

POST TRAUMATIC GROWTH AMONG IRAQI REFUGEES IN THE UNITED STATES

BY

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THESIS

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ABSTRACT

This study investigated factors associated with post-traumatic growth (PTG), including demographic variables and exposure to trauma, among 107 Iraqi refugees in the United States who experienced the 2003 conflict. It was hypothesized that demographic factors (i.e., gender and years in the U.S.) and higher levels of trauma exposure would be associated with greater PTG. Findings from zero-order correlations indicated that years in the U.S. were associated with PTG among Iraqi refugees. Notably, living in the U.S. for a longer period of time was significantly and negatively associated with Appreciation of Life ($r = -.24, p < .05$) as part of the Post Traumatic Growth Inventory (PTGI). Men reported greater levels of PTG than women in this sample. Additionally, findings from canonical correlations analysis suggested that trauma experiences were related to PTG dimensions of skills and talents, physical, emotional, and spiritual crises, indicating that greater trauma in these areas was linked to lower PTG. This research provides insights into the psychological resilience and growth potential of this population, which in turn may inform the development of tailored interventions and support systems that can aid in their healing and recovery. The limitations of the study and future research directions are outlined.

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Dedication

To the resilient Iraqi people, whose lives have been forever impacted by the consequences of the US invasion of Iraq. May this research offer you hope, growth, and understanding in the face of adversity.

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CHAPTER 1: INTRODUCTION

The Iraqi conflict of 2003 caused immense destruction and displacement, impacting the lives of countless individuals, especially innocent children, who were forced to leave their homes and live in a state of chaos and instability. Tragically, hundreds of thousands of Iraqi lives were lost or displaced. Experts estimate that more than 4 million Iraqi citizens were displaced from their native land (UNHCR, 2007). I am among those who were uprooted from their homes. I recall my own experience as a seven-year-old living in Sadr City, Iraq, when the presence of American military forces disrupted our lives. The memories of the U.S. Army soldiers pointing guns at my family continue to haunt me. Caught in the crossfire of a shootout between the invading forces and the Iraqi people fiercely defending our homeland, I sustained a gunshot wound to my leg, enduring both physical pain and emotional distress. While other children around the world were playing and getting an education, my childhood was overshadowed by the need to protect my land and confront the realities of the violent conflict.

The year 2003 marked a turning point in my life due to the conflict, which claimed not only my dearest friends but also my father's life. This deeply affected me and always reminds me of the toll of war on people and communities. In search of a brighter future, I made the difficult decision to leave my homeland in 2012; I embraced the life of a refugee in the United States. Adapting to life in a new country brought its own set of challenges, yet it was driven by the desire to heal and reclaim a sense of normalcy. Over time, I developed my own coping mechanisms to manage the lingering trauma that continued to affect me. This personal exploration has shaped my research focus on post-traumatic growth (PTG) among Iraqi refugees residing in the United States.

In the present study, I examined several variables that have been found to be associated with PTG among Iraqi refugees in the United States (Schick et al., 2016; Turrini et al., 2017). By PTG, I mean the positive psychological change experienced as a result of the struggle with highly challenging life circumstances. There are several documented factors contributing to PTG among refugees in general. In this study, I focused on trauma exposure and demographic variables (i.e., gender and length of time in the U.S.) because these factors are known to influence the degree of post-traumatic growth experienced by individuals (Tedeschi & Calhoun, 2004). By investigating these factors, I aimed to gain a deeper understanding of the specific mechanisms that contribute to PTG among Iraqi refugees in the United States, with the ultimate goal of informing interventions and supporting systems to facilitate their PTG journey.

Context of War and Displacement

To provide context for the present study, it is important to acknowledge the significant displacement and enduring challenges caused by the Iraqi conflict. As of March 2023, 1.1 million Iraqis still find themselves internally displaced or seeking refuge abroad, highlighting the ongoing struggles faced by this population (Watson Institute for International and Public Affairs, 2023). This large number of displaced Iraqis and the enduring consequences of the conflict underline the relevance and importance of research on PTG among Iraqi refugees in the United States. By focusing on the experiences of those who have directly experienced the horrors of war and have sought refuge in a new country, this research aims to shed light on the psychological resilience and potential for growth that can emerge from such traumatic experiences.

Impact of Displacement on Iraqi Refugees

Iraqi refugees experience a range of factors that impact their well-being and psychological state. These factors include the traumatic events and violence experienced in their

home country, forced displacement and loss of home and community, acculturation stress in the host country, and the challenges of rebuilding their lives in a new environment (Abu-Kaf & Khalil, 2018; Al-Krenawi & Graham, 2006a; Eisenman et al., 2011). Also, they may face language barriers, discrimination, and limited access to healthcare services (Freedman et al., 2015). Additionally, cultural and social factors, such as gender roles and family dynamics, can play a significant role in shaping their experiences of trauma and resilience (Al-Krenawi & Graham, 2006a).

The literature overwhelmingly attests to the significantly high prevalence rates of post-traumatic stress disorder (PTSD), anxiety, and depression among refugee populations when compared to the general population of host communities (Bogic et al., 2015; Fazel et al., 2005). The high prevalence of PTSD and other psychological disorders among Iraqi refugees highlights the urgent need to address their mental health and well-being. Studies have consistently documented elevated rates of PTSD and other psychological disorders within this population (e.g., Eisenman et al., 2011; Hossain, 2019; Steel et al., 2009). For instance, Eisenman et al. (2011) found that 37% of Iraqi refugees resettled in the United States experienced symptoms consistent with PTSD, emphasizing the substantial mental health burden carried by this population. Additionally, research conducted by Steel et al. (2009) reported high rates of depression and anxiety among Iraqi refugees living in Australia.

Although a significant proportion of refugees at some point in their journeys experience PTSD symptoms, some also find ways to grow from the challenges in terms of deepening personal strengths, appreciation for life, spiritual development, and more (Riggs et al., 2007a). These positive psychological changes are referred to as PTG in the literature (Tedeschi & Calhoun, 1996).

Post-traumatic Growth (PTG) among (Iraqi) Refugees

Despite the existing body of literature on PTG, there is a noticeable gap in our understanding of the predictors of PTG specifically among Iraqi refugees. While studies have explored PTG in various populations, such as cancer survivors or disaster survivors (Cann et al., 2010; Tedeschi & Calhoun, 2004), few have investigated the factors that contribute to PTG in the context of forced migration and war trauma among Iraqi refugees. Various factors, such as the level of exposure to potentially traumatic events before, during, and after migration, as well as resettlement conditions in the host country, influence PTG (Copping et al., 2010; Schick et al., 2016; Turrini et al., 2017).

Demographic factors play a crucial role in shaping PTG among refugees. In this study, I examined variables such as gender and length of residence in the host country. Age and gender have been found to influence PTG, with younger individuals and females often reporting higher levels of growth (Vishnevsky et al., 2010). Educational background can also impact PTG, as higher levels of education may provide individuals with better coping mechanisms and resources to navigate post-traumatic challenges (C. L. W. Chan et al., 2016). Additionally, the length of residence in the host country can affect PTG, with longer residency potentially offering more time for adjustment and integration, thereby facilitating growth (Linley & Joseph, 2004). By focusing on these demographic factors, I aimed to understand their specific contributions to PTG among Iraqi refugees in the United States.

Exposure to war trauma can be a significant predictor of PTG depending on many social, cultural, environmental and individual factors. Refugees who have experienced high levels of trauma, including violence, loss, and displacement, may exhibit varying degrees of PTG depending on their coping strategies and support systems (Tedeschi & Calhoun, 2004). In this

study, I focused on the types and intensity of traumatic events experienced by Iraqi refugees before, during, and after migration. The severity and nature of these traumatic experiences can profoundly impact the psychological outcomes, with some individuals finding meaning and growth in their survival and resilience (Dekel et al., 2011). Understanding how specific war-related traumas contribute to PTG can inform the development of targeted interventions to support the mental health and well-being of Iraqi refugees.

Rationale and Purpose

Existing PTG studies tend to focus on the experiences of Western populations and may not fully capture the cultural, social, and contextual factors that are relevant to Iraqi refugees (Tedeschi & Calhoun, 2004). This gap in the literature leaves a critical knowledge deficit regarding the unique experiences and determinants of PTG within this specific population. To address this gap, in this the present study I aimed to examine variables associated with PTG among Iraqi refugees in the United States, shedding light on the factors that facilitate personal growth and resilience in the aftermath of war-related trauma and displacement.

Understanding the factors that contribute to PTG among Iraqi refugees can provide valuable insights into their journey towards healing and rebuilding their lives. By exploring the process of PTG and identifying the specific factors associated with growth, this research seeks to inform interventions and support systems that can facilitate the development of resilience and positive psychological changes among Iraqi refugees. Ultimately, the findings of this study can contribute to the well-being and successful adaptation of this vulnerable population, addressing the long-term impact of war trauma and fostering a sense of hope and possibility in their lives.

The purpose of this study was to identify demographic and trauma exposure variables that were associated with PTG among Iraqi refugees. Specifically, I aimed to explore the

potential influences of two demographic variables (i.e., length of stay in the U.S. and gender). Length of time in the U.S. was hypothesized to be associated with PTG, with people living in the U.S. for longer experiencing higher levels of growth due to increased opportunities for social integration, access to mental health resources, and the gradual reduction of acculturative stress (Linley & Joseph, 2004; Tedeschi & Calhoun, 1996). Additionally, gender was also hypothesized to be associated with PTG, such that women were expected to report greater levels of PTG. This hypothesis is based on existing literature suggesting that women often engage in more help-seeking behaviors and social support networks, which are critical factors in the development of PTG (Helgeson, Reynolds, & Tomich, 2006; Vishnevsky et al., 2010).

Research indicates that trauma exposure is a critical factor in understanding PTG among Iraqi refugees (Schick et al., 2016; Turrini et al., 2017). The types and intensity of traumatic events experienced before, during, and after migration play a significant role in shaping psychological outcomes. Exposure to violence, loss, and displacement are expected to have profound impacts on the refugees' ability to find meaning and growth in their experiences. By examining the severity and nature of these traumas, I aimed to investigate the pattern of association between exposure to various war traumas and PTG among this population. Findings can inform the development relevant interventions and support systems for this population.

CHAPTER 2: LITERATURE REVIEW

The Iraqi people have endured a prolonged and harrowing period of war, spanning over three decades, which began with the Iraq-Iran war from 1980 to 1988. This was followed by chemical attacks in northern Iraq from 1986 to 1989 (Kahan, 1989), the Gulf War in 1991 (Stiglitz & Bilmes, 2008), civil strife in the early 1990s (Hiltermann, 1999), and the coalition forces' war in Iraq from 2003 to 2011 (O'Hanlon, 2008; Packer, 2005). These frequent occurrences of violent events in Iraq have significantly contributed to high rates of post-traumatic stress disorder (PTSD) (Smith & Leigh, 2018) and other psychological disorders, such as depression (Al-Krenawi & Graham, 2006b) among the population. This prolonged exposure to war trauma has left a negative impact on the mental health and well-being of Iraqi individuals, making it essential to investigate the potential for PTG as a means of resilience and recovery in this vulnerable population.

The following literature review examines a range of studies that explore refugees, trauma, and PTG to better understand PTG among Iraqi refugees in the United States. The review is organized into three sections: Iraqi refugees, Iraqi refugees and trauma, and post-traumatic growth. Each section encompasses various studies that shed light on the psychological impact of displacement, war trauma, and the potential for growth and resilience among this population. By analyzing research on PTG among Iraqi refugees, this literature review aims to provide valuable insights into the factors that contribute to their psychological well-being and personal development.

Context of Iraqi Refugees Around the World

Iraqi citizens seeking refuge in another country takes place in a larger context of war. The issue of refugees and forced displacement has become a significant consequence of wars and

conflicts around the world. The post-9/11 wars initiated by the United States have resulted in a staggering number of individuals being forcibly displaced from their homes. According to a comprehensive analysis presented in the report *Creating Refugees: Displacement Caused by the United States' Post-9/11 Wars*, at least 37 million individuals have been displaced as a result of these wars, with the potential for even higher numbers reaching up to 48-59 million (Vine et al., 2020). This scale of displacement surpasses all other wars since World War II and it raises important questions about accountability and responsibility for repairing harm inflicted upon those displaced.

Millions of Iraqis were displaced due to a series of wars, especially the 2003 U.S. invasion and the subsequent violence caused by Islamic State terror attacks (Watson Institute for International and Public Affairs, 2023). To provide context, approximately 5.3 million Iraqis have been internally displaced since 2014, and around 1.4 million of them live in informal settlements (Internal Displacement Monitoring Centre, 2021). This displacement has had a profound impact on Iraq's healthcare system, cultural institutions, and overall infrastructure. Approximately half of Iraq's registered doctors fled the country in the years immediately following the 2003 invasion, leading to a significant shortage of medical professionals (Internal Displacement Monitoring Centre, 2021). The lack of access to clean water, sanitation, and healthcare services has worsened crucial health indicators and increased rates of illness among displaced Iraqis. The infant mortality rate increased 150 percent from 1990 to 2005, and Vine and colleagues (2020) estimated that 70 percent of Iraqis lacked access to clean water and 80 percent lacked sanitation, contributing to conditions like cholera epidemics. These challenges were particularly pronounced among Iraqi internally displaced persons (IDPs) living in informal settlements. It is estimated that the U.S. wars in Iraq and Syria will cost \$2.89 trillion by 2050,

highlighting the immense financial and human costs of these conflicts (Watson Institute for International and Public Affairs, 2023).

These sources provide a strong reminder of the extensive displacement and devastation caused by war, emphasizing the urgent need for recognition, understanding, and support for refugees and the long-term consequences they face.

Iraqi Refugees and Trauma

Trauma, in general, refers to an overwhelming and distressing event or series of events that exceed an individual's ability to cope effectively (van der Kolk, 2014). It often involves a threat to life or physical integrity, leading to feelings of helplessness, fear, and a profound disruption of one's sense of safety and well-being (American Psychiatric Association, 2013). Traumatic experiences can range from natural disasters to accidents, interpersonal violence, and combat situations.

War trauma specifically refers to the psychological and emotional impact of exposure to the horrors and violence of armed conflicts. It encompasses the traumatic experiences endured by individuals involved in war, including soldiers, civilians, and refugees. War trauma is characterized by the profound and prolonged exposure to life-threatening events, witnessing or experiencing violence, and the resulting physical and psychological harm inflicted on individuals and communities.

Post-Traumatic Stress Disorder (PTSD) is a recognized mental health condition that can develop in response to experiencing or witnessing a traumatic event, such as war trauma (American Psychiatric Association, 2022). It is characterized by four main clusters of symptoms: intrusive re-experiencing of the traumatic event, avoidance of trauma-related stimuli, negative alterations in mood and cognition, and hyperarousal. PTSD is considered a component of trauma

as it represents a specific response to the traumatic experience, involving a range of symptoms that significantly impact an individual's daily functioning and quality of life.

Many people who have experienced war trauma, including veterans and refugees, develop PTSD (Al-Hadethe et al., 2014; Magruder et al., 2015). The symptoms of PTSD, such as intrusive thoughts, nightmares, emotional numbing, and hyperarousal, reflect the psychological impact of war trauma and the lasting effects it can have on individuals' mental health.

Understanding the nature of trauma, war trauma, and its relationship with PTSD is crucial for developing effective interventions and support systems to address the psychological needs of those affected by these experiences. The consequences of war trauma often manifest as detrimental changes in behavior, relationships, and personality among individuals. Many people who have experienced war trauma exhibit problems with concentration, fluctuating states of nervousness, temper tantrums, unpleasant feelings, hesitation, and decision-making difficulties (Freh et al., 2013). Thus, research indicates that war trauma and PTSD are related but distinct psychological phenomena.

The prevalence of PTSD among refugees is a matter of significant concern. Studies have reported high rates of PTSD among refugee populations, with estimates ranging from 10% to 80% depending on factors such as the type and severity of trauma experienced, the length of displacement, and the availability of mental health services (Porter & Haslam, 2005; Steel et al., 2009). While specific data on the prevalence of PTSD among Iraqi refugees in the United States is limited, studies indicate elevated rates of trauma exposure, including war-related trauma, and significant mental health challenges within this population (Alpak et al., 2015; Miller & Rasmussen, 2017). Additionally, it is important to consider that Western diagnostic criteria for PTSD and other mental health disorders may not always be accurate or appropriate for

populations on which they have not been normed. Cultural differences in the expression of distress and coping mechanisms can affect the applicability of diagnostic criteria, potentially leading to underdiagnosis or misdiagnosis in refugee populations (Hollifield et al., 2002; Silove et al., 2009). This underscores the need for culturally sensitive approaches to diagnosing and treating PTSD in diverse refugee groups.

In a related area, Neria et al. (2010) explored the psychological effects of war trauma on Israeli civilians exposed to life-threatening events during the Israeli-Palestinian conflict. Their longitudinal study examined posttraumatic stress disorder, depression, and generalized anxiety disorder among this population (Neria et al., 2010). The study revealed exposure to war trauma was related to a significant increase in symptoms of PTSD, major depressive disorder (MDD), and generalized anxiety disorder (GAD) during the war. However, the authors also found a decline in symptom levels after the war, suggesting the potential for growth and resilience in the face of trauma. Social support and personal relationships were identified as factors that may influence individuals' responses to traumatic events (Neria et al., 2010). Building on the findings of Neria et al. (2010), it becomes evident that understanding the psychological impact of war trauma requires a nuanced examination of not only the immediate effects but also the long-term implications and potential for resilience.

Iraqi Refugees and Posttraumatic Growth

In general, posttraumatic growth (PTG) refers to positive changes experienced by individuals after traumatic events (Tedeschi & Calhoun, 1996). Models of PTG have emerged to better understand the positive changes that can occur following a traumatic event. One widely recognized model of PTG is the model proposed by Tedeschi and Calhoun (1996). According to their model, PTG is a process characterized by five domains of growth: personal strength, new

possibilities, relating to others, spiritual change, and appreciation of life. These domains reflect the different aspects of positive change that individuals may experience after a trauma. The model emphasizes that PTG involves a cognitive and emotional restructuring of one's worldview and self-identity, allowing for personal growth and transformation. Tedeschi and Calhoun (1996) developed the PTG Inventory (PTGI) to assess the extent to which individuals have experienced growth across different areas of their lives following a trauma. The PTGI consists of five subscales that align with the domains of growth in their model. These subscales assess perceived positive changes in oneself, relationships with others, life's possibilities, spirituality, and appreciation of life.

It is important to note that while PTG is often viewed as a possible positive growth opportunity of trauma, there are debates surrounding its conceptualization and measurement. Some argue that PTG may reflect more of a coping mechanism rather than actual growth (Joseph & Linley, 2005). Additionally, alternative conceptualizations of growth following trauma, such as resilience, thriving, or post-traumatic success, have been proposed (Tedeschi & Calhoun, 2004). In this study, I use the PTG framework because it provides a structured lens through which to explore potential positive changes in individuals' lives following traumatic events. Despite the concerns raised about PTG, its widespread use in research allows for comparisons across studies and facilitates a deeper understanding of individuals' experiences in the aftermath of trauma.

Research on refugees in general has shown that they are a population that faces significant adversity and trauma due to forced displacement from their home countries (Fazel et al., 2005). Despite these challenges, studies have demonstrated that refugees, including those from various backgrounds, have the potential for PTG (Riggs et al., 2007b). PTG among

refugees refers to the positive psychological changes that can occur after experiencing traumatic events and the subsequent displacement.

Riggs et al. (2007a) study illustrates the potential for PTG among refugees. They examined the experiences of refugees who had resettled in Australia, focusing on their psychological well-being and the potential for growth following the trauma of forced displacement. Their findings revealed that many refugees reported experiencing positive psychological changes despite their challenging circumstances. These changes included a greater appreciation for life, increased personal strength, enhanced relationships with others, and a newfound sense of purpose and meaning. While refugees had undoubtedly faced traumatic events and significant adversity, their narratives highlighted the potential for post-traumatic growth. This study demonstrated that even in the face of extreme adversity and forced displacement, refugees can exhibit signs of PTG. It underscored the resilience and inner strength of individuals who have experienced trauma and suggests that interventions and support systems should consider fostering these positive changes to promote the well-being and recovery of refugees.

Research indicates that trauma exposure is a critical factor in understanding PTG among Iraqi refugees (Schick et al., 2016; Turrini et al., 2017). The types and intensity of traumatic events experienced before, during, and after migration play a significant role in shaping psychological outcomes. Exposure to violence, loss, and displacement are expected to have profound impacts on the refugees' ability to find meaning and growth in their experiences. Sleijpen et al. (2016) findings further support this notion, showing that despite the significant trauma endured, refugees can develop PTG, particularly when they have access to supportive networks and resources. By examining the severity and nature of these traumas, I aimed to

investigate the pattern of association between exposure to various war traumas and PTG among this population. Findings can inform the development of relevant interventions and support systems for this population. Among Iraqi people throughout the diaspora, research has also explored the potential for PTG. For example, Abu-Kaf and Khalil (2018) examined the role of hope, resilience, and social support in promoting PTG among Iraqi refugees in Jordan. They found that these factors significantly contributed to the ability of Iraqi refugees to find meaning and purpose in life, develop stronger relationships, and experience personal strengths and positive changes.

There are a few studies that have focused on Iraqi refugees in the United States and that extend other studies. For example, Shoeb et al. (2007) examined the experiences of Iraqi refugees in Dearborn, Michigan, and emphasized the centrality of faith in their constructs of identity, home, and future. The authors argued against relying solely on Western psychiatric constructs and standardized scales to assess the mental well-being of non-Western populations. They highlighted the importance of understanding the social and moral nature of refugees' injuries and the role of cultural and spiritual dimensions in the recovery process (Shoeb et al., 2007). Kira et al. (2014) also investigated the mental health symptoms experienced by Iraqi refugees who immigrated to the United States but after the Gulf War. The study emphasized the prevalence of mental health symptoms in this specific group and underscores the importance of culturally sensitive assessment and mental health treatment. The authors highlighted the role of trauma, stress, and resilience in understanding the mental health symptoms experienced by Iraqi refugees and advocate for tailored interventions that address their specific needs (Kira et al., 2014).

The studies on Iraqi refugees in the U.S. collectively show the profound and enduring impact of war trauma and forced displacement on this population (Watson Institute for International and Public Affairs, 2023). These studies consistently emphasize the significant adversity faced by Iraqi refugees, including exposure to traumatic events and the prevalence of mental health issues like PTSD (Abu-Kaf & Khalil, 2018; Kira et al., 2014). They also highlight the dire consequences of displacement on well-being and infrastructure (Watson Institute for International and Public Affairs, 2023). Furthermore, the research underscores the potential for PTG among Iraqi refugees, emphasizing their resilience, inner strength, and capacity for positive psychological changes despite challenging circumstances (Abu-Kaf & Khalil, 2018). Factors such as hope, resilience, social support, and cultural and spiritual dimensions play crucial roles in promoting PTG and facilitating recovery and well-being (Abu-Kaf & Khalil, 2018; Shoeb et al., 2007). These studies emphasize the need for recognition, understanding, and support for Iraqi refugees while highlighting the potential for growth and positive change in the aftermath of trauma and displacement.

The Association Between Trauma and PTG among Refugees

The association between trauma and PTG among refugees is a complex and multifaceted topic. Many studies, such as those by Magruder et al. (2015) and Tedeschi and Calhoun (1996), have explored the connection and found that experiencing trauma (including PTSD) does not preclude the possibility of also experiencing PTG. It is important to note that the relationship between PTSD and PTG is not strictly linear. While PTSD reflects the psychological impact of trauma and can involve symptoms that significantly affect an individual's daily functioning (Magruder et al., 2015), PTG represents the positive psychological changes and personal growth that can arise from adversity (Tedeschi & Calhoun, 1996). Some individuals who experience

high levels of trauma or PTSD may also report PTG, as the process of coping with trauma and its aftermath can lead to increased personal strength, a greater appreciation for life, and the development of new possibilities and relationships (Magruder et al., 2015; Tedeschi & Calhoun, 1996). However, the specific nature of the relationship between the severity of trauma exposure and/or PTSD symptoms and the extent of PTG, such as whether a greater level of exposure is related to lower levels of PTG or if they co-occur, warrants further investigation.

War trauma is a significant aspect of trauma experienced by refugees that can influence PTG. Refugees often face various traumatic events associated with war, including violence, displacement, loss of loved ones, and destruction of homes and communities. Despite the immense suffering caused by war trauma, some refugees may also report experiencing PTG. For instance, the process of adapting to life in a new country, rebuilding shattered lives, and finding strength in resilience can contribute to positive psychological changes and personal growth (Tedeschi & Calhoun, 1996). War trauma may serve as a catalyst for individuals to develop greater empathy, resilience, and appreciation for life, leading to the emergence of PTG.

The focus of my study was on war trauma specifically, rather than solely on PTSD. While PTSD represents a critical aspect of the psychological impact of war trauma, in the present study I sought to explore the broader spectrum of responses to war-related and refugee experiences, including the potential for positive growth and resilience. By shifting the type of trauma focus, I aimed to capture the multifaceted nature of refugee experiences and understand how exposure to war- and refugee-related events are potentially associated with individuals' perceptions, coping strategies, and psychological well-being beyond the diagnosis of PTSD. This approach allows for a more complex exploration of PTG among refugees and highlight the importance of considering diverse trauma experiences in research and clinical practice.

Association Between Demographic Factors and PTG Among Refugees

Specifically focusing on Iraqi refugees, studies have identified various demographic factors that are associated with PTG. The length of time spent in the host country, such as the United States, is indeed a significant demographic factor that can influence the PTG outcomes of refugees, including Iraqi refugees. Research supports the idea that settlement duration is a critical variable affecting the adaptation and well-being of refugee populations. For example, Gadeberg and et al. (2017) found that longer durations of residence in the host country were associated with improved mental health outcomes among refugees, including increased social integration and reduced psychological distress. This suggests that as refugees spend more time in their host country, they may have greater opportunities to adapt to the new environment and develop social networks that can contribute to their psychological well-being. Similarly, findings by Lie et al. (2015) with Somali refugees in Norway highlighted that longer periods of residence were associated with increased levels of acculturation, suggesting that refugees may become more accustomed to the culture and social systems of the host country over time. While these studies do not specifically focus on PTG, they emphasize the importance of settlement duration in influencing various aspects of refugee well-being, including adaptation, acculturation, and integration into the host society. Therefore, it is plausible that longer settlement durations may also play a role in shaping the PTG experiences of Iraqi refugees, making it a valuable demographic factor to investigate in understanding their journey towards healing and positive transformation.

Gender may also be related to the experiences of Iraqi refugees and their potential for PTG. Research by Al-Krenawi and Graham (2006b) found that gender roles and expectations can play a pivotal role in shaping how individuals perceive and respond to trauma. Understanding the

impact of gender on PTG among Iraqi refugees is essential, as it can provide insights into the unique support needs, coping mechanisms, and cultural dynamics that affect men and women differently. Investigating gender-related factors can help tailor interventions and support systems that are sensitive to the distinct challenges and strengths of both male and female Iraqi refugees, ultimately contributing to their well-being and recovery.

CHAPTER 3: METHOD

Participants

Participants in this study consisted of 107 Iraqi men ($n = 35$) and women ($n = 48$) adult refugees in the U.S. ($n = 24$ missing observations) that were part of a larger study on Iraqi refugees. All the participants were born in Iraq. Participants ranged in age from 19 to 65 ($M = 35.18$, $SD = 10.24$). The inclusion criteria for participation were fluency in written English and experience living in Iraq during the period of the U.S. invasion of Iraq between March 20, 2003, and December 15, 2011. The ethnic background of the participants was primarily Iraqi Arab ($n = 66.4\%$); the list of ethnic backgrounds and other demographic variables are in Table 1.

Measures

Demographic questionnaire. I created a 10-item demographic questionnaire for the purpose of this investigation. Participants were asked to indicate their age, ethnicity, region of birth, gender, the year in which they settled in the United States, the state and city in which they initially settled upon their arrival to the United States, the level of education completed, current employment status, and current relationship status.

Trauma Experiences. The 30-item Harvard Trauma Questionnaire (HTQ) (Mollica, R. F. et al., 1992) was used to assess the specific stressors experienced by Iraqi refugees as a result of the war. Different iterations of the HTQ have been created for specific refugee populations such as Bosnian, Iraqi, and Tibetan, acknowledging that notions of functionality and expressions of distress differ across diverse cultures (Berthold, S. M. et al., 2019). Both traumatic events and symptoms are included in the questionnaire. There are several versions of the HTQ: Traumatic Events, Personal Description, Head Injury, Trauma Symptoms DSM-IV, Trauma Symptoms DSM-V, Torture History, and Cultural Symptoms of Trauma. For this study, cultural symptoms

of torture specific for refugees were used. This included six subscales with five items for each subscale: Skills and Talents (e.g., “feeling that the skills you had before your trauma are no longer useful or valued”), Physical Impairments (e.g., “feeling exhausted”), Intellectual Functioning (e.g., “poor memory”), Emotional Functioning (e.g., “hopelessness”), Social Relationships (e.g., “feeling others are hostile to you”), and Spiritual/Existential Concerns (e.g., “feeling powerless to others”). Items are scored on a 4-point scale from 1 (*not at all*) to 4 (*extremely*) (Mollica, R. F. et al., 1992). The HTQ has been widely used and recommended for assessing PTSD in refugees, including Iraqi refugees in the United States. Its selection for the current investigation is based on its established reliability and validity in research on refugee populations. In this study, the HTQ demonstrated excellent internal consistency, with a coefficient alpha of $\alpha = .92$.

In general, HTQ reliability estimates among refugees are acceptable, ranging from .86 to .91 (Rasmussen, A. et al., 2015). Rasmussen et al. (2015) conducted a study to establish the validity of the HTQ (Harvard Trauma Questionnaire) in assessing PTSD (Post-Traumatic Stress Disorder) symptoms in refugees. The alpha reliability coefficients for the HTQ among diverse groups in New York City were high, with values of $\alpha = .89$ for the Iraqi group, $\alpha = .89$ for the Syrian group, and $\alpha = .86$ for the Afghan group, respectively. Rasmussen et al.'s findings also suggested that the HTQ scores were directly related to various PTSD symptoms, including reexperiencing, avoidance, numbing, and hyperarousal symptoms among a diverse population of refugee asylum seekers. Furthermore, the internal consistency for the HTQ across all groups was also high, with an overall alpha coefficient of $\alpha = .91$, indicating strong reliability across the entire sample.

Additionally, Arntez et al. (2014) found that each of the HTQ trauma subtypes was correlated with at least one mental health outcome, specifically physical trauma, PTSD, and depression. This research highlights the questionnaire's ability to capture a range of trauma-related experiences and their impact on mental health. Moreover, a positive association was discovered between personal trauma, such as physical injuries, torture, or sexual assault, and PTG (Post-Traumatic Growth) among Iraqi refugees specifically (Kılıç, C. et al., 2016). This demonstrates that the HTQ can provide insights into the relationship between specific traumatic experiences and positive psychological outcomes.

Post-Traumatic Growth (PTG). To assess PTG, participants completed the Post-Traumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1995, 1996). The PTGI is the most widely used measure of the positive changes people report as they cope with the aftermath of highly stressful and potentially traumatic events. Most of the English language studies on refugees and PTG used the PTGI (K. J. Chan et al., 2016). The items on the PTGI were based primarily on interviews with persons who had suffered physical disabilities in adulthood or the death of a spouse in later life and were tested in a large sample of college students who reported a variety of traumatic life events (Tedeschi & Calhoun, 1996). The PTGI consists of 21 items, each scored on a 6-point response scale. Participants indicate the extent to which they have experienced specific changes as a result of their crisis, ranging from 0 (*I did not experience this change as a result of my crisis*) to 5 (*I experienced this change to a very great degree as a result of my crisis*). A higher overall score on the PTGI suggests a greater level of PTG. The inventory measures growth across five areas: appreciation of life (e.g., “My priorities about what is important in life,” “An appreciation for the value of my own life”), relationships with others (e.g., “Knowing that I can count on people in times of trouble”, “I accept needing others”), new

possibilities in life (e.g., “I developed new interests”, “I’m able to do better things with my life”), personal strength (e.g., “A feeling of self-reliance”, “Knowing I can handle difficulties”), and spiritual change (e.g., “A better understanding of spiritual matters”, “I have a stronger religious faith”). The PTGI has demonstrated acceptable internal consistency, with alpha coefficient estimates ranging from $\alpha = .87$ among displaced Muslims (Alsubaie et al., 2021) to $\alpha = .89$ among Iraqi and Syrian refugees (Kangaslampi et al., 2022). In this study, the PTGI showed excellent internal consistency, with a coefficient alpha of $\alpha = .94$.

Prior research in non-US samples demonstrated convergent validity between higher PTGI and indicators of flourishing, with correlation coefficients ranging from $\alpha = .34$ (Abdullah et al., 2017) to $\alpha = .51$ (García & Włodarczyk, 2016). Among Iraqi refugees around the world, the increased PTGI total is significantly related to religious faith, discovering that one is stronger than one thought before, being able to do better things with one’s life, and knowing better than one can handle difficulties (Kangaslampi et al., 2022).

Procedure

Data collection for the present study was part of a larger project on Iraqi refugees living in the U.S. psychological well-being and commenced after obtaining approval from the Institutional Review Board (IRB) at the University of Illinois Urbana-Champaign. To ensure data quality and participant eligibility, data cleaning procedures were performed at two different time points in this study. Initially, 167 people participated in the survey on 6/23/23. During the first data cleaning process, the following steps were taken: Three participants who did not agree to take the survey and 6 participants who did not provide an agreement response were excluded. Additionally, 24 individuals who either did not respond or were not of legal age (18 years old) were removed from the dataset. Moreover, 18 individuals who did not provide answers or were

not born in Iraq were also eliminated. Furthermore, 7 participants who were not fluent in reading English and 15 individuals who reported that they were not refugees were excluded. Finally, 4 individuals who declined to view the consent form for the study were removed. After these initial data cleaning steps, the total number of remaining participants was 90. However, only 41 of these participants had completed at least 80% of the survey, making them eligible for the study. Subsequently, on 7/24/23, the survey was downloaded again, and an additional 149 new participants completed the survey. A second round of data cleaning was conducted, resulting in 73 participants who completed at least 80% of the survey and qualified for the study. The remaining 76 observations were not included in the study for various reasons, including: 5 individuals who did not agree to take the survey, 10 did not provide an agreement response, 22 were not of legal age, 15 who did not provide answers to the question about place of birth or were not born in Iraq, 10 were not fluent in reading English, 9 reported they were not refugees, and 5 declined to view the consent form for the study. These stringent data cleaning processes helped ensure the quality and eligibility of the final participant sample, which consisted of 73 individuals who met the study's criteria. A total of 149 individuals were initially considered for the study. Among these, 73 respondents completed at least 80% of the survey and thus qualified for inclusion in this study, while 76 individuals did not meet the criteria for participation. Therefore, after rigorous data cleaning processes, there was a final participant sample of 107 (n = 43 from the first data collection and n = 73 from the second data collection).

The initial recruitment involved sending an email to 55 individuals and seven organizations/centers known to have connections with Iraqi refugees who fit the study's criteria. These individuals were initially identified through personal connections, including the

researcher's friends and family. The organizations and centers were identified with the assistance of the researcher's former psychology professors.

In addition to the initial recruitment, referrals were encouraged to share the survey link provided in the email with members of the Iraqi refugee community whom they knew. Furthermore, a flyer was designed, printed, and disseminated to organizations serving the target population. The flyer contained a concise description of the study, contact information for the investigators overseeing the research, and links and QR codes for accessing the survey.

Before participants began the survey, they were presented with an informed consent form through the Qualtrics platform. This document outlined the study's objectives and the nature of participation. To ensure that participants met the inclusion criteria, a screening process was implemented through a separate screener survey, which was provided by Qualtrics. This screening survey comprised yes/no questions pertaining to age, country of birth (specifically, Iraq), refugee status, experience of conflict in Iraq, and English reading proficiency. Those who satisfied the screening criteria were then directed to a second survey, where their data for the study were collected.

The survey instrument incorporated items from the Posttraumatic Growth Inventory (PTGI) and the Harvard Trauma Questionnaire (HTQ), as well as additional measures not included in this study on trauma events, personal description, head injury history, and torture history. Specifically, participants were asked about their past history and present symptoms, including the most hurtful or terrifying events they have experienced, details about head injuries, and whether they experienced events considered torture. These items were presented in a randomized order, while the demographic section consistently appeared as the final part of the

survey. On average, participants completed the survey in approximately 17 to 20 minutes, as recorded on the Qualtrics platform.

Participants were made aware of the opportunity to participate in a raffle, where they could win one of five \$50 gift cards. Details regarding the incentive were conveyed through the recruitment email, the study flyer, and the online informed consent form. To be eligible for the incentive, participants needed to meet the inclusion criteria, which involved successfully completing the demographics form and the entire survey. Eligible participants were given the chance to enter their email address at the conclusion of the survey for entry into the raffle. After the conclusion of data collection, the investigator used the Qualtrics Anonymized Raffle feature to randomly select five winners. These individuals were subsequently notified via email and provided with an online \$50 gift card.

Main Data Analysis Plan

A zero-order correlation (length of time in the U.S.) and t-test (gender) were used to test the first hypotheses about associations with PTGI. Canonical Correlation Analysis (CCA) was employed in this study to test Hypothesis 2, which posited a significant relationship between post-traumatic growth (PTG) and traumatic experiences among Iraqi refugees. Canonical correlation analysis allows for the examination of associations between two distinct sets of variables and offers insights into the underlying structure of their relationship (Hair et al., 1998; Johnson & Wichern, 2007; Tabachnick & Fidell, 2001). CCA, a sophisticated multivariate statistical technique, is adept at scrutinizing the associations between two sets of variables by maximizing the correlation between their respective linear combinations (Hotelling, 1936). Here, the two sets of variables under scrutiny were PTG scores derived from the Posttraumatic Growth Inventory (PTGI) and trauma experience scores obtained from the Harvard Trauma

Questionnaire (HTQ). By utilizing CCA, the study aimed to unravel the complex interplay between the positive psychological changes indicative of PTG and the myriad traumatic events experienced by Iraqi refugees during the tumultuous period of conflict and displacement. This analytical approach facilitated a comprehensive examination of how different aspects of trauma may relate to various dimensions of post-traumatic growth, providing valuable insights into the nuanced dynamics of psychological adaptation and resilience in the aftermath of adversity. Through the utilization of CCA, the study sought to illuminate not only the presence or absence of a relationship between PTG and trauma experiences but also the underlying patterns and mechanisms driving their association, thereby enriching our understanding of the psychological processes at play within the Iraqi refugee population.

In the present investigation, the HTQ variables comprised the first set, while the PTGI variables constituted the second. I aimed to ascertain the number of dimensions in which these sets of variables were associated by evaluating the significance of the canonical correlation. Subsequently, I analyzed canonical loadings within each set to discern which variables contributed most prominently to each canonical variate.

Table 1. Demographic Details of Participants

Demographic Characteristics	Sub-Category	N/M	%/SD
Age		35.13	10.24
Gender	Male	35	32.7%
	Female	48	44.9%
	Missing	24	22.4%
Highest Level of Education	Less than high school	2	1.9%
	High school graduate or GED	7	6.5%
	Some college	13	12.1%
	College Undergrad	26	24.3%
	Grad School/ Professional Studies	36	33.6%
	Missing	23	21.5%
Ethnicity	Arab	71	66.4%
	Chaldean	4	3.7%
	Kurdish	5	25.2%
	Missing	21	4.7%
Employment Status	Employed full time	47	43.9%
	Employed part time	16	15.0%
	In school/vocational training	6	5.6%
	Retired	2	1.9%
	Homemaker	2	1.9%
	Unemployed	7	6.5%
	Permanently disabled/unable to work	1	0.9%
	Other	3	2.8%
	Missing	23	21.5%

CHAPTER 4: RESULTS

Missing Data

Missing data were assessed to ensure the integrity of the analysis. Little's missing completely at random (MCAR) test was conducted for the PTGI and HTQR scales. Results indicated a significant deviation from MCAR, $\chi^2(506) = 633.06, p < .001$, suggesting that the missingness was not completely random. Upon closer examination, it was found that HTQR items exhibited a range of 17-20 missing observations out of 107 total participants, while PTGI items had a narrower range of 1-3 missing observations. Further analysis revealed that the same participants tended to have missing data across multiple items within the HTQR scale, possibly indicating a tendency to skip entire scales during the survey. Consequently, a complete-case analysis was justified, resulting in 88 complete cases after removing 19 cases with missing data on more than one variable. While this approach may introduce bias and limit generalizability, it was chosen due to the non-random nature of the missing data. Therefore, caution should be exercised when interpreting the findings.

Checking Assumptions

Preliminary analyses were conducted to check for outliers, univariate normality, multicollinearity, and multivariate normality. Outliers were assessed using boxplots and standard deviation criteria, with any extreme values beyond ± 3 standard deviations from the mean being carefully examined and, if deemed to significantly distort the analysis, removed. This ensured that the data remained robust and representative.

For univariate assumptions, skewness and kurtosis were evaluated to assess the assumption of normality. Skewness values between -2 and +2 and kurtosis values between -7 and +7 were considered acceptable for normality. Most variables fell within these ranges, indicating

that the assumptions of normality were largely met. Specifically, age, year of settlement in the U.S., highest level of education, ethnicity, Iraqi birth region, employment status, and relationship status exhibited skewness and kurtosis values within the acceptable range. However, the variable 'exposure to trauma' had a skewness value of -2.5 and a kurtosis value of 8.2, which exceeded the acceptable ranges. To address this, a log transformation was applied to the 'exposure to trauma' variable, which brought the skewness and kurtosis values within the acceptable range, ensuring that the assumption of normality was met.

Multicollinearity was assessed using Variance Inflation Factor (VIF) values, with all variables exhibiting VIF values below 5, indicating no severe multicollinearity issues. Multivariate normality was checked using Mardia's test, which confirmed that the data did not significantly deviate from multivariate normality assumptions. By addressing these assumptions, the data was prepared for subsequent analyses, ensuring the robustness and validity of the results. Tests for multicollinearity indicated that the variance inflation factors (VIFs) for the HTQ subscales were all below 5, suggesting that multicollinearity assumptions were not violated. This means that the HTQ subscales did not exhibit excessive intercorrelations that could distort the results. However, some PTGI scales, including New Possibilities, Personal Strength, and Appreciation of Life, exhibited high VIFs exceeding 5, suggesting that there may be some multicollinearity among these variables. Despite this, the overall integrity of the CCA was maintained, although caution is advised when interpreting the results related to these specific PTGI scales.

Multivariate normality was assessed through visual analysis of Q-Q plots for each subscale. The Q-Q plots generally indicated that the data were normally distributed, with points falling approximately along the reference line. This visual confirmation suggests a low

possibility of violating assumptions of multivariate normality, thus supporting the validity of the CCA results.

Descriptive Analysis

Descriptive information and zero-order correlations among study variables are in Table 2. The descriptive analysis of the HTQ subscales sheds light on participants' experiences of trauma-related difficulties. On average, participants reported moderate levels of Skills and Talents-related challenges, with a mean score of 2.02 ($SD = 0.76$). Physical impairments were slightly more pronounced, with an average score of 2.33 ($SD = 0.92$). Intellectual functioning difficulties were also reported at a moderate level, with a mean score of 2.38 ($SD = 0.85$). Emotional functioning challenges were slightly lower, with an average score of 1.95 ($SD = 0.90$), while social relationships presented moderate difficulties ($M = 2.26$, $SD = 0.85$). Spiritual concerns were reported at a relatively lower level ($M = 1.92$, $SD = 0.82$). The overall impact of trauma-related experiences, as measured by the HTQ Total scale, yielded an average score of 2.14 ($SD = 0.71$). In contrast, the descriptive analysis of the PTGI subscales revealed that participants, on average, experienced moderate to high levels of personal growth, as indicated by a mean score of 4.10 ($SD = 1.03$) with the Personal Growth subscale.

Starting with lower-level relations, the HTQ Skills and Talents subscale showed a negative correlation with all PTGI subscales, ranging from $-.97$ to $-.15$. For instance, the correlation between HTQ Skills and Talents and PTGI Spiritual Change was $-.13$, suggesting that individuals who report more trauma-related difficulties with Skills and Talents tend to report lower levels of spiritual change as a result of their crisis. Similarly, the HTQ Physical Impairments subscale exhibits negative correlations with PTGI subscales, indicating that greater physical impairments due to trauma are associated with lower levels of post-traumatic growth.

Moving to higher-level relations, the overall HTQ Total score demonstrated significant negative correlations with all PTGI subscales, ranging from -.31 to -.22. For example, the correlation between HTQ Total and PTGI Personal Strength was -.31, indicating that individuals experiencing higher levels of trauma-related difficulties overall tend to report lower levels of personal strength as a result of their crisis.

However, there are nuances in these findings. While most correlations are negative, there are exceptions. For instance, the correlation between HTQ Total and PTGI Appreciation of Life was positive at .73, indicating that despite overall trauma-related difficulties, individuals may still experience a greater appreciation of life as a result of their crisis. Additionally, exploring non-statistically significant or weaker correlations can provide insights. For instance, the correlation between HTQ Total and PTGI Relating to Others is relatively weaker at -.24, suggesting that the impact of trauma-related difficulties on the ability to relate to others may not be as pronounced compared to other aspects of post-traumatic growth.

Findings from the zero-order correlations indicated that in general, years in the U.S were associated with PTGI among Iraqi refugees; however, there was one significant finding. Living in the U.S. for a longer period of time was significantly and negatively associated with PTGI-Appreciation of Life ($r = -.24, p < .05$). This indicated that individuals with a longer duration of residence in the U.S. tended to report lower levels of appreciation of life.

To examine gender differences in PTG among Iraqi refugees, an independent samples t-test was conducted. The results indicated that there was a significant difference in PTG scores between men and women. Specifically, men ($M = 4.25, SD = 0.95$) reported significantly higher levels of PTG compared to women ($M = 3.92, SD = 1.06$), $t(81) = 1.56, p = .043$. This suggests

that men refugees may experience higher levels of post-traumatic growth relative to their women counterparts. Additionally, a multivariate analysis of variance (MANOVA) was performed to explore potential gender differences on various dimensions of PTG, including relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. The MANOVA revealed a significant multivariate effect of gender on the combined PTG dimensions, Wilks' Lambda = .94, $F(5, 77) = 1.06$, $p = .040$. Follow-up univariate analyses indicated that men reported significantly higher levels of personal strength ($M = 4.52$, $SD = 1.12$) and new possibilities ($M = 4.31$, $SD = 1.13$) compared to women (personal strength: $M = 4.31$, $SD = 1.23$; new possibilities: $M = 4.14$, $SD = 1.25$), but there were no significant gender differences on relating to others, spiritual change, or appreciation of life.

Table 2 Means, Standard Deviations, and Zero-Order Correlations among Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	35.13	10.24	—													
2. Years in the U.S.	13.68	6.12	.26*	—												
3. HTQ Skills & Talents	2.02	0.76	-.97	-.004	—											
4. HTQ Physical Impairments	2.33	0.92	.01	.06	.47*	—										
5. HTQ Intellectual Funct.	2.38	0.85	-.13	.06	.53*	.60*	—									
6. HTQ Emotional Funct.	1.95	0.90	-.05	.03	.58*	.57*	.63*	—								
7. HTQ Social Rel.	2.26	0.85	-.11	-.07	.59*	.65*	.68*	.79*	—							
8. HTQ Spiritual Concerns	1.92	0.82	-.08	.01	.54*	.61*	.60*	.81*	.83*	—						
9. HTQ Total	2.14	0.71	-.09	.02	.73*	.79*	.82*	.88*	.91*	.88*	—					
10. Relating to Others	3.70	1.14	-.01	-.18	-.25*	-.23*	-.20	-.27*	-.31*	-.24*	-.31*	—				
11. New Possibilities	4.20	1.20	-.04	-.20	-.35*	-.30*	-.17	-.24*	-.22*	-.31*	-.32*	.70*	—			
12. Personal Strength	4.41	1.20	.09	-.22	-.33	-.31	-.20	-.31*	-.26*	-.38*	-.36*	.71*	.87*	—		
13. Spiritual Change	4.35	1.28	.11	-.03	-.13	-.12	-.05	-.07	-.14	-.15	-.13	.43*	.45*	.52*	—	
14. Appreciation of Life	4.40	1.16	.01	-.24*	-.30*	-.24*	-.29*	-.30*	-.24*	-.33*	-.32*	.73*	.85*	.84*	.57*	—
15. PTGI Total	4.10	1.03	.02	-.22	-.31	-.30*	-.21	-.29*	-.29*	.33*	-.34*	.90*	.91*	.92*	.58*	.91*

Note: * $p < .05$, ** $p < .01$. HTQ = *The Harvard Trauma Questionnaire subscales, including Skills and Talents, Physical Impairments, Intellectual Functioning, Emotional Functioning, Social Relations, Spiritual Concerns*. PTGI = *Posttraumatic Growth, including Relating to Others, Embracing New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life*. HTQ subscales and total can range from 1 to 4 and PTGI scores can range from 1 to 5.

Figure 1. First Canonical Function

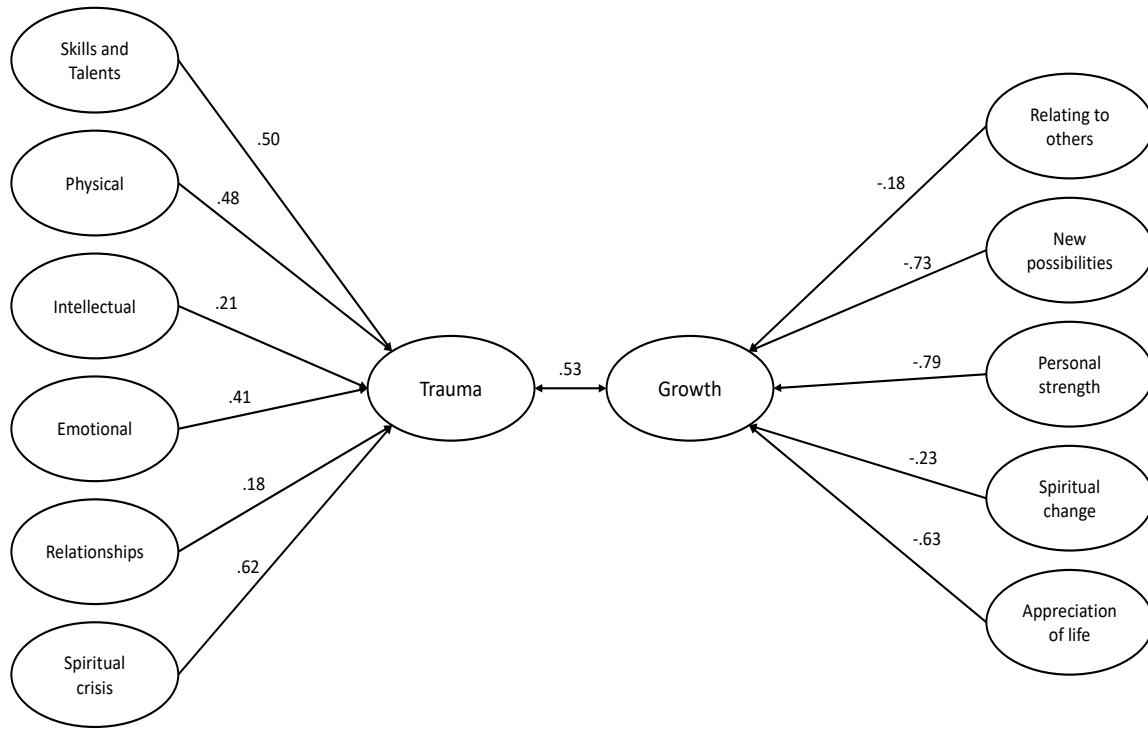


Table 3. Canonical Correlation Analysis: Functions and Multivariate Tests of Significance.

Measure of overall model fit for canonical correlation analysis					
Canonical function	Canonical correlation	Canonical R^2	Approximate F statistic	df	p
1	0.53	0.28	1.68	30, 310	0.02
2	0.36	0.13	1.10	20, 260	0.35
3	0.30	0.09	0.87	12, 209	0.58
Multivariate tests of significance					
Statistic	Value	Approximate F statistic	df	p	
Wilks' lambda	0.55	1.69	30, 310	0.02	
Pillai's trace	0.54	1.62	30, 405	0.02	
Hotelling's trace	0.68	1.71	30, 377	0.01	

Canonical Correlation Analysis

The results of the canonical correlation analysis (CCA) are presented in Table 3. The Wilks' lambda multivariate test further supported the significance of the associations, with the overall test yielding significant results (Wilks' lambda = 0.36, $p < 0.05$). These results highlight

the presence of one distinct way in which refugee trauma was associated with PTG, shedding light on the complex interplay between them. The CCA revealed a significant moderate positive relationship between two sets of variables (canonical correlation = 0.53). This suggests that variations in refugee trauma were associated with corresponding variations in post-traumatic growth.

The most influential variables in the HTQ set were Spiritual Crisis (canonical loading = 0.62), Skills and Talents (canonical loading = 0.50), and Physical Impairments (canonical loading = 0.48). These HTQ variables can be categorized as "internalized trauma factors" given they capture personal identity and internal states.

Regarding the PTGI, the first canonical variate showed that new possibilities, personal strength, and appreciation of life were the most strongly associated with the trauma variables. Specifically, the canonical loadings for new possibilities (0.58), personal strength (0.55), and appreciation of life (0.52) indicate that these dimensions of growth are particularly influenced by trauma-related experiences. These dimensions can be collectively categorized as "Resilient Flourishing," reflecting the combination of overcoming adversity and thriving despite significant challenges.

Furthermore, when considering the relationship between trauma and growth experiences, a significant inverse association was identified. Specifically, greater levels of refugee trauma were found to be associated with lower levels of perceived growth among Iraqi refugees. This inverse relationship underscores the complex and often detrimental impact of trauma on individuals' capacity for post-traumatic growth.

CHAPTER 5: DISCUSSION

In the present study, I aimed to describe factors associated with posttraumatic growth among Iraqi refugees resettled in the United States. Specifically, I explored the associations between various dimensions of refugee trauma and growth experiences among Iraqi refugees, while also considering demographic factors such as years in the U.S. and gender. Below, I organize the discussion around: (a) examining the associations between trauma and growth experiences, (b) exploring the impact of demographic factors on these associations, (c) outlining limitations of the study, and (d) discussing the implications for interventions and support services for Iraqi refugees in the United States.

I observed several significant findings that contribute to a deeper understanding of post-traumatic growth (PTG) among Iraqi refugees resettled in the U.S. One of the primary findings was a pattern of associations between refugee trauma and PTG, indicating that greater trauma in the more internalized trauma factors (i.e., emotional crises, physical harm, and spiritual crises) was associated with lower PTG, especially in the areas of resilient flourishing (i.e., new possibilities, personal strength, and appreciation of life). This suggests a complex relationship where certain clusters of trauma experiences may impede PTG. These findings are somewhat consistent with previous studies, such as those by Schick et al. (2016) and Turrini et al. (2017), which also found that specific types of trauma exposure can negatively impact PTG outcomes. This alignment underscores the importance of addressing the nuanced impacts of different trauma types in supporting the growth and resilience of refugees.

The significant role of spiritual crisis in hindering PTG among Iraqi refugees emerged as a key theme in this study. The dimensions of trauma related to skills and talents, physical impairments, emotional functioning, and spiritual/existential concerns were all associated with

internalized expressions of trauma, which in turn were negatively linked to new possibilities, personal strength, and an appreciation of life. These dimensions share a commonality in that they all involve deep personal reflection and transformation in response to trauma. The negative canonical correlation underscores that while these areas of trauma can hinder growth, they also hold the potential for significant personal development when overcome. This complex relationship highlights the need for targeted interventions that address the multifaceted nature of trauma and its impact on personal growth, particularly focusing on spiritual and existential factors to support PTG among Iraqi refugees.

Regarding the HTQ subscales, they encompass various aspects of trauma experiences and their effects. Skills and talents pertain to feeling a loss of usefulness or value in pre-trauma skills, decreased coping skills, difficulty in dealing with new situations, work-related distress, and discomfort around colleagues. This subscale reflects how trauma can deeply affect an individual's perception of their abilities and competence (Brewin et al., 2000; Bryant-Davis, 2006). These feelings of diminished self-efficacy and competence are indicative of an internalized expression of trauma, where the individual's sense of identity and capabilities are profoundly impacted (Creamer et al., 2003; Foa et al., 1997).

Similarly, physical impairments involve exhaustion, bodily pain, frequent sickness, inability to work or do chores, and a perceived decline in physical well-being. This subscale highlights how trauma can manifest physically, causing tangible discomfort and limitations (Brewin et al., 2000; Schnurr et al., 1997). The physical symptoms experienced by individuals may not only be a result of the traumatic event but also of the psychological distress it generates (Kimerling et al., 2000).

Furthermore, emotional functioning includes feelings of dissociation, self-blame, survivor guilt, hopelessness, and shame. This subscale delves into the emotional toll of trauma, illustrating how individuals may internalize negative emotions and self-perceptions (Creamer et al., 2003; O'Donnell et al., 2003). For example, feelings of self-blame and survivor guilt may lead individuals to question their worthiness or moral integrity, while experiencing dissociation and hopelessness can create a sense of detachment from oneself and the world (Foa et al., 2006; Janoff-Bulman, 1992).

Lastly, spiritual/existential concerns encompass feelings of powerlessness, existential questioning, perceived uniqueness of suffering, betrayal, and vengefulness. This subscale explores the existential and spiritual dimensions of trauma, highlighting the profound impact it can have on an individual's sense of meaning and purpose (Pargament et al., 1998; Park & Cohen., 1993). When individuals grapple with spiritual crises and existential doubts, they may struggle to find meaning in their suffering or reconcile their beliefs with their experiences (Frazier et al., 2004; Taku et al., 2008). This internal struggle with questions of meaning and faith can significantly influence how individuals navigate their journey toward post-traumatic growth (Park & Ai, 2006; Park & Slattery, 2013).

Consistent with previous research (Bryant-Davis, 2006), I found a complex relationship between spiritual crisis and PTG. Specifically, the canonical correlation analysis revealed that spiritual crisis, along with skills and talents and physical trauma, had the strongest positive loadings on the trauma construct. However, the growth dimensions, particularly personal strength, new possibilities, and appreciation of life, had strong negative loadings on the growth construct. This suggests that individuals who experience higher levels of trauma, especially in terms of spiritual crisis, skills, and physical aspects, tend to report lower levels of personal

strength, new possibilities, and appreciation of life as part of their PTG. These findings indicate the need for a nuanced understanding of how different types of trauma experiences impact various dimensions of growth among refugees, highlighting the importance of culturally sensitive and targeted interventions.

In addition to spiritual crisis, the findings indicate unique associations between skills and talents and PTG among Iraqi refugees. While previous research has primarily focused on the role of trauma-related stressors in hindering adaptation and growth (Brewin et al., 2000), findings in the present study suggest that pre-existing skills and talents may also play a significant role in diminishing PTG. Specifically, I found that individuals who perceived a loss of usefulness or value in their pre-trauma skills, or who experienced difficulty in coping with new situations, were less likely to report growth following trauma. This finding underscores that trauma not only impacts individuals through direct stressors but also by undermining pre-existing strengths and resources that might otherwise support recovery and growth. This highlights the importance of addressing not only trauma-related stressors but also pre-existing vulnerabilities and resources in interventions aimed at promoting PTG among refugees.

Also, it is noteworthy that intellectual trauma and relationship trauma were not found to be significant drivers in the association with growth. This could be due to several factors. In the case of intellectual trauma, such as difficulty in accessing education or intellectual stimulation, it is possible that individuals may perceive these challenges as less directly related to their personal growth compared to other forms of trauma. Intellectual trauma may be seen as more external or circumstantial, rather than as deeply affecting one's sense of self or identity. Therefore, it may not evoke the same level of introspection or motivation for growth as other types of trauma.

Similarly, relationship trauma, such as challenges in maintaining social relationships or experiencing conflicts with family members, may not necessarily lead to growth if individuals perceive these experiences as overwhelmingly negative or damaging. Unlike spiritual crisis or skills and talents, which may prompt individuals to seek meaning or develop new skills in response to trauma, relationship trauma may be perceived as more disruptive to one's sense of security and well-being, thus hindering the potential for growth. Additionally, the nature of relationship trauma, which often involves interpersonal conflicts or loss, may lead to feelings of betrayal or mistrust, which could impede the development of new possibilities, personal strength, and appreciation of life.

Therefore, while intellectual trauma and relationship trauma are important factors to consider in understanding the overall impact of trauma on individuals' lives, they may not be as strongly associated with post-traumatic growth compared to other types of trauma. This highlights the need for further research to explore the underlying mechanisms driving the relationship between different types of trauma and growth experiences, as well as the role of individual differences and contextual factors in shaping these associations.

I found that refugees who lived in the U.S. for longer on average reported greater levels of PTG. This finding aligns with existing literature that suggests time spent in the host country can enhance opportunities for refugees to integrate, access resources, and develop coping mechanisms that facilitate PTG (Schick et al., 2016; Turrini et al., 2017). The extended duration in the U.S. may provide refugees with more time to process their traumatic experiences, build supportive social networks, and engage in activities that promote personal growth.

Counter to my hypothesis, findings indicated that, on average, men in this sample reported greater levels of PTG compared to women. This finding may be due to several factors,

including potential differences in coping strategies, social support systems, and cultural expectations between genders. For instance, men might be more likely to engage in problem-focused coping and seek social support, which are associated with higher PTG (Tedeschi & Calhoun, 2004). Additionally, cultural factors might influence the expression and reporting of growth experiences differently for men and women. These findings differ from some previous studies that have found women to report higher PTG, possibly due to differences in study populations, cultural contexts, or measurement tools (Vishnevsky et al., 2010). Further research is needed to understand the gender-specific pathways to PTG and to develop tailored interventions that address these differences.

Limitations and Future Directions

One significant limitation of the study is the presence of missing data. Missing data can introduce bias and affect the reliability and validity of the study's results (Graham, 2009). Despite efforts to minimize missing data through thorough data collection and follow-up procedures, a considerable amount of data were still missing. This limitation is particularly relevant in the context of refugee populations, where factors such as language barriers, mistrust of authorities, and mobility may have contributed to data attrition (Hynie, 2018). As a result, the findings may not fully represent the experiences of all Iraqi refugees.

The missing data may have skewed the results in several ways. For instance, if those who did not respond or had incomplete data were experiencing higher levels of trauma or lower levels of PTG, the study's findings may underestimate the true extent of these associations. Conversely, if non-respondents were those experiencing less trauma or more growth, the results might overestimate the positive outcomes associated with trauma. This potential bias underscores the importance of cautious interpretation of the findings and highlights the need for robust data

collection methods in future research. To address these issues, future studies should incorporate strategies such as multiple imputation for handling missing data, and employ longitudinal designs to better capture the dynamic processes of trauma and growth over time.

Of specific note, the data were not missing completely at random (MCAR). Missing data not being MCAR means that the pattern of missingness is related to the variables being studied, which can introduce bias and affect the accuracy of statistical estimates (Enders, 2010). In the context of the present study, this limitation implies that the missing data may be systematically related to the trauma and growth experiences of the participants. For example, participants who experienced more severe trauma or who were less inclined to engage with the study may be more likely to have missing data. This could lead to underestimation or overestimation of the associations between trauma and PTG, thereby limiting the validity of the findings. Additionally, the non-random nature of missing data can complicate imputation methods and may require more sophisticated techniques to address effectively (Enders, 2010).

Furthermore, while efforts were made to recruit a diverse sample of Iraqi refugees, the sample may not fully represent the heterogeneity of the Iraqi refugee population in the United States. Factors such as recruitment challenges, geographic constraints, and cultural barriers may have influenced the composition of the sample, limiting the generalizability of the findings to other Iraqi refugee communities. The demographic characteristics of the sample in this study may limit the generalizability of the findings. With a mean age of 35.13 years, the predominance of adult participants suggests that the results may not fully represent the experiences of younger age groups, such as adolescents, who may have distinct experiences of trauma and growth (Aldwin, 2007). Moreover, while the focus is on Iraqi refugees resettled in the United States, the specific demographics, such as the mean of 13.68 years spent in the U.S., may not fully capture

the diversity of refugee experiences. This duration indicates that many participants have been in the country for a substantial period, potentially overlooking the experiences of recently resettled refugees who might face different challenges and trajectories of adaptation (Schweitzer et al., 2011). Additionally, the characteristics of individuals who participated in the study could introduce selection bias. For instance, participants with higher levels of education or better access to resources might be more likely to participate, skewing the sample towards a certain demographic profile and limiting the generalizability of the findings to the broader Iraqi refugee population (Smeeke et al., 2015). Furthermore, the cultural and linguistic backgrounds of the participants may influence their responses to measures of trauma and post-traumatic growth. For example, individuals from collectivistic cultures may prioritize relational well-being over individual strength (Berry, 2005), and language proficiency could affect the accuracy and comprehensibility of responses, particularly for measures administered in English (Harkness & Super, 2002).

Additionally, the cross-sectional nature of the study design precludes causal inferences about the relationships between refugee trauma and PTG. Longitudinal studies would be better suited to examine the temporal dynamics of these associations and identify potential causal mechanisms (Hobfoll et al., 2011).

Moreover, the measures used in the study, while validated, may not fully capture the complex and nuanced experiences of trauma and growth among Iraqi refugees. For example, the instruments may not have adequately assessed culturally specific forms of trauma or resilience, potentially leading to measurement bias (Miller & Rasmussen, 2017). Additionally, self-report measures are subject to social desirability bias, where participants may respond in ways that are

perceived as more socially acceptable, leading to inflated or deflated scores on the variables of interest (Paulhus, 2002).

In addressing these limitations, future research should employ more robust sampling techniques, such as community-based participatory research approaches, to ensure greater representativeness and engagement with the target population (Wallerstein & Duran, 2010). Additionally, longitudinal studies with larger sample sizes and comprehensive assessments of trauma and growth experiences would allow for more rigorous examination of the associations between these variables over time (Hobfoll et al., 2011). Finally, utilizing mixed-methods approaches could provide a more holistic understanding of the experiences of Iraqi refugees, incorporating both quantitative and qualitative data to capture the richness and complexity of their narratives (Creswell & Plano Clark, 2011). By addressing these limitations, future research can advance our understanding of PTG among Iraqi refugees and contribute to the development of more effective interventions and support services.

Moving forward, there are several ways to enhance the depth and scope of research on PTG among Iraqi refugees in the United States. Firstly, future studies could employ longitudinal designs to examine the trajectories of PTG over time, allowing for a more nuanced understanding of how growth unfolds following resettlement and adaptation. Longitudinal studies would also enable researchers to explore the stability and variability of PTG and its predictors, shedding light on the long-term effects of trauma and the factors that contribute to sustained growth (Tedeschi & Calhoun, 2004).

Qualitative approaches could complement quantitative measures by providing richer insights into the subjective experiences of trauma and growth among Iraqi refugees through in-depth individual interviews or focus groups. Qualitative methods would allow participants to

articulate their narratives in their own words, capturing the intimate details of their cultural, social, and psychological contexts (Creswell & Creswell, 2017). Furthermore, future research could expand the focus beyond individual-level factors to examine the role of social support networks, community resources, and cultural practices in promoting PTG among Iraqi refugees. Understanding how social and environmental factors influence the process of growth would inform the development of more holistic interventions and support services tailored to the needs of refugee communities (Norris & Alegria, 2019).

Given the heterogeneity within the Iraqi refugee population, future studies could adopt intersectional approaches to explore how dimensions of multiply oppressed identities (e.g., poor women) intersect to shape experiences of trauma and growth (Crenshaw, 1989). Intersectional analyses would illuminate the unique challenges faced by subgroups within the population and facilitate the development of targeted interventions that address intersecting forms of oppression and marginalization (Bowleg, 2008). Lastly, collaboration with community organizations and stakeholders is essential for ensuring the relevance and impact of research on PTG among Iraqi refugees. Engaging with refugee communities in the research process, from study design to dissemination of findings, promotes cultural responsiveness and fosters mutual trust and respect (Sullivan et al., 2016). By incorporating these future directions into research endeavors, scholars can deepen our understanding of PTG among Iraqi refugees and contribute to the development of more effective interventions and policies to support their well-being and resilience.

In discussing the implications of the findings from this study on PTG among Iraqi refugees in the United States, it is crucial to consider their practical applications in clinical practice, education, and social justice efforts. Firstly, from a clinical perspective, mental health professionals working with Iraqi refugee populations can utilize these findings to tailor

interventions that foster resilience and growth following trauma. For instance, therapists may integrate strategies aimed at addressing spiritual and existential crises into their therapeutic approaches, recognizing the significance of these factors in promoting PTG. Moreover, by acknowledging the importance of pre-existing skills and talents in facilitating adaptation, clinicians can empower clients by building on their strengths and resources during the therapeutic process (Helms et al., 2005). Additionally, understanding the differential impact of emotional functioning on PTG can guide therapists in identifying specific emotional barriers to growth and developing targeted interventions to address them. By incorporating these insights into clinical practice, mental health professionals can enhance the effectiveness of therapeutic interventions and support services for Iraqi refugees.

Secondly, these findings have implications for education and training in counseling psychology. Graduate training programs can integrate discussions on PTG and trauma-informed care into their curricula, providing future counselors with the knowledge and skills necessary to work effectively with refugee populations. Training modules could include case studies based on the experiences of Iraqi refugees, allowing students to apply theoretical concepts to real-world scenarios and develop culturally competent approaches to counseling (Norris & Alegria, 2019). Moreover, practicum and internship experiences can offer opportunities for students to gain direct exposure to working with refugee clients under the supervision of experienced clinicians. By integrating education and training on PTG and trauma-informed care, counseling psychology programs can prepare future counselors to address the unique needs of diverse populations and promote positive outcomes in clinical practice.

Lastly, these findings have implications for social justice efforts and advocacy on behalf of refugee communities. Mental health professionals can collaborate with community

organizations and advocacy groups to raise awareness about the experiences of Iraqi refugees and advocate for policies and programs that support their well-being (Sullivan et al., 2016). For example, findings highlighting the role of social support networks in promoting PTG can inform the development of community-based initiatives aimed at fostering social connectedness and solidarity among refugee populations. Moreover, by documenting the impact of structural inequalities on mental health outcomes, researchers and advocates can push for systemic changes to address the root causes of refugee distress and promote social justice (Cole & Stewart, 2001). By engaging in advocacy efforts informed by empirical research, mental health professionals can contribute to broader social and political movements aimed at advancing the rights and dignity of refugee communities.

In summary, the findings from this study offer valuable insights that can inform clinical practice, education, and advocacy efforts aimed at promoting the well-being and resilience of Iraqi refugees in the United States. By translating research into action, mental health professionals can play a critical role in supporting the growth and adaptation of refugee populations and advocating for social change on their behalf.

Conclusion

This study sheds light on the complex dynamics of PTG among Iraqi refugees resettled in the United States. Through a thorough exploration of the associations between trauma experiences and PTG, several key findings have emerged. The nuanced relationships between trauma-related factors such as emotional crises, physical harm, and the various dimensions of PTG (i.e., new possibilities, personal strength, and appreciation of life) highlight the multifaceted nature of resilience and growth within this population. Specifically, greater trauma in these

internalized areas was associated with lower levels of resilient flourishing and appreciation growth.

Additionally, the study found that refugees who lived in the U.S. for longer on average reported greater levels of PTG. This finding suggests that the duration of resettlement may provide opportunities for individuals to adapt, find new possibilities, and develop personal strength over time, aligning with existing literature that emphasizes the positive role of time in facilitating adaptation and growth among refugees (Schweitzer et al., 2011; Sleijpen et al., 2016). Furthermore, contrary to my hypothesis, men reported higher levels of PTG compared to women. This finding may be influenced by cultural and social factors that shape gender experiences and expressions of growth, indicating the need for further research to understand the gender-specific mechanisms driving PTG among refugees.

Despite the valuable insights gained from this study, it is important to acknowledge its limitations, including missing data and the cross-sectional design. Future research should employ longitudinal and mixed-methods approaches to provide a more comprehensive understanding of PTG among Iraqi refugees. Ultimately, this research contributes to the ongoing efforts to enhance our understanding of trauma and resilience within refugee populations and to promote positive outcomes in their resettlement journey.

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