures, and societies (Butrymowicz, 2016). For instance, in Chinese culture, the earliest record

of the term "family" was first recorded in the Shang Dynasty period, which was around 1600

BCE (Kangxi Dictionary, n.d.). The Chinese character derives from the root word "home,"

emphasizing the physical dwelling and its inhabitants. This emphasises a sense of belonging

within the family unit, while also extending to encompass the broader society and country.

Additionally, the Chinese understanding of family is intertwined with moral standards and the

roles each individual plays in upholding collective functions. While this interpretation of family

shares similarities with Western definitions, it also exhibits subtle cultural distinctions.

Based on the complexity of the concept of family itself and the progress of modern

society, scholars nowadays argue that there is no need to define the family in legal terms, but to

stress that the family is a social unit whose members are bonded by dependency (Butrymowicz,

2016). This bond is not limited to a blood or legal bond, and the care for each member is

similarly not limited to parents towards their children.

From the family system point of view, the family is a biological, psychological, and

social unit. Since the family unit is above individuals in this system, it cannot be assumed that

understanding individuals equates to understanding the family as a group (Bronfenbrenner, 1986;

Falicov, 1995; Zilbach, 2003). Consequently, from the system perspective, in order to understand

the impacts of traumatic events on human beings, it is essential to explore their impacts on the

family unit's inner and outer ecological system (Bronfenbrenner, 1986; Goldenberg &

Goldenberg, 2012).

2.5.2. Family and Natural Disasters

"Change" is a fundamental and persistent aspect of the family system, and as the lifespan

progresses, the family system undergoes a continuous dynamic process that swings between

"change" and "stability" (Goldenberg & Goldenberg, 2012). The family as an organic system

tends to be continually attempting to find a steady working model and an interaction pattern to

maintain the balances and functions of the family. When the family encounters an unexpected traumatic event, it will be at risk of a system imbalance, therefore the family will seek changes to reach a new balance, while the functions of the sub-systems of the family such as the financial, parenting, and couple systems will change as well. If the family fails to find a new balance after a disruption to its functioning, it may well go on to become dysfunctional (Goldenberg & Goldenberg, 2012).

Experiencing a natural disaster is undoubtedly a significant event that can have a profound impact on the family system. However, in the past few decades, research focusing on the psychological and psychosocial effects of natural disasters on families has been relatively limited in development (Witting et al., 2021). Witting et al. (2021) conducted a systematic review of studies published between 1997-2019 which related to a specific natural disaster or disasters, and which used data from more than one family member. The aim of the study was to identify the research topics that have been investigated in studies focusing on the impacts of natural disasters on families. However, the findings of this review highlighted the challenges and limitations associated with conducting research on the post-disaster development of families, as only 56 of studies published between 1997-2019 met the criteria. First, natural disasters are unpredictable, therefore, it is hard to obtain data from families prior to the natural disaster. Second, most of the studies were conducted in the of range 1-7 months or 1-5 years post-disaster, and this limited timeframe restricts the exploration of long-term family development following disasters (Witting et al., 2021). Thirdly, an important question arises regarding whether data from a single family member can adequately represent the overall development of the entire family.

Due to the complexities involved in defining and understanding the functions of families, as well as the intricacies within family systems, previous research has been wide-ranging in scope into families and natural disasters. The following categories represent the most commonly explored areas within this research field.

2.5.3. Previous Research into Family and Post-Natural Disasters Related Disorders

As other studies of trauma reveal, research into natural disasters and the family is inevitably based on the prevalence rate of post-natural disasters, such as the post-natural disaster prevalence rate of trauma in adult and child family members. For example, Ishikuro et al. (2022) performed a Three-Generation Cohort Study with 73,529 family members who participated two years after the Great East Japan Earthquake. The results of the study showed that the severity of the damage to the house was associated with psychological distress, being overweight, and smoking behaviour among parents, but not among grandparents (Ishikuro et al., 2022). Meanwhile, the disaster did not seem to affect the development of children (Ishikuro et al., 2022). The longitudinal nature of this study provided valuable insights into the long-term health outcomes of the disaster-affected population, while emphasising the importance of continuous data monitoring in post-disaster research. The results of this study seemed to imply that parents' physical and mental health were more affected than that of other family members by the losses from the disaster. However, the results appear to have only reported the data relating to individuals given family roles, while failing to present the family as a unit, and also while not showing the relationship in the data between the family members.

Another study revealed similar limitations in researching family in natural disasters. Steinglass and Gerrity (1990) conducted research comparing the short- and long-term recovery of two communities of families that had been displaced due to a tornado and hurricane. The key

findings of the study were as follows: (a) both communities experienced significant levels of

short-term stress symptoms and diagnosable PTSD; (b) there was a notable decrease in these

symptoms by the 16-month post-disaster period; (c) gender differences were observed, with

women reporting higher levels of both short- and long-term PTSD responses; (d) variations in

the patterns and severity of PTSD symptoms were found between the two communities

(Steinglass & Gerrity, 1990).

A significant limitation of this research is that despite recruiting participants as family

units, the assessment was conducted on an individual basis, thereby providing limited

understanding of how natural disasters affect family systems. Despite this limitation, the findings

contribute meaningfully to our understanding of how PTSD manifests within family and

community contexts. The research topic of post-traumatic symptoms (PTS) and post-traumatic

stress disorder (PTSD) following natural disasters is among the most prevalent areas of inquiry

within trauma research. Raphael and Maguire (2009) have argued that the field of mental health

studies on disasters has placed excessive emphasis on PTS and PTSD.

In studies, parental factors are often considered to be mediators for children's recovery

post-natural disasters. Hence, within the realm of natural disasters and families, another category

of research topics often revolves around the prevalence rates of PTS or PTSD in children and

adolescents and their relation to parental psychopathology, family functioning, and parenting

styles (Bokszczanin, 2008). For example, McDermott and Cobham (2012) conducted a study in

North Queensland, Australia, investigating the relationship between family functioning and

PTSD symptoms in families with children who had been exposed to a category 5 cyclone three

months previously. Among the 145 families with children aged 8 to 12 years, it was found that

28.3% met the criteria for dysfunction on the Family Adjustment Device (FAD), which was

twice the rate observed in the community sample. This same study did not find a significant link between family dysfunction and the presence of PTSD symptoms in the children, although it did reveal an association between family dysfunction and symptoms of depression and anxiety in these children (McDermott & Cobham, 2012).

Kiliç, Özgüven, and Sayil (2003) conducted a study to investigate the effects of parental psychopathology and family functioning on children's psychological well-being six months after an earthquake in Bolu, Turkey. The researchers randomly selected 49 children aged 7 to 14, along with their parents, from a survivor camp housing 800 families in Bolu. Self-rating inventories were utilised to assess the levels of PTSD, depression, and anxiety in both parents and children. Family functioning was assessed using the Family Adjustment Device (FAD). The results of this study revealed that the rate of family dysfunction was higher among participants compared to a sample from the local community, although it was observed that the children's PTSD symptoms were more strongly associated with their direct exposure to the disaster than with family functioning. Notably, fathers and mothers exhibited different symptomatology of PTSD, and the PTSD symptoms of fathers had a greater impact on the children's PTSD symptoms. These findings align with the research conducted by McDermott and Cobham in Australia, suggesting that family dysfunction is linked to symptoms of depression and anxiety in children within the family (Kiliç et al., 2003; McDermott & Cobham, 2012).

In line with Kiliç et al. (2003), Spell et al. (2008) examined associations between maternal psychopathology and children's adjustment in the aftermath of a natural disaster. Specifically, Spell et al. (2008) focused on 260 mother-child pairs who had been temporarily or permanently relocated due to Hurricane Katrina, and the assessments took place 3 to 7 months after the disaster. Participants in this study were asked to complete self-report assessment

measures to evaluate their exposure to the disaster and their post-traumatic symptoms. The

children's adjustment was assessed using the Behaviour Assessment System for Children,

Second Edition (BASC–2), with both parent-report and child-report versions utilized (Spell et

al., 2008).

The findings of the latter study also indicated that children's PTSD symptoms were

primarily influenced by their direct exposure to the disaster. However, surprisingly, when

considering higher levels of maternal distress and PTSD, there was no significant difference in

the level of internalizing and externalizing symptoms displayed by children who had experienced

high versus low levels of hurricane exposure. The research also revealed that mothers with

higher levels of distress reported lower levels of adjustment in their children compared to the

self-report provided by the children themselves, which suggests that distressed mothers may

perceive their children more negatively (Spell et al., 2008). Additionally, this finding raises once

again the question of whether the experiences of a single family member can accurately represent

the entire family in studies related to family dynamics.

Bokszczanin (2008) conducted research into family factors as predictors of PTSD

symptoms in adolescents 28 months after a flood which had occurred in Poland. A total of 533

participants ranging from elementary to high school age were recruited for the study. They were

required to complete self-report inventories about their exposure to trauma, parental support,

family conflict, and their PTSD symptoms. The findings of the study also revealed that the PTSD

symptoms experienced by adolescents were linked to the level of direct exposure to the disaster.

In terms of family factors, the results indicated that lower parental support, higher levels of

family conflict, and increased parental overprotectiveness were associated with higher levels of

PTSD symptoms in adolescents (Bokszczanin, 2008). Furthermore, the results demonstrated a

correlation between lower parental support, greater family conflict, and higher levels of parental overprotectiveness (Bokszczanin, 2008).

2.5.4. Complexities and Challenges within Family dynamics following Natural Disasters

In contrast to the research conducted by Spell et al. (2008), that of Bokszczanin (2008) focused solely on the perspective of adolescents. The results of the latter study seem to suggest that there are complexities and challenges within family dynamics following natural disasters. It is important to note that the studies mentioned above are all quantitative in nature. While these studies did reveal a relationship between the experiences of natural disaster exposure and family functioning, as well as the distress levels of parents and children, there is still a need for a deeper understanding of the underlying factors and the intricate dynamics within families post-natural disasters. Additionally, it is worth mentioning that 11.8% of the participants in the study by McDermott and Cobham (2012) in Australia were involuntarily relocated due to the disaster, and the participants in both KILIÇ et al. (2003) and Spell et al. (2008) were recruited from camps where communities had been relocated following the disaster. The experiences of involuntary dislocation among these participants remain largely unexplored.

The demographic factors of the participants in the aforementioned studies are also important aspects that warrant deeper exploration, particularly with regards to the relationship between financial factors and recovery. According to the Family Stress Model, when parents face economic pressures, it increases their risk of experiencing psychological distress and disrupts family functioning, which, in turn, compromises any adjustment in children (Conger, 2020).

In the study by Spell et al. (2008) into maternal psychopathology and children's adjustment after Hurricane Katrina, it was found that lower-income families reported higher levels of psychological distress. Similarly, the results of the Three-Generation Cohort Study conducted by Ishikuro et al. (2022) two years after the Great East Japan Earthquake indicated that the severity of house damage was associated with being overweight, and smoking behaviour among parents. However, the study conducted by Scaramella et al. (2008) comparing the adjustment of toddler-aged children in low-income families affected by Hurricane Katrina with non-affected families yielded different results. The findings indicated that there were no differences between the pre-Katrina and post-Katrina groups in terms of reported financial strain, mental distress, neighbourhood violence, depressed mood, parenting efficacy, and children's adjustment levels (Scaramella et al., 2008). These contrasting findings, along with the previous studies mentioned, suggest a potential association between financial stress and parental psychological distress. Additionally, they highlight the complex interplay between family and social factors in the recovery process for families following natural disaster.

As regards research from a community perspective, Kiliç et al. (2003) studied participants residing in an earthquake survivor camp in Bolu, Turkey, six months after the earthquake. The participants in this study were predominantly from a low socioeconomic background, with nearly all the mothers (95.6%) being housewives. Additionally, the pre-earthquake unemployment rate among fathers was reported to be 17.2%. The authors noted that at the time of the study, the 800 survivor families with undamaged homes were reluctant to return to their homes. While many of them did not experience the loss of loved ones or significant material losses, they continued to reside in temporary shelters commonly referred to as "fear tents" within the survivor camp (Kiliç et al., 2003). Hence, the participants appeared to

be in a unique psychological and psychosocial state, both individually and collectively, which led them to choose to remain in the survivor camp despite their actual losses resulting from the earthquake.

Likewise, a study conducted by Steinglass and Gerrity (1990) compared the short-term and long-term recovery of families in two communities affected by natural disasters. One of these communities was Parsons in West Virginia, USA. The researchers described Parsons as being in a state of financial depression prior to the hurricane, which hindered the community's short-term recovery, and also resulted in a shortage of emergency shelters for the survivors, forcing them to relocate multiple times. The community's low economic status further impeded long-term recovery of the community, particularly for local businesses, while participants from this community experienced significant financial difficulties with limited insurance resources (Steinglass & Gerrity, 1990). This example highlights the complex connection between poverty at the individual, family, and community levels when confronted with the threats and damage caused by natural disasters, as well as their impact on mental distress and recovery.

Domestic violence is also one of the issues that has been raised in studies exploring the relationship between natural disasters and family function. Edward, Gray, and Borja (2021) conducted research utilizing a nationally representative cohort study of 4,952 10-year-old Filipino children from 2006 to 2017. The findings of their research indicated that experiencing natural disasters was associated with higher levels of domestic violence within the preceding 12 months. It was also linked to increased parenting stress, children witnessing physical violence, physical abuse of children, stunting in children, and greater food insecurity. Moreover, families that experienced a higher number of natural disasters over time reported higher levels of family violence, physical abuse of children, stunting in children, and food insecurity. The natural

disasters encompassed in the scope of this research included tropical cyclones, extreme rainfall, drought, volcanic activity, storm surges, sea level rises, flooding, tsunamis, earthquakes, fire, armed conflicts, epidemics, and marine pollution. According to the research data, the participants experienced an average of 25.21 disasters between 2006 and 2017, and the findings highlight significant concerns regarding the resources available for recovery in low- to middle-income countries affected by such disasters (Edwards et al., 2021). These findings also align with previous research, emphasizing the interconnectedness of individual, family, and community levels of recovery that necessitate a holistic approach.

However, the increase in reporting rates of domestic violence following natural disasters is not limited to low- to middle-income countries. Similar phenomena have been observed in studies conducted in the United States, Australia, and New Zealand (Parkinson & Zara, 2013). Natural disasters disrupt individuals' sense of self and their perception of safety in the world. Parkinson and Zara (2013) conducted a qualitative study investigating the relationship between natural disasters and domestic violence among survivors of the Black Saturday bushfires in Australia in 2009. This devastating disaster resulted in 173 deaths, 414 injuries, the destruction of 2,030 houses, and the subsequent relocation of 7,000 individuals.

77 participants included survivors and workers who worked with the individuals and communities affected by Black Saturday bushfires were interviewed to analyse the experience of individuals and the community in the process of recovery. The research results revealed that the catastrophic event caused grief and loss, which coexist with the strenuous demands of financial and bureaucratic processes during the recovery and reconstruction phase. Moreover, the crowded living conditions experienced by survivors residing in shelter accommodation often contribute to increased tension among family members (Parkinson & Zara, 2013).

The findings of this research revealed conflicts between individual welfare and community interests. In the aftermath of the disaster, victims of domestic violence were often urged by the community and the system to remain silent, as the focus of society was on collective recovery. Consequently, personal experiences were denied or blame was attributed. The research also highlighted gender conflicts that emerged following the disaster. Women were expected to tolerate violence from men due to their contributions to the community in firefighting and reconstruction efforts. Furthermore, the lack of resources post-disaster limited interpersonal support, mobility, and accommodation options for women, hindering their opportunities to escape from violent environments (Parkinson & Zara, 2013). The findings of this qualitative study shed light on the narratives, conflicts, and complexities that exist within the dynamics of individuals, families, communities, and systems in the aftermath of natural disasters. These findings go beyond the numerical data presented in previous qualitative studies, providing a deeper understanding of the multifaceted experiences following natural disasters.

In summary, although the previous studies of natural disasters and families discussed in this section paid close attention to psychopathology, the findings reveal complex impacts on family functioning, mental health, and adjustment. Parental distress, parenting style, and family function play significant roles in children's recovery post-disaster; socioeconomic status and financial stress influence the recovery process (Edwards et al., 2021; Kiliç et al., 2003; Scaramella et al., 2008; Steinglass & Gerrity, 1990). The studies reviewed in this section provide insights into the diverse impacts and complexities of recovery in families affected by natural disasters, while also emphasising the need for a holistic approach which takes into consideration individual, family, and community level needs.

2.6. Resilience and Previous Studies on Natural Disasters

In contrast to prevalence and psychopathology, the concepts of resilience, Adversity Activated Development (AAD), and Posttraumatic Growth (PTG) provide different outlooks on trauma and recovery. These concepts have gained attention in trauma studies; however, in the context of natural disasters and families, they are still emerging areas of research.

In the field of trauma and recovery, there is often confusion between the concepts of resilience, Adversity-Activated Development (AAD), and Post-traumatic Growth (PTG). According to Papadopoulos (2021), resilience is distinct from AAD and PTG in terms of the survivors' response to traumatic events. Resilience refers to the neutral responses of survivors, whose positive qualities have not been destroyed due to the traumatic events and have helped them to cope with the traumatic experience. In other words, the study of resilience focuses on competence and positive adaptation (Kilmer & Gil-Rivas, 2008). On the other hand, AAD and PTG represent the positive changes, growth, and development that survivors may experience as a result of trauma (Papadopoulos, 2021a, p.279).

It is important to note that the 921 Chi-Chi Earthquake occurred 21 years ago, during a time when the concept of resilience was more predominant in mainstream research on trauma and recovery. Hence, research on the 921 Chi-Chi Earthquake and other disasters tended to focus more on resilience in post-disaster experiences. However, during that period, the term "resilience" was frequently conflated with descriptions of positive responses to adversity. The subsequent sections will discuss the diverse definitions of the term "resilience" and the various layers of resilience explored in research related to natural disasters.

2.6.1. Definitions of Resilience in Previous Studies

Research into resilience underscores key themes that align with the positive psychology movement (Seligman & Csikszentmihalyi, 2000; Masten, 2001). It challenges the way in which mainstream psychology research has overemphasised risk, problems, pathology, and treatment, thereby neglecting significant phenomena in human adaptation and development (Masten, 2001). By redirecting attention towards human capabilities and adaptive systems that foster healthy development and functioning, the goal is to facilitate the formulation of policies and programs that enhance competence and human capital, ultimately seeking to improve the well-being of communities and nations while also preventing problems (Masten, 2001).

However, in previous studies of resilience, there have been inconsistencies in its definitions. Specifically, scholars focusing on resilience in children and adolescents have offered broader definitions, characterising resilience as "a class of phenomena characterised by good outcomes despite significant threats to adaptation or development" (Masten, 2001). Resilience can be seen as a transcendent process; therefore, research into resilience has been process-oriented, focusing on understanding the set of processes that enable successful adaptation in the face of adversity (Egeland et al., 1993). The aforementioned definition provides a broad interpretation of the resilience phenomenon, one which does not specify whether the positive outcomes refer to returning to the pre-traumatic event state or the development gained from the experience of adversity.

Bonanno (2004) later provided a more precise definition of resilience, stating that resilience is different from recovery. Recovery refers to individuals who have experienced psychopathological conditions, for example symptoms of PTSD, depression, and anxiety as a consequence of devastating events and have subsequently returned to their pre-event state. On the

other hand, resilience relates to individuals who hold the capacity to maintain a stable equilibrium without crossing the threshold or experiencing subthreshold levels of psychopathological conditions (Bonanno, 2004).

However, some scholars argue the conceptual clarifications of resilience that Bonanno (2004) assumes are too constricted. For instance, Roisman (2005) declares that resilience should be seen more comprehensively. First, resilience involves specific protective processes that facilitate adaptation to certain adversities, but its applicability may vary across different types of challenges. Second, it encompasses both personal and environmental factors, applicable not only to children but also to adults. Additionally, recovery should be acknowledged as a distinct form of resilience, highlighting its significance in achieving successful adaptation following periods of maladaptation or developmental challenges. Moreover, some scholars view resilience as an attitude, believing that people not only have the potential to recover from adversity but also to grow out of it (Ride & Bretherton, 2011; Walsh, 2003). This perspective provides a broader definition of resilience, which aligns more closely with definitions of AAD and PTG.

2.6.2. Resilience as a Widespread Phenomenon

Despite variations in conceptualisations of the resilience construct, a consensus among scholars studying resilience remains that it is a prevalent phenomenon among individuals who have experienced traumatic events. However, previous studies of trauma tended to excessively focus on the psychopathological aspects of trauma and recovery (Bonanno, 2004; Masten, 2001; Miller, 2005). Bonanno (2004) supports this argument about the predominant feature of resilience by referencing a previous longitudinal study conducted by Holen (1990) on survivors of the 1988 North Sea oil rig disaster. The study revealed that only 13.7% of survivors received psychiatric diagnoses such as depression and anxiety one year after the disaster, suggesting that the majority

of survivors demonstrated the ability to cope effectively with the traumatic experience, thus highlighting the widespread existence of resilience (Bonanno, 2004). A more recent study has similarly demonstrated a comparable level of resilience among elderly participants who faced the challenges of the Great Recession subsequent to Hurricane Sandy in 19?? (Mandavia & Bonanno, 2019). The majority (83.6%) of these participants were able to sustain a consistent level of mental well-being despite experiencing a series of adverse events (Mandavia & Bonanno, 2019).

Masten (2001) shares a similar perspective with Bonanno (2004) regarding the widespread phenomenon of resilience, drawn from evidence from previous studies conducted over the previous decades. Furthermore, she classifies empirical research on resilience into two categories: variable-focused and person-focused. In the variable-focused approach, researchers explore how variables such as risks, assets, or bipolar characteristics independently influence the outcomes of adaptation and development over time. These variables may be marked as risk factors or protective factors in the research. However, it is essential to acknowledge that causality cannot be determined in these types of correlational studies (Masten, 2002).

On the other hand, the person-focused approach typically compares two groups of participants facing the same high-risk incidents, with one group exhibiting adaptive outcomes and the other showing maladaptive outcomes. In the past decades, most researchers in person-focused resilience studies have presumed that resilience emerges from multiple dynamic interactions within and between individuals and their environment, although systematic study of these patterns and pathways is still in its early stages (Masten, 2001).

2.6.3. Previous Studies of Resilience in Natural Disasters

As previously mentioned, resilience studies primarily focus on the identification and exploration of internal and external variables related to the process of adaptation in the face of

adversity (Bonanno, 2004). This emphasis is also evident in previous research on resilience concerning natural disasters. These variables encompass various factors, such as pre-existing individual qualities, socio-demographic characteristics such as gender, age, financial status, as well as parenting styles, and pre-existing psychological distress (Chen et al., 2020).

However, the following previous studies offer illustrations that, despite the prevalent focus on individual-level exploration in most previous investigations on resilience and natural disasters, the dynamic resilience process goes beyond the individual level (Chen et al., 2020). This broader perspective allows for a comprehensive understanding of resilience and its multi-faceted impact in the context of natural disasters.

Frankenberg et al. (2013) conducted a study investigating the relationship between education, vulnerability, and resilience in the context of natural disasters. The researchers accessed a longitudinal population-representative survey conducted in two provinces of Indonesia before and after they were severely affected by the Southeast Asian tsunami in 2004. The results of this study showed that higher-educated males had a greater likelihood of survival, while education did not predict survival rates among females. Furthermore, education did not determine any significant association with levels of post-traumatic stress among survivors one year after the tsunami, nor did it influence the probability of their being dislocated (Frankenberg et al., 2013).

However, education seemed to play a crucial role in coping with the disaster over the long term. For instance, better-educated individuals were significantly less inclined to reside in temporary housing or camps, opting instead for private homes, staying with family or friends, or renting new accommodation (Frankenberg et al., 2013). Moreover, those with higher education levels exhibited better capability to maintain spending levels after the tsunami, compared to

individuals with lower levels of education who had to make more substantial cuts in their expenditure (Frankenberg et al., 2013).

Five years post-tsunami, the better-educated group exhibited superior psycho-social well-being in comparison to those with lower levels of education. These authors conclude that education showed a positive association with higher levels of resilience over the long term, highlighting its significance in coping and recovering from the impact of the disaster. It is important to acknowledge that education cannot be seen as a sole determinant of the resilience of individuals. An individual's educational level reflects not only their acquired academic knowledge; thus, a higher level of education may indicate the presence of pre-existing psycho-social resources in individuals, which in turn may contribute to their resilience (Frankenberg et al., 2013). Following this theoretical assumption, varying educational levels could potentially indicate diverse pre-existing psycho-social resources, which consequently impact the long-term adaptation of individuals following natural disasters.

Psycho-social resources have been recognised as pivotal factors contributing to the adjustment process in numerous prior studies. However, the elements included in psycho-social resources in these studies are multifaceted. Taylor (2011) defined psycho-social resources as a spectrum of skills, beliefs, talents, and individual personality traits that play a role in shaping individuals' responses to stressful events. These resources incorporate attributes such as self-esteem, optimism, a sense of mastery, effective coping skills, and the presence of social support (Taylor, 2011). In prior research focused on resilience within the context of natural disasters, psycho-social resources were evaluated through diverse facets, including elements such as social support, the cumulative count of experienced traumas, resilience, disruptions in routines, sense of control, optimism, goal accomplishment, and experiences of loss (Bistricky et al., 2019; Smith &

Freedy, 2000). The tools that were utilised in these studies for measuring psychosocial resources exhibited a diverse range, predominantly encompassing a combination of PTSD assessments and demographic inventories. In order to enhance future research concerning natural disasters and recovery, it will be necessary to adopt a more comprehensive instrument for evaluating psychosocial resources.

A more recent study provides an example of the person-focused approach. Panigrahi and Suar (2021) conducted qualitative research aimed at uncovering the antecedents of resilience among survivors of the 2018 Kerala flood in India. The study recruited 21 participants with diverse characteristics encompassing gender, age, educational background, income, and the extent of exposure and losses from the disaster. The research used semi-structured interviews to examine the participants' lived experience of the disaster and the subsequent aftermath (Panigrahi & Suar, 2021).

Three distinct themes emerged from these interviews, underscoring the attributes that contribute to participants' resilience in the face of adversity: dispositional, cognitive, and situational attributes (Panigrahi & Suar, 2021). Dispositional attributes involve adaptive mechanisms aimed at addressing emerging challenges and encompass traits such as self-efficacy, hope, optimism, striving, and grit. Cognitive attributes encompass cognitive reframing and flexibility, which enhance survivors' capacity to assess situations and develop flexible solutions. Situational attributes encompass social support, community embeddedness, and collective efficacy, all of which provide pathways for overcoming situational demands (Panigrahi & Suar, 2021).

It is important to note that the primary aim of Panigrahi & Suar's (2021) study was to discover the pre-existing qualities and resources of resilience among the survivors of the flood which align with the definition of resilience used in this study; that is, unchanged qualities and

resources existing before the devastating event. However, the findings of the study illuminated a certain ambiguity between pre-existing qualities or resources and those acquired as a result of adversity. This is exemplified by the inclusion of "striving" as one of the contributors within the dispositional attributes. This attribute demonstrated that participants learned effective ways to confront challenges in the aftermath of their experiences with adversity, enabling them to identify new opportunities and cultivate their inner strength (Panigrahi & Suar, 2021). This quality seems to align more with developmental gains stemming from the adversity, rather than being an inherent pre-existing attribute.

Furthermore, within the situational attributes, participants noted that the flood led to a heightened sense of unity among the community, forging a stronger interconnectedness than what had existed before (Panigrahi & Suar, 2021). This clearly indicates the deepening of interpersonal bonds as a result of the catastrophic event. Moreover, the findings of this research illustrate that post-disaster development extends beyond the individual level to interpersonal and community levels. This study also highlighted that qualitative research appears to possess a greater capacity for illuminating the context and complexities of the lived experiences of survivors in the face of adversity than quantitative research, which attempts to analyse correlations between protective or risk factors and resilience.

In studies related to the 921 Chi-Chi Earthquake, it is also evident that while discussing individual resilience, one cannot ignore the context of family, community, and socio-cultural factors. In Wang's (2015) study on the post-disaster resilience of Southeast Asian immigrant women following the 921 Chi-Chi Earthquake, it was found that the disaster situation faced by Southeast Asian immigrant women includes several aspects: experiencing an earthquake for the first time upon arrival in Taiwan, leading to increased psychological impact and negative physical

and mental reactions; serving as primary caregivers before the disaster, with this role expanding and the burden intensifying post-disaster; facing poor post-disaster environmental quality, open and rudimentary living spaces, and inadequate facilities, which cause inconvenience for women; residing in remote areas with limited/restricted access to disaster relief resources and encountering disparities in disaster relief services between urban and rural areas; exacerbating poverty among poor families post-disaster, with high levels of damage to old buildings increasing economic burdens.

Furthermore, environmental risks brought about by the earthquake include a sharp decline in post-disaster employment opportunities, impacting family finances; increased post-disaster economic pressure necessitating greater efforts to improve household finances, but limited job opportunities due to identity issues; stigma and discrimination in living environments which become disadvantageous factors in the post-disaster life recovery and employment process; language barriers which hinder access to understanding and utilization of post-disaster resource information (Wong, 2015).

Finally, strategies employed by Southeast Asian immigrant women to cope with post-disaster challenges demonstrate their resilience on three levels: personal, family, and societal environments (Wong, 2015). These protective factors include positively transforming personal beliefs, gaining support from family members, utilizing informal support networks close to their social circles, accessing formal resources, owning land, accumulating language capital, and possessing work and financial capabilities, which provide them with the energy to overcome life challenges and gradually establish post-disaster resilience (Wong, 2015).

Natural disasters have effects that reach beyond individual lives; in the context of facing such catastrophic events, family and community resources are not simply support or risk factors.

The damage caused by natural disasters also directly affects family and community systems. For example, natural disasters can result in the loss of family members and the loss of home, disrupting the dynamics within families. Additionally, these events can lead to significant damage to infrastructure, contributing to economic downturns that subsequently raise unemployment rates. This, in turn, intensifies the struggle for survival at the individual, family, and community levels; consequently, resilience, adaption and growth post-disaster will also occur at the individual, family, and community level. Nevertheless, given the complicated nature of the effects of natural disasters, assessing the resilience of families and communities proves to be challenging (Chen et al., 2020). The number of studies in this area is insufficient and research findings related to resilience within family and community contexts have also exhibited various directions in previous studies (Chen et al., 2020).

2.6.4. Family Resilience

In the research field of resilience, the transition from individual resilience towards a more systemic approach to studying positive functioning and resilience gained momentum in the 1980s. From a family system perspective, a family and its individual members are viewed as a cohesive unit that collaborates to manage the impact of a traumatic event they have experienced (Hackbarth et al., 2012). This shift was propelled by the work of Walsh (2003) which centred on examining patterns of adaptation within families (Hadfield & Ungar, 2018). Based on findings derived from studies of individual resilience and effective family functioning, Walsh (2003) formulated the Family Resilience Framework. This framework summarised the variables influencing family resilience across three domains: family belief systems, organisational patterns, and communication/problem-solving.

The Family Resilience Framework serves not only as a theoretical construct for comprehending how families operate in times of adversity, but also as a practical framework that can be applied to assist families in fostering the journey towards resilience (Walsh, 2002). Within the family belief system aspect, this framework encompasses elements such as deriving meaning from crises, nurturing an optimistic perspective about the experience, and embracing transcendence and spirituality. In the organisational pattern component, the focus lies on encouraging flexibility, promoting connections, and finding social and economic resources within the family. In the communication process element, the emphasis is on facilitating clarity, promoting open emotional sharing, and encouraging collaborative problem-solving within family interactions (Walsh, 2002).

Walsh (2003) emphasised that the Family Resilience Framework adopts a strengths-based approach, centred on the capabilities and qualities of families in navigating adversity. She highlighted that each family possesses its unique historical context, values, structure, and resources, thereby precluding a one-size-fits-all model. Additionally, she proposed that resilience amidst adversity is a dynamic process, where family goals, challenges, and functioning evolve over time throughout the life cycle (Walsh, 2003).

Compared to Walsh's Family Resilience Framework, which concentrates on its practical utility in engaging with families during adversity and fostering family resilience, Bonanno et al. (2015) argue that research pertaining to family resilience should explicitly incorporate four key elements: (a) baseline or pre-adversity functioning, (b) the actual aversive circumstances, (c) post-adversity resilient outcomes, and (d) predictors of resilient outcomes. Moreover, they state that almost none of the studies on family resilience and community resilience fit rigorous scientific

criteria (Bonanno et al., 2015). This statement also highlights the complicated nature of family resilience, along with the challenges inherent in attempting to measure it.

2.6.5. Family Resilience in Natural Disasters

Hackbarth et al. (2012) conducted a quantitative study involving survivors of Hurricane Katrina, drawing on Walsh's Family Resilience Framework. They converted the three pivotal components of the Family Resilience Framework, namely family belief systems, organisational patterns, and communication/problem-solving into variables: hope, family hardiness, and spirituality. The researchers explored the connections between these variables and family resilience. To measure these aspects, they employed the Family Crisis Oriented Personal Evaluation Scales (F-COPES), the Adult State Hope Scale, the Family Hardiness Index (FHI), and an adapted version of the Brief Multidimensional Measure of Religiousness/Spirituality: 1999. In addition, a scale for assessing resource loss was included, alongside demographic questions. This study was conducted approximately two years after the disaster, involving a total of 452 participants (Hackbarth et al., 2012).

The outcomes of the study indicated significant positive connections between hope, family hardiness, and spirituality, and family resilience (Hackbarth et al., 2012). These findings are consistent with the Family Resilience Framework, suggesting that optimistic perspectives on hope, family hardiness, and spirituality within individuals correspond to positive attitudes to coping within their families when confronted with adversity. Furthermore, the study unveiled a negative correlation between the extent of loss experienced during the disaster and family resilience. This suggests that greater loss impeded the families' capacity to recover from the traumatic event. Nevertheless, the results of the multivariate analysis in this study suggest that hope, family

hardiness, and spirituality act as protective factors in situations involving significant loss (Hackbarth et al., 2012).

However, it is worth noting that this study employed a wide-reaching online/post-survey distribution method, which garnered responses from individual participants (Hackbarth et al., 2012). Consequently, the study's findings were contingent upon the perceptions of these individual participants regarding family resilience. This raised questions about the feasibility of a single family member accurately representing the entire family unit.

Additionally, the study participants predominantly comprised individuals from a white ethnic background with high levels of university or college education. This demographic composition deviated from the typical demographic makeup of the Hurricane Katrina-devastated region. As a result, this study's limitations are underscored by concerns about whether this specific group of participants genuinely reflects the broader range of experiences among Hurricane Katrina survivors (Hackbarth et al., 2012).

Ramadhana (2020) similarly employed the three fundamental components of the Family Resilience Framework to investigate family resilience during the COVID-19 pandemic in Indonesia. This study included parents of 318 international students who returned to Indonesia due to the pandemic. The parents (father or mother) were requested to complete an online survey that employed variables of positive emotion, negative emotion, and family resilience, based on the Family Resilience Framework, in addition to a family demographics survey. The research findings indicated a positive correlation between positive emotion and family resilience. Moreover, the research outcomes revealed a positive association between family resilience and the family's socio-economic status, with families from a more stable socio-economic position exhibiting a higher level of family resilience (Ramadhana, 2020).

The research conducted by Ramadhana (2020) seized a unique opportunity to investigate family resilience during the COVID-19 pandemic, even though every natural disaster has its own uniqueness and context. Methodologically differing from the approach taken by Hackbarth et al. (2012), Ramadhana (2020) directly employed the variables of the Family Resilience Framework as indicators of family resilience. The findings of the study once again highlighted the interconnectedness of family resilience with socio-economic factors.

The research findings above are consistent with studies on family resilience among those affected by the 921 Chi-Chi Earthquake, indicating that a family's resilience pattern involves a unique interplay of internal and external resources. Key factors that promote resilience development within affected families include enhancements in fundamental aspects of family life such as housing and economic stability, the cultivation of family relationships through improved emotional connections and communication, flexible adaptation within the family through the reconstruction of domestic routines, collaborative efforts to undertake new roles and responsibilities, and the establishment of meaningful family aspirations and beliefs for the future (Tsai, 2004). External factors influencing resilience encompass social support networks, the influence of cultural norms, the passage of time, and the stability of the physical environment (Tsai, 2004). Hence, in the examination of family resilience, it is imperative to consider variables at the community and societal levels.

2.6.6. Community Resilience

When resilience is considered in the context of ecosystems or integrated systems involving both human beings and the natural environment, it encompasses a broader spectrum of elements. Due to the existence of inconsistent definitions of community resilience, the measurement of

community resilience continues to pose challenges (Ride & Bretherton, 2011). Contemporary scholars tend to perceive community resilience not merely as a combination of individual resilience, but as a collective state. Furthermore, within the realm of community resilience, scholars are increasingly emphasising the capacity of communities to adapt in the face of disruptions, instead of resorting to mere replication and recovery (Ride & Bretherton, 2011). Rather than emphasising "bouncing back," the focus shifts towards "bouncing forward" to a new state where vulnerabilities exposed by the disaster are acknowledged and addressed. Norris et al. (2008) summarised community resilience to be understood as "a process linking a network of adaptive capacities to adaptation following a disturbance or adversity." This adaptation is evident in the well-being of the population, which implies high and equitable levels of mental and behavioural health, functionality, and quality of life (Norris et al., 2008).

Hence, the study of natural disasters and resilience at the community/societal level involves the integration of multiple disciplines. Norris et al. (2008) categorise community resilience into four main sets of adaptive capacities—Economic Development, Social Capital, Information and Communication, and Community Competence. These four capacities need to operate synergistically, resulting in a comprehensive strategy that enhances communities' preparedness to confront the unknown (Norris et al., 2008).

In the past few decades, climate change, extreme weather events, and the COVID-19 pandemic have led to a decrease in the rarity of natural disasters on a global scale. This has heightened the urgency for building resilience. Academia is calling for the formulation of an enhanced framework for system preparedness in confronting potential future threats, drawing from both past experiences of natural disasters and theories of individual resilience (for example, Reich, 2006; Sakurai & Chughtai, 2020).

Building resilience needs to take into account several vital lessons according to various scholars. These fundamental lessons revolve around: adopting a resilience-thinking approach, which extends beyond restoring order and emphasises moving beyond the original state; underscoring the significance of adaptability and preparedness; highlighting the critical role of information, necessitating the availability of reliable data to construct meaningful information; and ensuring the quality, reliability, and transmission of information to stakeholders (Norris et al., 2008; Sakurai & Chughtai, 2020). Communities should work constructively towards reducing risks and resource disparities, involving local workers, researchers, and organisations in mitigation efforts, thereby establishing organisational connections and effective decision-making skills (Norris et al., 2008; Ride & Bretherton, 2011).

In the context of research related to the 921 Chi-Chi Earthquake, only two studies have approached the disaster from the perspective of community resilience. One study examines the issues and needs faced by immigrants in Puli during the earthquake, and whether their living environment at the time provided resources and support to assist them in recovering from the disaster and mitigate the compounded negative impacts of structural inequality. Another study, using Fugui Village as an example, explores the process and experiences of community recovery after the 921 Chi-Chi Earthquake at the village level (Huang, 2017).

In addition to the common spirit of self-reliance and mutual aid, as well as the ability to organize local resources and address issues of resource distribution, Huang, Huang, & Chen (2019) also highlight the diversity which exists within the immigrant population. Many Han Chinese women in the Puli area described the 921 Chi-Chi Earthquake as a watershed moment in their lives, dividing their lives into "before" and "after" the earthquake (Huang et al., 2019). However, some interviewed immigrants expressed indifference towards the 921 Chi-Chi Earthquake, viewing it as

a temporary obstacle compared to the enduring burdens they faced since coming to Taiwan (Huang et al., 2019). This indifferent attitude towards disaster among immigrants underscores the heterogeneity among women affected by the earthquake, who face different risks and resilience capacities based on social divisions such as ethnicity, class, gender, and age (Huang et al., 2019).

The problems and needs faced by immigrants, and the question of whether their living environment at the time provided resources and support to assist them in recovering from the disaster and mitigate the compounded negative impacts of structural inequality, must be addressed by complementing various systems such as individual agency, formal and informal support networks, ecological environment, and cultural and religious beliefs. These systems should provide backup support for immigrants and their families when facing adversity and enhance their resilience in the face of disasters.

In summary, unlike mainstream studies of trauma which focus more on psychopathology and treatment, studies focusing on resilience redirect attention towards human capabilities and adaptive systems that foster a positive trajectory of development. Even though there have been distinct variations in the definition of resilience in prior scholarly research, over the course of several years, scholars have begun to reach a consensus regarding resilience as an adaptive process post the adversity events and this is viewed as a widespread phenomenon. Within the context of natural disasters, the manifestation of resilience does not solely exist at the individual level but is also evident in the interactions between individuals and their interpersonal and environmental systems. The roles of family and community systems go beyond serving merely as either protective or risk factors for individual resilience; instead they are considered as holistic units with unique contexts for recovery and development.

In previous research, there has not been a comprehensive measurement tool for resilience. Quantitative studies seem to only reveal correlations between various factors and resilience, rather than gaining comprehensive understanding of the context of post-disaster development. Moreover, each natural disaster presents its unique scenario, influenced by various factors such as the historical background of the affected area, the economic system. Similarly, each family has distinct structures and dynamics, and each individual possesses different resources and attributes. Therefore, the process of resilience is intricate and intertwined, further complicated by interactions between individuals, families, and communities. Qualitative research can offer a more delicate understanding of the context. Simultaneously, the use of tools with a holistic view that is capable of exploring various levels of response in the face of disasters is also essential in this field of study.

Chapter 3.

The Adversity Grid: the Three Main Categories of Consequences of Being Exposed to Adversity

Complexity has always been an essential element in understanding trauma. The post-disaster journey is not just about being traumatised. Although people experienced the same earthquake, each individual experienced the earthquake in their unique ways. Even for the people in the same family that every family member's experiences of the earthquake, the impacts that earthquake make to them, and their responses to the earthquake are not the same. The Section 2.6. examines the different definitions of resilience. Papadopoulos offers the definition of resilience based on a different framework related to the Adversity Grid, which formerly was called Trauma Grid (Papadopoulos, 2021a, p.269), to capture the wide range of responses when exposure to adversity (see Table 1). In the Adversity Grid, the responses to the traumatic events and the life journey after the events are classified to include the range of negative, unchanged, and positive; the responses are demonstrated on a personal, close relationship (such as family), community and social/cultural level (Papadopoulos & Gionakis, 2018).

The negative responses address the wide range of distress reactions of the survivors and the negative consequences of being exposed to adversity. This range of reactions covers from Psychiatric Disorders, Distressful Psychological Reactions, to Ordinary Human Suffering. The other category encompasses the unchanged features, responses, qualities and characteristics of the survivors that have not been destroyed due to the traumatic events. Papadopoulos uses the term Resilience to refer to this category of unchanged consequences. The positive responses represent what people have gained from the traumatic event, such as Adversity-Activated Development (AAD) and Post-traumatic Growth (PTG).

Table 1

The Adversity Grid (Papadopoulos, 2019)

Levels	Negative			Unchanged		Positive Adversity Activated Development (AAD)
	Psychiatric Disorder (PD)	Distressful Psychological Reactions (DPR)	OHS Ordinary Human Suffering (OHS)	Negative Unchanged	Positive Unchanged Resilience	
Individual						
Family						
Community						
Society-Culture						

3.1. Negative Responses Category in Adversity Grid

Negative responses category in Adversity Grid fits more to how the wider public understand the people's response after they experienced traumatic events/adversity. Take earthquake as an example, people experienced severe damage from the earthquake and they may also suffer from grief of the loss of their loved ones, their homes, their financial stability, the social status they used to have, etc. People who experience such drastic changes of life may build up negative physical and psychological responses after the event. In the Adversity Grid, the negative responses in relation to the individual level include three degrees of severity: Psychiatric Disorders, Distressful Psychological Reactions, and Ordinary Human Suffering.

The subcategory of Psychiatric Disorders is the most severe form of negative responses in the Adversity Grid. Post-traumatic stress disorder (PTSD) is one of the best-known stress

disorders caused by traumatic events. Most studies of survivors of natural disasters concentrate

on PTSD and most assessment tools used in these studies are based on the diagnostic criteria for

PTSD found in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric

Association, 2013). Clinical criteria for PTSD include the identification of a stressor (Direct and

indirect exposure to the traumatic event), intrusion symptoms (e.g. unwanted upsetting

memories, nightmares, flashbacks, emotional distress after exposure to traumatic reminders,

physical reactivity after exposure to traumatic reminders) , avoidance (avoidance of trauma-

related stimuli-thoughts or feelings or external reminders), negative alterations in cognition and

mood (e.g. inability to recall key features of the trauma, overly negative thoughts and

assumptions about oneself or the world, exaggerated blame of self or others for causing the

trauma, negative affect, decreased interest in activities, feeling isolated, difficulty experiencing

positive affect) and alterations in arousal and reactivity (e.g. irritability or aggression, risky or

destructive behaviour, hypervigilance, heightened startle reaction, difficulty concentrating,

difficulty sleeping). The symptoms need to be severe enough to impair the overall functioning of

an individual and continue for more than one month; and the symptoms can not be due to

medication, substance use or other illness. (Black & Grant, 2014). Other common psychiatric

disorder related to the traumatic event and adversity can be major depression and anxiety;

however, to be noted that it has to be severe enough to meet the clinical diagnosis to fit in this

subcategory.

The relevant literature examining the prevalence rate of post-traumatic stress disorder

(PTSD) among survivors of the 921 Chi-Chi Earthquake between 2001 and 2011, reported

prevalence rates ranged from 8% to 34.3% (Gong et al., 2023, p.374). The notable variability in

these reported rates is unsurprising, given several factors. The timing of the research, the

methodology employed, and the demographic characteristics of the studied population all influence research outcomes. For instance, PTSD symptoms are known to alter over time. Data collected by Chang & Lin (2013) indicated a PTSD prevalence rate of 32% among adult survivors of the 921 Chi-Chi Earthquake one-month post-event. This rate decreased to 10% after three years and further declined to 3% by the fourth year. While 30% of survivors continued to experience psychological and somatic symptoms four years after the earthquake, only 3% met clinical criteria for PTSD. This data suggests that the majority of 921 Chi-Chi earthquake survivors do not meet clinical criteria for PTSD, yet they still endure adverse psychological effects on various levels, which may manifest as distressful psychological reactions or ordinary human suffering, as delineated in the Adversity Grid.

The subcategory of Distressful Psychological Reactions delineates individuals who experience specific psychological distress reactions following a traumatic event and adversity. It is imperative to differentiate between "disorder" and "distress." Papadopoulos (2020) discerns "disorder" as a clinical psychiatric term, exemplified by PTSD, which falls within a psychiatric classification, necessitating adherence to specific psychiatric criteria and indicating extensive forms of dysfunctionality. Conversely, "distress" is a psychological term, denoting a subjective experience of emotional or psychological discomfort, often stemming from adverse life events or circumstances. Distressful Psychological Reactions may manifest as debilitating symptoms; however, these symptoms do not reach the severity threshold for psychiatric disorders (Papadopoulos, 2020). For instance, individuals may experience certain PTSD symptoms like flashbacks and emotional distress but lack additional symptoms necessary for a full PTSD diagnosis. Individuals in this category, despite experiencing distress symptoms, may still maintain various forms of functionality in their daily lives.

The subcategory of Ordinary Human Suffering is most common in people who experience traumatic events and adversity (Papadopoulos, 2021a, p.271). It is reasonable for people who have been through traumatic life event and adversity to experience certain degrees of suffering. They might have been through the loss of their loved ones, the loss of their financial stability the loss of their identity, the loss of their home. Human suffering does not constitute a psychiatric disorder, and ordinarily it is effectively addressed by various support systems within the community, including religious and cultural rituals. The subcategories of distressful psychological reactions, or Ordinary Human Suffering in the Adversity Grid, are identified in order to avoid polarisation into black and white categories such as identifying people either as traumatised or resilient. One of the important principles that the Adversity Grid tries to emphasise is the coexistence and complexity of human response to adversity. The negative responses to adversity have different levels of severity; at the same time the negative responses coexist with unchanged strengths (resilient features) as well as positive responses (Papadopoulos, 2021a, pp.269-272).

3.2. Unchanged Responses Category in Adversity Grid

In the latest version of the Adversity Grid, the unchanged responses are divided into two categories: positive and negative. These refer to the qualities, characteristics, behaviours, functions, and relationships that remain the same despite the exposure to adversity (Papadopoulos, 2015). The positive unchanged responses are referred to as being resilient (which follows the original and strict definition of the term), the qualities that support the individual and the system to survive following the adversity events, and continue to help the post-adversity development. For example, an individual who possesses traits of openness and acceptance in interpersonal relationships prior to a disaster may find that these qualities continue to aid them in

accessing more resources and adapting to the aftermath of the disaster. The negative unchanged responses are the negative qualities of people that continue to exist even after the exposure to adversity (Papadopoulos & Gionakis, 2018). For example, an individual who already had difficulties with alcohol addiction before the disaster may continue to experience excessive drinking behaviour even after the disaster occurs. Another example can be that Southeast Asian immigrant women in marriage were already serving as primary caregivers before the 921 Chi-Chi Earthquake, and this role continued to expand after the disaster (Wong, 2015).

Milojev et al. (2014) conducted a longitudinal study that emphasises the unchanged quality of resilience in the face of such disasters. Milojev et al. (2014) examined changes in personality traits before and two years after the Christchurch earthquakes that occurred between 2010 and 2011 in New Zealand. The study, which involved 3,914 participants, revealed a significant stability in the participants' Big Six personality markers (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, Openness to Experience, and Honesty–Humility) two years after the disaster. The majority of these personality traits remained statistically unchanged (Milojev et al., 2014).

It is important to note that the 921 Chi-Chi Earthquake occurred 24 years ago and at the time the term "resilience" was the concept most often used in mainstream research into trauma and recovery. However, the usages of "resilience" in these studies were wide-ranged and often mixed with the descriptions of positive response to adversity. On the other hand, although the term "Adversity-Activated Development (AAD)" was not used in the psychological recovery-related studies of the 921 Chi-Chi Earthquake at the time, the phenomenon of AAD can be easily observed in many research findings.

For instance, Tsai (2004) employed a qualitative research approach to investigate the developmental patterns of resilience within families affected by the 921 Chi-Chi Earthquake over a two-year period. She classified, what she termed, family resilience patterns into four distinct developmental curves: 1. "Bottom and gradually up"; 2. "Flat line"; 3. "Ups and downs"; and 4. "Incline". In the first type of movement, family functioning declined after the earthquake and gradually improved. Among these families, some experienced an increase in family functioning but it remained lower than the pre-earthquake level (70%); for others, their functioning returned to the same level as before the earthquake (10%); and for some families, their functioning even surpassed the pre-earthquake level (20%) (Tsai, 2004). The families whose functioning exceeded the pre-earthquake level indicated positive developments (e.g. AAD) in these families rather than mere 'resilience', as it was characterised in that study

The following section will introduce Adversity-Activated Development (AAD), the three layers of AAD: External AAD, Interpersonal AAD, and Intrapsychic AAD, and AAD at individual, family, community, and social/cultural levels. It will also provide examples of the manifestation of AAD in psychological research related to the 921 Chi-Chi Earthquake.

3.3. Adversity-Activated Development (AAD)- the Positive Responses Category in Adversity Grid

The positive responses in adversity are the elements that tend to be overlooked by the majority of the trauma and recovery studies. People focus more on what adversity events take away (negative responses), occasionally, also what has remained unchanged, but not what people have gained from the adversity experience (Papadopoulos & Gionakis, 2018).

According to the Adversity Grid, Adversity-Activated Development (AAD) represents the category of positive responses. It represents the positive development which was activated directly as a result of the exposure to adversity (Papadopoulos, 2007). Since Adversity-Activated Development (AAD) is a relatively new concept, especially to Taiwan, many of the research outcomes then, which might have been identified as AAD, were either overlooked, undefined, or classified as resilience.

For example, a previous study into the changes of the meaning of life for 921 Chi-Chi Earthquake survivors found that for the participants, the concept of death came closer to reality after the earthquake (Chen et al., 2003) and this developed a new meaning in their lives. People's attitudes toward death became more practical in a positive direction. They reported learning how to face death directly, they became more active in preparing their last will and testament, they had more appreciation of life, more zest to live their lives to the full and in the present, post-921. These positive changes to the meaning of life clearly indicate AAD, but these developments were not acknowledged in those studies as development due to the exposure to the adversity. The research Chen et al. (2003) conducted (as mentioned above) is a quantitative study, while in various qualitative studies on different topics such as the research about the earthquake orphans by Li & Leung (2002) and the research about the development in local women in Shigang by Liu (2011) , Adversity-Activated Development (AAD) is also prevalent but often not being labelled as AAD.

3.3.1. Three layers of AAD: External AAD, Interpersonal AAD, and Intrapsychic AAD

Recently, Papadopoulos (2023) differentiated three distinct layers of AAD: External AAD, Interpersonal AAD, and Intrapsychic AAD, which correspond to the three dimensions of the psychosocial realm, i.e. the social/cultural, interpersonal, and intrapsychic, as well as to the

three levels in the Adversity Grid that designate the effects of adversity on individuals, families and communities.

   External AAD. *"The External AAD refers to developments that take place irrespective of the identified individual's effort or contribution. They include positive changes that occur in the wider external societal context, after any forms of collective adversity. These include various improvements in the relevant conditions, circumstances, events and opportunities that the individual concerned can benefit from"* (Papadopoulos, 2021b).

   In the context of post-disaster development and research following the 921 Chi-Chi Earthquake, community development has been a focal point. For instance, as mentioned in previous sections, the psychological health development of the Dongshi community is notable. Leveraging the earthquake as a catalyst, the community gained access to previously unavailable psychological health resources and continued to empower itself, making it a community with comprehensive psychological health resources. This exemplifies an instance of External AAD. Many of the disaster-affected communities after the 921 Chi-Chi Earthquake are rural communities in central Taiwan, many of which were already facing difficulties related to agricultural transformation prior to the earthquake (Wong, 2015). The destruction and reconstruction resources brought about by the 921 Chi-Chi Earthquake became opportunities for community industry transformation. For example, the well-known Taomi community transformed into an ecologically sustainable tourist community due to the destruction brought about by the earthquake and the reconstruction that followed, thus opening up new economic industries for the community (Gong et al., 2023, p.347). However, from these examples, it can also be observed that merely injecting external resources may not necessarily bring about comprehensive positive development that include personal transformation. The reconstruction

and transformation of communities require unity and cooperation among community members, as well as individual determination. These additional dimensions are addressed by the Interpersonal AAD and Intrapsychic AAD, which are now discussed next.

Interpersonal AAD. *"The Interpersonal AAD refers to any positive developments that take place in the realm of human inter-relationships among relevant individuals, after any forms of collective or personal adversity"* (Papadopoulos, 2021b).

The Interpersonal AAD refers to the positive developments in interpersonal relationships resulting from adversity, encompassing marital, familial, and friendship dynamics. Research on the 921 Chi-Chi Earthquake commonly identifies Interpersonal AAD as a significant outcome. Following the earthquake, marital relationships often exhibit increased closeness, with spouses valuing each other more and experiencing fewer conflicts (Huang, 2001). Similarly, it was found that sibling relationships strengthened as siblings who endured loss and navigated the aftermath of the earthquake together forged stronger bonds (Chen, 2021).

Intrapsychic AAD. *"The Intrapsychic AAD refers to the "inner" development of a person that is activated by any experience of adversity and results in substantial existential transformation. It may include, but is not limited to, any forms of personal development, changes in values, perception of priorities of life, transformation of personal identity, adjustments of one's worldview and any other forms of transcendence of one's perspectives in relation to one's surrounding perspectives wherein one is defined"* (Papadopoulos, 2021b).

The Intrapsychic AAD refers to the transformation of a person that involves fundamental personal characteristics, which were activated by the experience of adversity (Papadopoulos, 2021b). It may include, but is not limited to, personal development, changes in values,

improvement of the worldview, as well as any positive changes that occur in the personality of the individual.

For example, the concept of empowerment often emerges in research related to the 921 Chi-Chi Earthquake. It refers to the process where individuals transition from a state of "powerlessness" to "self-assurance," gradually cultivating their own strength. This process often involves transcending traditional family gender roles and societal roles.

For instance, women post-earthquake often moved beyond the singular role of homemaker within the family, exploring dimensions of their personal potential. In geographical areas such as Dongshi, XinShe, and Shigang, many women experienced a re-empowerment following the 921 Chi-Chi Earthquake, e.g. became local psychological volunteers post-earthquake (Chen, 2021). Many families who lost their homes due to collapsed buildings were supported by women. Studies have found that when families experience significant upheaval, both men and women suffer trauma, but often, women take the first step forward. This signifies two layers of meaning: women not only they physically "step out" to seek employment, but they also take the initiative to reach out for emotional help and support from the outside world (Chen, 2021).

Similar research outcomes were also observed in studies focusing on teenagers affected by the 921 Chi-Chi Earthquake. Orphans of the earthquake reported a trend towards increased independence, as they ventured into various activities to ensure their survival. This newfound autonomy was accompanied by a growing sense of self-appreciation (Shih, 2003).

The Intrapsychic AAD, as observed in research related to the 921 Chi-Chi Earthquake, also manifests itself in the profound impact it had on individuals' perception of life's meaning. As a result of the earthquake, many people experienced a deeper understanding of the finite nature

of life, leading to a more profound existential experience and a sense of becoming masters of their own lives. For instance, orphans of the earthquake, feeling the impermanence and limitations of life due to the seismic event, sought to create more diverse life experiences for themselves and to contribute meaningfully to society (Shih, 2003). Similarly, a father who lost his daughter in the earthquake reflected on how his life went from being predetermined to "page one" to being reset to zero by the unexpected disaster. He then took it upon himself to become the author of "page two" of his life, focusing his energy on inventing new creations (Wong, 2006a). Rediscovering his neglected talents from over two decades, he began to acknowledge himself as an empowered subject, taking proactive steps towards shaping his own narrative (Wong, 2006a)

In studies examining women who experienced both bereavement and the destruction of their homes during the 921 Chi-Chi Earthquake, similar themes of transcending adversity were observed, akin to those found in the aforementioned research. Participants in these studies often expressed the concept of elevating and positively transforming their experiences of loss or adversity (Lin& Wu, 2004). One participant mentioned that after experiencing trauma, it was important not to dwell on the past but to focus on moving forward. Furthermore, she believed that as individuals who have experienced adversity, it is essential to extend social welfare benefits to those in greater need, embodying the spirit of compassion. At the same time, in coping with the loss of loved ones, participants were able to let go more easily, viewing the death of their relatives as a release from suffering; the participants also reflected that their experiences of suffering were meaningful and had a purpose. (Lin& Wu, 2004).

As identified above, External AAD, Interpersonal AAD, and Intrapsychic AAD may exist independently, but there are also many situations where they coexist. A study on the post-disaster

life experiences of Hakka women in Shigang, central Taiwan, provides examples of all three

AAD types simultaneously. Women in Shigang lived under traditional constraints before the

earthquake, with the roles and futures of girls already predetermined and heavily influenced by

patriarchal family dynamics (Liu, 2011). Many women were unable to pursue higher education

or employment opportunities due largely to familial expectations.

After the 921 Chi-Chi Earthquake, these women were compelled to leave their homes and

break free from traditional gender roles to seek employment. They came together through

participation in cooking workshops organized by the Labour Department, forming a sense of

community. Driven by the desire to support their families and restore normalcy to their lives,

these women sought to acquire new skills and secure employment to generate income. They

approached their endeavours with the concept of rebuilding homes and supporting families,

having shared experiences and facing similar challenges during and after the earthquake. Soon,

they formed close-knit bonds and became supportive companions in cooking classes or in

subsequently established food shops (Liu, 2011).

For the first time in their lives, women following the earthquake took charge of their own

destiny and of their own lives. Each person developed a sense of equal authority, allowing

women to enjoy moments of decision-making regarding language, work positions, and the

expression of their will. As they adapted to their new environments, entire communities thrived

with vitality (Liu, 2011).

The adversity of the earthquake enabled these women to break free from traditional

family roles, connect with the external world, and gain autonomy in employment and economic

recourses. They forged sisterhood bonds with peers facing similar circumstances and contributed

to the economic development of their region. This exemplifies a scenario where all three layers

of AAD coexist. Nevertheless, this demonstration of the coexistence of multiple layers of AAD

highlights its distinctiveness from other post-traumatic theories. All other theories about trauma

and post-traumatic consequences emphasize almost exclusively the negative effects

(consequences) and responses to being exposed to the adversity. Whereas the Adversity Grid

assist us to appreciate the wide-range of responses that includes not only negative but also

positive as well as unchanged.

3.3.2. AAD at Individual, Family, Community, and Social/Cultural Levels

The Adversity Grid stands out from other trauma theories due to its emphasis on

complexity, comprehensiveness, and contextualization. Consequently, the categories within the

Adversity Grid were developed to encompass individual, family, community, and social/cultural

levels. Adversity-Activated Development (AAD), representing the positive response to

adversities within the Grid, also manifests across these diverse levels. The following section will

discuss the manifestation of AAD across these different levels and the examples observed during

the 921 Chi-Chi Earthquake.

AAD at Individual Level. AAD represents the positive developments directly resulting

from exposure to adversity (Papadopoulos, 2007). At the Individual Level, it can manifest as

newfound strength, positive qualities, characteristics, and behaviours that stemming from direct

exposure to adversity (Papadopoulos, 2021a). At the individual level, Adversity-Activated

Development (AAD) can manifest through the acquisition of new skills and behaviours learned

from the experience of adversity, as well as through transformative inner changes triggered by

living through adversity, such as those discussed in the previous section regarding the

Intrapsychic AAD.

In fact, Adversity-Activated Development (AAD) at the individual level, as evidenced by

both quantitative and qualitative research with survivors' experiences of the 921 Chi-Chi

Earthquake, are profound, extending beyond the mere acquisition of new skills or behavioural

changes. For instance, in two quantitative studies examining survivors' psycho-social response

following the 921 Chi-Chi Earthquake, it was reported that the most significant change brought

about by the earthquake pertained to the re-evaluation of the meaning of life. Participants noted a

heightened sense of mortality following the earthquake, leading to a pragmatic and positive shift

in their attitudes towards death. They expressed a newfound ability to confront mortality directly,

demonstrated increased engagement in estate planning, exhibited enhanced appreciation for life,

adopted a more present-focused perspective, and developed a deeper comprehension of spiritual

dimensions. (Chen et al., 2003; Yeh, 2014).

This newfound understanding is reported consistently across both male and female

participants in various studies, whether conducted three months or twenty years after the

earthquake. This suggests that each individual follows a unique timeline for development

following adversity. In the immediate aftermath of the earthquake, survivors experienced

profound losses, including the sudden loss of loved ones, homes, financial security, and in some

cases, they developed permanent disabilities. Faced with such drastic life changes, each person's

experience varies, and even though they may share a common understanding of life's

impermanence, the specifics of their experiences differ. These insights into impermanence also

manifest differently in individuals, influencing their subsequent development in distinct ways.

In the context of research on psychological recovery from the 921 Chi-Chi Earthquake, another common form of AAD observed or reported at the Individual Level was the breakthrough of the original individual characteristics and the commencement of a new style of life. From the examples of the survivors of the 921 Chi-Chi Earthquake that brought out in the Intrapsychic AAD section, people's lives were originally guided by established patterns, including work, daily routines, family roles, and gender roles. However, when the earthquake brought about comprehensive destruction to their lives, it also presented both proactive, active and passive opportunities for development. Women were able to break free from their confined living environments and fixed family roles, thereby increasing their connections with the outside world and expanding and utilising their potential (Chen, 2021; Lin & Ma, 2004; Liu, 2011) Men, on the other hand, were able to let go of societal expectations associated with traditional male roles and were enabled to rediscover and develop their pre-existing interests (Wang, 2006a). However, it should not be forgotten that these positive personal developments were always accompanied by the grief and pain brought about by the earthquake. Nevertheless, this pain not only did not prevent the various forms of AAD but, in fact, activated them.

In addition to these profound transformations, Adversity-Activated Development (AAD) at the individual level is abundant in the literature related to the recovery from the 921 Chi-Chi Earthquake. Orphans who lost their families during the earthquake gradually come to appreciate themselves more in adversity, and many individuals transition from being victims to becoming helpers. These individual manifestations of AAD undoubtedly lead to interconnected changes within families and social systems. The following discussion will explore how AAD manifests itself within families, communities, and society.

AAD at Family Level. AAD at the family level can be related to Interpersonal AAD. Which refers to the positive developments in close relationships after either collective or personal adversity (Papadopoulos, 2023). One of the positive developments within the family is family cohesion after the experience of adversity. Participants reported that after the earthquake, spending nights outdoors and enduring hardships together with their spouses was the happiest time they had with their partners (Huang, 2001). Some couples also reported that their relationship became closer after the earthquake, with both partners valuing each other more and being less prone to arguments or anger. Even relatives noticed that marital relationship had become tighter. As a result, their demonstration of family cohesion increased (Huang, 2001).

Similarly, teenagers who lost parents in the 921 Chi-Chi Earthquake also provided feedback, stating that they had experienced the process of bereavement with their siblings after the earthquake, which resulted in stronger bonds among them. Additionally, some bereaved teenagers, after losing their parents due to the earthquake, made caring for their younger siblings their new life goal and strived to live accordingly. This example also demonstrates another change in family development - the shifting and transformation of family role functions. (Chen, 2021).

The aforementioned examples also highlight how women, after the 921 Chi-Chi Earthquake, may have voluntarily or involuntarily departed from traditional family roles due to the new economic realities or community invitations (Chen, 2021;Liu, 2011) By stepping away from the traditional role of homemaker, women became contributors to the family's economy. This not only improved the family's financial situation but also expanded their own abilities and potentials, increased their connections with the outside world, and established emotional

relationships within the community. It is noteworthy that such changes in family roles not only benefit women who "step out," but also assist men in post-disaster adaptation. Research indicates that in families where traditional gender roles shifted post-disaster, adaptation tended to be better than in families that remained unchanged, adhering to traditional role divisions (Wong, 2013). This may be related to the promotion of family harmony within an atmosphere of gender equality in the family, or it could be associated with increased connections to social resources and emotional support following women's participation in the workforce (Wong, 2013).

Papadopoulos (2021) also emphasizes that in the Adversity Grid, the term "family" is not limited to the traditional definition of a family. Any connections and support resembling those of family members formed during adversity, regardless of blood relations, can be considered within this framework. Examples from the 921 Chi-Chi Earthquake include foster families for displaced children, injured individuals and their foreign caregivers, and families formed after the loss of a spouse during the earthquake. These instances illustrate new family formations and developments arising from adversity.

AAD at Community Level. As mentioned earlier in the External AAD section, the financial resources that were made available for post-disaster community reconstruction provided opportunities for transformative development within the affected communities. The funds, psychological resources, external professional community development talents, and manpower acquired post-earthquake have brought about developments that were previously unimaginable. These resources have also opened up new possibilities for community unity, economic development, and environmental sustainability.

In addition to the previously mentioned examples of community transformation due to the 921 Chi-Chi Earthquake in Dongshi, Taomi community, and Shigang community, another example is the development of Zhongliao community. Located in central Taiwan, Zhongliao was one of the severely affected areas by the 921 Chi-Chi Earthquake and was designated as one of the key areas for government post-disaster reconstruction assistance.

Following the earthquake, a significant amount of financial and other resources poured into the area, and external groups introduced new possibilities to the local residents, sparking imaginations of a revitalized hometown (Liu, 2005). Civil society organizations assisting the disaster-affected areas adopted a grassroots approach, involving residents in discussions and envisioning the reconstruction process. Nearby universities and their students also joined the efforts to assist in the reconstruction, and cultural workers from various regions contributed to the long-term development of Zhongliao (Liu, 2005). These resources indeed propelled Zhongliao to briefly flourish as an example of post-disaster community reconstruction. However, as external resources dwindled, difficulties arose regarding the distribution of power and benefits among communities, as well as the diminishing novelty of tourism resources (Chang, 2019). Consequently, Zhongliao once again fell into desolation. This is an example of not wisely using the opportunities that the External AAD provided.

On the other hand, prior to the 921 Chi-Chi Earthquake, the nearby Taomi community was a village suffering from severe population outmigration and gradual decline (Jiang & Zhang, 2008). During the earthquake, out of the 369 households in Taomi, 168 were completely destroyed, and 60 were partially damaged, with a disaster rate of 62%. Similar to the Zhongliao community, the Taomi community received significant reconstruction funds from the

government post-earthquake, along with manpower cultural resources and academic resources from external organizations and nearby universities. When ecologists visited the Taomi community to conduct a post-earthquake ecological inventory, they discovered that due to the long-term decline of the rural economy, Taomi unexpectedly preserved Taiwan's native biodiversity resources. Consequently, they consciously designed a reconstruction project for the Taomi community as an eco-sustainable tourism community (Jiang & Zhang, 2008).

However, the ongoing prosperity of Taomi community can be attributed largely to the community's establishment of self-sufficiency. Local human resource development, the return of young people to the community, and the concept of sustainable management of the natural environment gradually formed a more complete ecological tourism economic system for the Taomi community (Jiang & Zhang, 2008). This enabled the Taomi community to continue sustainable development even after the withdrawal of resources injected into the community following the earthquake.

Looking back on their childhood aspirations, residents of the Taomi community once wished to quickly escape the poverty of rural life. However, after the earthquake with the return of local manpower for development, the community now embraces a collective concept of eco-sustainability as its golden principle for construction (Chang, 2019). Taomi residents even express gratitude towards the earthquake, saying, "I no longer feel like a victim of the earthquake; I am proud to be a resident of Taomi (Chang, 2019).

The development of both the Zhongliao and Taomi communities after the earthquake, benefiting from unexpected reconstruction resources that were unavailable before (External AAD), followed different trajectories, experiencing both prosperity and decline. These cases,

both representing post-disaster community development in central Taiwan after the 921 Chi-Chi

Earthquake, illustrate why the AAD theory employs the term "development." Development is a

neutral term that denotes a longer-term process, devoid of implicit suggestions of either positive

or negative outcomes (Papadopoulos, 2021a, p.279). The rise and subsequent decline of the

Zhongliao community, after acquiring external resources, should not be viewed strictly in terms

of success or failure. These gains post-adversity may catalyse new developments in different

times and places. This perspective aligns with the principles of Adversity-Activated

Development (AAD), which cautions against polarising case outcomes as purely successful or

failed in academic research or practice. Instead, it encourages a nuanced understanding of

development as a dynamic and ongoing process.

AAD at Social/Cultural.I n this current thesis, I selected the 921 Chi-Chi Earthquake as

the subject of studying AAD because, besides being a shared disaster memory among Taiwanese

people, the 921 Chi-Chi Earthquake represents one of the most significant cases of national and

societal AAD development in Taiwan in recent decades.

Disasters are an integral part of human developmental history. As discussed in Part One

of this thesis, Taiwan has made significant advances in disaster preparedness policies,

regulations, healthcare systems, and civil society responses following the 921 Chi-Chi

Earthquake. The profound impact of the earthquake was not solely attributable to its seismic

intensity; rather, it was exacerbated by Taiwan's lack of comprehensive building regulations and

seismic safety measures prior to the event. Many collapsed structures were inherently vulnerable

due to deficient construction standards. Despite Taiwan's exposure to earthquakes, it did not

implement relevant regulations and measures until after the 921Chi-Chi Earthquake. This forms

an excellent example of the Societal form of AAD, and which safeguarded countless lives in Taiwan in subsequent years.

Furthermore, the 921 Chi-Chi Earthquake also facilitated substantial improvements in the rise of civil society. The organizational structure and regulatory management of civil society became more systematic post-earthquake (Gong et al., 2023). Civil society organizations entered into complex relationships of cooperation, confrontation, and competition with the government (Chang, 2018; Huang, 2003). Such AAD also propelled the progress of democratic development in Taiwan. At the same time, the 921 Chi-Chi Earthquake became a watershed moment where Taiwan gained international visibility (Chen & Chen, 2009). Following 921, Taiwan's visibility in international media gradually increased. These are all examples of the Societal form of AAD, activated by the 921 Chi-Chi Earthquake.

3.4. Adversity-Activated Development and Post-traumatic Growth (PTG)

Post-traumatic Growth (PTG) is also a concept that belongs to the category of positive responses following adversity. It is a term that stresses the transformation following the traumatic events that was introduced in mid-1990s (Calhoun & Tedeschi, 2014). These transformations are understood as taking five possible forms: interpersonal relationship, new possibilities, personal strengths, spiritual growth, appreciation of life (Calhoun & Tedeschi, 2014). The outcome of a quantitative study of post-growth 15 years after the 921 Chi-Chi Earthquake suggested that negative psychological responses co-exist with the post-traumatic growth (Yeh, 2014). Men and women have similar degree of the level of the post-traumatic growth; however, the "post-growth" experience by different genders took different directions. Men were more developed in "the elevation of the belief of life" and "the devotion to religion";

on the other hand, women had more development in "self-confidence" and "openness and acceptance to interpersonal relationships" (Yeh, 2014).

This finding is significant because it confirms the validity of the Adversity Grid, which is not limited to the identification only of either negative or positive outcomes following adversity but includes both, as well as provides the framework to also differentiate the unchanged characteristics and features of individuals, families and communities.

3.4.1. The difference between Adversity-Activated Development and Post-traumatic Growth (PTG)

The nature of complexity differentiates AAD from other theories that highlight the positive changes of a post-traumatic event such as Post-traumatic Growth (PTG). The terminology used in AAD aims to avoid oversimplifying or polarizing experiences and reactions to adversity. For example, the term adversity instead of trauma, avoids the assumption that everyone who has experienced devastating events must be traumatised (Papadopoulos, 2007). At the same time, the term adversity indicates the complexity of the actual experiences. Then, the characterisation of 'post' in Post-Traumatic Growth is limiting. Difficulties or even traumatic events might continue after the initial set of devastating events, and the term AAD avoids simplifying the complexity of experiences into a linear causal process that is only marked by the initial traumatic event. Also, the term development is a more neutral term that contains a wider range of different positive responses to the adversity (Papadopoulos, 2007).

On the other hand, the terminology used in Post-traumatic Growth (PTG) tends to imply as its central point of departure the traumatic outcome from a traumatic event, and the time that follows that trauma. In real-life experiences, it is hard to precisely identify when the "trauma" occurred and when it stops or not. Whereas the AAD does not focus on whether or when a

trauma occurred or not. It focuses on the positive development following the exposure of adversity. Moreover, in PTG, the term "growth" excessively emphasizes the positive traits acquired by a person after the traumatic event, often neglecting to consider the individual from a holistic perspective. In fact, several previous research results about PTG in natural disasters in fact support the fundamental philosophy of AAD. Research of the 2008 Wenchuan earthquake indicates that there is no correlation between Post-traumatic Growth and Post-traumatic Stress; these two co-exist; and they do not share the same predictors (Zhou, Wu & Chen,2015). These research outcomes show the complexity of the journey after the natural disaster; the various responses co-exist; and the cause of the responses is not simply due to a single event or outcome.

Furthermore, another difference between AAD and PTG is that PTG does not make a distinction between resilience and AAD. PTG does not make distinction between retained (unchanged) positive qualities and the new positive development. Whereas the Adversity Grid, makes a very clear distinction between the positive strengths that existed before the adversity from the new strengths that were acquired as the results of being exposed to the adversity.

Finally, the complexity of the various forms of development following adversity is not limited to the personal level but it includes two other levels that the Adversity Grid identifies, i.e. the External, Interpersonal and Intrapsychic ADD, as discusses above. This is another difference that distinguishes AAD from PTG. These three levels of AAD influence each other in a dynamic manner that corresponds better with the observed realities of post-adversity situiations.

Taking the Taomi community which was devastated by the 921 Chi-Chi Earthquake, as an example, it transitioned from a declining agricultural rural community facing the emigration of young and educated individuals to transforming into an ecologically sustainable tourist community. The benefits of these developments extend beyond the personal level; they also

impact the interpersonal, socio-cultural, and environmental levels. The developments on each layer intertwine with each other; therefore, the progress on different levels cannot be simplified and reduced only to individual positive traits or qualities.

3.5. The Application of Adversity Grid

The Adversity Grid addresses the multifaceted range of effects of adversity, making it a valuable tool in working with people following adversity, at the levels of individual, families communities, and wider society. (Papadopoulos, 2021a). It is designed to be a flexible and adaptable tool to serve different purposes, included but not limited to assessment or therapeutic purposes (Papadopoulos, 2021a). The Adversity Grid has been utilised as training material in several global projects such as the Enhancing Vulnerable Asylum Seekers Protection (EVASP) project of the International Organisation for Migration (IOM) to enhance the competence of the organisations and the workers in working with refugees and asylum seekers in Italy, the UK, The Netherlands and Greece (Muneghina & Papadopoulos, 2010). It has been utilised as an assessment tool to evaluate the psychosocial needs and resilience factors of the 2010 Haiti earthquake survivors in camp in providing better support to their AAD (Schinina, Hosn, Ataya & Dieuvert, 2010). Academically, the Adversity Grid provides a framework to understand the experiences of adversity at different levels. Finally, it has been used as a research tool for gaining a deeper and more holistic understanding of the lived experiences of dislocation journeys (Groark, Sclare & Raval, 2011; Somasundaram & Sivayokan, 2013), of the Covid pandemic (Papadopoulos and Demir, in press).

PART TWO - the Present Study

Chapter 4.

The Current Research Design

4.1. Overview

The present study explores the long-term impacts of the 921 Chi-Chi Earthquake on survivors, focusing on the Adversity-Activated Development (AAD) experienced by individuals and families. This catastrophic event profoundly reshaped Taiwanese society and its disaster response mechanisms, whilst providing a significant context for examining the nuanced and multi-layered responses to adversity. Adopting a qualitative methodology, this research employs extensive, in-depth interviews that allowed participants to thoroughly reflect upon and articulate their experiences, alongside the innovative application of the Adversity Grid and Adversity Index Form. Through this methodological approach, the study investigates the complex interplay of personal, interpersonal and social factors in response to adversity.

4.2. Aims and Research Questions

The primary aim of this thesis is to examine the manifestation of Adversity-Activated Development (AAD) amongst individuals and families who experienced the 921 Chi-Chi Earthquake. This involves investigating how AAD is influenced by various cultural and societal factors and how it is represented across different domains of life affected by the earthquake. The study addresses the following research questions:

1. How do the responses and developments of individuals and families manifest across multiple layers after the 921 Chi-Chi Earthquake, and how are their uniqueness and complexity presented?

2. To what extent is AAD reported by individuals and families?

3. How do individuals and families exhibit Adversity-Activated Development (AAD) in the aftermath of the 921 Chi-Chi Earthquake in Taiwan?

4. What patterns emerge in the different layers (External, Interpersonal, Intrapsychic) of AAD, and how are these shaped by cultural and societal factors?

5. In what ways do communal and familial dynamics contribute to the AAD processes following the earthquake?

Through addressing these questions, this research seeks to provide insights that contribute not only to the theoretical understanding of disaster psychology but also to inform practical approaches to mental health interventions in post-disaster contexts. The study emphasises the importance of culturally sensitive approaches that acknowledge and harness the inherent strengths and coping mechanisms within affected communities.

4.3. Methodology

This research seeks to explore the prolonged individual and family Adversity-Activated Development (AAD) amongst survivors of the 921 Chi-Chi Earthquake. AAD represents an ongoing dynamic process wherein personal, interpersonal and social factors interact to form complex meanings and responses in life at individual, familial and societal levels. Given the necessity to capture participants' long-term experiences and their nuanced internal perceptions, extended and detailed interviews were essential. Moreover, considering the unique characteristics, experiences, and family dynamics of each individual and family unit, this research specifically focused on examining the post-disaster development of one family affected by the 921 Chi-Chi Earthquake to achieve an in-depth understanding of their experiences.

The study recruited three participants from the same family who survived the 921 Chi-Chi Earthquake. Participants were asked to describe their experiences during the earthquake and at two other significant life stages following the event. Semi-structured in-depth interviews were conducted to gain insight into the unique significant life stages that each participant experienced. The Adversity Grid was employed to map participants' negative, unchanged, and positive responses, and to explore the development at both individual and family levels during each significant life stage. The Adversity Index Form was utilised as a self-report inventory to help participants explore the personal, interpersonal and social/cultural dimensions of their experiences at each significant stage.

This qualitative research employed the Adversity Grid and Adversity Index Form to capture and examine the complexity, uniqueness and totality of participants' life journeys. The collected data were analysed using thematic analysis methodology to explore significant themes that emerged during the interviews and to gain a deeper, systemic understanding of the long-term post-disaster development of both participants and their family.

4.4. Participants

Criteria of Selection

Given that each family unit possesses its own unique configuration of experiences, characteristics and relational dynamics, this research concentrated on conducting an in-depth examination of a single family's post-disaster development following the 921 Chi-Chi Earthquake. This methodological choice enabled a thorough exploration of their particular recovery journey. The study recruited three female participants, aged between 37 and 42 years, from the same family who experienced involuntary dislocation due to the earthquake.

In accordance with ethical research principles, the study received ethical approval from the University of Essex Ethics Committee (see Appendix B). Informed consent was obtained from all participants, ensuring they thoroughly understood the research aims and agreed to both the interview process and audio recording. The participants were made aware of potential psychological impacts that might arise whilst reviewing their experiences of adversity during the research process. They were explicitly informed of their right to withdraw from the study at any point without explanation. These ethical considerations were paramount in ensuring the research was conducted with appropriate sensitivity given the potentially distressing nature of recounting traumatic experiences.

Recruitment and Data Collection Process

The participants were recruited through the researcher's social network. Once the candidates were referred to the researcher, the researcher explained the aim and the process of the research to the candidates via telephone calls. Participants were asked to sign the consent form if they understood the rights and potential risks of the research and agreed to join the research.

Each participant was interviewed three times: the interviews were done a week apart. All the interviews were conducted online via end-to-end encrypted online auditory meetings.

4.5. Research Tools

Semi-structured in-depth interviews were conducted to gain insight into the unique significant life stages that each participant had been through. The Adversity Grid (see Table 1) was utilised to map the development of each significant life stage; and The Adversity Index Form (see Appendix) served as the self-report inventory to help the participants to explore the personal, interpersonal and social/cultural dimensions of their experiences at each significant stage.

The Adversity Grid

The Adversity Grid presents responses on a personal, close relationship (such as family), community and social/cultural level (Papadopoulos & Gionakis, 2018). There are three categories of adversity responses classified in the Adversity Grid: Negative, Unchanged and Positive. Negative responses in the Adversity Grid in relation to the individual have three degrees of severity: psychiatric disorders, distressful psychological reactions, and ordinary human suffering. The unchanged responses are divided into two categories: positive and negative. This refers to the qualities, characteristics, behaviours, functions, and relationships that remain the same in adversity (Papadopoulos & Gionakis, 2018). Positive unchanged responses are referred to as resilience; these are the qualities that support the individual and the system to survive following adversity events and continue to help post-adversity development. Negative unchanged responses are the negative qualities that continue after exposure to adversity (Papadopoulos & Gionakis, 2018). Adversity-Activated Development (AAD) falls into the category of positive responses. It represents positive development as a direct result of exposure to adversity (Papadopoulos, 2007).

Table 1

The Adversity Grid (Papadopoulos, 2016)

Levels	Negative			Unchanged		Positive Adversity Activated Development AAD
	PD Psychiatric Disorder PTSD	DPR Distressful Psychological Reactions	OHS Ordinary Human Suffering ND	Negative Unchange-d	Positive Unchanged Resilience	
Individual						
Family						
Community						
Society-Culture						

The Adversity Index Form

The current study utilises the Adversity Index Form (see Appendix) as a self-assessment scale to understand participants' psycho-social resources at three different life milestones from multi-dimensional perspectives. The Adversity Index Form is adapted from the Asylum Seekers' Protection Indices (ASPIS), which appears in the *Trainers' Handbook: Enhancing Vulnerable Asylum Seekers' Protection* (Papadopoulos, 2010), to make it suitable for examining long-term post-disaster experiences.

The Asylum Seekers' Protection Indices (ASPIS) is one of the tools designed by Papadopoulos (2010) that aims to provide a systemic framework for professional workers engaging with people in vulnerable circumstances, particularly, but not limited to, asylum seekers and refugees. ASPIS emphasises that its function is to identify people's vulnerable

positions in specific phases of their lives, helping workers to grasp the multi-faceted views of each individual's unique circumstances, vulnerabilities and strengths on personal, interpersonal, and social levels (Papadopoulos, 2010).

The adapted Adversity Index Form covers eight dimensions: 1. External Circumstances, 2. Family Constellation, 3. Physical Health, 4. Psychological/Psychiatric State, 5. Community Connections, 6. Wider Society Connections, 7. Degree of Difference, and 8. Daily Routine. Some dimensions have sub-categories to capture more specific information. For instance, External Circumstances includes sub-categories of Physical Safety, Financial Security, Education, Housing, and Discrimination (Papadopoulos, 2010).

Whilst the original ASPIS was designed without measurement functions to encourage systemic cooperation and collaboration in service provision, the current research incorporates a 0 to 10 scale for each category. This enables participants to evaluate their concern level at different life stages, where 0 indicates no concern and 10 indicates maximum concern. This modification allows for comparison of psycho-social resources at different life milestones and well-being among participants experiencing the same life event.

To ensure greater relevance to participants' experiences of natural disaster, the dimensions of Type of Journey and Legal Position were removed from the original ASPIS. Furthermore, to capture a broader and deeper understanding of participants' experiences, the sub-categories within Family Constellation (Age, Gender, Family Constitution, and Family Role) and Degree of Difference (Language, Education, Culture Norms & Practices, Urban/Rural Living Context, and General Lifestyle) were assessed as individual items. This modification makes the assessment and comparison of individual items more straightforward.

It is important to note that the primary aim of using the Adversity Index in the current research is to gain a more holistic understanding of participants' circumstances at certain life stages, rather than to measure or diagnose their psychological status or vulnerability.

Semi-Structured Interview Outline

The interview design, underpinned by the fundamental philosophy of the Adversity Grid, served as a framework for collecting in-depth qualitative data from participants. The interview outline comprised the following questions:

1. Initial Orientation and Timeline Mapping "Thank you for participating in this research. Given that more than two decades have passed since the earthquake, I greatly appreciate your willingness to share your life journey. We have three Adversity Index Forms: one for documenting the immediate post-earthquake period and two additional forms for recording your chosen significant life milestones. Could you first help identify these two significant periods in your life after the earthquake?"

2. Immediate Post-earthquake Period "Regarding the immediate post-earthquake period, could you complete this first Adversity Index form? The form encompasses eight dimensions of life. Please evaluate your degree of concern for each dimension using the scale from 0 to 10, where 0 indicates no concern and 10 indicates maximum concern."

3. Post-earthquake Context "What timeframe does this form represent—one day, week, month, or year after the earthquake? What are your memories of this period? How old were you? Where were you residing? What challenges did you and your family face, and how did you address them?"

4. Impact Assessment "How did the earthquake most significantly affect you and your life? What changes occurred within your family? Which elements remained constant? Did you observe any positive developments during this period?"

5. Subsequent Life Milestones "For the two life milestones you identified, could you complete these Adversity Index forms?"

6. Life Milestone Analysis "What led you to identify these periods as significant life milestones? What occurred during these times? What challenges did you and your family encounter, and how did you overcome them?"

7. Development Assessment "How did events during these periods significantly impact your life? What changes occurred within your family? Which elements remained constant? Did you observe any positive developments during these times?"

8. Conclusion "Are there any additional aspects you would like to discuss?"

The Researcher's Role

The researcher plays the roles of interviewer and data analyst in the research. The researcher is a licensed psychotherapist who has over ten years of counselling experience and has been developing a professional specialty in working with trauma over six years. The researcher's professional background informed the interview process. Talking about adversity experiences was not an easy process for the participants; the researcher's professional background helped the researcher to build rapport with the participants, to listen actively to the participants and to ensure the interview went smoothly. Moreover, during the first year of PhD coursework, the researcher learned the fundamental philosophy of the Adversity Grid and AAD and to look at the adversity experience from psychosocial perspectives. This knowledge also helped the researcher to proceed with the interviews therapeutically.

4.6. Research Procedure

Pilot Study

The pilot study was conducted to ensure that: 1. the eight dimensions of the Adversity Index Form fit the participants' experience. The results of the pilot study may indicate that the categories need to be altered due to the specific context of the 921 Chi-Chi Earthquake and Taiwanese culture; 2. the semi-structured interview questions are relatable for the participants to explore their experiences. 3. The age range of the participants is appropriate. It is possible that females' life experience differs with different age ranges; that is, the age range might need to be narrower for analysis; 4. the duration of the interviews is suitable. Twenty years of life experience could take a long time to describe; the pilot study should help to set a more reasonable duration for the interviews.

Following the pilot study experience, the research direction shifted from exploring individual AAD experiences to a more in-depth and nuanced examination of both individual and familial AAD experiences. However, considering the complexities of family units with multiple members and concerns about whether a single individual's perspective could adequately represent the entire family's post-earthquake development, this study was modified to recruit multiple members from the same family as interviewees. This approach enabled a more detailed and profound exploration of both personal experiences and their shared family development following the earthquake. A more comprehensive description of the reflections from the pilot study and the subsequent modifications to the formal research direction and methodology is provided in the following sections.

Participants of the Pilot Study

Four participants were recruited for the pilot study. Ten interviews were conducted via telephone. The interview duration was between 50 minutes and 4.5 hours. Information about the participants and the three milestones of their choice are as Table 2:

Table 2

The Three Milestones of the Participants' Choice of the Pilot Study

Participants	Age	Marital / Living situation	First milestone	Second milestone	Third milestone
A (1)	37yo	Married/lives with husband, no children, living in their own home	921 Chi-Chi Earthquake	Payment of Mother's debts: Mother was in debt due to gambling and ran away. The rest of the family started to pay off the	Marriage

				mother's debts	
B	64yo	Divorced/ lives with son, living in their own home	921 Chi-Chi Earthquake	Relocation to a new house: harassed by a neighbour	Relocation to the current home
C	65yo	Married/lives with family, husband, sons and daughter. Living in their own home	921 Chi-Chi Earthquake	Payment of husband's debts: Husband in debt due to gambling. The participant started to pay off the debts for her husband.	Closure of the grocery store they had before the earthquake and opening of a restaurant
D	60yo	Married/lives with family, husband, son and	Typhoon Herb	921 Chi-Chi Earthquake	Typhoon Toraji

		daughter. Living in their own home			

Reflections on the Pilot Study

Interview Duration. The interview duration varied among the ten interviews. The difference in the duration of interviews was affected by the content the participants prepared, the expression style and need of the participants, the dynamic between the interviewer and the participants, and many other factors. However, the difference amongst interviews is significant (from 50 minutes to 4.5 hours). This difference would potentially lead to gaps in the information gathered from some participants; it also indicates the challenge that I was facing to maintain the structure and boundaries of the interviews. Nevertheless, it is crucial to consider that providing participants with sufficient freedom to enhance their depth of self-exploration and reflection is equally important. Consequently, following the pilot study, I decided to conduct an in-depth exploration of different members from the same family regarding their individual and familial AAD experiences, thereby maintaining the research framework by narrowing the scope of investigation.

Boundary between Interview and Therapy. I have been a psychotherapist for over ten years. Active listening is one of the skills that I have developed; however, conducting an interview is different from doing psychotherapy. It was a challenge to find a balance between maintaining the structure of the interview questions and being careful to use encouraging signs to let participants go on sharing. Participants reflected that they felt much better and gained new

perspectives and findings of their past experiences as a result of the interviews; one of the participants mentioned that she suggested her family seek therapy based on her positive experience during the interviews. There is a fine line between performing a therapeutic AAD interview and conducting psychotherapy. The therapeutic effects of AAD interviews will be discussed in later chapters.

Dislocation, Trauma, and Home. Earthquake victims who are dislocated in the country/region have very different experiences from the refugee experience. Some participants left the original place of their home permanently; some stayed in tents or temporary houses in nearby areas to wait for their original houses to be rebuilt. The individual sense of dislocation for each participant is therefore likely to be very different.

Almost all the participants mentioned that the earthquake was a natural disaster; they considered it to be fate. One of the participants specifically compared the natural disaster to domestic violence, saying that victims of domestic violence have a perpetrator to blame, but victims of a natural disaster have no one to blame.

Also, many of the participants mentioned the generality that their experiences were normalised because all the neighbourhood experienced the same event and there were people who experienced worse (e.g. family members died). The difference between generality and particularity of experience is also highlighted by the three milestones structure, in which the chosen milestones of participants include experiences other than the 921 Chi-Chi Earthquake. These adversity experiences are of a more personal nature.

Age Difference. The age difference between participants could be a significant factor affecting the content they share (fixed story/non-fixed story) and the dynamic with the interviewer. Participants were in different life stages when the earthquake occurred. Some were

teenagers at the time of the earthquake, and others were married and had children. People in different life stages face different types of challenges and limitations. For example, the experience of a young person who chooses a career that is affected by adversity experience ten years after the earthquake is different from that of a middle-aged woman who decides to change her career two years after the earthquake. The balance between preserving the uniqueness of each experience and finding common ground for the participants' experiences is a dilemma.

Individual to Family AAD. The more information I gathered from the participants, the more I became interested in AAD on a deeper level. I was curious about the family AAD, especially the dynamics between female members of the participants' families. For example, Participant A has a family of five sisters, and they paid out the mother's debts together from a young age; the dynamic between sisters and mother-daughter; and the systemic AAD among them raised my interest. To focus on members within the family and obtain a deeper perspective from personal to family AAD seemed to result in more in-depth research. I reached out to Participant A to ask if there were other members in her family who might be willing to join the interviews, and two of her sisters later joined the research.

Principal Study Interviews. To investigate the manifestation of Adversity-Activated Development (AAD) at both individual and family system levels, three sisters were recruited for the principal study. To maintain clear differentiation from the pilot study, the participants were designated as Participant 1, Participant 2, and Participant 3, corresponding to the chronological sequence of their interviews.

The research design required participants to identify three significant life stages, with the 921 Chi-Chi Earthquake predetermined as the initial milestone. Data collection comprised three

comprehensive semi-structured interviews per participant, conducted at weekly intervals via end-to-end encrypted online audio meetings. The interviews followed a chronological progression through the identified life stages. Prior to each interview, participants completed the Adversity Index Form for the respective life stage, which subsequently informed the discussion of their experiences during that period. Each interview session lasted between 2 and 4.5 hours, yielding approximately 40 hours of audio data in total. All interviews were conducted in Mandarin, audio-recorded, transcribed verbatim, and subsequently translated into English.

4.7. Data Analysis

Thematic Analysis

Thematic Analysis Thematic analysis is a process that systematically identifies, classifies and provides insights into the data in order to discover patterns of meanings (themes) from the qualitative data (Braun & Clarke, 2012). Thematic analysis has qualities of accessibility and flexibility, which is also friendly to researchers who are new to qualitative research (Braun & Clarke, 2012). It can be conducted using an inductive and/or deductive approach.

An inductive approach allows themes to emerge directly from the data without preconceived theoretical frameworks, enabling researchers to capture unique patterns and meanings that might not fit within existing theoretical constructs (DeCarlo,2018,p.134) . In contrast, a deductive approach is guided by pre-existing theoretical frameworks or concepts, where researchers analyse the data with specific theories or research questions in mind (DeCarlo,2018,p.135). These approaches, whilst distinct in their methodological orientations, can function in a complementary manner to enhance the depth and rigour of qualitative analysis.

The present study implements a dual-approach methodology. The inductive approach was employed to systematically examine and categorise the longitudinal post-earthquake experiences and developmental trajectories of the participants spanning over two decades. This methodological approach facilitates the preservation and recognition of the participants' unique narrative trajectories whilst enabling systematic categorisation of their lived experiences. Simultaneously, the deductive approach was utilised to analyse and conceptualise the empirical data within the theoretical framework of Adversity-Activated Development (AAD), thereby establishing a robust theoretical foundation for the analysis.

Transcript and Coding

The audio data was meticulously transcribed and underwent multiple rounds of proofreading to ensure the accuracy and reliability of the transcripts. In accordance with ethical research protocols, all identifying information and personal details were systematically removed to maintain participants' anonymity and confidentiality; participants were assigned alphanumeric codes (P1, P2 and P3) for identification purposes throughout the analysis process. To achieve immersion in the data and enhance analytical rigour, the researcher engaged in repeated listening of the audio recordings while simultaneously reviewing the transcripts. This iterative process facilitated a more nuanced and critical understanding of the participants' narratives prior to the commencement of the coding process.

Systematic analysis of qualitative data commences with the coding process, which serves as the foundational step in identifying meaningful patterns within the dataset. Coding is the systematic process through which researchers identify and label segments of data that are potentially relevant to addressing the research questions (Braun & Clarke, 2012). This process

involves a detailed line-by-line examination of the transcripts, where segments of text are assigned codes that capture their essential meaning and analytical significance. These codes serve as conceptual tools that facilitate the identification and development of potential themes emerging from the data.

To enhance the methodological rigour of the coding process, an iterative approach was adopted. This involved multiple rounds of coding, with initial codes being refined and consolidated through successive analyses. The coding process was documented through detailed analytical memos, which captured the researcher's developing interpretations and theoretical insights. This systematic approach to coding ensures transparency in the analytical process and strengthens the credibility of the findings.

Identifying Themes

Following the completion of the initial coding phase, a rigorous and systematic process of thematic identification was undertaken. The coded data underwent multiple iterations of analytical review to identify patterns of convergence, divergence, and conceptual overlap, facilitating the development of hierarchical code clusters. These clusters were categorised into descriptive clusters, which captured explicit content and meanings, and interpretive clusters, which encompassed more latent, conceptual interpretations of the data.

The process of theme development involved a recursive analytical approach, wherein the researcher moved iteratively between the original transcripts, codes, and emerging conceptual frameworks. This dynamic process enabled the identification of both semantic themes, which reflect explicit surface meanings in the data, and latent themes, which capture underlying ideas, assumptions, and conceptualisations (Braun & Clarke, 2012). The potential themes underwent

rigorous examination through a process of reviewing, refining, and reconceptualising to ensure their coherence and distinctiveness.

To enhance analytical rigour, each potential theme was evaluated against Patton's (2015) dual criteria of internal homogeneity and external heterogeneity. This ensured that data within themes cohered meaningfully while maintaining clear and identifiable distinctions between themes. The final phase of theme development involved precise definition and naming of themes, ensuring that each theme captured a distinct and significant aspect of the data in relation to the research questions while maintaining theoretical coherence with the broader analytical framework.

Rigour

To ensure methodological rigour, this study adhered to Lincoln and Guba's (1985) established criteria of trustworthiness throughout the research process. These criteria encompass credibility, dependability, confirmability, transferability, and authenticity.

Credibility pertains to the verisimilitude of the data, specifically the accuracy with which the researcher interprets and represents participants' perspectives. Dependability refers to the consistency and stability of data under similar conditions. Confirmability necessitates that the data authentically represent participants' viewpoints without researcher bias. Transferability addresses the applicability of research findings to alternative contexts or populations. Authenticity concerns the researcher's capacity to faithfully convey participants' emotional and experiential narratives (Cope, 2014).

Multiple methodological strategies were implemented to enhance the study's credibility, confirmability, and authenticity. Initially, a pilot study was conducted to validate the alignment between interview protocols and research objectives. Throughout the research process, the

researcher maintained detailed reflexive notes documenting analytical observations and engaged in regular supervisory consultations to mitigate potential interpretative bias. Post-analysis member checking was employed, wherein participants were provided with descriptive narratives of their experiences for verification and modification. Additionally, participants quantitatively evaluated the accuracy of these descriptions using a standardised scale (0-10, where 0 indicates minimal accuracy and 10 indicates maximal accuracy).

To strengthen dependability, the study implemented investigator triangulation through the engagement of two independent coders. These coders conducted parallel analyses of identical transcripts, followed by systematic comparison of coding discrepancies to establish enhanced analytical consistency and reliability.

While transferability is traditionally associated with research seeking broader generalisability (Cope, 2014), the current investigation prioritised the idiographic examination of unique and complex experiences following the 921 Chi-Chi earthquake. Nevertheless, the findings may offer valuable insights for individuals who have experienced involuntary displacement or significant adversity, potentially facilitating alternative perspectives on their own experiences.

4.8. Ethical Considerations

Autonomy

Participants for the present study were recruited from the researcher's social networking resources. It was predicted that potential candidates might develop a feeling of obligation as subjects of the research work. To avoid such feelings, the researcher assured all the potential participants of their autonomy as voluntary participants. They were also given the right of withdrawal from the research at any point of time. In addition, the participants had the right to

decide the depth of experiences that they felt comfortable to share. Similarly, they had the right

to withdraw any content which they did not want to be revealed in the research.

Potential Risks

Talking about experiences of adversity is often not an easy process for research participants.

Although the 921 Chi-Chi Earthquake occurred 21 years before the research was conducted, it

was expected that psychological distress might be triggered by the research. The participants

were informed in detail early about the potential risks before agreeing to become research

subjects. Also, potential subjects who were currently experiencing severe psychological distress

were advised not to join the research.

The researcher was both interviewer and data analyst in the entire research process. The

researcher is a licensed psychotherapist with over ten years of counselling experience. The

researcher also has a professional speciality in working with adolescents and adults with traumatic

experiences and has worked in this area for over six years. The researcher's professional

background was helpful in conducting trauma-sensitive interviews. If the participants' situations

had required any sort of interventions, the researcher could have helped the participants to obtain

suitable resources. Moreover, during the first year of the PhD coursework, the researcher learned

the fundamental philosophy of the Adversity Grid and AAD, and to look at adverse experiences

from a psychosocial perspective. All these accumulated knowledges helped the researcher to

proceed with the interviewees in a therapeutic manner.

Confidentiality and Data Protection

None of the participants' personal details, such as name and address, were recorded

throughout the research process. These details remain anonymous. All the interviews were

conducted on a one-to-one basis in safe environments, which involved only the researcher and

the participant. All audio data was transcribed, and personal details of the participants were

removed to ensure confidentiality. Participants were represented by the code names P1, P2, P3.

The audio data is secured electronically with double password protection. The researcher is the

sole individual to access the data. All data collection, usage and storage will be conducted in

accordance with the Data Protection Act 2018.

Chapter 5.

Findings

5.1. Overview

This chapter examines the profound impact of the 921 Chi-Chi Earthquake on three sisters—Participant 1 (P1), Participant 2 (P2), and Participant 3 (P3)—exploring their interconnected narratives of adversity and transformation. Through comprehensive semi-structured interviews and the multi-dimensional Adversity Index Form, the research investigates the manifestation of Adversity-Activated Development (AAD) at both individual and family system levels. The earthquake served not merely as a devastating natural event, but emerged as a pivotal catalyst for significant life trajectories and psychological growth.

Each participant identified three pivotal stages in their respective life courses (refer to Table 3), providing a framework for understanding their developmental trajectories through significant life events. The following sections present both the familial narrative and individual narratives corresponding to their selected life stages. For life stages that were identified by multiple participants as significant milestones, their Adversity Index Form scores are presented collectively following the respective narrative sections, enabling a comparative understanding of how different family members experienced and responded to shared life events.

The emergent themes, grounded in AAD theory, reveal the complex interplay between individual and family experiences of adversity and growth. This integrated approach, utilising both narrative accounts and self-assessed indices of concern across various life domains, enables a nuanced understanding of how individual and family AAD manifested within the shared family

context, particularly in response to significant life events that affected the family system as a whole.

Table 3

The Three Milestones of the Participants' Choice

Participants	Age	Marital / Living situation	First milestone	Second milestone	Third milestone
1	37-year-old	Married/lives with husband, no children: living in their own home in Taiwan, but in a different city than the parents'.	921 Chi-Chi Earthquake	Payment of Mother's debts: Mother was in debt due to gambling and ran away. The rest of the family started to pay off the mother's debts.	Marriage
2	4-year-old	Married/lives with	921 Chi-Chi Earthquake	Taking out of loan to	Marriage and

		husband, two young children: living in their own home in Japan.		pay Mother's debts: Mother was in debt due to gambling. Participant took a substantial loan to pay mother's debt.	relocation to Japan
3	39-year-old	Married/lives with husband, no child, living in their own home in Germany.	Graduation and commencement of employment (found out the mother was in debt).	Resignation from job and travel.	Marriage and relocation to Germany

5.2. Family, Individual Narrative and Adversity Index Form scores

Family Background

The participants belong to a family unit comprising seven members: two parents and five daughters. The daughters' age distribution follows a close pattern: between the eldest and second daughter is a one-year interval; between the second and third daughters, a two-year interval; between the third and fourth daughters, a two-year interval; and between the fourth and youngest daughter, a one-year interval. The study focuses on three of these siblings: Participant 2 (aged 41), the second eldest; Participant 3 (aged 39), the third eldest; and Participant 1 (aged 37), the fourth eldest.

The participants' family live in Dongshi, located in central Taiwan, which was one of the most devastated areas after the 921 Chi-Chi Earthquake. Dongshi was the centre of a significant footwear manufacturing industry, in which the father of the family used to work and had a stable income, while the mother was a housewife. A few years before the earthquake, the industry had begun to relocate to China, as a result of which the father lost his job and started to work in farming, dog breeding and doing temporary jobs for a living. The financial state of the family was sustainable but with no extra available income before the earthquake.

The family narratives are presented to gain an understanding of the narrative context of the participants' family. The presented narratives are combined from the information gained from the interviews with Participants 1, 2, and 3. They consist of three stages: the 921 Chi-Chi Earthquake; the period when the mother was in debt; and the family reunion when the mother was diagnosed with cancer.

5.2.1. *The 921 Chi-Chi Earthquake*

Family Narrative

The 921 Earthquake began at midnight, when the father, mother, oldest daughter, fourth daughter (Participant 1) and youngest daughter were home, while the second (Participant 2) and the third (Participant 3) daughter were in other cities due to their study commitments. The house collapsed due to the earthquake, and later it was classified by the government as half collapsed. The bedrooms were located on the first floor and when the house collapsed, there was no way for the daughters to escape. The father used a ladder to help the daughters out, while the mother was injured. Aftershocks continued after the main earthquake (the aftershocks remained for months). As it was no longer safe to go back to their houses, people started to gather in the school field, although it was a cold night. Half of the buildings in Dongshi collapsed, and the only road that led out of Dongshi collapsed too. Over 2500 people were severely injured and 358 people died from the earthquake in Dongshi, and a total of some 200,000 people became homeless in central Taiwan where Dongshi is located.

The family lived in tents in a nearby school field for a year until their house was rebuilt. At the beginning life was chaotic and what people did was to roam around the field, looking for donated goods. It was well-known that Dongshi had been badly damaged in the 921 Earthquake, therefore, sufficient resources of food, daily supplements, mental and physical support, entertainment facilities and education were received from charities and the government. Amongst the family members who lived in Dongshi at the time, the oldest sister was first to leave to work in another city while the fourth daughter and the youngest daughter remained living in the tent with their father and mother. The other daughter came back for a visit from time to time. The location of the tents was close to the grandmother's house, where they would go for

dinner, but the parents did not allow them to live with her instead of in the tent due to longstanding family issues. They studied and slept in the tent, while the fourth daughter (Participant 1) relocated to the school dormitory after 6 months. The participants' family was the last family to vacate the school field following the disaster.

Individual Narratives-Participant 1

Participant 1 is the fourth daughter of the family. She selected the period of the 921 Chi-Chi Earthquake as her first significant life milestone. Among the three participants, Participant 1 was the only one who experienced the earthquake at home. She managed to escape from the collapsed house and lived in tents for a longer duration than the other participants. Her account of this milestone includes her experiences during the earthquake, her life in temporary tents, and the period when she was relocated to a school dormitory.

Initially, Participant 1 recounted her memories of the moment when the earthquake struck and how she and her family escaped from their collapsed house."

The Earthquake - Escaping from the House. *"The earthquake incident happened during the middle of the night. At that time, I was already asleep, as was my younger sister. We shared the same room. Later, my parents (in a separate room) were in the house when the earthquake struck. In my room, a hole was torn in the wall. When the earthquake hit, my father, wearing only his underwear, rushed out. He immediately jumped up, not even having left the house. He had only reached just outside the room. Meanwhile, in my mother's room, the wardrobe collapsed, pinning her underneath. Her nose was bruised and swollen due to the impact. Because the shaking persisted for a long time and with significant intensity, my father quickly went to rescue my mother, pulling her out from under the wardrobe.*

When they emerged from the room, my father had not worn any shoes, so he stepped on a broken wine bottle or glass, injuring his foot and leaving blood behind. Later, in his underwear, my father went to borrow a ladder from someone. The hole in my room's wall was perfectly situated, allowing him to climb up directly through it from the outside wall and rescue us.

As I recall, my older sister was at home at the time. She slept in the room next to mine. As her room was on the second floor, when she attempted to come over, upon opening her room's door, she found that everything in front of her had collapsed and toppled, leaving debris. Opening the door that time startled her. She had to figure out how to get to us. She described that she resorted to jumping over to our side, but she joined us, climbing down through the hole and then descending the stairs.

That day was quite cold, even colder than one would expect in September, with a chill that was remarkable."(P1M1)

After escaping from the collapsed house, there was a moment when Participant 1 sat by the roadside, feeling surreal about what had just happened and had not yet fully comprehended the severity of the disaster.

Sitting by the Roadside - Like a Science Fiction Novel. *"Afterwards, due to the fact that the motorcycle was parked outside, my father went and open the seat cushion of the motorcycle. He took out raincoats for all of us, and we put them on to keep warm as we sat outside. My mother, in a state of confusion at that time, kept looking at our house and repeatedly asked my father what to do. She was saying that our house had collapsed, but at that moment, none of us truly comprehended the magnitude of the disaster. This is probably a common reaction – you don't immediately realise the gravity of the situation. Later, we started receiving bits of news. Word came that a building had collapsed in Dongshi, and since Dongshi is quite*

rural and doesn't have many tall buildings, this was a significant event. Many people were

trapped in the collapsed building and there were reports of fires. However, the feeling that I had

that night was almost surreal, like something out of a science fiction novel. It felt like being in an

otherworldly scenario. It was around two or three in the morning, and there I was, wearing a

raincoat, in the aftermath of an earthquake that had just occurred.

As soon as the shaking stopped, my father came out, and I quickly went downstairs. Due

to the hole in my room's wall, caused by the earthquake, I made my way down. My father

checked for aftershocks and then we descended. There was fear during the process, but it didn't

last very long. So, I found myself wondering how I ended up outside at that time, not sleeping,

sitting with our neighbors on the roadside. Everyone kept a distance from the houses, likely out

of fear, and we were all wearing raincoats. I turned to my younger sister and said, "Hey, we

have to go to class tomorrow. What do we do?" We had a light-hearted conversation, discussing

the next day's plans, almost as if we hadn't yet grasped the true nature of the situation."

When morning came, with the house in ruins and frequent aftershocks continuing, people

remained in a state of shock, unable to take any immediate action. They began to gather at the

elementary school field. It was the start of the relocation for Participant 1 and her family.

Heading to the School Field- The Days of Tent Living. *"The next day, in the early*

hours of the morning when it was still dark, around five or six o'clock, my father rode his

motorcycle out to c heck on the situation at my grandmother's house. My grandmother's

household consisted of my grandparents and my uncle. Their belongings had been scattered due

to the earthquake, but their house was still habitable. Their house was right next to Dongshi

Elementary School, and word spread that relief supplies were being distributed there. People

were organising to distribute supplies voluntarily, and so we went there to queue up.

Because there really wasn't much to eat, and there wasn't much we could do, my father

spent that day going back and forth. He went back to our house later that day. Since we didn't

have a television and newspapers couldn't be delivered, we relied on the radio for information.

During that era, radios were the kind that didn't need to be plugged in and could run on

batteries. Luckily, my father had such a radio, so we got some batteries and listened to it briefly,

quickly turning it off. We were somewhat disconnected from the outside world and didn't have a

clear picture of what was happening. Still, we heard that relief supplies were being distributed at

Dongshi Elementary School, so we went there.

People were in need and hungry. We had a simple meal of vegetarian rice noodle soup

provided by Tzu Chi Foundation. After satisfying our hunger, we began to contemplate what to

do next. Eventually, tents were brought in. Everyone gathered on the school field, setting up

tents. We followed the crowd to set up tents as well."

Participant 1 described the period following the earthquake and their time living in tents

as a period in which she felt like she had lost track of time. Her oldest sister decided to leave the

devastated area to find work, a decision that would later influence Participant 1's choice to

relocate to the school dormitory. Moreover, dynamics within the extended family began to

surface.

Sister's Departure and the Relationship with Grandma's House During Tent Living.

"I don't remember all the details clearly, but we pretty much stayed there and set up tents. From

what I recall, I don't think I ever went to my grandmother's house to sleep. While my

grandmother's house was fine, my mum and my uncle didn't have the best relationship, so they

didn't really want to stay there. Instead, we slept in tents – my younger sister, me, and my older

sister. Later, after the earthquake, when the transportation to the city improved, and she moved

and began working in Taichung City. At the time, I felt a bit upset that she left. I wondered why, as the eldest sister, she didn't stay with us after such a major event in our family. However, she explained her reasoning, which actually made a lot of sense. She said that staying here wouldn't be very helpful, but by going out and working, she could at least earn money and lead a relatively normal life outside. In this context, we were all living together, but our lives weren't exactly normal.

Due to the earthquake, we were forced to confront the dynamics between my mother, my grandmother and my uncle. My grandmother treated us well, and my uncle wasn't unkind either, even though he was a bit peculiar. However, because of the strained relationship between my uncle and my mother, things felt complicated.

During that time, there wasn't much to do. Your family didn't have money, couldn't rebuild your house, and had to wait for assessments. They needed to determine whether your house was fully collapsed or partially damaged. Once they confirmed that your house was beyond repair, the government had to arrange for equipment to demolish it. On the day of the demolition, we all went there because the operators of the equipment were familiar to us. They would dig for a while and then stop, allowing us to go in and salvage our belongings. I really hoped I could find my graduation album, but it was usually kept in a drawer and wasn't accessible among the rubble. During that time, we had very little to our names. So, anything salvageable was something we had to try to retrieve."

In the following section, Participant 1 describes her life while living in the tents, including the daily routine, moments of happiness, and the darker aspects of living collectively with other earthquake survivors.

Life in the Tents. *"It felt like a long time during that period. I had no real concept of time then, I couldn't even remember when classes resumed. I only knew that every day, we would wait for the time to come, and then we'd go and collect relief supplies. In the area, people would talk about various things. For example, since there was no running water at the time, everyone had to use public toilets. We used the ones at the elementary school. There would be instances where someone didn't flush after using the toilet, and they would get scolded or even beaten up by others. It was quite amusing, in a way. Then there were cases of people trying to grab supplies from certain distribution points, leading to small altercations.*

We also had our little moments. Someone might say, "Today I stood in line, and I got cup noodles with meat inside." It's like we found joy in these little things that were once so mundane. At the time, we didn't really think much about it, but looking back now, it's like, "Wow, we were so silly back then."

Researcher/Interviewer: So, what you're saying is that it was like finding little moments of happiness? Like, if you got cup noodles with meat inside, that was a big deal.

Participant 1: Exactly."

The Shadow Side of Life in the Disaster Zone. *"There were even ghost stories in the disaster area. Humans were scarier than ghosts. For instance, when a building collapsed, there would be some unscrupulous individuals who would sneak in and steal things or take advantage of the chaos to commit crimes. There were cases where people from undamaged areas would pose as victims and take away belongings from those genuinely affected. As time went on, even though people started off being helpful and cooperative, tensions would inevitably arise. When you're living together with so many people in such close quarters, sharing common facilities like bathrooms and lining up for relief supplies, you start to become familiar with the faces around*

you. It's like you're all in this together. But because they're not your family or close friends, your

tolerance for them naturally diminishes, and a sense of crisis starts to develop.

For instance, my parents thought about our safety. They decided that our tent should be

placed near by my grandmother's house, at the backdoor, right next to the elementary school. It's

a location that most people wouldn't choose because it's closer to the house, and aftershocks

were still frequent at that time. But we felt it would be less crowded there, so that's where we set

up. When it came to using the restroom, my parents preferred us to use my grandmother's once it

was cleaned up rather than public restrooms. And when we had to go collect relief supplies, my

parents didn't allow my younger sister and me to go alone. There were stories of people

encountering harassment or even assault, so they wanted to keep us safe. Such issues, regardless

of whether there's a disaster, always exist, but they were even more prevalent during that time.

For a while, it felt like there was a curfew. When it got dark, around 6 or 7 PM, everyone

would be home, likely having dinner. In the winter, it got dark early, and the streets would be

empty and dark without any streetlights or people. People would say that because it was an

emergency situation, severe penalties would be imposed for those who tried to steal from others

or cause harm. There were rural legends that would emphasise this, making us even more

fearful."

Participant 1's school was located about an hour away from her home in the devastated

area. When the school resumed, she was offered the opportunity to relocate to the dormitory by

the school. She accepted the offer to establish a more regular routine than living in the tents. In

the subsequent paragraphs, Participant 1 elaborated on the confusion and puzzling feelings she

experienced as a child caught in the complexities of her extended family.

Returning to School and the Dilemma of Staying with Family. *"After living in tents for about two months, I think it was around October or November, classes resumed at school. Once classes started, I moved into the dormitory because my elder sister had also started working in Taichung city, and I thought it would be more convenient to live in the dormitory where everything was provided and there were no expenses. Additionally, I was still trying to understand the situation at home. To this day, I find it hard to comprehend. Back then, my grandmother kept telling us that the weather was getting cold and urged us to come stay at her house. There was a room available, and we could even sleep on the floor, but my parents insisted on staying in the tent. My uncle would also question why we weren't going inside.*

Later, my mother said we didn't need to, so we didn't go. Therefore, when I returned home on weekends, my younger sister and I continued to stay in the tent. The weather was getting colder, so sometimes in the morning, there would be condensation inside the tent. We couldn't leave valuable items in the tent either because it wasn't secure. The elementary school had resumed classes as well. Since we were considered disaster victims, the school didn't want to drive us away. They designated a specific area for us and instructed students not to approach. Police officers would also patrol the area, checking on how we were doing.

However, I still find it strange that my parents refused to stay at my grandmother's house. There might have been some unresolved issues between them. My relationship with my grandmother had always been good, and she kept saying how cold it was and how unfortunate our situation was. Fortunately, many people were donating clothes, and since our own clothes had been buried under the rubble, we received some donated winter coats. We would wear them at night to sleep because it was extremely cold outside."

The following sections present the phase during which Participant 1 relocated to the school dormitory. In this phase of her experience, Participant 1 moved out of the devastated area and joined a minority group (earthquake survivors) at school. This experience provided her with different perspectives on humanity and led to introspection about herself. The changes in perspectives and personal development facilitated by this life experience will be elaborated upon in the AAD themes section. The following quotes will focus on the narrative experience of this phase.

Living in the Dormitory and Facing Challenges as a Disaster Survivor at the School-Part 1. *"In our grade, there were two classes, and in the adjacent class, there was also a girl who was in a similar situation as me. I didn't know the specifics of her family's situation, whether their house had collapsed entirely or partially. But at that time, both of us were considered disaster survivors, and the school arranged for us to stay in the dormitory. I asked my family, and they didn't object, so I thought, "Why not go stay in the dormitory?"*

However, there were a lot of bureaucratic practices at that time. They told us that when we go to the dormitory, we wouldn't need to bring anything except our clothes and school supplies because the dormitory would provide everything else, like pillows and blankets. We agreed to this arrangement.

But on the first day we went to get our blankets, the adults responsible for this matter were discussing openly whether they should give us new blankets or the old ones. It was probably for registration purposes. My classmate from the adjacent class and I exchanged glances. That incident left a deep impression on me. When we arrived at the dormitory, I cried. I couldn't believe they were openly debating whether to give us new or old blankets right in front of us. It was disheartening."

Moving to the Dormitory Life and Experience of Being in the Minority as a Disaster Survivour at the School - Part 2. *"When I moved to the dormitory, I was in my first year of high school, and our class was in the Early Childhood Education department, consisting of 50 girls. So initially, there were already established friend circles within the class. Although our class got along well, each of us had our own group of friends. I ended up sharing a room with two girls from a different circle and a senior girl.*

At first, I felt uncomfortable in the dormitory because I didn't know anyone from my friend circle. But the girls in my dormitory were really nice and treated me well. There was one week when we had to go home, and I remember when I moved into the dormitory, I didn't have a backpack. I carried my stuff in a plastic bag, including the textbooks that the school provided later on. I also had some pens and stationery that I received as part of relief supplies. So, I packed these things into the plastic bag and went to the dormitory.

Our school was located at the foot of a hill, while the dormitories were on top of the hill. We had to climb a few hundred stairs, or maybe more, to get there. I remember telling my family that I was moving to the dormitory and carrying my belongings in a plastic bag because I didn't have a backpack. I think this surprised my classmates a bit.

After a week, when we were going home for the weekend, I packed my stuff into the plastic bag again. One of the roommates who I wasn't very close to, she was very good friends with the others in the dorm, took out a backpack from her closet and asked if I'd like to use it. I looked at her and said, "Thank you so much." I'm the kind of person who likes to make jokes about myself, so I told her, "You caught me! I was wondering if I should take a plastic bag to ride the bus, it's awkward." She just said, "It's okay. You can always ask for help if you have any difficulties." I felt like they were genuinely kind people.

Even though I expressed my gratitude to them before we graduated in our senior year during a girls' class event where we shared our feelings, I still find them to be peculiar individuals to this day."

After a year, the house was finally rebuilt. Participant 1 recounted the vivid memories of the first day moving back in.

Rebuilding and Returning Home: The Feeling of That First Night. *"Whenever I think back now, I'm reminded of that year, the 921 ,that specific day was very cold. The whole winter of that year was cold as well. So, when we finally returned home, on the first day, the entire family slept on the floor in the corrugated metal house. The metal house would make loud noises with the slightest gust of wind, but even so, it felt really good. We were finally under a roof with walls around us.*

Q: It's like they say, the warmth of home is truly heart-warming.

A: Exactly."

Individual Narratives-Participant 2

Participant 2, the second daughter of the family, also selected the 921 Chi-Chi earthquake as her first significant life milestone. At the time of the earthquake, she was living in another city for university. In her descriptions of the event, she mentioned the period during which she could not reach her family for weeks but naively believed they were unharmed. She also described the shock she experienced after reaching the devastated area and the reunion with her family.

"On the night of the 921, (the place where Participant 2's university was located) also experienced significant tremors. We were staying in a dormitory, and that night, we all rushed out to see what was happening. During that period, mobile phones were not as prevalent as they are today. I had a basic "beep-beep" pager, as this was in the year 1999. After the 921 Chi-Chi

Earthquake, I realised the importance of having a mobile phone. It allowed you to immediately contact important people. I kept trying to call home, but nobody answered. At that time, none of us had mobile phones, and I didn't think much of it. I didn't consider the situation to be that serious because, deep down, I believed that my family would be okay. I was quite self-centered at the time and had a somewhat naive outlook. I tended to think that things were not as dire as they might appear.

After about a week or so, my mother's eldest brother called me on my pager. He told me, don't worry, the family is all right, only the house is a little broken, you can come back when you are free. Then I remember that after the 921, there was a holiday and I wanted to go back... I thought our home was fine. I packed a large bag of luggage and wanted to bring clothes back for the changing season, I remember that the luggage was very large, but at that time I went back to... Taichung Railway Station.... It didn't seem to be right. It usually only takes 30 minutes to drive home; it took 3 to 4 hours that day...why was it not what I thought it was? I really believed my uncle had said that our house was just broken a little bit, and then our family was fine, the result was I went out early in the morning and then in the middle of the night...I didn't go back to our house, I went to...the school field of Dongshi Elementary School...it was all tents, and then I saw my mother's nose was bruised, my father's feet also hurt. Anyway,

I was quite shocked that night, so it was my shocking night, not the 921. I was shocked that day, and I was shocked when I came home after that... It turns out that my family had been through a huge disaster, I'm not very close to my mom, we don't have that kind of intimate or loving mother-daughter relationship. However, that day, I saw her and just hugged her, crying. I felt stupid because I was carrying a big bag of luggage, but where do I put my bags? They slept

in tents. I thought I could go back to my home, my uncle lied to me, my home had collapsed, they were living in tents."

Participant 2 also described her experience of living in the tent area. It was a shocking and surreal experience for her to witness how the lives of earthquake survivors, including her family, were affected by the devastation in the area.

"On the red brick road...a military canvas shed was set up, and men and women would go in and take a shower. Then the shed was built with an iron frame, and then there were many shower heads on it. Just like this, you could take a shower, because at the time, many people couldn't go home,... It was very shocking to me, how could it be that we didn't know each other. Then everyone naturally stripped and took a shower there.... It was hard for me to imagine my parents and my sisters taking a shower with other people all together... The same is going to the toilet, you would feel it was a completely different world. How to say it was completely different from our ordinary life, which requires us to have water and electricity to live in our own house."

During the period of returning to live with her family in the devastated area, Participant 2 had an emotional memory of the first time she saw her father cry. It was the first time she saw him feeling helpless.

"At that time, we couldn't cook for ourselves. We relied on support from various organizations. Besides Tzu Chi Foundation, there were many other groups setting up makeshift shelters by the roadside. I even recall meeting an Indian man who came to cook Indian curry for everyone. People came together to prepare meals. When I returned during that period, the school had extended the holiday due to the earthquake. Since I had some free time, I volunteered to help. I wanted to assist wherever needed, whether it was in cooking or other tasks.

One memory stands out vividly. One day, my parents and I were eating by the roadside, and in my memory, my father was always a very strong person. You believed he wouldn't break down, that he couldn't be crushed. We were eating from Styrofoam bowls, sipping hot soup. The weather was a bit chilly because it was early autumn, and our town, Dongshi, is in a mountainous region, so it was quite cool. I didn't pay much attention and just ate. Then I saw my father crying beside me. He said he had worked hard his whole life, and now our home was gone. He wondered what he would do next. Even though they said the government would provide assistance and help with rebuilding, you also knew that we had lost everything. The house was either fully destroyed, with a budget of fifty thousand (the governmental subsidy), you could only build a very basic house, and there was no guarantee you would find someone to help you build it.

I think it was the first time I had ever seen my father cry. From my childhood until then, I had never seen him shed a tear. Yet here he was, standing by the roadside crying. It really felt like it had broken him. Of course, during the earthquake itself…..my father went to save everyone……in the immediate aftermath, you didn't have time to process or understand. You were focused on survival and protecting your family. …….But I think when we were sitting there drinking soup, it had been a week or two, or maybe two or three weeks, I'm not entirely sure of the timeline. When he was eating something given to him by someone else, he said he had never thought he would need charity, that he would be the one receiving help. He never expected to become the one in need. At that moment, when he said those words beside me, I was genuinely shaken. However, I didn't know how to respond."

After the school break, Participant 2 decided to return to the university. She mentioned the supports and resources she received due to her identity as an earthquake survivor. The

external resources she received because of the earthquake will be elaborated on further in the AAD themes section later.

"Later, I decided to return to school because I felt that if I stayed, I would burden my family. At that time, we didn't have a house to live in, and we were sleeping in tents. Bathing and other daily activities were inconvenient, and we relied on others for food. So, I chose to go back to school. ,,,,,,When I returned to school, there were actually quite a few support measures in place. The school had sent people to locate our tent and provide financial assistance to my mother. ……..Additionally, the school offered employment opportunities to those of us who were earthquake survivors."

Individual Narratives-Participant 3

Participant 3, the third daughter of the family, did not choose the earthquake as one of her life milestones. However, she described her experiences during that time. When the 921 Chi-Chi earthquake occurred, she was in another city attending nursing college. Unlike Participant 2, she was aware that her family was in the devastated area and might be facing serious dangers. Therefore, she made diligent efforts to contact both her immediate family and extended family and promptly returned home when transportation services resumed.

"I heard on the radio that Dongshi High School had collapsed. It was a school very close to our home. At that moment, I felt lost. My classmates and I stood in line to make phone calls. I did the same, but our home phone couldn't be reached. I contacted my uncle and aunt, and they assured me that my parents were safe. School was cancelled, so I stayed at a classmate's house for three days, feeling anxious as I couldn't find my family. When buses and trains started running again, I made my way back home.

I first went to Fengyuan and then asked my cousin to take me to my uncle and aunt's house. Normally, our family travelled by motorbike, and the journey took about 30 minutes. However, that day, I remember it took three hours to get back. Along the way, I saw collapsed bridges and other unsettling sights. But I had already heard about these things, and I knew my family was safe. I didn't dwell on it; I just wanted to get home quickly.

When I saw my mother, she had been injured. My older sister and two younger sisters had crawled out from between the walls. My second sister and I stayed at the school. Part of our room had collapsed, and I was grateful that we were at school. If we had been in our room at home when it collapsed, we could have been seriously injured."

Participant 3's school didn't permit students to stay in the dormitory over the weekend, so she returned to live with her family in tents every weekend during the period. However, this experience felt more like a novelty to her.

"At that young age, my primary concern was the safety of my family, so I couldn't truly comprehend my parents' suffering. Many people were distributing supplies, as children, I was only thinking about what I would have for breakfast and lunch each day. I had never lived in tents before, and during that time, I learned what it was like to live in one.

"As long as my family was there, it was fine. It's still like this when I think about it now. I actually have very vague impressions and feelings about that time. Then I only remember some novel experiences. For example, we went to a big tent to take a shower together. Then I only went to have a shower with my mother and grandma. It was not easy for a teenager to be naked in front of others. We went to the river to wash our hair, because at that time, the military tent had not been set up, and there was no water and my head was very itchy. I didn't wash my hair

for a week, and then I went. In fact, going to the riverside to wash my hair, all I remember are

these novel experiences...because I had already planned for the worst…….because our house

was old, and the situation was so serious at that time. I was very scared because I thought

"How could the school collapse?", and when I got in touch with my family, all my worries

disappeared, and there was nothing to worry about as long as my family was safe and healthy."

The 921 Chi-Chi Earthquake was a significant event in the lives of the interviewed

family. Their homes collapsed due to the earthquake, forcing them to live in tents alongside other

disaster survivors in the affected area. From the descriptions provided by the three interviewees,

it becomes evident that despite being sisters from the same family, their differing ages,

educational situations at the time, and distinct personalities resulted in significantly varied

perspectives on the same major event. The participants' self-assessed Index Form scores for this

period corroborate these observed patterns.

Adversity Index Form Scores- The 921 Chi-Chi Earthquake

Participants 1 and 2 both identified the 921 Chi-Chi Earthquake as their initial milestone.

The mean score for degree of concern during this period was 4.11 for Participant 1, compared

with 3.58 for Participant 2. Whilst the participants' overall mean scores do not demonstrate

substantial variance, detailed analysis reveals distinct patterns in their responses across

categories. Most notably, both participants recorded peak concerns in Physical Safety

(Participant 1: 9, Participant 2: 7) and Financial Security (Participant 1: 9, Participant 2: 9),

suggesting these were paramount issues during the earthquake period. However, significant

disparities emerged in several domains: Housing (6 versus 9), Family Constitution (6 versus 0),

Daily Routine (2 versus 9), and Urban/Rural Living Context (2 versus 6), with variations of up to

6 points between participants (refer to Figure 2). These marked differences suggest that despite

experiencing the same event, the participants' perceptions of its impact varied considerably

across different life domains. The subsequent descriptions and reflections made by the

interviewees during this period will be further expounded upon in the thematic analysis section.

Figure 2

Adversity Index Form Scores- The 921 Chi-Chi Earthquake

921 CHI-CHI EARTHQUAKE
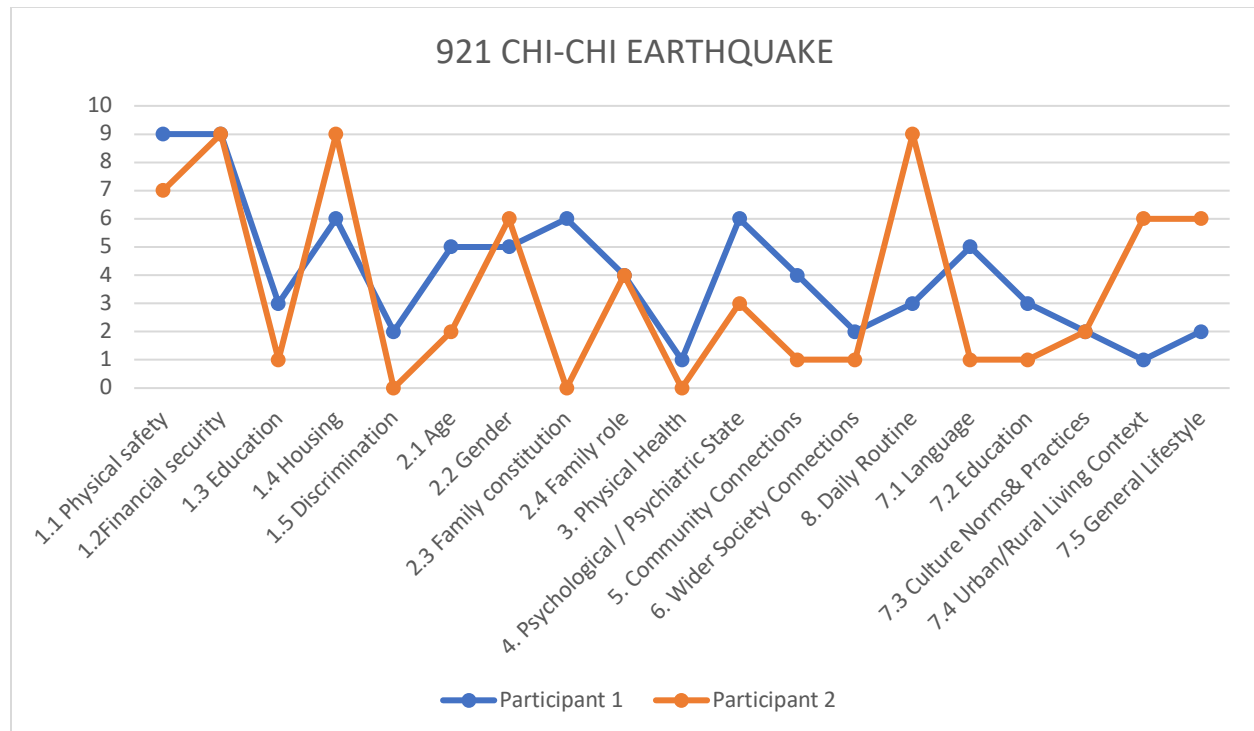
5.2.2. The Mother in Debt

Family Narrative

The mother being in debt was an ongoing process that continued for several years. The

participants' family was not financially well-off, and their father did not have any regular income

for several years before the earthquake. The financial status of the family became even more

challenging after the earthquake. The parents had had the habit of partaking in gambling games

since the participants were children. Later, the children who started to earn money would be

asked for money by the mother. They were asked to give money from their salaries, to sell their

investments for cash, or to raise cash from their credit cards. It was a hidden problem of the family, and although the participants more or less felt something was wrong, no one spoke up about it.

The first outbreak of debt issues occurred around 2009, which was about 10 years after the earthquake. The mother called to ask the oldest sister for a huge amount of money, and because the sisters sensed that their mother might have a large amount of debt, they went back home to have a family meeting. The sisters who were working (the oldest, the second and the third sister) then took over the debts.

The second outbreak came a few years after. This time the mother ran away without notice, leaving the father and fourth daughter (Participant 1) at home facing threats from the illegal debt collectors. The father became weak, depressed, and had suicidal thoughts, while the issue of the debts affected almost the whole extended family, and the participants found out that all their relatives had lent money to their mother. The grandmother's house was also sold to raise cash for the mother. After the third outbreak, the daughters agreed to pay her debts for the last time on condition that the mother had to divorce the father and allow the second and fourth daughters (Participants 1 and 2) to take their father to live in another city in Taiwan.

Individual Narratives

All of the participants selected this period as one of their significant life milestones. However, these three participants resided in different cities, fulfilled distinct roles within the family, encountered diverse challenges, and held unique emotions and reflections regarding this important phase in both their family's and their personal lives.

Individual Narratives-Participant 1

The family's long-standing financial debts, concealed for years, remained a hidden secret until the outbreak of the crises, particularly during the second outbreak. During this tumultuous period, Participant 1 was in her internship of teaching at a school near her home. When the participants' mother fled, Participant 1 and their father were left to confront threats from illegal debt collectors. Ultimately, this contributed to the dissolution of the family unit. Participant 1 played a central role in these incidents and retains vivid memories of this challenging period.

First, there is the memory of the night when the mother went missing. It remains an unresolved issue for Participant 1, who believes that her mother's disappearance may have been premeditated.

"On the evening of that public holiday, they said they were going out to play cards. I was quite used to it; I spent the whole night alone at home. The next morning, they still hadn't returned. Actually, it was normal; they had history of all-night card games before. I didn't bother to call them……… Later, my dad came back, only my dad came back. My dad looked very tired…… My dad asked me if I had seen my mom. I said no, and then my dad went into the room and started going through her things... I asked what happened? Where's mom? Why didn't she come back with you?

…… My dad said they were playing cards yesterday, halfway through the night, and my mum disappeared. Everyone at the casino, they all tried to help find her, but her phone wasn't reachable. Then my dad wanted to report it to the police, but it hadn't been 24 hours yet, so they couldn't take the case... My dad should have known what had happened by then, that my mum had reached the end of her debt and was contemplating desperate measures... My dad was really worried about whether she would harm herself………

Later, as we searched, my mom's wallet, which she always carried with her, her phone, and even her charger were all there... I really cared about the charger; this is crucial. So, you'll keep hearing about this later because the charger indicates premeditation."

Following that, the first group of debt collectors arrived, marking the commencement of Participant 1 and her father living under the constant threat of debt collectors.

"It was on National Day, a public holiday. Around 9 or 10 in the morning, several people came to our house. Leading them was a more masculine-looking woman, followed by two others dressed in black attire, the kind you'd associate with the underworld... They resembled poorly-acted characters from a soap opera... She was the type who would size you up and scrutinize all the decorations in our house, making you feel quite uncomfortable.

At that moment, I was naive. My dad called me in, and I thought this was an important matter that I had to witness. I needed to know what was going on. So, I stood there. But my dad probably called me in because he was concerned they might do something hostile to me.

Anyway, the person started talking, initially addressing my dad, as I dared not get too close to them due to their intimidating appearance... Our house was divided into a living room and a dining room, and I was sitting at the dining table... She said she had repeatedly urged my mum to pay her back many times, but every time my mum promised to repay and never did... Then she gave my dad a deadline and told him, 'You should borrow, beg, or even kneel if necessary.' It was my first encounter with such a situation, and I had no idea how to react, so I maintained a completely expressionless face...She asked me if I was the daughter who was a teacher, and I confirmed it... Then she asked me which school I was teaching at...

Anyway, once they left, my dad sat on the sofa in silence, and I didn't know what to do."

Participant 1 described this period as the peak of life insecurity, even more unsettling than the period of 921 Chi-Chi Earthquake.

"During the 921 Earthquake, and at that time...... I would often hear about someone I knew who didn't make it through the earthquake. But, you see, I felt that if the earthquake shakes, and then you're gone, you probably didn't feel much. However, I wasn't physically harmed (at the milestone two) ; it's just that those people kept coming and going, scrutinizing everything and making threatening remarks.

......My dad's personality is such that he wouldn't share his concerns with me, thinking I'd worry too much. But sometimes, when he doesn't talk to us and leaves things to our imagination, it becomes even scarier. For example, after that person looked at me, what did he say to you? He said he didn't say anything. I told him he must have said something. Are they trying to capture me and sell me off or something? I've always had this feeling that someone wants to sell me."

During this period, Participant 1 also assumed the responsibility of managing household chores, witnessing her father's declining stamina for life.

"During the latter part of my internship, I found myself in a situation where I had to learn how to cook. Before that, I had no cooking skills. However, due to the circumstances at home and my dad's preference for home-cooked meals, I suddenly had to cook every day. It started with simple tasks like not knowing how to cook noodles properly, so I would just put the entire pack in at once……. Over time, I learned and adapted. During that period, apart from the academic workload, there was also pressure from work, and my classmates were all talking about preparing for teaching qualification exams.

But at that time, I couldn't even consider it. It was because... I couldn't leave my dad at that point, given his condition... the depression scale assessment for my dad... He scored very high on it. There were times when he didn't eat much, and he was already a heavy smoker. Most of the time, he had a lit cigarette. Then, in the mornings, I would discover that he hadn't taken a shower."

.......The most frightening part was when, for example, it might be late at night, around eleven, and I had work and classes the next day, I would be trying to sleep, but he would start talking to me. He'd say he envied the homeless people under the bridge, how they could live without caring about societal judgments... If one day he became homeless, he hoped I would be happy for him. When I heard him say that, I would cry continuously, telling him not to think like that. Because from a young age, my dad has been very loving, and I've always seen him as an ideal male role model for handling many situations. During events like earthquakes, my dad was dependable and made many appropriate judgments. But for something like this, I just didn't know what to do if even my dad was crumbling."

Individual Narrative-Participant 2

The period of the mother's debt spanned approximately 20 years, with it remaining a family secret during the initial 10 years. This burden was initially on the eldest daughter. Participant 2 described the time when she began to be asked for money by her mother.

"Our family situation, as you probably know, is deeply affected by my mum's shadow. The situation has been dragging on for quite a long time, even since we were in school. The one most affected during that time was our eldest sister. She started working early, even though she's only three years older than me. She graduated from a vocational school and started working while I was still in university, doing internships, and even took an extra year to graduate. So, I entered

the workforce later than her. For our family, the pressure from my mum started once we entered the workforce. It means that for roughly the first ten years or so, our eldest sister carried the burden of all our family's affairs. Whenever my mum ran out of money, she would go to her and sell stocks, insurance, and the like. My mum would always claim that she needed to pay insurance premiums and ask my sister for money.

I came into contact with this situation relatively late. I had some knowledge of what was happening at home from the beginning, but I genuinely felt that my mum's issues were known to everyone in our family. Everyone knew about it, but nobody wanted to deal with it, as if they thought it would be too troublesome. I believe that many people in our family had an ostrich mentality. I truly started encountering this issue during my internship year. Our internship stipend at that time, I still remember, was only a few thousand yuan a month, around 8,000 yuan. I would give my mum 5,000 yuan, leaving me with only 3,000 yuan."

She vividly recalls that her mother began requesting her to withdraw money from her credit card. She remembers the fear she felt during these moments and the inability to refuse her mother at that time.

"The year of my internship was 2003, and during that time, I lived at home alone. My siblings had all gone outside for studying or work. The thing I feared the most was if, in the middle of the night, my dad had already gone to sleep, and my mum would come knocking on my bedroom door. That would really frighten me... I remember our floor was wooden, so when she walked up, it made that creaking sound, and as soon as you heard that sound, fear would set in. Then she would knock on my door and ask, 'Can you lend me your credit card? Do you have any money that I can borrow?' In reality, I had no money because our internship paid only 8,000 yuan a month.

There was no money, but during that era, we had cash cards, and you could use your credit card to borrow money. And I would always feel soft-hearted; I would think because my mum would say she needed it for the family's expenses. So, I would give her my credit card and let her go borrow money for me. At that time, I felt very uneasy and scared because you would think... if you couldn't repay the credit card debt, your credit would be ruined... But I still lent it to my mum because back then, we hadn't reached a point where we were on equal terms with her. Even though now we are relatively equal, at that time, she was still my mum, and I didn't dare to disobey her."

After the first outbreak, Participant 2 took on the responsibility of repaying her mother's debts. However, the debts continued to resurface. When Participant 2 borrowed another substantial loan from the bank to settle her mother's debts, her respect for her mother began to crumble. Feeling the need to protect her family as the second daughter, she initiated discussions about her parents' divorce and eventually moved Participant 1 and their father to live in another city.

"Nowadays, I can think about these things calmly, but at the time, I really felt like, 'How could this be happening to me?' I felt like my mum had ruined my life. The second time she asked to borrow money, I couldn't take it anymore. That was the moment when we as a family broke down the wall. Before that, we always held our mum in high regard, even if she borrowed money from us day and night. We still respected her. But at that moment, my sister and I felt like, 'You, as a mother, have done these things. We don't need a relationship with you anymore. We might even feel fine not seeing you for the rest of our lives.' The second time, it was 600,000 yuan, and I told her that this was the last time I would help her. If she got into trouble again, we would

never help her again. I had some conditions; we set conditions for lending her the money. One of the conditions was that she had to divorce my dad.

My mum was extremely reluctant, but she had no other choice. She could only listen to us. At that time, I felt I needed to toughen up, to find a way to change things. I couldn't let such situations happen repeatedly because I couldn't accept it anymore. Look, this was the second time already. The first time was 750,000 yuan. I helped her fill that hole, and now she's digging another one. I felt like my entire life was just about filling her holes, and I couldn't accept that.

At that time, the youngest of us was still studying, and Participant 1 was finishing her internship, and the third sister was likely working. The eldest sister was already married, so she couldn't really take care of our family affairs because she had her own family to tend to. We understood that. So, as the second oldest, I felt like I needed to do something to help our family. I thought about it and at that time, Participant 1 had just finished her internship, and she was at a crossroads in her life. So, I suggested, 'Why don't you and Dad move to Tainan and live with me? Let's find a place together.' At that time, I had been living alone for about five or six years. I was quite lonely, didn't have a boyfriend, and after what had happened, I cherished my family even more. I thought that if we could live together, it would be great."

Participant 2, Participant 1, and their father relocated to the city where Participant 2 was residing. Their father began to experience mental recovery, and Participant 1 secured a new job, eventually meeting her future husband. In hindsight, Participant 2 considered it a wise decision to move them out of their previous home.

"My dad, living there, began to get to know some neighbours and good friends…….. They would meet up at the park to chat, engage in activities… ... and gradually built connections with the neighbours……. So, I believe this decision was the right one. My dad was very happy.

Later, my friend's husband worked as an engineer at (a technology corporation) *……and he recommended my sister for a job there. During her time at* (the corporation)*, my sister also met her current husband. I felt that all these opportunities and events were based on this right decision to move to* (the city).*"*

Individual Narrative- Participant 3

Participant 3 chose this stage of life to be her first significant milestone. She played a significant role in paying off her mother's debts and financially supporting the family. However, her feelings and perspectives regarding her mother and the situation were notably different from those of Participants 1 and 2.

Since her childhood, Participant 3 was aware of her family's financial struggles. Therefore, when she started working and became financially independent, she described the transition as going from hell to heaven."

"When I was a child, being a girl, I loved buying things. I had great desires and wanted everything. However, I didn't dare ask my mum for money. Unlike my other sisters, who might have asked for money from our mum, I always felt that our family was quite poor, and I couldn't buy these things. I used my own allowance or money from part-time jobs to buy what I wanted. When I just entered the workforce, it felt like I was living extravagantly. I could buy whatever I wanted, eat whatever I wanted, and I even had the means to contribute some money to my family."

A year later, the mother's debts began to surface, and Participant 3 became one of the primary financial contributors to the family. In contrast to the other two participants, Participant 3 exhibited a more forgiving and understanding attitude toward her mother and continued to treat her with respect."

"My mother had always been an authoritative figure since my childhood. At the time, I still showed great respect towards her, but I wanted to understand the truth behind the situation. However, my mother didn't reveal anything. In short, she wasn't straightforward about anything and kept everything hidden……. I was already aware of our family's financial situation; my mother was using credit cards to manage expenses because only my eldest sister was earning money. I understood these aspects. As for the gambling part, my mother never openly admitted it, and we didn't dare to confront her because of her authoritative demeanour…….

From that point onwards, I had to repay the loan, pay off my student loan, contribute to household expenses, and manage my own expenses. After the second, I voluntarily took on the responsibility of supporting my younger sister's living expenses……. those years were quite challenging."

At this milestone, Participant 3 also emphasised the conflicts among the sisters. She disagreed with the decisions and attitudes of the other participants regarding their mother. When Participant 1 and 2 moved to another city with their father, she didn't feel like it was home. Furthermore, during her chosen milestone two, Participant 3 decided to go abroad, a decision that the other participants strongly disagreed with, leading to significant conflicts.

"Each of my sisters in our family is exceptionally articulate, and when we argue, it can get quite intense without anyone holding back…….The most intense disagreements occurred before I went to the Middle East. We argued about various matters during my time in Australia as well, and these issues often revolved around money and our mother. The discussions continued until our mother fell ill. The unpleasant aspects of these arguments included my father and sisters living together. Whenever I pointed out certain things that I found concerning, they

would respond by saying, 'You haven't done anything, you haven't lived with us, so how can you know how things really are?'

Regarding our mother's perspective, it seemed that (Participant 1 and 2)*, in particular, held deep resentment towards her for a while. It was as if they viewed her worse than strangers, always critical and never saying a kind word. These disagreements occasionally led to arguments because I felt that their attitude was too harsh. They, on the other hand, found my stance perplexing, wondering how I could still think this way after everything our mother had done. During that time, Participant 1 witnessed people coming to our door demanding repayment of debts, and* (Participant 1) *personal safety was threatened, making the situation even more complex."*

".......They rented the house with my dad, just two rooms. One room was for my dad, and the other room was theirs. When we went back home, all of us sisters slept in one big sleeping area. I just felt that it wasn't my home; that room wasn't mine. I really felt like I was just a guest. There were many restrictions, and I felt annoyed. I also paid rent, though maybe they thought they contributed more at that time? But that's how I thought back then, less mature."

Participant 3 then described that the issues and conflicts within the family were not the primary reasons for her decision to leave the country. However, leaving was not a difficult decision for her.

"I don't feel there's much significance in it, but it's not a problem for me. When I was a student…… living with my parents wasn't a very pleasant experience……when I was about to leave my job…… I had this feeling that I didn't want to see them (the sisters) anymore… I started going aboard and enjoy my life…… It's not that I didn't want to go home; it's just that going out exposed me to many new things."

Participant 3 then travelled abroad to the Middle East and Australia during her milestone two. During this period, she encountered a higher degree of safety concerns, financial difficulties, and limitations as a foreigner. Simultaneously, new opportunities and developments opened up for her, which will be further explored in the AAD analysis sections.

" the Middle East, I was on my own, and social media wasn't as developed. I also had fewer interactions with colleagues and friends. As for my sisters, I did send an email to one of my sisters a few months later, saying that I was doing okay here, but basically, if I had any issues in life, I would solve them on my own…… Although I had friends, they were mostly short-term friends…… It was different from when I was in Taiwan; I felt there was a higher level of crisis at that time.

……In Australia, I faced financial difficulties, which made me become more cautious with money. I borrowed money from my second sister and ended up having arguments with her…… It was in Australia that I truly experienced the pain of poverty, but I couldn't talk to my family about it. …… In that period, I felt isolated and helpless. Unlike Taiwan, where if you're short on money, you can just find a job, in Australia, it wasn't that simple. You might not find a job even if you didn't have money, and there were many job restrictions. Moreover, the types of jobs available in Taiwan were certainly not the same as in Australia."

During this milestone period, even though the participants were all grappling with the same family problem—the mother's debts—their roles within the family diverged significantly. Participant 1 faced direct threats from debt collectors while also caring for her ailing father. Participant 2 assumed the primary responsibility of shouldering the family's financial burden and striving to rescue the family members. Participant 3 adopted a more sympathetic stance toward the mother's situation, which led to conflicts with her sisters, despite her own financial

contributions. Ultimately, Participant 3 embarked on her journey abroad. The family unit was falling apart during this life milestone.

Adversity Index Form Scores- The Mother in Debt

The participants' self-assessed Index Form scores from this period reveal that variations in their geographical locations, distinctive familial roles, and differing perspectives towards the event substantially influenced both the intensity and distribution of their reported concerns. These contextual differences are reflected in the marked variations across their self-assessed concern levels and specific domains of impact (see Figure3). Participant 1 demonstrated the highest mean degree of concern (6.58), substantially exceeding those of Participant 2 (1.37) and Participant 3 (2.26). Notably, Participant 1's responses exhibited consistently elevated concerns across 14 of the 19 dimensions measured. Particularly pronounced disparities were observed in several domains: Physical Safety (10 versus 6 and 0), Financial Security (10 versus 5 and 8), and Family Constitution (10 versus 7 and 10). Whilst Participant 3 indicated moderate to high concerns in specific categories such as Financial Security (8) and Family Constitution (10), Participant 2 consistently reported lower levels of concern across most dimensions. Significantly, both Participants 2 and 3 indicated no concern (0) regarding discrimination during this period, in contrast to Participant 1's elevated rating (6).

Figure 3

Adversity Index Form Scores- The Mother in Debt
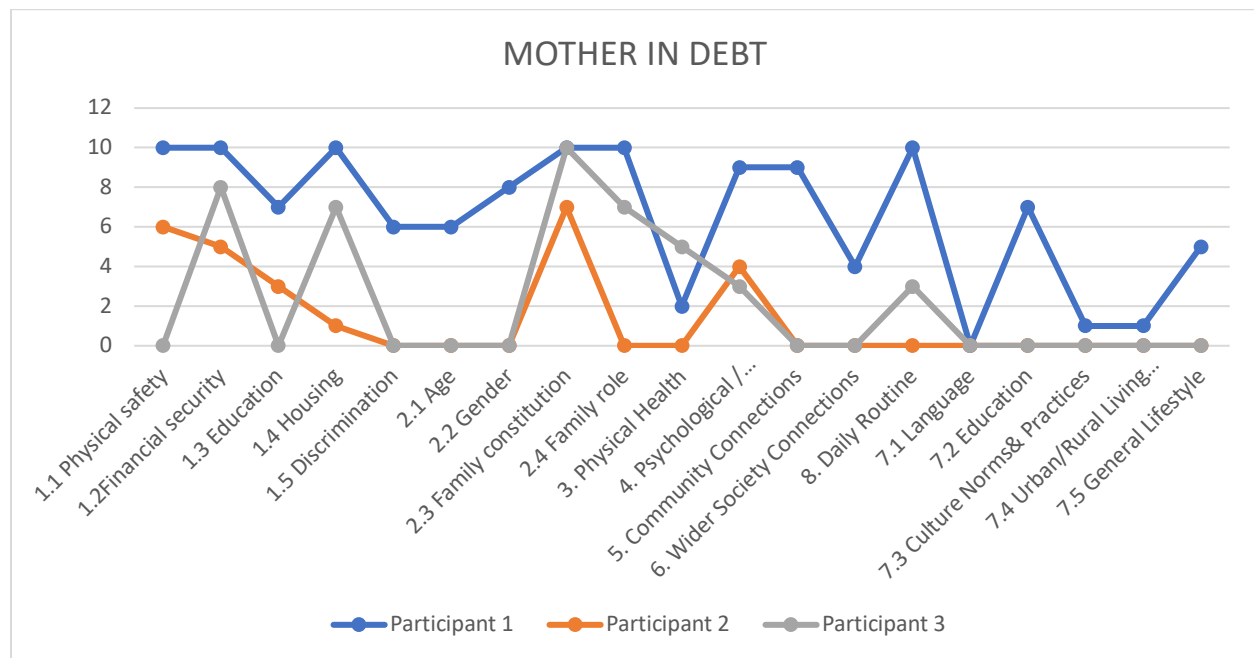
5.2.3. The Family Reunion, the Participants Married and Started Their own Family

Family Narrative

The father, the second daughter (Participant 2), and the fourth daughter (Participant 1) lived together in another city in Taiwan for a around five years to be away from the mother, while she lived alone in their original home in Dongshi and worked to pay her debts. The third daughter (Participant 3) also came to live with their mother for a period. The mother developed drinking problems and had several incidents due to alcoholism. In this period, the mother was outcast by the daughters.

After the mother was diagnosed with cancer, the father decided to move back home to take care of the mother. The mother's cancer was cured but she also suffered with other chronic diseases that required haemodialysis regularly. The second, third and fourth daughters all married during this period and the family started to reunite.

Individual Narratives

All the participants selected marriage as their third significant milestone in life. Their descriptions of this milestone primarily revolve around their current lives and the challenges they face. The gender challenges associated with being a wife and a mother are particularly pronounced at this stage. Notably, Participant 2 and 3 both married foreigners and relocated overseas, highlighting the diverse psycho-social resources they accessed at this milestone.

Individual Narrative-Participant 1

At this milestone, Participant 1 married and moved to her husband's hometown. During this phase, Participant 1 encountered developmental challenges as a young woman integrating into her husband's family. She grappled with the financial difficulties of her family of origin, as well as the pressures and challenges associated with starting a family and trying to have children.

"Our relationship progressed quite rapidly, and early on, we were already considering marriage……However, during our first meeting with his family, my sister in law asked me about my salary and savings…… At first, I felt uncomfortable with these questions……. but later I understood that she was concerned about her younger brother being deceived or worried about him constantly providing financially in the relationship…….

……After that evening, I talked to my partner and suggested breaking up because I felt that the economic disparities between our families were significant. While his family wasn't extremely wealthy, my family was dealing with my mother's debt, and I was still repaying loans with no savings at that time…… I believed that the gap between our families was too vast, and our different financial structures led to varying standards and values regarding money……. I also started feeling a bit inferior and thought I might not be a suitable match for him."

After becoming more acclimated to her husband's family, Participant 1 began grappling with the challenge of traditional gender roles within the family. She also took on the responsibilities and encountered difficulties related to attempting to conceive a child.

"I feel that in marriage, women often encounter many complicated situations. For example, my father didn't allow me to return home on the first day of the Lunar New Year. He told me that married daughters shouldn't come back on that day. I asked why, but I knew it was a cultural norm, and you sometimes just want to know why it's like that. Another significant aspect of my life in recent years has been focused on having children.

I think the most challenging period for me might have been when I was trying to conceive and have children, maybe around 7 or 8 years into our marriage. During that time, I felt quite anxious, especially when it came to preparing for pregnancy. I would be very concerned about every little detail, even what I ate, and when I took a pregnancy test and found out it was negative for that month, I would silently shed tears, and I had to tell my husband. We both felt quite down during those moments.

But then there were also times when I felt like not having a child would be great. We enjoyed our life as a couple in our current home, with plenty of space. Each of us had our own room, and we felt that was quite nice."

Individual Narrative-Participant 2

At milestone three, Participant 2 married a Japanese man, became the mother of two children, and made the decision to leave her stable job as a teacher to relocate to Japan. Participant 2 described this milestone as a turning point in her life. It was not a crisis but rather an ongoing challenge that continues to this day. The primary changes and challenges that

Participant 2 is confronting include the role of being a mother and the cultural differences and challenges of living in Japan as a foreigner.

Getting married and becoming a mother were the major changes for Participant 2 at this milestone in her life. She described this transformation as *"I feel like there's a wall that separates my life before and after marriage. It's not necessarily a bad thing, just a change. When I was single, I could do whatever I wanted. Now, my life revolves around my child's schedule."*

She gave up her job in Taiwan, and due to cultural differences, she is currently seeking part-time employment instead of working full-time. Simultaneously, she is facing challenges related to language.

"In Taiwan, it's more common for families to have dual incomes, but in Japan, many mothers work part-time jobs. The term "the wall of 1.13 million Japanese Yen" refers to a huge amount of tax you need to pay if the wife earns more than 1.13 million Japanese Yen. Many stay-at-home mothers in Japan take advantage of the time when their children are at school to work a few hours…….

……I am now starting to look for a job. I can handle everyday conversations without any problems, but I'm worried about making mistakes when using honorific language."

The language difficulties also affect her role as a mother.

"My daughter, who is in the second grade of primary school, I am already feeling struggling to keep up with her homework. Additionally, her Japanese language skills are starting to surpass me."

Participant 2 is confronting the challenges of living in a foreign country, which encompass cultural differences, language difficulties, and homesickness.

"Although Taiwanese people generally have a positive view of Japan, it's important to know that knowing certain phrases or expressions can not let you to keep up daily life in Japan. Japanese culture places a strong emphasis on following established customs and traditions, and it's essential to be aware of what needs to be done when and to adapt accordingly. Moving far away from home is a painful experience."

Participant 2 confronts challenges with an adaptive attitude, and she also emphasises the cooperative parenting style she has with her husband.

"The change in lifestyle is more related to having children and becoming a mother…… It even does not consider as a change; this is simply my current way of life. When the children grow up, different lifestyles will emerge again.

For formal occasions, one has to wear formal attire. In Japan, there's something special about being afraid of being different from others. The biggest pursuit is to be like everyone else. My husband is a great team player; he attends parent-teacher meetings, and he works from home (due to the pandemic)."

Looking back and reflecting on these stages and changes in life, she presents life wisdom that advocates going with the flow and not perceiving difficulties as suffering experiences.

"Life is like a flow, and the flavour of life, the pandemic has its ups and downs. My husband helps me a lot at home; don't think of it as too difficult. Don't think of change as too difficult. Looking back now, I don't think it was a big deal. Those things that happened in our family before, my sister and I now talk about them and laugh about them."

Individual Narrative-Participant 3

During milestone three, Participant 3 married a German she had met in Australia and relocated to Germany. In this milestone, she encountered challenges related to living in a foreign

country, language difficulties, assimilating into her husband's family, attempting to conceive, and seeking employment.

Not long after Participant 3 moved to Germany, the COVID-19 pandemic outbreak occurred, leading to her job loss. She then embarked on a journey of trying various part-time jobs, learning the German language, and attempting to pass language exams. In addition to the challenges of living in a new country during the pandemic, at this milestone, Participant 3 entered married life and encountered various marriage and gender-related challenges.

Participant 3 and her husband attempted to conceive a child for over a year, and gradually, this endeavour became the focal point of her life. Simultaneously, she worked on making adjustments and mentally preparing herself for alternative possibilities.

"Having children is okay, if I don't have them, it's not a problem, but because I've been trying for over a year, it went from not being a big deal at first to becoming very concerned about it later. Every time my period comes, it's another disappointment. And then, I just went to pick up the blood test report the other day, right? The doctor told me everything is normal, and I cried. It's like, I was really afraid it was my problem, and the stress was too much, and then suddenly, it felt like a huge weight lifted off my shoulders. I've always told my husband, you know, to give him some psychological preparations. I've said, I don't know if one of us has a problem, maybe neither of us has a problem, but if we really can't have a child, don't put too much pressure on ourselves. We can just sell the house when we're older and go to a retirement home, or we can be a bit nicer to one of his relatives' children……"

Conceiving a baby presents its own set of challenges. However, as a woman, the decision to have a baby also necessitates consideration of various factors such as one's job, financial situation, and age limits.

"Regarding my job, my current position is on a two-year contract, and I'm approaching the end of the first year. So, if I get pregnant within this year, there's a possibility I might not have this job anymore.

Q: Are you worried they won't renew the contract?

A: Yes, and recently, we've been actively looking to buy a house. We've also applied for a mortgage based on both of our incomes, so once we have a child, it means my income will be lower for at least a year... because I'm almost forty, so if I don't have a child now, there might not be another chance."

In addition to the challenges of conceiving a child, Participant 3 at this milestone also endeavours to adapt herself to her husband's family. These adjustments encompass not only the personal but also the cultural level.

"I still have certain responsibilities, like birthdays and wedding anniversaries. I may need to help organize these events. Here, unlike Taiwan, as a daughter-in-law, I am not expected to take on these responsibilities, but I personally feel it's my duty.

Additionally, there's another aspect that adds a bit of pressure. My husband has many cousins, and whenever they visit, I have to be present……. I also need to visit my in-laws for meals. At the beginning, it was quite stressful because my German wasn't very good, and I had to pay close attention to table etiquette. However, I've gotten used to it now. It's like being at my own home…… which I quite like."

During the process of integrating into her husband's family, Participant 3 also began to experience the sense of security that her new home provided. Over time, she formed strong bonds with her in-laws and came to consider them as her own family.

"Another area of change is my mental state, the feeling of peace. In the past, I often felt immense pressure, uncertainty about work, or when I decided to come to Germany, I had to prepare a substantial amount of money to settle down. I used to worry that if I didn't have enough savings, I might face difficulties in the future. However, after coming to Germany, I felt content. Even if I didn't have a job, it didn't bother me. If this were in Taiwan, not having a job might push me to hurry and find one. But here, I preferred to focus on what I needed to do, like learning German and gradually adapting to life here. I knew my husband would support me…….. He's supportive, and he never pressures me in this regard... This made me feel at ease because I knew there was someone else to support me. Regarding my husband's family, when we have issues, my in-laws have been very helpful. Once, I fell ill……my mother-in-law sent over a pot of soup. My own mother has never done that. It's not that my mum doesn't take care of me when I'm sick, but it's different when it's your mother-in-law... My mother-in-law genuinely takes care of me, and I feel that I'm part of the family here... (Q: You gradually feel like they are your family too?) Yes, exactly."

At milestone three, the participants entered a new phase of life as they got married, facing various challenges associated with their roles as wives and mothers. Conceiving and raising children became central challenges at this life stage, along with navigating relationships with their in-laws. Additionally, they experienced relocations to other cities or even countries, requiring adjustments to new cultures and environments. Milestone three marked a fruitful period for the participants' families, as their family of origin reunited, and they created their own new families. Furthermore, the participants engaged in reflection on their family and personal development throughout these three milestones, which will be elaborated upon in the Theme-Long-Term Adversity Activated Development section.

Adversity Index Form Scores- the Participants Got Married

Marriage emerged as a significant milestone across all participants' life trajectories. The Adversity Index Form scores reveals distinct patterns of concern (see Figure4), with Participant 1 recording the highest mean concern level (4.05), followed by Participant 3 (3.21) and Participant 2 (2.05). Examination of specific domains reveals notable variations in perceived impact. Particularly pronounced disparities were observed in several key areas: Family Constitution (8 for Participants 1 and 3, compared to 0 for Participant 2), Family Role (7, 0, and 2 respectively), and Psychological/Psychiatric State (8, 0, and 1respectively). Interestingly, whilst Participants 1 and 3 demonstrated similar patterns of elevated concern across multiple domains, Participant 2 showed consistently lower levels of concern, except for notably higher ratings in Education (7) and Cultural Norms & Practices (5). This distinctive pattern suggests varying perspectives on marriage's impact across different life domains among the participants.

Figure 4

Adversity Index Form Scores- The Family Reunion, the Participants Married and Started Their own Family
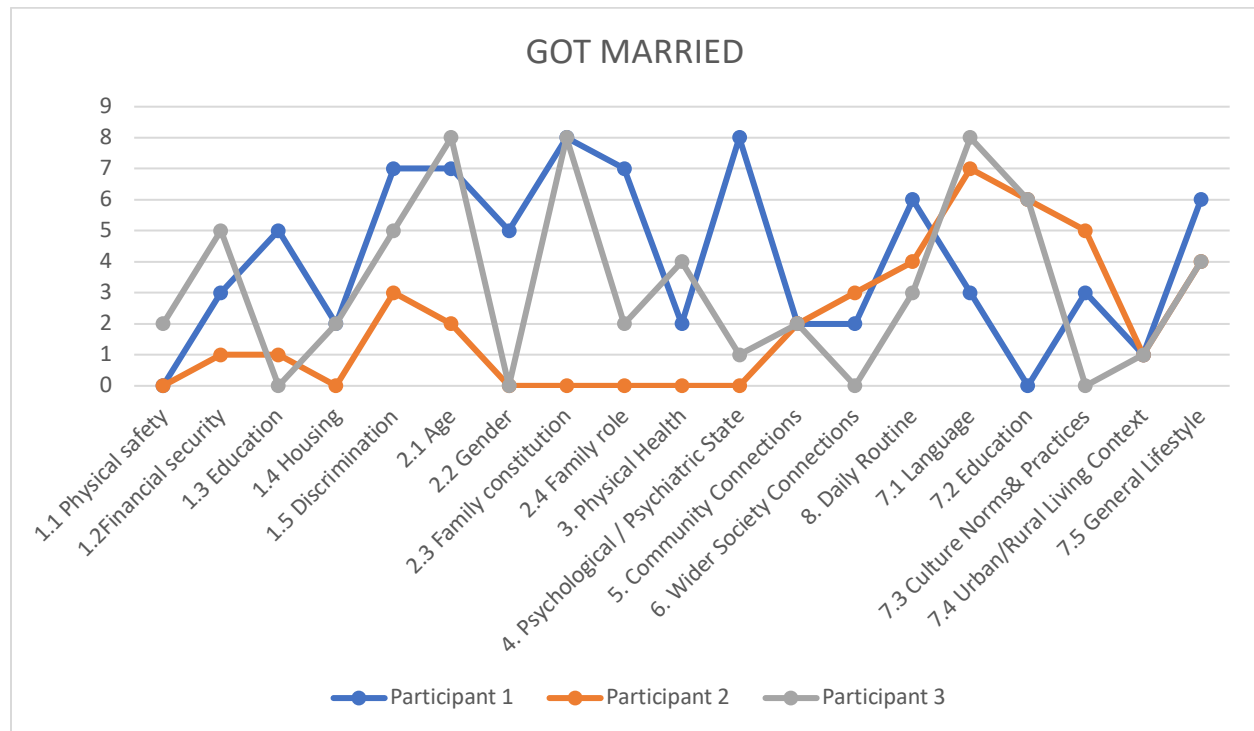
5.3 Multi-dimensional Perspectives of Life Milestones: Findings from the Adversity Index Form

The Adversity Index Form was employed as a multi-dimensional self-assessment instrument to evaluate participants' well-being across three distinct life milestones. This methodological approach facilitated both individual assessment and comparative understanding of participants' experiences during shared life events.

The Index Form findings revealed complex patterns of adversity across the 21-year period following the 921 Chi-Chi Earthquake. Whilst this natural disaster posed significant threats to the family's physical and financial security, it did not uniformly represent the period of greatest

concern across all participants. Indeed, one participant did not identify it as a significant

milestone, suggesting varying individual perceptions of adversity's impact.

The responses demonstrated that participants encountered diverse challenges across different life

dimensions as their circumstances evolved. For instance, during the maternal debt period,

marked variations emerged in both the magnitude and focus of concerns among siblings.

Participant 1's mean concern score (6.58) substantially exceeded those of Participants 2 (1.37)

and 3 (2.26), whilst specific dimensions such as Housing elicited notably different responses

(rated 10, 1, and 7 respectively). These disparities persisted across other shared life events,

including marriage, where participants exhibited distinct patterns of concern across various life

domains.

Whilst the Adversity Index Form provides a quantitative framework for understanding

participants' experiences across multiple dimensions, it serves primarily as a foundation for

deeper exploration. The numerical data, though valuable for identifying patterns and disparities

in participants' concerns across different life domains, necessitates contextual enrichment

through qualitative investigation. The subsequent thematic analysis of semi-structured interviews

will illuminate the narratives underlying these findings, revealing the complex interplay of

personal experiences, family dynamics, and social contexts that shaped participants' responses to

significant life events. This deeper analytical approach will provide crucial insights into how

individuals within the same family unit interpreted and responded to shared adversities

differently.

5.4. Thematic Analysis Overview

Following the individual narratives and comparative overview of shared life events through the Adversity Index Form, this section presents the broader patterns and meanings that emerged from the participants' accounts.

The overarching theme identified in the current research is long-term Adversity Activated Development, accompanied by related subthemes. These themes are illustrated through verbatim quotations extracted from participant interviews. Direct quotations appear in italics, with ellipses indicating omitted content less pertinent to the themes, thereby enhancing readability and thematic clarity. Bracketed text in non-italic format provides contextual information added by the researcher.

The subsequent section presents these research themes, supported by illustrative quotations from participant interviews.

5.5. Overarching Theme: Long-Term Adversity Activated Development (AAD)

As the previous section on family narratives has shown, the participants' family storyline which emerged from the interviews started from the 921 Chi-Chi earthquake and continued to develop over 20 years. Adversity Activated Development (AAD) was adopted as the fundamental theory of the current research, the findings of which have also demonstrated multiple layers of AAD in the participants' long-term development. AAD represents the positive development which was activated directly as a result of exposure to adversity (Papadopoulos, 2007). Papadopoulos (2021) further illustrates three different layers of AAD: External AAD, Interpersonal AAD, and Intrapsychic AAD, which correspond to the social/cultural, interpersonal, and personal levels in the Adversity Grid. The participants' experiences and reflections during the interviews have shown these different layers of AAD in their long-term

development. The following section will demonstrate the subthemes of External AAD,

Interpersonal AAD, and Intrapsychic AAD in the participants' unique individual and family

journey of development following the 921 Chi-Chi Earthquake.

5.5.1. External AAD

External AAD refers to contributions from the outside world such as financial aid which

develops in a person's life due to adversity. The most significant External AAD that appears in

the participants' interviews are resources emanating from society, including financial, material,

educational and cultural resources.

The family and individual narratives (Section 3.1) have shown that the family of the three

participants was financially challenged before the 921 Chi-Chi Earthquake. The family declined

government subsidies to rebuild their home after the earthquake; therefore, at the family level,

their financial situation has been further compromised due to the damage from the earthquake.

There may not have been significant External AAD at the family level in this period of time.

However, External AAD manifested at the personal level; Participant 2 mentioned that due to the

financial support she had received from the school and private donations, her financial situation

improved during the years following the earthquake.

"During that time, I got a job through the school, which was a part-time job for the

earthquake victims. I would assist instructors and do whatever they asked of me... And during

that time, I felt like I received a lot of help... Then, one of my teachers expressed a desire to

donate money to the victims of the 921 Chi-Chi Earthquake. He was concerned that the money

might not be used properly or for the right purposes, so he decided to give me and another

classmate 2,500 dollars each month because we were both affected by the earthquake. Actually,

at that time, 2,500 dollars was quite a significant amount. It was quite generous... Yeah, and

also, I had a job at the school, and I received financial assistance from my teacher... So, I felt

like I didn't need to work. Everyone was giving me money anyway... I felt like my university life

was very relaxed. You might think that I didn't need to work. After all, I would receive money in

my bank account every month without having to make an effort... And I feel like I can't solely

blame (to be lazy) *the impact of the 921 Earthquake, but it was definitely a factor." (P2)*

It is clear from P2's account of her personal experiences that receiving financial support

from the community resulted in a diminished sense of motivation in her life. While this external

change initially had positive implications for P2, it also highlights the nature of complicity

between external and internal experiences. This phenomenon involves a multitude of factors that

will be explored in greater detail in the Discussion chapter below.

In addition, P2 mentioned her educational resources, which also raised the topic of the

expansion of her experiences due to the external support received from society in response to the

921 Chi-Chi Earthquake.

"I also remember that during that time, when I didn't go home for the winter vacation, I

went to Nantou and worked as a volunteering tutor in the mountains, helping the children

affected by the earthquake. Taiwan had many organisations and groups like that which you

could join. Yeah, there were actually many opportunities available."

Thus, the support received from society not only facilitated External AAD at the personal

level, but also at community level. Dongshi, an area which was severely devastated by the 921

Chi-Chi earthquake, received material and cultural resources to a great extent, which was also

observed by P2 at the time.

"Of course, we received a lot……No, it was actually overwhelming. I think Taiwanese

people are really enthusiastic. Whenever they see such situations, they will definitely come

forward to help. So, in Taiwan, there were many volunteers, even more than what we needed.

The resources were abundant. However, I have heard that later on, some of the affected people

complained that certain things were not good enough or that they didn't want certain things.

Since our area was heavily affected, most of the resources were directed to here. We had a lot of

resources at that time, and I heard that instant noodles were distributed in boxes, not just in

single cups.

The resources from society were not just material, but also cultural. P2 mentioned that

Dongshi is a rural area, which means that there are few literature and arts resources available in

the community. However, because of the earthquake, the accessibility of arts and cultural

activities increased.

"After the disaster, there were more support and resources in cultural activities

available. When material needs were met, arts and cultural organisations also wanted to

contribute and provide relief. In the case of Dongshi, we received additional resources and

support. Cultural groups organised free performances or other activities to help uplift the

community. I remember there were quite a few such initiatives during that time. I think it's

actually a positive outcome."

The aforementioned examples demonstrate that catastrophic events can present new

opportunities and resources for both individuals and communities. These encounters foster

personal and community developments, although these new developments might require time to

cultivate. The positive impact of the External AAD mentioned above that facilitated personal

Intrapsychic AAD will be discussed below under the heading Intrapsychic AAD. Further, the

long-term External AAD examples from Dongshi are illustrated in the Literature Review

chapter.

5.5.2. Interpersonal AAD

Interpersonal AAD suggests positive interpersonal developments caused by adversity. These positive developments include but are not limited to marital, familial, and friendship dynamics. From the participants' interview data, two categories emerged at the family level under this subtheme: deepening family bonds; and restructuring the family dynamic.

The 921 Chi-Chi Earthquake was a live destructive natural disaster. It reminded people of the fragility of lives and how easy it could be to lose their family in an instant; thus it highlights the love between family members and deepens the bonds within the family. P2 described the experience of the first reunion with her family after the earthquake.

"That year, the 921 earthquake happened, and you would feel that family is very important, right? At that time, you would realise that family is really, how to say, I have always been deeply impressed by the scene of returning to the tent and hugging my mother. Actually, my relationship with my mother was not very good, but at that moment, I really hugged my mother tightly and cried. After that, I would go home at least twice a month, even though I lived in (another city) *for college…… I think it* (the 921 Chi-Chi Earthquake) *deepened the bond with family.*

The 921 Chi-Chi Earthquake was not the sole traumatic event experienced by the participants' family. According to their family narratives, another significant challenge they faced was their mother's debt. Despite enduring this series of adversities, P3 observed positive changes in the family dynamics and a closer bond among its members.

"When I was younger, the older sisters had a good relationship with each other, and the younger sisters also got along well. During my teenage years, I always felt like I was alone. Now that everyone is older and has gone through the things that happened at home, my feelings have

changed a bit……I feel a bit closer to them. It's like the feeling of good friends, which I didn't

have when I was younger. When I was in my teens, I would lock myself in my room when I came

home and wouldn't interact with them because they also didn't pay attention to me. I used to feel

that they would unjustly accuse me of things I didn't do... Each of my sisters in our family is very

eloquent and we can have intense arguments without giving in to each other."

Participant 2 also mentioned that this experience of collectively assuming family

responsibilities during adversity strengthened the bonds within the family. Moreover, this

experience and the bond between sisters even influenced a significant life decision in the future-

to have a second child.

"The family bond became stronger. When nothing happened, we were just family, but when

something did happen, it added another layer of connection between us. I feel fortunate that we

have five sisters. If I had to deal with these things alone, I would definitely go crazy. I think

having my second child was also influenced to some extent by this experience." (P2M2)

After this experience, they no longer take the family bond for granted because they

understand that real crises could potentially cause the family to fall apart.

"Like, we're five sisters coming together to shoulder these things. We still argue and bicker,

but in the end, it's all for the sake of this family. I feel like the five of us are pretty close now,

even though we live far apart. But because of this experience, our bond has grown stronger. We

don't take each other for granted anymore. Because we've been through some things, our family,

if my mum had done something foolish back then, our family would probably have fallen apart.

(P2M2)

The account of P3 and P2 above not only indicates the positive changes in family relationships, but also suggests positive dynamic changes and even positive personality and perspective changes among the sisters after their experiences of adversity. P2 gave another more specific example of the change in the family dynamic at the challenging time when their mother was in debt.

"*As an optimistic person, I believe that this incident has also brought about positive changes. My mum used to be a dominant figure, and I had to give her 15,000 dollars per month. However, since she caused the disruption, she had to earn her own living expenses. I see this as a good change because I could use my money to support the people I wanted to. These changes have been beneficial for me.*"

P2 saw this dynamic change as a positive development as well as a positive turning point for the family.

"*It seems that because of this incident, we were able to break free from the previous dynamics of our family. Sometimes, I feel optimistic and think to myself, "Thank goodness my mum caused all these disruptions because now we can bravely express our thoughts about this family. I can make decisions on my own, and my parents will support me." It has become a turning point where I no longer have to follow my mother's every word, especially when it comes to important events like* (P1)'s *wedding. Before the incident, we had to listen to my mother, but after she caused the disruption, we no longer need to adopt her opinions, and it doesn't feel bad at all.*"

From the positive changes in family dynamic, P2 also discovered feelings of love, connection, and completion within the family.

"Now we are like any other normal family, we go home when we need to, and because I have two kids, my parents love them very much and we video chat every day. Looking back, it may seem like a comedy, but at that time I really felt like life was not worth living and couldn't understand why we had to experience such a thing. But now, talking about it, it's just part of life's journey, and you learn a lot from it, such as the value of money and the importance of family. I think my mum has not only helped me but also the whole family to make a lot of changes, whether it's in terms of thoughts or personalities.

Similar to P3, P2 also redefined her family role and found both a comfortable role in the family after the adversity and hope for the future.

"The psychology of the second child is that they don't feel valued, they feel that since they have an older sister and a younger sister, they won't be the most outstanding one in their mother's heart. They have already become accustomed to it…….I didn't have high expectations of love from my mother…..However, my mother now loves my two children very much, and seeing her loving my two children very much, I feel this is my sweet aftertaste of life!". It's interesting. She loves them both very much and seeing them spoil their grandchildren makes me feel optimistic about the future."

The Change of Family Dynamic Lead to the Elevation of the Family Statuses

The participants' family financial status was challenging even before the earthquake, and it became even more compromised because of the earthquake. The elevation of the financial status was not due to direct external resources gained from the outside world as a result of the earthquake; rather, it was more related to the AAD the children gained in adversity that enabled them to step up to become financial providers of the family.

Participants 2 and 3 both mentioned the memory of poverty growing up.

"Our family's financial situation wasn't great to begin with. My dad had been unemployed for a while before that, and the house collapsed and needed rebuilding, making our financial situation even worse. But for me, nothing changed much. I always had very little pocket money, and I used to work during my school breaks.

I later chose to pursue a two-year college program instead of the more common four-year technical program. My immediate thought was that I needed to earn money and I planned to start working after graduating in two years. Regardless of whether there was the earthquake or not, I would have made this decision because our family's financial situation was already not good. It was until my mum kept asking us to borrow money that I realized just how bad our financial situation was." (P3M1)

As they grew up, participants gradually noticed certain concerning aspects about their parents, including unemployment, gambling habits, and weaknesses in personality traits.

"It wasn't until I reached the later years of elementary school that I realized our family's financial situation seemed different from others. We would fill in "average" or "comfortable" for our economic status. My dad's strength was that he wouldn't restrict us, but that was also his fatal flaw. He wouldn't think about changing anything or taking control. He was a good person, but to put it bluntly, a slack off. He had tried his best, but with limited education, there was a time when both my parents spent a lot of time playing cards. Our financial situation wasn't great to begin with, and the 921 earthquake was a huge blow. The only asset we had was our house, but even that collapsed. It was a significant financial loss. From then on, my mum started borrowing money. All of us children used student loans for university, realizing that our classmates didn't need them. That's when we realized our family wasn't well-off financially. Later

on, our financial situation got even worse, and my younger sisters started using loans from high

school onwards."(P2M1)

"I feel like my mum is naive, maybe even foolishly so. Perhaps she had some successes

(on gambling) in the past or won some money, which made her lazy and unwilling to work. She's

not able to work either because of her age. I've always felt that if our family didn't have these

financial pressures, if we were able to give our parents money every month like we do now,

maybe things wouldn't have happened the way they did. So my thoughts are different from

[P1]and [P2]. I feel like my mum does these things out of necessity."(P3M1)

All the sisters in the family have managed to complete higher education and secure stable

jobs and develop their own professions, such as teaching and nursing. Their individual

developments have enabled them to have stable occupations and income in society, collectively

elevating the financial status of their family without burning themselves out.

"Even though our financial situation was at its most precarious during this time, we also

had stable sources of income. The loans we took were within our means to repay; I wouldn't take

on debts that I couldn't afford to repay myself."(P2M2)

"It's fortunate that there are many sisters in the family to share the burden together.

Although we've had to repay a lot of money, our financial situation hasn't reached the point

where we can't survive." (P1M3)

"Even though I'm taking on these responsibilities, I still selfishly set aside a portion for

myself."(P3M1)

This case exemplifies the interplay between Adverse-Activated Development (AAD) at

both individual and familial levels. Whilst the participants' family declined governmental

assistance for home reconstruction, the material losses incurred from the earthquake, coupled

with subsequent gambling-related financial difficulties, precipitated a significant economic decline. Nevertheless, the sisters' long-term development following the earthquake enabled them to provide sustainable support for their household. In essence, the manifestation of External AAD, Interpersonal AAD, and Intrapsychic AAD demonstrated by individual participants ultimately contributed to AAD at the family level. A more comprehensive analysis of the dynamic interactions between AAD at individual, interpersonal and community levels shall be examined in the Discussion section.

Interpersonal AAD Outside of Family Context

Interpersonal AAD is not limited to development within the family of origin. The findings of the current research also indicate that an interpersonal expansion experience is prompted by adversity. P1 received education to become a teacher; however, due to the family's financial difficulty, she went to an electronics firm to work as an operator. This experience expanded her interpersonal circle in an unexpected way. In her new workplace, she met colleagues who shared similar life struggles, discovering a sense of commonality and relatedness that she had not experienced in her previous social circles.

"During that time, I worked as an operator at the (electronics) *factory. I thought that the job was relatively simple, as it mainly involved technical skills and operating machinery with repetitive tasks. I believed that I would have enough time to prepare for the teacher qualification exam. Many of my colleagues at the factory, who had similar experiences, were open and honest about their situations. I used to feel hesitant to share my circumstances with friends from university who came from more stable family backgrounds. I didn't know how to express myself when facing difficulties, and it made me feel insecure, especially considering the chaotic state of my own family at the time. When I talked about these things, it seemed like reading a headline*

story from the newspaper for them, and they couldn't fully relate to this. This added to my sense

of inferiority."

P1's time working at the electronics company not only expanded her social network but

also played a significant role in her romantic relationship. It was during this period that she met

her future husband, and their connection ultimately brought a sense of fulfillment in her later life.

"After talking with you, I started to think, would it have been better if there hadn't been

an earthquake back then? Would my life be better now if my mother hadn't gone through all of

that? Would I have been able to focus solely on my studies? For example, pursue a graduate

degree or take a different path? I don't think it's necessarily the case. Whether it would be better

or not is unknown. However, one thing I can be certain of is that I feel very happy being together

with my husband. We experience happiness and contentment without major ups and downs.

Every day, I feel fortunate and joyful being with him."

Meanwhile, P3 mentioned Interpersonal AAD in a way that is more related to the

development of her own interpersonal skills as part of her journey of long-term development in

adversity.

"When I was in Taiwan, I used to be relatively shy. However, after going to the Middle

East, I became much more outgoing. I completely shed my shyness, especially in terms of

relationships between men and women. In the past, I attended an all-girls school and worked in

environments dominated by women, where everyone was somewhat reserved. But after going

abroad, I went through a transformation. It was a significant change for me."

The subthemes of Interpersonal AAD identified in the present research not only suggest

that adversity fosters familial connection and bonding but also indicate that it presents an

opportunity for restructuring family dynamics to promote harmony. Moreover, adversity

facilitates the expansion of interpersonal networks, the formation of novel relationships, and the development of enhanced interpersonal competencies. Furthermore, the findings from the present research suggest a reciprocal relationship between Interpersonal AAD and Intrapsychic AAD. Both P2 and P3 reported that experiences of adversity precipitated transformations in family members' personalities, which subsequently contributed to heightened family cohesion. The ensuing section shall examine Intrapsychic AAD in greater detail.

5.5.3. Intrapsychic AAD

Intrapsychic AAD encompasses the internal psychological development and transformative processes that are catalysed by experiences of adversity. This dimension of adversity-activated development manifests in multiple domains of psychological functioning, including but not limited to: personal growth and maturation, fundamental shifts in value systems, enhancement of one's worldview, and the development of transcendent qualities that facilitate the translation of personal experiences into meaningful societal contributions.

In the previous section, P3 mentioned the maturation of her interpersonal skills, as well as the elevation of her worldview which is more related to Intrapsychic AAD, but as a result this also elevated her interpersonal skills.

"Being mature means having experienced and encountered a lot of things, for example, being able to have easy conversations with strangers. Maybe encountering similar situations, but my previous self would have had more narrow-minded thoughts. Now, I don't know if it's because of personal growth or the things I've witnessed, but my perspective on things has changed……I sometimes think about why certain news appears on TV in Taiwan focuses on too many small things, and I believe it's a cultural difference. When my friends talk about such matters, I remain silent because I don't want to challenge their beliefs. I simply think that things are the way they

are. I also feel that my thoughts differ from those of friends who used to be in the same social

circle as me, and I sense my own change."

With respect to maturation processes, P3's account demonstrated the development of

heightened financial responsibility, which emerged as a direct consequence of her adversity

experience. *"When it comes to extravagance, I have become more mature. Unlike when I was a*

child and would spend money without considering the consequences, buying whatever I wanted.

Now, I approach things with more precision and planning, being mindful of my expenses."

The experience of adversity facilitated P3's reconceptualisation of her career trajectory, as

she developed new perspectives on work-life balance and discovered greater vocational

fulfilment through alternative career paths.

"A long time ago, I always thought that I would become a nurse in this lifetime, maybe as

a clinic nurse, hospital nurse, or nursing home nurse. It wasn't until I went abroad that I realised

there are many other different jobs I could do. I no longer felt obligated to become a nurse just

to justify the years I spent studying. It's been a positive change, and now I can't imagine going

back to the hospital to work as a nurse. Even in Germany, I struggled for a long time and

couldn't find a decent job. (Q: Being a nurse would give you more opportunities, right?) Yes, but

I don't want to do it. It's tiring, stressful, and the compensation is not reasonable. I would rather

earn less money and go to work happily and relaxed every day. I would prefer to work in a

factory than to be a nurse. After going to Australia, I discovered that working in a factory is also

quite good."

P2 diversified her professional activities in response to adversity. During the period of

maternal indebtedness, P2 assumed primary responsibility for debt repayment. Confronted with

both financial and psychological strain within the family unit, P2 developed a parallel career as

an author whilst maintaining her full-time teaching position. Her literary endeavours proved successful, resulting in the publication of approximately ten young adult novels.

"I feel that the most prolific period of my writing was when my family was going through difficult times. Later, I told my friends that life needs its tragedies to inspire powerful writing. When there were problems at home, writing became a form of release. I had many thoughts and reflections, and it allowed me to express myself. When I started dating and my family issues were lifted, I felt content and happy, and I didn't dwell on the past. Perhaps, when I write, I can immerse myself in another world and escape from the worries of reality."

The predominant themes in P2's novels revolve around individuals facing adversity and their subsequent journeys of breakthrough and personal development. In her fifth novel, she even incorporates her own experiences and the stories she gathered from the local community during the aftermath of the 921 Chi-Chi Earthquake.

"I really enjoy the process of writing, as it allows my creativity to flow and gives me the opportunity to showcase my storytelling skills. Since I was young, I've always had a passion for writing, especially during my composition classes. I was writing my 5th novel, which coincided was the time of the 10th anniversary of the 921 Chi-Chi Earthquake, which holds significant importance in my life. I heard many stories from people around me about their experiences during the earthquake, and I wanted to convey the concept of cherishing loved ones after such a catastrophic event. When I wrote my fifth book, it happened to be during the 10th anniversary of the 921 Chi-Chi Earthquake. I had so many thoughts and ideas related to these events, so I crafted a story to organize and communicate them effectively.

For me, writing is like a reflection of life itself."

P2's career development has gone beyond personal growth. Her novels not only tell compelling stories but also advocate adversity development, which have resonated with a wider audience. Similarly, P1, after going through family hardships, returned to her teaching job. However, her adversity experiences have brought about a conscious sense of personal growth. Understanding her own struggles has deepened her empathy for students facing adversity and their unique needs. She has noticed an increase in her patience and is actively engaged in promoting life education inspired by the 921 Chi-Chi Earthquake.

"And sometimes, when you do so many things, you might not necessarily receive any rewards. So, why do you do so much in the first place? Their families may not perceive it, but you know that it makes a difference for the children. At times, you need to try and see if you can bring about some changes, even if it may not be completely effective. These thoughts cross your mind sometimes. And you asked where these things come from. I believe they come from the warmth I received during that time (the 921Chi-Chi Earthquake)……In the past, I used to be one of those who acted superior among our small group and didn't pay much attention to others.

(For the students) *because it's related to life and the people they know, they become curious about it. They want to know how you came out of that situation. Even during September last year when we had to discuss the topic of the 921 Chi-Chi Earthquake, the children became interested in knowing what happened to people around them. They keep asking their parents, "Did you experience the 921 Chi-Chi Earthquake?" When something happens around you and involves people you know, it can be very impactful. We used to show the children videos about the earthquake……After watching the video, they still perceive it like watching a cartoon…… When I mentioned the old home of mine. They were amazed and could not believe it. I even made*

a model of a house before, with walls that I broke, saying, "I climbed out from there. Did I crawl

out from inside?"

    This is indeed a transformation, a transformation of life experience."

    P1 further attributed her development to the kindness and warmth she received during the

time of the 921 Chi-Chi Earthquake. She gave a lively description of this part of her life when

she was living in tents in the field. This experience also became the foundation for her to help

her to be persistent when she wanted to abandon her career path.

    "Actually, at that time, I wanted to say that it wasn't just Tzu Chi helped us back then…In

fact, there were many people who travelled a long distance, even from overseas. Everyone knew

that the death and injuries in our area were severe. Some people specifically came to help and

assist the families and handle the bodies. It was a job that nobody wanted to do.

    During the earthquake, I personally experienced it. And although I've always felt that the

921Chi-Chi Earthquake had a small impact, after chatting with you today, I realise that it

actually had a significant influence. Before this, I always felt it was okay. If houses collapsed,

they could be rebuilt, and it was just part of life. I didn't feel anything particularly different or

special about it.

    But because we received so much help at that time, I thought that it would be good if my

career could, to some extent, give back and provide assistance to people. At one point, I even

considered giving up on early childhood education because I thought the long hours, exhaustion,

difficult parents, and lack of satisfaction made me unhappy. Additionally, I couldn't pass the

public preschool teacher exam, and the salary was not good. But later, I thought that I had spent

many years studying this field, and although the job seemed simple, I believed that persistence

and adhering to principles were important. I would repeatedly explain the same things to the

children and communicate with parents. I considered it a small matter, but I believed that it

could change them.

I wanted to say that in the morning of the 921 Chi-Chi Earthquake, around six or seven

o'clock, I arrived at the field ground. When I had rice noodle soup, it felt like the most delicious

taste of life.

Moreover, there were many peculiar things happening in the disaster area at that time.

For example, there were people who came and brought a guitar. They would stand in the middle

and play the guitar, simply singing for everyone to listen. There were also people playing drums.

I found it quite amusing at that time, thinking, why are they doing this here? But when

you listen to them sing or play instruments, you can temporarily forget about everything else.

Of course, during that time, the crisis of survival and economic difficulties still existed,

but at least there was something that wouldn't constantly make you think about and get caught

up in that situation.

Yes, you mentioned Tzu-Chi earlier. Honestly, I didn't feel much about Tzu Chi before,

but after chatting with you, it seems like it has made a significant difference.

It really feels like life changing."

The narratives of Participants 1, 2, and 3, as examined in this chapter, illuminate the

intricate manifestations of long-term Adversity-Activated Development through their rich

accounts of resilience and transformation. The sisters' individual testimonies, contextualised

within familial and societal disruption, demonstrate diverse responses to adversity, encompassing

experiences of financial hardship, familial estrangement, intrapsychic development, and ultimate

familial reconciliation. Notably, their experiences reveal the reciprocal relationship between

interpersonal and intrapsychic development, whereby personal transformations facilitated

enhanced familial bonds, whilst familial challenges catalysed individual growth. The analysis

reveals that the 921 Chi-Chi Earthquake served as a catalyst for profound life changes,

precipitating a complex developmental trajectory that transcends the mere impact of trauma to

demonstrate the significant potential for positive growth and development emerging from

sustained adversity. Furthermore, this longitudinal perspective illuminates how adversity-

activated development manifests not only in immediate responses but continues to evolve and

shape both individual and familial dynamics over an extended period.

PART THREE - Discussion and Conclusion

Chapter 6.

Discussion

While the Findings chapter focused primarily on Adversity-Activated Development (AAD) as a positive response to adversity, this Discussion section provides a more comprehensive analysis by examining how negative, unchanged, and positive responses coexist and interact in the aftermath of the 921 Chi-Chi Earthquake in Taiwan. Using the Adversity Grid framework (Papadopoulos, 2021), the current study reveals that these three response patterns are not mutually exclusive but rather operate simultaneously across individual, interpersonal, community, and social/cultural levels.

This Discussion section presents a multi-layered analysis of how individuals navigate through life-changing challenges, comparing AAD with Post-traumatic Growth (PTG) frameworks while considering methodological innovations through the adaptation of the Adversity Index Form. The analysis explores the critical role of cultural context in shaping responses to adversity, particularly within Taiwan's socio-cultural landscape where traditional values and modern influences converge. Special attention is given to indigenous psychological perspectives and cultural concepts such as "Orbicular" that inform the understanding of adversity and development in the Taiwanese context.

Through comprehensive analysis of longitudinal data spanning two decades, this chapter aims to contribute to a more nuanced understanding of the psychology of adversity, offering theoretical insights and practical implications for mental health professionals. The discussion examines the therapeutic aspects of the research process and concludes with personal reflections

on my journey as a female researcher engaging with family narratives, offering insights into how my own positionality and experiences shaped the research process and outcomes.

6.1. The Complex Nature of the Experience of Adversity

In the current research, the Adversity Grid was employed as a tool to examine participants' experiences of adversity following the 921 Chi-Chi Earthquake. The primary rationale for using the Adversity Grid lies in its comprehensive nature; that is, it facilitates an exploration of the participants and their family's negative, unchanged, and positive responses and developments in the face of adversity. Further investigation was conducted into the various manifestations of Adversity Activated Development (AAD) at different levels within individuals and families. Beyond the exploration of the various layers of AAD conducted in the Findings section, the results of this study also reveal the complexity of experiences of adversity, demonstrating the concurrent existence and the interplay of negative, unchanged, and positive responses within these experiences.

6.1.1. Negative Responses

In focusing on the positive growth of the participants and their families during times of adversity, we must not overlook the pain endured. Participant 2 shared the poignant experience of witnessing her father's helplessness for the first time following the 921 Earthquake.

"In the aftermath of the earthquake, while living in tents, there was a day when I went to eat on the roadside with my parents. My father had always been incredibly strong, the bedrock and the sky of our family. That day he spoke of his life's hardships, lamenting that everything he had worked for was gone. It was the first time I saw my father cry. Standing by the roadside, he wept; the earthquake had broken him... Even though he had saved us all during the quake, when we were having soup together, he expressed how he never thought he'd have to accept charity.

Seeing my father cry, I was at a loss. But later, it was he who rebuilt our house, and I thought he

was remarkable." (P2M1)

Despite a moment of helplessness after the earthquake, the father regained his strength

and rebuilt their home. However, the subsequent financial issues and the mother's debt situation

further devastated him, leading to depression and suicidal tendencies.

"My father repeatedly spoke of wanting to die, sitting by the river contemplating suicide."

(P2M2)

"Due to the debt and my mother's condition, my father appeared to suffer from

depression. He hardly ate, smoked incessantly, and wanted to live like a vagrant. He began to go

to temples frequently " (P1M2)

Participant 2 describes this deeply distressing period of life marked by fear and isolation.

This excerpt underscores Participant 2's emotional burden during a family crisis, which was

compounded by financial stress and the uncertainty of their mother's fate.

"The period when my mother absconded was truly terrifying, filled with dread that each

phone call might bring bad news. I maintained my routine of going to work, but upon returning

home, it was as though I was in a soap opera: I would close the door, slide down it, and begin to

kneel and weep. I felt unable to share this with my colleagues, and the fear was overwhelming

because my mother's disappearance was profoundly disconcerting. Not knowing whether she

was alive or dead, and facing additional debts, was an immense and multifaceted pressure."

(P3M2)

These narratives illustrate not only the resilience, recovery, and positive developments

but also the profound struggles and emotional turmoil experienced by the participants and their

family, highlighting the multifaceted nature of adversity.

6.1.2. Unchanged Responses

In the most recent version of the Adversity Grid, responses that remain unchanged are categorised into two distinct groups: positive and negative. These categories encompass the qualities, characteristics, behaviours, functions, and relationships that persist in the face of adversity (Papadopoulos, 2015).

6.1.3. Negative Unchanged Responses

Negative unchanged responses refer to the adverse attributes that persist following exposure to adversity (Papadopoulos & Giannakopoulos, 2018). In the context of the participants' families, poverty emerges as a notably unchanged negative characteristic.

"Our family's financial circumstances were already precarious. My father had been without employment for some time, and with the collapse of our house necessitating reconstruction, our financial plight worsened. However, personally, little changed. My allowance was always meager, and I worked during school holidays." (P3M1)

"As a child, I was oblivious to our family's poverty; I assumed it was normal, for instance, sharing a packet of crisps among five sisters." (P1M1)

"It was not until the latter years of primary school that I recognized our family's finances were different from others. Despite his efforts, my father's limited education……there were times when both my parents resorted to playing cards frequently. The 921 earthquake was a devastating blow to our already fragile financial situation. Our only asset, the house, was destroyed, leading to a considerable financial setback..." (P2M1)

While the participants' families did experience significant economic improvement as a consequence of their development following adversity, the long-term narrative of their household indicates that poverty was a pre-existing issue that continued post-earthquake.

6.1.4. Positive Unchanged Responses

Positive unchanged responses are characterised as resilient qualities, aligning with the original and strict definition of the term. These qualities support the individual and the system in surviving events of adversity and continue to facilitate development post-adversity. The concept of resilience differs from Adversity Activated Development (AAD) in significant ways. Resilience refers to the positive attributes that remain after experiencing a disaster, whereas AAD describes the new elements that emerge as a result of experiencing adversity.

Optimism, love for herself, and friendship are identified as the positive, unchanging elements that Participant 2 exhibited across all three life milestones, supporting her in navigating through adversity.

"*I'm very optimistic. I always think "fortunately" about things. Fortunately, I became a certified teacher and got a stable job, and at that time, I was the highest earner in the family and could repay debts. I always think "fortunately" in various situations, like how fortunate I am for this or that……I love myself. No matter what, I've always loved myself. That's why the memory of throwing away dinner is so vivid to me. It's because I'm someone who loves myself deeply. I'm someone whose mood won't easily be affected by external factors. So, I remember that incident vividly. It's unbelievable that I was so upset that I couldn't even eat dinner. What remains unchanged is that I'm quite optimistic, I love myself, and I have friends to confide in. Even though things may not be going well, I haven't changed my way of life.*"(P2M2)

For Participant 2, optimism has been a constant companion since before the 921 Chi-Chi Earthquake. This trait helps her approach situations with a positive mindset and avoid overthinking. It has helped her navigate life's challenges and continues to do so to this day.

"Life is like a flow, with its ups and downs. The pandemic has its pros and cons, but my husband helping me at home has been a big help. We shouldn't see things as too difficult or change as too daunting. Looking back now, I don't really think much of it. My sister and I even laugh about the things that happened in our family in the past." (P2M3)

Nevertheless, during the interview, Participant 2 acknowledged the potential downsides of excessive optimism within her family context.

"Our family consists of optimists, believing that brooding only leads to unhappiness and that lost things won't return. The advantage of this mindset is evident; however, the downside is akin to an ostrich approach—this is what led to the issues with my mother. There was a collective denial of the negative aspects, with a focus solely on the positives." (P2M1)

This reflection indicates an awareness of the complexity inherent in coping strategies, where the trait of optimism, typically regarded as beneficial, can also contribute to avoidance behaviours that may have long-term detrimental effects.

During the interview, Participant 3 highlighted independence as the enduring positive trait that steered her through familial challenges and enabled her to go to aboard bravely.

"Optimism and positivity—I've always felt that I embody these qualities. Independence, and an even greater independence, has always been part of my character, but it grew stronger after moving abroad." (P3M1)

Yet, within this unchanging positive attribute, Participant 3 observed the evolution of her independence across different life stages. Her self-reliance gave rise to positive connections with her husband, fostering a form of positive dependency, an emotional bond she had not experienced before—wherein new positive traits sprouted from those that remained unchanged.

"What changed is that I've always been a very independent person... I could go to the doctor or to clinics by myself, even if there were language barriers, I would try. I feel I am still the same independent person, yet in some respects, I've become quite reliant on my husband. Previously, I thought I could do anything on my own, whether it was heavy lifting or assembling new furniture, even changing a lightbulb. Now, there are things I prefer to wait for my husband to do, tasks that seem to be just for him. Last week, he was away for work, and while in the past I would have been pleased, as I missed being on my own... recently, I find myself missing him when he's gone for a few days, feeling a stronger dependency on him... Now, whatever I do, I consider both of us, gradually. I used to keep his things and my things very separate, but not anymore." (P3M3)

The narrative depicts an intricate tapestry where change intertwines with the unchanged, and within the unchanged, new development is discovered. Participant 3 also acknowledges this complexity in the interview, noting the coexistence of seemingly contradictory traits within her life.

"I am still very independent, and I know these two may seem conflicting, but in terms of independence, I am still able to accomplish things, (yet also depend on my husband)." (P3M3)

Participant 3's account illuminates the interplay of constancy and change within the context of adversity and personal development. This dialogue reflects the nuanced and dynamic nature of personal development in the context of resilience and relationship building, revealing how individual traits adapt and transform through life's adversities.

6.2. Long-Term AAD in the Experiences of the Participants

From the findings of this study, it is evident that although the participants are three sisters from the same family, their experiences, perceptions, and thoughts regarding the 921 Earthquake

and significant family crises vary considerably. Their individual Adversity Activated Development (AAD) has also evolved distinctly over time. Papadopoulos (2021) suggests that the impacts of adversity or traumatic events are shaped by Meaning-Attribution Processes (MAPs). These processes are constructed by a multitude of factors, including personal and relational characteristics, age, gender, ethnicity, disability, positions of power, the nature of the actual catastrophic events, belief systems, current conditions, social structures, and many others (Papadopoulos, 2021a). MAPs influence an individual's long-term response to adversity (Papadopoulos, 2021a). Given the factors before, during, and after a catastrophic event, along with the variables constituting layers of systems, it becomes nearly impossible to standardise the responses and experiences of individuals in the face of adversity.

Furthermore, the emergence and recognition of Adversity Activated Development (AAD) remain ongoing subjects of enquiry. Questions such as when AAD begins, when it is recognised by individuals, and whether such development ever ceases, underscore the notion that this is a continuous and interactive process. The concept of Onto-ecological Settledness, proposed by Papadopoulos (2021), aids our understanding of this dynamic. Onto-ecological Settledness describes the dynamic process by which individuals compose their identities, emphasising that individual identity is not static but rather is a dynamic interplay between one's self-perception and the mosaic substrate. This concept appreciates the wholeness of an individual in the process of change, encompassing aspects such as psychological/physical, personal/interpersonal, and external/internal dynamics (Papadopoulos, 2021a).

Onto-ecological Settledness is not merely a state but an ongoing dynamic interaction between individuals and their environments in response to life events like adversity. It also suggests that a family, as a unit, engages in its own dynamic process, collectively shaped by its

members (Papadopoulos, 2021a). Thus, individuals have their personal Onto-ecological Settledness in response to significant life events, while collectively, family members create a unique narrative of family Onto-ecological Settledness.

From this perspective, the research process itself becomes an interactive endeavour of shaping self and family concepts. Both researcher and participants bring their own pre-existing factors to the research, and their encounter generates perspectives of the past, present, and future. Through continuous interaction, the researcher gains deeper insights into participants' experiences, with factors like gender, age, personal experiences, education, and professional background influencing the researcher's interpretations. Participants, within this research framework and interaction, continually construct their own and their family's identity, which includes the recognition and interpretation of AAD.

6.3. Rethinking Post-Disaster Development Through AAD and PTG: The Coexistence of Multiple Response Patterns

The findings of this study reveal a complex interplay between adversity and development in the aftermath of the 921 Chi-Chi Earthquake, contributing valuable insights to our understanding of post-disaster psychological adaptation. Whilst the results align with some aspects of Post-traumatic Growth (PTG) theory, particularly in the five domains identified by Calhoun & Tedeschi (2014) - interpersonal relationships, new possibilities, personal strengths, spiritual growth, and appreciation of life - they also demonstrate important distinctions that support the more nuanced framework of Adversity-Activated Development (AAD).

A key finding was the coexistence of multiple response patterns amongst the three sisters, despite their shared family context. This complexity aligns with recent critiques of PTG theory's potentially reductive focus on positive outcomes (Zhou, Wu & Chen, 2015) and supports the

more comprehensive approach of the Adversity Grid framework. The sisters' narratives revealed simultaneous experiences of loss, resilience, and growth, demonstrating that post-disaster development isn't a linear progression from trauma to growth, but rather a dynamic process where multiple responses can coexist.

The study's longitudinal perspective, spanning over two decades, revealed how development occurred across different temporal scales for each sister. This temporal dimension isn't well-captured by traditional PTG frameworks, which often focus on a more defined post-trauma period. The findings suggest that adversity-activated changes can emerge, evolve, and manifest differently over extended periods, supporting Papadopoulos's (2021) assertion that development is an ongoing process rather than a finite outcome.

The results particularly highlight the multi-level nature of post-disaster development, demonstrating how individual, family, and community systems interact in complex ways. This was evidenced in how the sisters' individual developments (e.g. career changes, personal growth) were inextricably linked to family system changes (e.g. restructured relationships, new dynamics) and community transformations (e.g. enhanced social connections, new support networks). This systemic interaction supports the theoretical framework of External, Interpersonal, and Intrapsychic AAD proposed by Papadopoulos (2023), offering a more comprehensive understanding than traditional PTG models.

A significant finding was how adversity activated different types of development for each sister, influenced by their unique positions within the family system and their individual circumstances. This supports the theoretical position that adversity-activated development is not uniform but highly contextualised, depending on personal, familial, and social factors. The study

reveals how the same adversity can catalyse different developmental pathways, challenging more deterministic models of post-trauma adaptation.

The findings also demonstrate the importance of cultural context in shaping post-disaster development, particularly in how traditional family roles and cultural expectations influenced the sisters' developmental trajectories. This cultural dimension is often underemphasised in Western-centric PTG theories but emerges as crucial in understanding how adversity-activated development manifests within specific cultural contexts.

These results suggest the need for theoretical frameworks that can capture the complexity, non-linearity, and cultural embeddedness of post-disaster development. Whilst PTG theory offers valuable insights into positive post-trauma changes, the findings support the more comprehensive approach of the Adversity Grid and AAD framework in understanding the full spectrum of post-disaster responses and development.

6.4. Adapting the Adversity Index Form: Methodological Considerations and Applications

The current study utilises the Adversity Index Form, adapted from the Asylum Seekers' Protection Indices (ASPIS), as a self-assessment scale to understand participants' psycho-social resources across three life milestones from multi-dimensional perspectives. The ASPIS, designed by Papadopoulos (2010), provides a systemic framework for professionals working with people in vulnerable circumstances, particularly asylum seekers and refugees. It helps practitioners grasp multi-faceted views of individual circumstances, vulnerabilities and strengths at personal, interpersonal, and social levels.

Whilst ASPIS originally excluded scale numbers to emphasise service provision rather than measurement, the current study incorporated numerical ratings to facilitate comparison of

psycho-social resources across different life milestones. However, it is crucial to note that the aim remains understanding circumstances holistically rather than diagnosing psychological status or vulnerability.

Self-assessment instruments have inherent limitations, as their effectiveness does not always correlate with measurement competence (Yates et al., 2022). As Taylor (2014) notes, rated scores can be influenced by participants' habits, personality traits, and other personal factors. Furthermore, Taylor's concept of the Complex Self suggests that self-identity comprises multiple layers, including individual, relational, and collective selves (Sedikides & Brewer, 2001).

The Adversity Index embraces this multifaceted nature of self-concept, incorporating personal, interpersonal, and collective levels. This comprehensive approach proves particularly valuable for the current research, enabling participants to review their experiences systematically over two decades and reflect on their development across significant life milestones.

The original ASPIS framework emphasises the importance of in-depth knowledge and often requires multi-agency collaboration over multiple sessions to complete assessments effectively (Papadopoulos, 2010). This thorough approach has been maintained in the current study's adaptation of the instrument.

6.5. Therapeutic Aspects in AAD Interview

The Adversity Index inherited the spirit of ASPIS; the utilisation of the Adversity Index and Adversity Grid in the current research emphasises the collaboration between the participants and the researcher to explore the circumstances of their significant life stages from a holistic perspective. The researcher has pre-existing knowledge of the circumstances of being in a vulnerable position, and has studied AAD related theories. The researcher also has adequate

experience of working with people in adversity. The procedure of the interview started with a semi-structured interview based on the Adversity Grid to gather the story and development of the participants at certain of their life milestones. The researcher then filled in the Adversity Index item by item with the participants and discussed the rationale for the participant giving a particular score to each item. The design and the instruments selected for the current research allow both the participants and the researcher to engage in an in-depth and holistic exploration of the experiences of significant life milestones. Through this exploration, the participants and the researcher both gained insights from this collaboration.

For example, during the interview with Participant 1, the researcher indicated that her degree of concern that milestone three (getting married) was rated higher than milestone one (the 921 Chi-Chi Earthquake), while physical and financial security were placed in a safe status at milestone three. Participant 1 reflected:

"……You said that although the status of the marriage actually sounds good, the marriage is very good, but my overall sense of crisis is higher than that of the previous two times, the 921 and my mum's time…… why is this so? I kept the form (Adversity Index) you sent me, and I kept it myself...... I took a look. This marriage is happy for me, happy, and my sister-in-law; we do not have any big problems getting along now, but the crisis score I gave was relatively high……. this is a thing lingering in my heart. I thought about it, and I thought maybe 921, and about my mother, I can blame God. Then what happened to my mother, I do think it was a man-made disaster. However, I think what my sister-in-law told me……. many things in the marriage is actually me. I think I can work harder. I don't think I can blame anyone for it. It's my own responsibility. ..... I should save more money, I should be able to do more things, and I should contribute more to finance. She talked about my family, which I think was right. For your family,

my mother's behaviour is indeed concerning……. In my heart, my family became like this, and I think I feel inferior…… I think that's why I rated like this...... It's just no one to blame. It's really my own responsibility."

Through the interview and the reflective research tools, the participant gained a deeper insight into her life journey and herself. She had the courage to recognise her shortcomings, to take responsibility for her life, and to claim agency for her life.

The AAD interview enables participants to reflect on their past experiences within a holistic framework, fostering the opportunity to challenge entrenched narratives and adopt new perspectives.

"After the interview, I realised that my sister also had needs that required attention, which were related to our mom's past parenting style. It wasn't until much later that I noticed something seemed off about mom's parenting approach…… Originally, I didn't think it was dad's fault, but now looking back, it's strange that dad didn't notice. However, there was a degree of tolerance and overlooking that allowed these things to happen……During mom's upbringing, her resources were stripped away and given to her younger siblings, which made her very unhappy. However, she still remained by grandmother's side, actively seeking grandmother's attention…" (P1M3).

Before the interview, Participant 1 portrayed her mother in a predominantly negative light and her father in a more positive one. However, through the AAD interview, Participant 1 began to perceive the multidimensionality of her parents, understanding the complexity of her family dynamics and context. More importantly, these newfound understandings contribute to healing.

"Every time I engaged in our interview, I invested myself and reflected on it. So, I saw many changes within myself across the three stages of life……Talking about my mum used to leave a knot in my heart, but after the interview, I felt like something has shifted inside me. I can't quite put my finger on what this change is, but it feels different now. (P1M3)

"For several years, I struggled to understand why my sisters could let go and move on, despite trying to read many books on forgiveness…… Until this interview, I found that my emotions weren't as intense anymore…..After the interview, I saw different aspects of the situation. The last interview was really helpful; I realised that the groundwork laid back then has contributed to who I am now." (P1M3)

The AAD interview introduces a holistic framework and perspectives into the interview, but because it is an interview rather than therapy, its healing lies more within the realm of spontaneity of the participants. Participant 1's reflection resonates with the core principles of the Adversity Grid, as articulated by Papadopoulos (2021), which involve a collaborative endeavour between participants and researchers aimed at transitioning from a state of 'confusing complexity' to one of 'discerning complexity'. This transformative process enables participants to harness adversities as catalysts for personal growth and fulfilment. Papadopoulos (2021) terms this approach 'Synergistic Therapeutic Complexity', emphasizing the importance of "being therapeutic" rather than "doing therapy, thereby underscoring its heuristic significance for both theoretical understanding and practical implementation.

These values resonate with the development of Indigenous Psychology in Taiwan. Indigenous Psychology in Taiwan emphasises that psychological healing must return to the lived world of the Taiwanese people, where the ethical order within the context of Chinese life is paramount (Yu et al., 2004). Healing from suffering should delve deeply into the experience of

ethical acts in presence, and this healing relationship extends beyond ordinary interpersonal relationships (Yu et al., 2004). Collaborative interview relationships can thus embody such extraordinary interpersonal relationships, where "being therapeutic" and "ethical acts in presence" mutually illuminate each other.

Utilising the Adversity Index in the current research also helped the researcher to eliminate potential blind spots as a researcher, a mental health practitioner, and a human. For example, in the category of Degree of Difference, one of the subcategories is Language. Taiwan is a multicultural and multi-ethnic country. The common languages and dialects used in Taiwan are Mandarin, Taiwanese Hokkien, Hakka, and Taiwanese indigenous language(s). I, the researcher, am Han Chinese, which is the majority ethnic group in Taiwan. My first language is Mandarin, which is the national language of Taiwan and the most commonly used language there. Growing up, I rarely encountered language difficulties, although Taiwan has a multi-dialect environment. Therefore, when adapting the ASPIS into the Adversity Index, I even considered eliminating the subcategory of Language. However, in the result of the Adversity Index score, the degree of concern of Language for Participant 1 during the period of the 921 Chi-Chi earthquake was rated relatively high (rated 5). Participant 1 further explained:

"Dongshi is a Hakka village (where the participants lived at the time of the 921 Chi-Chi Earthquake). My mother is a Hakka from Miaoli. My mother can speak the Dabu Hakka dialect, and she can also speak the Dongshi Hakka dialect. But what about our family at that time? My dad is Hokkien Taiwanese, and my dad speaks Taiwanese Hokkien, so they (the neighbours) know he speaks Taiwanese Hokkien……As a child in our family, of course, my dad speaks Taiwanese Hokkien to us. Only after I became an adult can I communicate with my dad in Taiwanese Hokkien, but it is still very rusty, and for Hakka, I can only recognise some

vocabulary. I mention this because, at that time, we lived in a tent with everyone. Everyone in the

district thought my dad couldn't understand Hakka……so they said things behind our backs in

Hakka. For example, they would say our family have so many children; we must receive a lot of

supplies. They said this kind of thing about us right in front of us while we were queuing up for

the supplies."

Through the exploration using the Adversity Index, Participant 1 pointed out a concern

barely mentioned in any previous research on the 921 Chi-Chi Earthquake. This is the subtle

difference between the dialects among Han Chinese people (both Hokkien and Hakka are the

branches of Han Chinese). This difference may not be a significant concern for people in their

daily lives because they can communicate in a common language (Mandarin). However, the

difference becomes more significant when people are in vulnerable positions. Language usage in

the refugee camps is also a rising issue for the study of refugees and asylum seekers because the

language policy in the refugee camps reflects the political issues, the power dynamic, and the

resource distribution of the system (Le, 2021). Although the 921 Chi-Chi Earthquake is the most

researched natural disaster in Taiwanese academia, this language concern was barely identified

in previous research. The issue of language use is more evident in the study of natural disasters

that occurred in the areas where the majority of residents are indigenous, since the language

barrier is higher in those circumstances.

The multi-language/dialect environment is a fact of life in Taiwan; however, when people

in a particular circumstance belong to the majority ethnic group in the population, the factor of

language/dialect differences tends to be overlooked. This research finding demonstrates how the

design of the Adversity Index assists the researcher in eliminating any potential blind spots from

their own personal limitations and bringing out a holistic view of the participants' experiences.

6.6. The Cultural Context of the Findings

Laozi, an ancient Chinese philosopher, famously expressed the idea that "Fortune and misfortune are intertwined; where there is misfortune, fortune may be found, and where there is fortune, misfortune may lurk." The concept of interdependence between fortune and misfortune has persisted in the Chinese cultural context for centuries, making the concept of AAD easily understandable for Taiwanese individuals. Under the heading Adversity Activated Development and Indigenous Psychology in Taiwan in the Literature Review for the current study, there is a comparison of Chinese cultural understanding of the lived world, which aligns with the holistic concept of the Adversity Grid. Further, from the interviews conducted in this study, a few unique themes related to long-term AAD within the Chinese cultural context have emerged. This section will discuss these themes in detail.

6.6.1. Cultural Theme 1- Orbicular

In Chinese, the term Orbicular "圓滿" (yuán mǎn), directly translated as "round and full," conveys a state of satisfaction, contentment, and completeness. It often denotes the attainment of one's highest potential, goals, or purposes, as well as a sense of self-realization or life satisfaction. Moreover, Orbicular is frequently employed to describe fulfilment in interpersonal relationships, particularly within family dynamics. For instance, during Lunar New Year's Eve, Chinese families traditionally gather around a round table for dinner, symbolizing the concept of Orbicular, which represents the harmonious and complete nature of familial bonds.

" Orbicular is regarded as the ultimate goal of Chinese life, representing a pursuit of comprehensive development for both individuals and society" (Yu et al., 2004). In indigenous psychology research related to the 921 Chi-Chi Earthquake, the post-disaster recovery process is viewed as a process of reconnection (Yu et al., 2004). This includes the collapse of space, self-

dissolution, physical constraints, temporal repairs, and the dissolution and restoration of the relationship between self and the lived world. This embodies a concept of striving for Orbicular (Yu et al., 2004).

The concept of "Orbicular" has also emerged in interviews conducted for the current research. The description of the sense of Orbicular by Participant 2 suggests that it operates at both the individual and family levels.

"From a distance, every tragedy looks like a comedy. Now our family is like any other, video chatting with mum and dad to see their grandchildren every day. At the time, it felt like the end of the world, but looking back, it's a process where you gain a lot of insights. It changes your perspective on money and family. My mum has caused quite a few changes in our family, both in mindset and personality. I think I was okay because I was away at the time, and my job allowed me to borrow a large sum of money... Now, everyone in our family is living happily. All I can say is it's a phase of life."(P2M2)

The changes and developments within family members contribute to a sense of Orbicular at the family level. Participant 2, amidst her journey of adversity, also discovered her own personal Orbicular.

"I've had three wishes in life: to become a writer, a teacher, and a homemaker. Now, I've accomplished them all, and I feel incredibly fortunate."(P2M2)

6.6.2. Cultural Theme 2- Exerting Oneself and Consideration for Others

Participant 1's insights into claiming agency for her life and gaining new perspectives on her parents, as discussed in the section on Therapeutic Aspects in AAD Interview, are also relevant to the Chinese ethical concept of "the way" in achieving Orbicular: Exerting Oneself (盡己) and Consideration for Others（推己及人）.

Exerting Oneself refers to exerting one's full effort, abilities, and resources to achieve the best possible outcomes, creating maximum benefit or value for oneself and others. It emphasizes individual commitment and contribution, whether in work, learning, interpersonal relationships, or other aspects of life (Yu et al., 2004). Consideration for Others emphasises placing equal importance on one's own interests and the interests of others. It requires individuals to not only consider their own needs and interests but also those of others, striving to balance the two (Yu et al., 2004). This means taking into account the well-being of others in behaviour and decision-making and not solely pursuing personal gain (Yu et al., 2004).

These two concepts complement each other and guide Chinese ethical behaviour and values. Indigenous psychology in Taiwan also advocates for these concepts as methods of ethical healing. Through these approaches, the disconnections resulting from traumatic experiences can be "worked through" and reconnected (Orbicular) (Yu et al., 2004).

Participant 1 worked through these "ways" to discover Orbicular within herself and discover fulfilment within herself and with her newly formed family.

"After talking with you, I started to think, would it have been better if there hadn't been an earthquake back then? Would my life be better now if my mother hadn't gone through all of that? Would I have been able to focus solely on my studies? For example, pursue a graduate degree or take a different path? I don't think it was the case. Whether it would be better or not is unknown. However, one thing I can be certain of is that I feel very happy being together with my husband. We experience happiness and contentment without major ups and downs. Every day, I feel fortunate and joyful being with him."(P1M3)

The Discussion section on the cultural context of findings explores the interplay between fortune and misfortune in the Chinese cultural perspective, which is deeply rooted in the

philosophical teachings of Laozi. This concept significantly informs Taiwanese individuals'

understanding of Adversity Activated Development (AAD) . The discussion is enriched by the

cultural theme of 'Orbicular,' which symbolises completeness and satisfaction, reflecting the

ultimate goal in Chinese life of achieving a harmonious development in both individual and

societal contexts. This holistic approach is evident in the recovery narratives post the 921 Chi-

Chi Earthquake, where the process of reconnection with self and the external world is viewed as

a journey towards achieving 'Orbicular.' Additionally, the values of exerting oneself and

considering others are highlighted as fundamental ethical principles guiding behaviour and

facilitating healing in adversity. These concepts collectively frame the participants' responses to

adversity within a culturally resonant framework, offering insights into the enduring influence of

cultural values on their development in adversity.

6.7. Personal Reflections: A Female Researcher's Journey Through Family Narratives

As a female researcher, whilst I initially envisioned this study as an exploration of

women's life experiences, my ambitious aims to introduce both Taiwan's 921 Chi-Chi

Earthquake experience to the international community and AAD theory to mental health

practitioners necessitated certain compromises. Although the study primarily focuses on female

participants, it was not specifically framed as research into women's post-disaster experiences, as

including a comprehensive gender studies literature review would have exceeded the scope of

this thesis.

A notable aspect of this research journey was the decision to shift focus to exploring the

individual and family development of female members within a single family following

conducting extended amount of pilot interviews. This decision was influenced by two key

factors. Firstly, the pilot interviews revealed that women of different ages, with varying social

and familial roles, demonstrated markedly different developmental tasks. Rather than conducting

a broad but potentially superficial AAD study, I opted for a more in-depth exploration of how

AAD manifested across various levels over two decades. Secondly, the pilot interviewees'

discussions of mother-daughter and sister relationships particularly captivated my attention. The

principal interview participants, coming from a family of five sisters, resonated with my personal

experience, as my mother also comes from a family with multiple sisters. I have long been

fascinated by the novel-like drama and subtle undertones of sisterly relationships. Moreover,

such family structures, whilst reflecting certain aspects of Taiwanese culture and values, are

increasingly rare in today's low-birth-rate society, making them particularly worthy of

documentation and exploration.

Furthermore, these participants were of similar age to myself; we were all adolescents

when the 921Chi-Chi Earthquake occurred. Their developmental journey over the subsequent

two decades—from adolescents to becoming pillars of their natal family, establishing their own

families, and becoming mothers—presents a moving trajectory of female growth. The 40-plus

hours of audio material collected is remarkably rich, and this thesis can only present certain

aspects. I hope to conduct future research more specifically focused on women's developmental

journeys using this valuable data.

This chapter has examined the complex nature of responses to adversity through multiple

theoretical and practical lenses, demonstrating how the Adversity Grid framework enables a

deeper understanding of post-disaster experiences. Through analysing the narratives of three

sisters over two decades following the 921 Chi-Chi Earthquake, the study reveals the

simultaneous existence of negative, unchanged, and positive responses to adversity, challenging

more linear models of post-trauma adaptation. Their experiences illustrate how the same

adversity can activate different developmental pathways, influenced by personal, familial, and social factors.

The research contributes to theoretical discourse by demonstrating the complementary yet distinct nature of AAD and PTG frameworks, whilst highlighting the importance of cultural context in shaping responses to adversity. The study's adaptation of the Adversity Index Form and its therapeutic implications provide practical methodological insights for mental health professionals. Particularly significant is how traditional Chinese cultural concepts, such as "Orbicular" and the interplay between fortune and misfortune, align with and enrich contemporary understanding of adversity-activated development.

The longitudinal perspective of this research reveals how development occurs across different temporal scales and system levels, demonstrating the ongoing nature of adversity-activated changes. Throughout the research process, the therapeutic potential of the AAD interview approach emerged as an unexpected finding, suggesting possibilities for integrating research and healing practices. These insights, combined with personal reflections on the research journey, contribute to a more nuanced understanding of how individuals and families navigate and grow through adversity, offering valuable implications for both theoretical advancement and practical application in mental health interventions.

Chapter 7.

Conclusion and Suggestions

7.1. Conclusion

This thesis explores the narrative of Long-Term Adversity-Activated Development (AAD) within a familial context, as exemplified by the case study of three sisters who lived through the 921 Chi-Chi Earthquake in Taiwan. Through their stories, the research brings to light the nuanced responses to adversity, revealing the complex interplay of pain, resilience, and transformative development that unfolds over time. A thematic exploration reveals how individuals uniquely interpret and respond to shared adversities, with the concept of AAD emerging as a testament to the strength and adaptability inherent in the survivors' stories. The essence of these shared yet singular experiences affirms the rich, dynamic process of healing and development that continues to shape lives long after the disaster has passed, demonstrating the deep-rooted potential for transformation in the face of profound challenges.

7.1.1 Family and Individual Narratives Following the 921 Chi-Chi Earthquake

The family and individual narratives following the 921 Chi-Chi Earthquake vividly illustrate the significant impact of natural disasters on both familial dynamics and individual development. The immediate aftermath of the earthquake forced the family into tents, confronting them with the harsh realities of temporary living and an altered daily existence. This period, while characterised by communal solidarity, also presented numerous challenges, from securing basic necessities to adjusting to a dramatically changed lifestyle.

Each participant's narrative reflects their distinct experiences of the earthquake, shaped by their personal circumstances at the time. One sister, who experienced the earthquake at home, recounted the terror of escaping the collapsing structure and the surreal, disorienting days that

followed, adjusting to life in the emergency shelter. Another sister, away at university during the quake, experienced the disaster through delayed communication, with her return home marking a shocking confrontation with the reality of the destruction and her family's dire situation.

The subsequent life milestones chosen by the participants reveal further dimensions of adversity and development. After the earthquake, the family faced severe financial difficulties exacerbated by the mother's gambling debts. This period was marked by familial strain and complex negotiations over financial responsibilities, leading to significant emotional and psychological stress. The narratives during this time reflect a struggle with betrayal, responsibility, and the gradual disintegration of familial bonds as the sisters took on the burden of resolving the debts.

Finally, the participants' narratives of marriage and relocation underscore the ongoing challenges and transformations in their lives. These milestones involved integrating into new cultural and familial settings, navigating the responsibilities of marriage and parenthood, and dealing with the ongoing repercussions of their early life adversities. The challenges of adjusting to life in foreign countries, managing cross-cultural marriages, and the personal development that ensued are poignant themes in their stories.

Table 4 captures the individual experiences of the three participants at various life milestones following the earthquake, showing how the event influenced their lives in different yet converging ways. Their paths diverged but also shared common elements, such as dealing with the aftermath of the earthquake, confronting their mother's debts, and navigating the challenges of marriage and integration into new families and cultures.

Table 4

The Summary of the Life Phases of the Participants

Phase	Participant 1 (P1)	Participant 2 (P2)	Participant 3 (P3)
Immediate Aftermath of the Earthquake	P1 lived in temporary tents, experienced loss of community and daily routines, moved to a school dorm and faced uncertainty and fear for the future.	P2 returned from university to a destroyed family home, shocked by the devastation, dealt with disorientation and the task of rebuilding.	P3 was studying in Taipei during the earthquake, felt helplessness and concern for family, her return marked by relief at family safety and the daunting reality of loss.
School Life Post the Earthquake	P1's minority status in the dorm led to introspection and personal development, forging a new identity and sense of belonging.	P2 found support and solidarity as an earthquake survivor, leading to external assistance and recognition during her university years.	P3 resumed college life, confronting and embracing her identity as a survivor and what it meant for her academic and personal life.
Mother's Gambling Debt	P1 confronted the threat from debt collectors, balanced care for her ailing father with managing the family's financial crisis.	P2 took on the responsibility for the family's debts, faced emotional turmoil and the reality of a strained family dynamic.	P3 chose forgiveness over resentment for her mother's actions, provided financial support, ensuring the family's survival

			despite personal setbacks.
Mother's Cancer Diagnosis	P1 faced a catalyst for family reunion, re-engaging with siblings and mother, reflecting on family bonds and the passage of time.	P2 dealt with the nuances of cultural identity as a foreign mother, while the illness prompted reflections on familial love and resilience.	P3 returned to Taiwan from Australia and took on the responsibility of caring for her mother, utilising her nursing expertise.
Marriage and Relocation	P1 encountered challenges associated with traditional gender roles, fertility issues, and the transition to married life.	P2 adjusted to life in Japan, embracing motherhood and cultural differences, while maintaining connections to her Taiwanese roots.	P3 integrated into her husband's family in Germany, navigated a cross-cultural marriage and the dynamics of her new role within a different societal context.

The narratives highlight the adaptability and development of each family member as they navigated the complex web of personal, familial, and societal challenges. The stages encapsulate a journey of survival, emotional and financial struggles, and ultimately, personal development and family reunion.

It is important to note that Table 3 is a distilled representation of much richer, more detailed stories. For a comprehensive understanding, the individual and family narratives should be referred to the Findings section, providing a deeper insight into the emotional and psychological fabric of the participants' experiences.

In summary, the earthquake's aftermath had a profound, multi-faceted impact on the family, influencing their psychological well-being, inter-personal relationships, and individual life paths. These narratives underscore the complexity of disaster recovery, highlighting the need for comprehensive support systems that address both the immediate and long-term needs of affected individuals and families. The enduring psychological impacts call for mental health support that can assist in navigating the aftermath of traumatic events and fostering resilience and growth amidst adversity.

7.1.2. The Overarching Theme: Long-Term Adversity Activated Development (AAD)

The overarching theme of AAD is observed across multiple facets: External, Interpersonal, and Intrapsychic. External AAD manifests through outside contributions such as financial, educational, and cultural resources, demonstrating that catastrophe can engender new opportunities for development. Interpersonal AAD, meanwhile, highlights how adversities can forge deeper interpersonal bonds and restructure interpersonal dynamics, revealing an enhanced sense of cohesion through collective challenges. Intrapsychic AAD reflects inner personal growth, shifts in values, worldview expansion, and the transcendent quality of contributing to society.

Table 5 below presents examples from the findings that illustrate the various layers of Adversity-Activated Development (AAD) experienced by the participants following the earthquake.

Table 5

Layers of Adversity-Activated Development (AAD) in the Post-921 Chi-Chi Earthquake

Experience

AAD Layer	Definition	Detailed Examples from Findings
External AAD	Developments that arise from external support, including financial, material, educational, and cultural resources.	After the earthquake, P2 received financial assistance through a part-time job arranged by the school and donations from a teacher, which substantially eased financial burdens. The devastated area of Dongshi saw an influx of material and cultural resources, including abundant volunteers and cultural performances.
Interpersonal AAD	Positive changes in dynamics and quality of relationships due to shared adversities.	The earthquake reminded the sisters of the fragility of life, significantly deepening family connections. Despite the family's financial hardship, the sisters shared the burden and this collective challenge led to stronger

		bonds and a closer-knit family unit, transforming their interpersonal relations.
Intrapsychic AAD	Inner development of individuals through reflection, change in personal values, worldview, and contribution to society.	P3 experienced a growth in confidence and interpersonal skills after moving to the Middle East, overcoming previous shyness. P2 channeled the emotional strain of the family's financial crisis into creative writing, publishing several novels inspired by her experiences and reflections on adversity. P1, after experiencing the kindness and support from the community during the disaster, developed a heightened empathy for others, particularly her students in need, leading to a more patient and understanding approach in her teaching career.

The research outcomes delineate the inherent complexity of adversity experiences, presenting a confluence of negative, unchanged, and positive developments. Negative responses remind us of the enduring struggles and emotional turmoil faced by individuals post-disaster. Unchanged responses—both negative, such as persistent poverty, and positive, like unwavering optimism—provide a backdrop against which the narrative of change is set. Through this intricate interweaving of change with persistence, the study reveals how the three sisters developed distinct trajectories despite sharing similar adversities.

The findings highlight that responses to adversities are far from standardised; they are shaped by an array of personal, relational, and socio-cultural factors, reflecting the dynamic nature of Onto-ecological Settledness. The application of the Adversity Grid and Adversity Index Form enabled participants to engage in therapeutic reflection, empowering them to re-narrate their life stories with renewed understanding and agency.

In conclusion, this study enriches the theoretical understanding of AAD as a continuous, non-linear, and inherently personalised process. The findings demonstrate how adversity can function as a catalyst for development within specific personal, familial, and cultural contexts. This theoretical contribution advances the field of disaster psychology by providing deeper insights into how individuals find meaning and growth in the aftermath of catastrophic events.

7.2. Methodological and Theoretical Contributions: Advancing Post-Disaster Family Research

This study demonstrates several significant advantages in post-disaster family research. Methodologically, it addresses a crucial limitation in previous studies that often relied on single family member data by interviewing three sisters from the same family and employing a mixed-

method approach combining narrative interviews with the Adversity Index Form. This methodological innovation enables a more comprehensive understanding of how different family members experience and interpret the same events, thereby providing a more nuanced picture of family dynamics post-disaster.

The study's longitudinal perspective, spanning over two decades, overcomes the temporal constraints typical in post-disaster research, which usually focuses on shorter periods of 1-7 months or 1-5 years post-disaster. This extended timeframe allows for observation not only of the immediate impact of the earthquake but also subsequent family crises, system reorganisation, and individual life trajectories of the sisters. The long-term perspective reveals how initial adversity-activated developments continue to evolve and manifest differently over time.

The innovative application of the Adversity Grid framework enables a comprehensive understanding of family development, capturing negative impacts, unchanged qualities, and positive developments simultaneously. This theoretical approach proves particularly valuable in revealing the complex interplay between External, Interpersonal, and Intrapsychic AAD within the family system. The findings demonstrate how family members can experience different types of development whilst sharing the same adversity, challenging more deterministic models of post-disaster adaptation.

Furthermore, the study provides rich insights into post-disaster family dynamics, revealing how roles transform, relationships reorganise, and family systems adapt over time. It particularly illuminates the complexity of family resilience within Chinese cultural contexts, showing how traditional family values interact with modern adaptations in post-disaster development. This cultural sensitivity offers valuable perspectives for cross-cultural understanding of family recovery processes.

The study's emphasis on multiple levels of analysis - individual, family, and community - provides a more holistic understanding of post-disaster development than previous research focusing primarily on individual outcomes. It demonstrates how personal transformations are inextricably linked to family system changes and broader community developments, offering a more ecological perspective on post-disaster adaptation.

These strengths collectively enable the study to make a unique contribution to post-disaster family research, particularly in understanding long-term developmental trajectories and family system dynamics within specific cultural contexts. The findings suggest the need for more nuanced, culturally-sensitive approaches to studying family development following natural disasters.

7.3. Suggestions

7.3.1. Suggestions for Future Research in Related Fields

Family Systems Research

The findings of the current study underscored the significant role of family dynamics in Adversity-Activated Development (AAD). Future studies could delve more deeply into family systems, exploring intergenerational effects of disasters, changes in parental roles, and the impact of family structure on recovery processes.

Diverse Populations

Further investigation into AAD among more diverse populations is recommended, including variations across different age groups, socio-economic statuses, and ethnic backgrounds. Understanding how these variables influence AAD can lead to more targeted and inclusive mental health interventions.

Localised Indigenous Research

This research aimed to integrate concepts of indigenous psychology, linking AAD with local cultural healing processes. However, the interviews also caused other culturally thematic elements to surface, such as the Chinese concept of 'home' and culturally contextual gender roles, each with its unique characteristics. The Adversity Grid and Adversity Index have provided comprehensive perspectives and proven to be valuable tools for exploring the psycho-social uniqueness of Taiwanese cultural in depth. Moreover, Taiwan is a multicultural society. Although this study primarily focuses on the context of Han Chinese culture, the cultural contexts of Taiwan's indigenous peoples and immigrant populations also merit exploration and emphasis in future research.

7.3.2. Suggestions for Mental Health Practitioners Working with Survivors of Natural Disasters

Multifaceted Approach

In light of the findings from the current research, it is evident that effective mental health support in the aftermath of natural disasters requires a multifaceted approach. Mental health practitioners are encouraged to adopt culturally sensitive methodologies that deeply resonate with the local communities they serve. This involves integrating indigenous psychological practices and local cultural narratives into therapeutic frameworks to ensure relevance and effectiveness.

Applications of the Adversity Grid, Adversity Index Form, and the Theory of AAD

Preparation through specialised training in disaster psychology, crisis intervention, and resilience-building can equip practitioners with the skills necessary to respond effectively in disaster scenarios. Utilising tools like the Adversity Grid and Adversity Index Form will aid in

understanding the complex impacts of disasters on individuals, allowing for tailored

interventions. Understanding and fostering Adversity-Activated Development (AAD) should be

a core focus. Training in this area can empower practitioners to recognise and nurture the

potential for significant personal and interpersonal growth amidst adversity, rather than solely

concentrating on trauma mitigation.

Sustained Engagement

The long journey of recovery from disasters suggests a need for sustained engagement.

Mental health professionals must advocate for and implement long-term care strategies that adapt

over time to meet the evolving needs of survivors. This long-term perspective is crucial as the

impact of a disaster unfolds years beyond the initial event.

Promoting Family and Community AAD

Strengthening community support systems is paramount. Practitioners should work closely

with local communities to bolster communal ties and resilience, which are vital in the recovery

process. Implementing holistic care that addresses the psychological, social, economic, and

cultural dimensions of recovery can significantly enhance the effectiveness of interventions.

Fostering family and community resilience is essential. Interventions should not only support

individuals but also strengthen family units and community bonds, as these are critical to

successful long-term recovery. By enhancing these support networks, mental health practitioners

can significantly contribute to more robust recovery outcomes, ultimately leading to healthier,

more resilient communities.

7.4. Limitations of the Current Study

Sample Size and Diversity

This research aims for an in-depth exploration of the long-term development of individuals

and families post-disaster, to understand the uniqueness and complexity of their recovery

journeys. Consequently, the study involves a relatively small and homogeneous group of

participants. For this reason, the findings may not be generalisable to all survivors of the 921

Chi-Chi Earthquake or to people otherwise affected by it limited diversity in terms of age,

socioeconomic status, ethnicity, or geographic location may also restrict the applicability of the

conclusions.

Family Research Method Limitations

The family involved in this study comprises seven members (two parents and five

daughters), with three daughters participating in three in-depth interviews. If all family members

had participated, or if the research design had facilitated group interviews, different facets of the

family's experiences might have been revealed.

Cross-sectional vs. Longitudinal Design

The current study's cross-sectional nature (data collected at one point in time) may not fully

capture the dynamic nature of Adversity-Activated Development (AAD), which unfolds over an

extended period. A longitudinal design would offer more comprehensive insights into how AAD

develops and changes over time.

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Appendix A

Adversity Index Form

Dimension		Degree of Concern
1. External Circumstances	1.1 Physical safety	No concern 0--------------5---------------10 Max concern
	1.2 Financial security	No concern 0--------------5---------------10 Max concern
	1.3 Education	No concern 0--------------5---------------10 Max concern
	1.4 Housing	No concern 0--------------5---------------10 Max concern
	1.5 Discrimination	No concern 0--------------5---------------10 Max concern
2. Family Constellation	2.1 Age	No concern 0--------------5---------------10 Max concern
	2.2 Gender	No concern 0--------------5---------------10 Max concern
	2.3 Family constitution	No concern 0--------------5---------------10 Max concern
	2.4 Family role	No concern 0--------------5---------------10 Max concern
3. Physical Health		No concern 0--------------5---------------10 Max concern
4. Psychological / Psychiatric. State		No concern 0--------------5---------------10 Max concern
5. Community Connections		No concern 0--------------5---------------10 Max concern
6. Wider Society Connections		No concern 0--------------5---------------10 Max concern
7. Degree of Difference	7.1 Language	No concern 0--------------5---------------10 Max concern
	7.2 Education	No concern 0--------------5---------------10 Max concern
	7.3 Culture Norms& Practices	No concern 0--------------5---------------10 Max concern
	7.4 Urban/Rural Living Context	No concern 0--------------5---------------10 Max concern
	7.5 General Lifestyle	No concern 0--------------5---------------10 Max concern
8. Daily Routine		No concern 0--------------5---------------10 Max concern

Appendix B

Ethical Approval Letter

Outlook

Decision – Ethics ETH2021-1345: Miss Yu-Han Chen

From ERAMS <erams@essex.ac.uk>
Date Tue 07/12/2021 17:01
To Chen, Yu-Han <yc19257@essex.ac.uk>

University of Essex ERAMS

07/12/2021

Miss Yu-Han Chen

Psychosocial and Psychoanalytic Studies

University of Essex

Dear Yu-Han,

Ethics Committee Decision

Application: ETH2021-1345

I am writing to advise you that your research proposal entitled "Long-Term Adversity-Activated Development in Females with Involuntary Dislocation Experiences: A Case Study of the 921 Chi-Chi Earthquake in Taiwan" has been reviewed by the Ethics Sub Committee 3.

The Committee is content to give a favourable ethical opinion of the research. I am pleased, therefore, to tell you that your application has been granted ethical approval by the Committee.

Please do not hesitate to contact me if you require any further information or have any queries.

Yours sincerely,

Marita Vyrgioti

Ethics ETH2021-1345: Miss Yu-Han Chen

This email was sent by the University of Essex Ethics Review Application and Management System (ERAMS).