

THE CASE OF ADULT BOSNIAN MUSLIM MALE REFUGEES IN CHICAGO: CURRENT
HEALTH BEHAVIOR OUTCOMES AND PTSD SYMPTOMATOLOGY

BY

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This study examined whether a relationship exists between the presence of Posttraumatic Stress Disorder (PTSD) symptomatology and health behavior outcomes. The study also examined the severity of PTSD symptomatology and particular health behaviors, among adult Bosnian Muslim male refugees residing in the greater Chicago area more than a decade after their arrival to the United States. 637 Bosnian Refugees in Chicago Questionnaires (BRCQ) were included in data analysis. Seven research hypotheses were tested using either the Pearson chi-square tests of independence or two independent sample *t* tests. This study found a statistically significant relationship between the presence of PTSD symptomatology and the respondents' general health rating, recentness of a dental visit, and smoking frequency. Statistically significant relationship was found to exist between the severity of PTSD symptomatology and engagement in physical activity, availability of healthcare coverage, and sufficiency of funds for healthcare services. The study did not find a statistically significant relationship between PTSD status and the recentness of a routine medical visit. This study highlights the need for further studies among Bosnian refugees, as well as other refugee populations, long after their permanent resettlement in their host country, since most of the current programs and policies focus on newly arriving refugees, with very little focus on long-term and ongoing follow-up.

Keywords: Bosnian, health behaviors, health outcomes, PTSD, refugees.

*I dedicate this dissertation to: my grandparents Mejra & Abdurahman,
my parents Sadina & Muharem,
my brother Amer,
my best friend and the love of my life Amir, and
my son Omar.*

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Chapter 1: Introduction to the Study

Background

Most human beings can expect to be exposed to stressful and traumatic events during their lifetime. Anxiety disorders, such as posttraumatic stress disorder (PTSD), require the presence of exposure to an extremely traumatic event. PTSD is a mental disorder caused by exposure to severe trauma, which includes genocide, war combat, torture, or the extreme threat of death or serious injury (American Psychiatric Association [APA], 1994). These traumatic experiences are associated with the later development of a longstanding pattern of symptoms accompanied by biological changes (Yehuda, et al., 2000). Traumatic experiences are particularly common for certain populations, such as combat veterans, inner-city residents affected by violence, immigrants, and refugees from countries in turmoil. Numerous studies suggest that cultural and social factors have a direct role in the causation and development of PTSD.

As previously mentioned, refugees are one common type of population that experiences PTSD. The United Nations defines a refugee—according to the 1951 Convention Relating to the Status of Refugees—as someone who, "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership in a particular social group, or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country" (United Nations High Commissioner for Refugees [UNHCR], 1951, p. 16). It is estimated that there are more than 50 million displaced persons worldwide, including internally displaced persons (who have not crossed international borders) and refugees (Brundtland, 2000).

Migration and displacement of refugees are traumatic life events that influence mental health. The mere act of leaving one's home and the uncertainty of what the future holds is traumatic in itself. After arriving to their country of migration, refugees must then face a period of adjustment and adaptation to their newfound surrounding culture, a process called acculturation (Flannery, Reise & Yu, 2001). During the period of acculturation, refugees are exposed to acculturative stress (Berry et al., 1987) defined as the phenomenon individuals or groups experience in their adjustment to a new culture. It is manifested as a reduction in the psychological, somatic, and social balance of individuals or groups.

The variation in and intensity of this stress rests heavily on the similarities or dissimilarities between the host culture and that of the new entrants, including personal characteristics, amount of exposure to trauma, level of education and skills, sex, age, language, race, and psychological and spiritual strengths, as well as the host culture's political and social attitudes, especially toward the newcomers. The more radical and different the host culture is in comparison to the newcomers' native cultures, the more acculturative stress will be experienced (Cox, 1987). Refugees who leave their homelands because of extreme threats from political forces and instability tend to experience more traumas, more undesirable changes, and less control over the events that define their exits than do voluntary immigrants.

Within the refugee population, there is a subpopulation of individuals who experienced traumas associated with ethnic cleansing. The United Nations defines ethnic cleansing as "rendering an area ethnically homogeneous by using force or intimidation to remove from a given area persons of another ethnic or religious group" (Hayden, 1996, p. 733).

However, ethnic cleansing rarely aims at complete ethnic homogeneity. The common practice is the removal of stigmatized ethnic groups, and thus can be defined as "the forcible

removal of an ethnically defined population from a given territory," occupying the middle part of a somewhat fuzzy continuum between non-violent pressured ethnic emigration and genocide (Martin, 1998, p. 817). The purpose of ethnic cleansing is to remove the conditions for potential and actual opposition, whether political, guerrilla or military, by physically removing any potentially or actually hostile ethnic communities. Although it has sometimes been motivated by a doctrine that claim an ethnic group is literally "unclean" (as was the case of the Jews of medieval Europe), much more frequently it has been a "rational" (if brutal) way of ensuring that total control can be asserted over an area.

Ethnic cleansing was a common phenomenon in the 1990's, during the atrocious war in Bosnia. During this period of time, Serbs and Croats used intimidation, forced expulsion and the killing of Bosnian Muslims (i.e. the undesired ethnic group), as well as the destruction and removal of the places of worship, cemeteries and cultural and historical buildings. Serb and Croat forces in Bosnia performed ethnic cleansing of their territories planned by their political leadership in order to create ethnically pure states (i.e. Republika Srpska and Herzeg-Bosnia) (Carmichael, 2002).

Previous literature suggests that PTSD in survivors of ethnic cleansing and genocide may evolve with a different pattern of symptom clusters than in cases resulting from disasters or combat. Typically, three categories, or "clusters", of symptoms are associated with PTSD. A diagnosis for PTSD may be considered if a specific number of symptoms from each of the three clusters have lasted for one month or longer, *and* the symptoms cause severe problems or distress in personal life, at work, or in general affect daily life (APA, 2000).

The first cluster of PTSD symptoms includes re-living the event through recurring nightmares or other intrusive images that occur at any time (Table A1, Table A2). People who

are diagnosed with PTSD also have extreme emotional or physical reactions, such as chills, heart palpitations, or panic when faced with reminders of the event (APA, 2000). One or more of these symptoms must be present for diagnosis. The second cluster includes avoiding reminders of the event including places, people, thoughts, or other activities associated with the trauma. Persons experiencing PTSD may feel emotionally detached, withdraw from friends and family and lose interest in everyday activities. Three or more of these symptoms must be present for diagnosis. Finally, the third cluster includes being on guard or hyper-aroused at all times, including feeling irritable or sudden anger, having difficulty sleeping or a lack of concentration, being overly alert or easily startled. Two or more of these symptoms must be present for diagnosis (DSM-IV-TR: APA, 2000; ICD 10: World Health Organization [WHO], 1992).

In addition, survivors of genocidal trauma do not have as few discrete traumatic memories that come and go; rather, their lives are continuously inundated with traumatic images (Weine, 1995). For example, in Weine (1995) study, one man said that he does not have “memories” of the war; rather, what he has are films of traumas that constantly play in his head. Genocide is generally defined as the intentional extermination of a specific ethnic, racial, or religious group (Verdirame, 2000). According to Verdirame, when compared with war crimes and crimes against humanity, genocide is generally regarded as the most heinous crime. At worst, genocide pits neighbor against neighbor, or even friend against friend. Unlike war, where the attack is general and the object is often the control of a geographical or political region, genocide attacks an individual's identity, and the object is control (or complete elimination) of a group of people (Verdirame, 2000).

Since 1948, the United Nations has defined genocide as "acts committed with intent to destroy, in whole or in part, a national, ethnical, racial, or religious group, as such" (United

Nations Convention on the Prevention and Punishment of the Crime of Genocide, 1948). Actions included in this definition are killing members of a group; causing serious bodily or mental harm to members of a group; deliberately inflicting on a group conditions of life calculated to bring about its physical destruction in whole or in part; imposing measures intended to prevent births within a group; and forcibly transferring children of the group to another group. According to this definition, murder is not the only way to destroy a group.

Acts of genocide cause people to flee dangerous areas, and become refugees or internally displaced people (IDP) (Jonassohn, 1993). Great numbers of refugees that flee to neighboring countries can be a social, political, and economic burden on those countries (Jonassohn, 1993). Refugees often encounter discrimination in new countries, and may have no choice but to live in refugee camps, not knowing when or if they will return home. When they do return, they don't know if they will find their homes and possessions intact. These are only a few of the myriad of problems faced by individuals, communities, and societies when genocide occurs. If relations between enemy ethnic groups do not improve, retaliatory violence is essentially assured (Carmichael, 2002). Realistically, though, true reconciliation would likely take decades, as the crimes are horrible enough to make them nearly unforgivable and unforgettable. The greatest challenge following genocide is the rebuilding of a society, since a conflict that at one time might have been resolved may now have become intractable. Peace is often tenuous in these situations, as is the case today in Bosnia and Herzegovina.

Because of the occurrence of such horrific events, genocidal trauma is considered more severe than any other type of trauma. As such, the chronic nature and universality of symptoms differentiate concentration camp victims, who are genocidal trauma victims, from others affected by non-genocidal related PTSD trauma. Concentration camp victims' symptoms often directly

impede their social adjustment and result in a passive, fatalistic personality, hopelessness, and a loss of previously enjoyed activities (Weine, 1995).

Research by Suedfeld (2003) examined the attributional patterns of genocidal trauma in Holocaust survivors. Evidence suggests that the beliefs and values of individuals from distinct cultures can influence the perceived controllability of causes, which results in differing psychological responses to an outcome (Betancourt, Hardin, & Manzi, 1992). For example, an outcome such as effort, which may be perceived as controllable in one culture, may be viewed as uncontrollable, or less controllable, in another culture, resulting in differing emotional reactions (anger or pity). In fact, a similar study suggests that perceived controllability acts as a predictor of outcomes resulting from culture-specific beliefs and values (Betancourt, Hardin, & Manzi, 1992). Additionally, Suedfeld (2003) argues that the trauma of genocide and state sponsored oppression creates a situation in which the explanatory constructs that once might have served under normal circumstances now became untenable. Suedfeld also found that the attributional style of the Holocaust survivors tends to be much more external (i.e. contributed to luck, God, fate).

Furthermore, Chandler and Spies (1996) studied how cultural values influence attributions to 11 causes of outcomes (including ability and effort) in seven Western and Asian nations (United States, France, Spain, Germany, China, Hong Kong, Israel). They found perceptions of the controllability of both effort and ability varied widely among the nations studied. Chandler and Spies proposed that this might be the result of differences in the way individual cultures define ability, effort, and control. To further understanding, Lee, Hallahan, and Herzog (1996) used naturalistic methods to examine how perceptions of control influence attributions in the United States and China. Lee et al. found that the cultural views of the

individual were central to perceptions of control of causes. Specifically, Western cultures view the individual as autonomous and largely in control of individual outcomes, whereas in Eastern cultures, the individual is viewed as an integral part of a larger social context that could influence perceptions of outcomes as externally controlled. Therefore, a similar concept could be applied with refugee trauma experiences and outcomes.

Several researchers, including Nader (1997) argue that many symptoms refugees experience are the result of loss and bereavement. For example, when asked about how war experiences have affected them, many Bosnians describe symptoms that fit the DSM-IV criteria for PTSD. Research assessing the psychological impact of the war in former Yugoslavia found varying rates of the disorder (24% to 70%) in Bosnian refugee populations. This has been documented in studies of non-treatment seeking Bosnians displaced within former Yugoslavia (Dahl, Mutapcic, & Schei, 1998; Mollica et al., 2001), or living elsewhere in Europe or the U.S. as refugees (Thulesius & Hakansson, 1999; Weine et al., 1995; Weine et al., 2000). Likewise, those individuals who sought help for distress showed elevated rates of PTSD (Drozdek, 1997; Kivling-Boden & Sundbom, 2002).

The Relationship of PTSD and Health

A growing body of recent academic literature has found a link between PTSD and physical health. Some studies have found that PTSD explains the association between exposure to trauma and poor physical health. In other words, trauma may lead to PTSD, which in turn lead to poor health outcomes. According to Friedman and Schnurr (1995), PTSD is linked to structural neuro-chemical changes in the central nervous system, which may have a direct biological effect on health. Such health effects may include vulnerability to hypertension and

atherosclerotic heart disease; abnormalities in thyroid and hormone functions; increased susceptibility to infections and immunologic disorders; and problems with pain perception, pain tolerance, and chronic pain.

PTSD is also associated with significant behavioral health risks, including smoking, poor nutrition, conflict or violence in intimate relationships, and anger or hostility (Tanigoshi, Kontos, & Remley, 2008). When trauma leads to PTSD or other posttraumatic psychosocial problems, this places great biological strain upon the body and psychological strain upon the individual and his or her interpersonal relationships. It is, therefore, not surprising that trauma survivors, especially those with lasting PTSD symptoms, frequently report high rates of problems with physical health (Schnurr, 1996). These problems usually involve a variety of bodily systems including the cardiovascular, pulmonary, neurological, and gastrointestinal systems.

Conceptual Underpinnings and Basic Assumptions for the Study

A great number of researchers have become interested in further exploring issues related to refugees in the last few decades. This interest might, at least in part, be because wars and armed conflicts around the world have become increasingly more destructive and devastating. As a result of such severe atrocities, the number of refugees displaced around the world increased by drastic proportions. For example, the number of refugees scattered around the world increased from estimated 2.5 million in 1970, to well over 40 million by the year 2000 (Colic-Peisker & Walker, 2003; Pumariega, Rothe, & Pumariega, 2005).

Cambodian, Hmong, Laotian, and Vietnamese refugees are among the most studied of those affected by war trauma and forced migration (e.g., Beiser & Fleming, 1986; Beiser & Hou, 2001; Clarke, Sack, & Goff, 1993; Chung & Singer, 1995; Flaskerud & Anh, 1988). In addition,

numerous studies were published involving refugees from South and Central America (e.g., Espino, 1991; Gafner & Benson, 2001; Thompson & McGorry, 1995). The atrocities and ethnic cleansing that occurred in Bosnia and Herzegovina from 1992 to 1995 produced a large interest in research involving Bosnian refugees displaced internally and around the world (e.g., Carballo et al., 2004; Geltman, Augustyn, Barnett, Klass & Groves, 2000; Kocijan-Hercigonja, Rijavec, Marusic & Hercigonja, 1998; Miller, Weine et al., 2002; Miller, Worthington et al., 2002; Mooren & Kleber, 2001; Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003; Thulesius & Hakansson, 1999; Weine et al., 1995; Weine et al., 1998).

According to Herman (1992), the complexity and severity of the PTSD depends largely on the length and magnitude of the trauma, with persons exposed to prolonged, repeated, and particularly violent trauma developing more severe PTSD. This holds particularly true in refugee populations, since they are exposed to prolonged and often very severe traumatic events. PTSD, however, is not the only mental health consequence of exposure to wartime experiences. Various types of psychological difficulties have been reported throughout the literature, including anxiety, depression, and somatic distress (Beiser & Fleming, 1986; Chung & Singer, 1995; Clarke et al., 1993). In particular, depression is a common consequence of wartime trauma, and appears to be particularly prevalent in refugees (e.g., Mghir, Freed, Baskin, & Katon, 1995). Furthermore, co-morbidity of depression and PTSD in refugees is also quite common (Smith, Perrin, Yule & Rabe-Hesketh, 2001; Thabet, Abed, & Vostanis, 2004; Weine et al., 1995).

Thabet et al. (2004), as well as others (e.g., Mollica, McInnes, Poole, & Tor, 1998; Sack, Clarke, & Seeley, 1996) have argued that it is extremely difficult to determine whether depression and PTSD develop independently, or whether the experience of PTSD, coupled with

grieving over war-related losses and the experience of relocation, leads to the development of depression. However, it remains clear that many refugees who have survived war do often experience pathological levels of depression and other mental health problems, and that these problems may persevere long after exposure to the trauma (Mollica, 2001; Mollica et al. 1999).

The issue of whether mental health problems such as PTSD and depression, if originally caused by exposure to wartime trauma, are exacerbated by the experience of being a refugee is an important one. An implicit assumption in refugee resettlement seems to be that refugees, once removed from the setting in which they were victimized or persecuted, should show rapid improvements in mental health and general well being. However, research suggests this may not be the case. For example, Miller et al. (2002), in a review of existing literature on refugees, reported that experiencing exile might considerably contribute to psychological distress among refugees.

Other researchers (e.g., Hunt & Gakenyi, 2005; Keyes, 2000; Spasojevic, Heffer & Snyder, 2000) agree, maintaining that the experience of being a refugee in a new country may compound, rather than reduce, mental health difficulties caused by exposure to wartime trauma. This occurs as refugees often struggle with personal and group identity issues, and as they transition from being known and respected members of one community to anonymous and functionally illiterate residents of another. In addition, refugees endure lack of social support, and are often unemployed or underemployed due to their inability to speak the language of the host country or the non-equivalency of their professional training. If it is true that the experience of being a refugee may exacerbate psychological distress incurred by exposure to wartime trauma, this information has real and important implications for mental health outreach and provision, particularly in nations such as Canada, Germany, Sweden, the United Kingdom, and

the United States, all of which have traditionally accepted large numbers of refugees from war-torn countries.

Experiencing traumatic events related to refugee experiences also seem to have unfavorable consequences on people's health status (Kimerling, Clum, & Wolfe, 2000). Numerous studies described significant increases in self-reported physical symptoms and overall poorer ratings of health in several populations exposed to stressful events. Furthermore, associations remain even when physical injuries from the event are excluded from health measures or analyses (Kimerling & Calhoun, 1994).

Concerning the quality of life after exposure to severe traumas, including refugee experiences, studies consistently document a decrease in health-related quality of life ranging from one to more than 20 years post exposure to a traumatic event, implying the perseverance of these issues following trauma (Sutker, Allain, & Johnson, 1993; Sutker, Uddo, Brailey, Allain, & Errera, 1994). Alterations in health-related quality of life can result from changes in several components of the health construct: biological or physiological, physical symptoms, functional status, or general health perceptions. However, psychological factors related to PTSD are theorized to have the most direct influence on physical symptom reports and general health perceptions (Wilson & Cleary, 1995).

Wolfe et al. (1994) examined psychometric assessments in a sample of women veterans and found that severity of war-zone exposure was significantly related to physical symptom reports. When exposure was statistically controlled, PTSD significantly predicted increased reports of physical health symptoms. These results underscore that elements of the psychological reactions to traumatic stress, rather than exposure to a traumatic event per se, are at least partly

responsible for some of the adverse changes in health symptoms and perceptions (Friedman & Schnurr, 1995).

Recently, a number of authors have questioned the salience of PTSD in generating adaptive difficulties amongst refugee populations (Summerfield, 2002), particularly given the diverse range of other practical challenges that such populations face (social, cultural, linguistic, employment, housing etc.) (Schweitzer et al., 2006; Silove et al. 2005). Furthermore, there is a concern that a particular focus on PTSD may obscure the wider range of mental disorders associated with human-instigated trauma, indicating a need for researchers to broaden the scope of studies to include outcomes such as depression, anxiety and substance use disorders (Fazel, Wheeler, & Danesh, 2005; Horowitz, 1993; Silove, 1999). Although such constructs have received attention and important issues related to refugee experiences have been examined, the trauma experienced pre-migration seems to be the primary catalyst triggering PTSD.

Statement of the Problem

Although there is agreement that refugee populations experience high levels of health problems, much of the research has focused on individuals seeking health or social services who may have more severe problems than the general population of refugees (Eisenman et al., 2003; Fernandez et al., 2004; Hinton et al., 2000). Other studies have assessed individuals petitioning for asylum who may be motivated to over-report trauma exposure and related psychiatric symptoms (Keller et al., 2003; Laban et al., 2004). Additionally, research is frequently conducted while refugees are housed in refugee camps or within a short time after resettlement in a host country (Jaranson et al., 2004; Mollica, Donelan, Tor, et al., 1993; Turner et al., 2003; Van Ommeren et al., 2001; Weine et al., 2001). Therefore, it is difficult to determine if the levels of

distress documented in these studies represents an acute condition, which might resolve spontaneously or with a change in circumstances, or whether it reflects a chronic condition that will persist in the absence of a therapeutic intervention.

As a result, there are only a few published community-based studies of refugee populations after long-term resettlement in resource-rich countries like the United States, although research has examined the long-term health consequences for refugees resettled in resource-poor countries (de Jong et al., 2001; Mollica, Sarajlic, Chernoff, et al., 2001). It is possible that health outcomes for refugees may vary as a function of the prosperity of the resettlement country, with persons resettled in poorer countries experiencing continued hardships that influence health compared to resource-rich countries; however, this relationship is not known. Therefore, the focus of the present study was to examine adult Bosnian Muslim male refugees who immigrated to the United States more than a decade ago.

Much has been written about the relationship between the severity of PTSD symptomatology and general health behavior outcomes. In particular, those with more severe PTSD symptoms tend to have poorer health behavior outcomes. However, published reports on the relationship between PTSD symptomatology and general health behavior outcomes among Bosnian refugees in the United States are lacking. The current study was designed to examine the relationship of PTSD symptomatology and health behavior outcomes for adult Bosnian Muslim male refugees living in the greater Chicago area. Without this pertinent information, clinicians and researchers concerned with the current health status of this community may be lacking critical guidance when it comes to the design and implementation of programs and services for Bosnian, as well as other refugee communities. This study may contribute to the enhancement of existing programs, policies, and services for refugees upon their arrival to their host country.

Furthermore, this study may aid in the development of ongoing educational programs and recommendations for refugees several years after their arrival to their host country.

Research Questions and Hypotheses

The main objective of this study was to determine if there is a relationship between the presence of PTSD symptomatology and health outcomes, as well as whether there are differences in the severity of PTSD symptomatology and particular health behaviors among adult male Bosnian Muslim refugees settled in the greater Chicago area. The present study used two separate measures of PTSD symptomatology. One measure was used for the severity of PTSD symptomatology (SPS), and another for PTSD status (PTSS). The continuous version (SPS) was used to quantify the severity of PTSD symptomatology, while the categorical version (PTSS) was used to classify individuals as either having presence of PTSD symptomatology or not having presence of PTSD symptomatology. With respect to the three major research questions, seven statistical hypotheses were tested in this study.

Research Question 1.

Is there a relationship between PTSD status (PTSS) and general health (GH) among adult Bosnian Muslim male refugees living in Chicago?

Research Hypothesis 1.

H₀: There is no association between PTSD status (PTSS) and general health (GH).

H_a: There is an association between PTSD status (PTSS) and general health (GH).

Research Question 2.

Are there differences in the severity of PTSD symptomatology and particular health behaviors among adult Bosnian Muslim male refugees settled in the greater Chicago area?

Research Question 2a.

What is the relationship between PTSD status (PTSS) and the recentness of a routine medical checkup (RC) among Bosnian refugees living in Chicago?

Research Hypothesis 2a.

H₀: There is no association between PTSD status (PTSS) and the recentness of a routine medical checkup (RC).

H_a: There is an association between PTSD status (PTSS) and the recentness of a routine medical checkup (RC).

Research Question 2b.

What is the relationship between PTSD status (PTSS) and the recentness of a dental visit (DV) among Bosnian refugees living in Chicago?

Research Hypothesis 2b.

H₀: There is no association between PTSD status (PTSS) and the recentness of a dental visit (DV).

H_a: There is an association between PTSD status (PTSS) and the recentness of a dental visit (DV).

Research Question 2c.

What is the relationship between PTSD status (PTSS) and the frequency of smoking (SS)?

Research Hypothesis 2c.

H₀: There is no association between PTSD status (PTSS) and the frequency of smoking (SS).

H_a: There is an association between PTSD status (PTSS) and the frequency of smoking (SS).

Research Question 2d.

Is there a difference in severity of PTSD symptomatology (SPS) between those who have participated in physical activity (PA) in the past month and those who have not participated in physical activity among adult Bosnian Muslim refugees living in Chicago?

Research Hypothesis 2d.

H₀: There is no difference in severity of PTSD symptomatology (SPS) between those who have participated in physical activity (PA) in the past month and those who have not participated in physical activity.

H_a: There is a difference in severity of PTSD symptomatology (SPS) between those who have participated in physical activity (PA) in the past month and those who have not participated in physical activity.

Research Question 3.

What is the relationship between severity of PTSD symptomatology (SPS) and access to health care due to cost among Bosnian refugees living in Chicago?

Research Question 3a.

Is there a difference in severity of PTSD symptomatology (SPS) between those who have health care coverage (HCC) and those who do not have health care coverage among Bosnian refugees living in Chicago?

Research Hypothesis 3a.

H₀: There is no difference in severity of PTSD symptomatology (SPS) between those who have health care coverage (HCC) and those who do not have health care coverage.

H_a: There is a difference in severity of PTSD symptomatology (SPS) between those who have health care coverage (HCC) and those who do not have health care coverage.

Research Question 3b.

Is there a difference in severity of PTSD symptomatology (SPS) between those who had sufficient funds (SF) to pay for health care services when they needed it in the past and those who did not have sufficient funds to pay for health care services among Bosnian refugees living in Chicago?

Research Hypothesis 3b.

H₀: There is no difference in severity of PTSD symptomatology (SPS) between those who had sufficient funds (SF) to pay for health care services when they needed it in the past and those who did not have sufficient funds to pay for health care services.

H_a: There is a difference in severity of PTSD symptomatology (SPS) between those who had sufficient funds (SF) to pay for health care services when they needed it in the past and those who did not have sufficient funds to pay for health care services.

The next chapter discusses the pertinent literature on the effects of traumatic experiences in refugees on their health behaviors. Chapter 3 outlines the appropriate methodology used to test this study's seven hypotheses, while chapter 4 presents the analysis of the data and answers research questions posed in chapter 1. Finally, a discussion of the findings, implications, and limitations of this study, as well as recommendations for future research, is presented in chapter 5.

Chapter 2: Review of Related Literature

Posttraumatic Stress Disorder (PTSD)

PTSD Symptoms and Diagnosis. Post-traumatic stress disorder (PTSD) was first recognized following the devastating effects war experiences had on soldiers serving in Vietnam. PTSD is a condition resulting from exposure to a life-threatening event that is processed in such a way as to produce a sense of current threat (Ehlers & Clark, 2000). Three categories, or "clusters," of symptoms are associated with PTSD. A diagnosis may be considered if a specific number of symptoms from each of the three clusters have lasted for one month or longer, *and* the symptoms have caused severe problems or distress in personal life, at work, or in general have affected daily life.

As mentioned in Chapter 1, the first cluster of PTSD symptoms includes re-living the event through recurring nightmares or other intrusive images that occur at any time (Table A1, Table A2). Persons who experience PTSD also have extreme emotional or physical reactions, such as chills, heart palpitations, or panic when faced with reminders of the event. One or more of these symptoms must be present for diagnosis. The second cluster includes avoiding reminders of the traumatic events including places, people, thoughts, or other activities associated with the trauma. Persons with PTSD may feel emotionally detached, withdraw from friends and family, and lose interest in everyday activities. Three or more of these symptoms must be present for diagnosis. Finally, the third cluster includes being on guard, or hyper-aroused at all times, including feeling irritable or sudden anger, having difficulty sleeping, having a lack of concentration, being overly alert or easily startled. Two or more of these symptoms must be present for diagnosis (DSM-IV-TR: APA, 2000; ICD 10:WHO, 1992) (Tables 1 and 2).

Risk of Developing PTSD. The risk of developing PTSD varies with a number of pre-traumatic, peri-traumatic (i.e. at the time of a trauma), and post-traumatic factors (e.g., Breslau, Davis, Andreski, & Peterson, 1991; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993; Schnurr, Friedman, & Rosenberg, 1993). The risk of developing chronic PTSD (i.e. symptoms last longer than three months), as reflected by a diagnosis of current PTSD among individuals whose exposure occurred many years prior, is also related to many of the same risk factors (e.g., King, King, Fairbank, Keane, & Adams, 1998; King, King, Foy, & Gudanowski, 1996; Kulka et al., 1990; Schnurr & Vielhauer, 1999; Stein, Walker, Hazen, & Forde, 1997). Only a few studies have directly compared remitted cases (i.e. symptoms first appear at least six months after the traumatic event) of PTSD with chronic cases of PTSD. Those studies have found that individuals who develop chronic PTSD differ from those who recover on factors such as gender, amount and type of trauma exposure (including injury and atrocity exposure), initial symptom severity, and exposure to subsequent trauma (Schnurr, Lunney, Sengupta, & Waelde, 2003).

Furthermore, studies were conducted to explore the potential influence of new traumatic and subsequent traumatic exposures and psycho-social factors such as family, daily activity, network building and social contacts in traumatized refugees living in a host society. For example, Lie (2002) conducted a three-year follow-up study of psychosocial functioning and general symptoms in refugees who immigrated to Norway. This study investigated the impact of risk factors such as torture, trauma events and demographic status on psychological distress and social functioning of refugees. The specific goal of this study was to examine the changes in psychological symptoms and general health conditions over time. This study showed that post-migration stressful events such as unemployment and lack of social contacts predicted the

maintenance of PTSD symptoms in traumatized refugees. In addition, Steel et al. (1998) found that factors such as health, welfare, asylum difficulties, adaptation difficulties, and loss of culture and support were responsible for the maintenance of post-traumatic symptoms.

Gorst-Unsworth and Goldenberg (1998) provided support for claims that levels of social support are an important factor in influencing long-term response to trauma. The study found in its sample population of refugees from Iraq that severe PTSD in exile could be predicted by low levels of 'affective' social support. This study's findings are also supported by Drozdek (1997) who found that, even after treatment and the passing of three years after the traumatic event, the persistence of PTSD could be predicted by fewer social contacts.

Implications Regarding the Amount and Type of Trauma Exposure. As indicated above, the amount and type of trauma exposure is important in the development of chronic PTSD. In studying the effect of the amount and type of trauma in the development of chronic PTSD, several studies have documented a "dose-effect" relationship between war experience and PTSD. The dose-effect relationship is the relationship between the dose of trauma-producing factor(s) and the severity of their effect on persons exposed. A "dose-effect" relationship exists when the magnitude of a stressor is directly proportional to the consequent risk of developing PTSD (Meichenbaum, 1994). Dose-effect responses are an essential element in inferring the etiology of PTSD (True, Goldberg, & Eisen, 1988) and in establishing torture as a primary risk factor for this disorder (March, 1993).

Mollica, McInnes, Pham et al. (1998) and Mollica, McInnes, Poole et al. (1998) found this relationship to exist in their sample of Vietnamese ex-political detainees. Specifically, Mollica, McInnes, Pham et al. (1998) addressed the dose-effect relationships between cumulative torture and psychiatric symptoms in a special Vietnamese refugee population. The sample studied

consisted of a very select group of Vietnamese ex-political detainees residing in Boston, MA, with an extensive history of torture. Although psychiatric assessments of larger population segments of Vietnamese refugees resettling in the United States in the early 1990s provided further evidence that Vietnamese ex-political detainees were highly traumatized, the Mollica, McInnes, Pham et al. (1998) study's sample size included ex-political detainees who experienced and were exposed to more torture events than the larger population segments of Vietnamese refugees resettling in the United States in the early 1990s. Even though members of the comparison group (i.e., the larger population segments of Vietnamese refugees resettling in the United States in the early 1990s) had survived violent experiences that included hard labor, threats and humiliations, and unhygienic conditions, few had experienced the direct physical torture received by the ex-political detainees, which included starvation, beatings, being placed in a sack, box, or container, and other horrific abuses.

Additionally, Hinton et al. (1993) reached the same conclusion that the comparison group had fewer experiences of direct torture and hence that the amount and type of trauma are strong determinants of developing PTSD. In particular, this study concluded that individuals who survived direct physical torture had a prevalence rate of psychiatric disorders that was two times greater (35% as compared with 18%) than the prevalence rate among the comparison group of the Mollica, McInnes and Poole et al. (1998) study. However, the Hinton et al. study's measure of cumulative torture did not include differences in the kinds of torture or differences in the frequency or duration of each torture event. El Sarraj et al. (1996), in a large-scale study ($N = 550$) using qualitative and quantitative measurements of trauma, investigated experiences of torture among Palestinian political prisoners. This study found that increased exposure to physical, chemical and electric torture, psychological ill-treatment, and sensory deprivation and

bombardment resulted in increased intrusive re-experiencing, withdrawal, numbness, and hyper-arousal.

Furthermore, there are additional studies that offer a wealth of evidence to support the existence of a “dose–effect” relationship between diverse forms of cumulative war trauma and PTSD severity (e.g. Abu-Saba, 1999; Ai et al., 2002; Cardozo et al. 2000; Cheung, 1994; Dahl et al., 1998; Michultka et al., 1998; Rosner et al. 2003; Scholte et al., 2004; and Silove et al., 1997). For example, Ai et al. (2002) studied 129 adult Kosovar refugees (aged 18 to 79 years old, 55% male) who settled in the states of Michigan and Washington, and found that this sample group was highly distressed (78 out of 129 individuals showed the likely presence of PTSD, and the mean number of war-related traumatic events reported was 15, $SD = 4.5$). This study also found that higher levels of PTSD were associated with a greater number of reported traumatic events. Moreover, in their 1998 study Michultka et al. investigated civilian war trauma in Central American refugees, focusing on the diagnosis of PTSD as it related to war experience and demographic characteristics. This study found that 68% of the refugees met the diagnostic criteria for PTSD. In addition, the diagnosis of PTSD was best predicted by the number of war experiences reported, the severity of war trauma experienced, and the level of anxiety and/or depression present.

Gender and Age as Contributing Factors. Gender and age have been studied as contributing factors in the development of PTSD. Most of the studies examining gender differences in civilian responses to war trauma suggest that females are more likely to develop PTSD than males (e.g. Ai et al., 2002; Ekbald et al. 2002; Eytan et al., 2004; Gavrilovic et al., 2002; Mollica et al., 1987; Potts, 1994; Reppesgaard, 1997; and Scholte et al., 2004). Mollica et al. (1987) and Ekbald et al. (2002) suggest females are more likely to develop PTSD since they

may be exposed to higher risks of traumatic events, such as the psychological consequences of rape, the violent loss of spouse and children, and of becoming a single parent or widow.

While the majority of the above mentioned studies used self-report instruments rather than diagnostic clinical interviews (e.g. Ai et al., 2002; Ekbal et al., 2002; Reppesgaard, 1997; and Scholte et al., 2004), Eytan et al. (2004) looked at determinants of post-conflict symptoms in Albanian Kosovars using a large sample ($N = 996$) and clinical interviews. This study found that gender, and in particular being female, was significantly associated with higher frequency of PTSD. Some studies found that there were no significant differences between genders (Abu-Saba, 1999; Ramsey et al., 1993). However, both of these studies were prone to potential response bias caused by the sole use of self-report measures (Abu-Saba, 1999) and the use of case notes to establish a diagnosis of PTSD, which may have resulted in the incorrect recording of information and hence diagnosis (Ramsay et al., 1993).

As mentioned above, age has also been studied as contributing factor to the development of PTSD. Cardozo et al. (2000) found that individuals older than 65 were at an increased risk of developing PTSD following the war in Kosovo. Although the reliability of this finding may have been limited because of the use of self-report measures, it was supported in a study by Eytan et al. (2004) who investigated determinants of post-conflict symptoms in Albanian Kosovars. In addition, these findings were also supported by the Cheung (1994) study, which investigated PTSD among Cambodian refugees who resettled in New Zealand.

Differences in Veteran and Civilian Post-trauma Responses. Meichenbaum (1994) urges caution in drawing broad generalization across various populations when reviewing PTSD data, since there may be differences in post-trauma responses between veteran and civilian populations. For example, soldiers are trained to expect combat, while civilians exposed to

combat can have their assumptions about safety destroyed. As a result, civilians may experience a higher frequency of intrusive recollections and less emotional numbing. Alternatively, survivor guilt and emotional numbing are more common in soldiers (Meichenbaum, 1994).

Varying Differences in PTSD Prevalence Rates. Cardozo et al. (2000) and Cardozo et al. (2003) investigated the mental health of Kosovar Albanian civilians immediately following the war in Kosovo and one year after the war ended. The prevalence rates of PTSD found in countries following war trauma appear to vary considerably depending on the methodology employed by the study. When Cardozo et al. conducted their survey in 1999, only six weeks after the war ended; they found PTSD prevalence rates of 17.1% (2000). The wounds of war were still fresh, including the events that had shaken the lives of hundreds of thousands of people. The results of this study are not surprising. However, when Cardozo et al. replicated the 1999 survey a year later, in 2000, the new study found that the PTSD prevalence rate in the same population increased to 25%, a 50% increase from the levels reported in the previous year and study (2003).

Scholte et al. (2004) found a PTSD prevalence rate of 20.4% following the war and repression in Eastern Afghanistan, whereas Somasundaram and Sivayokan (1994) found a prevalence rate of 27% following the war in Sri Lanka. De Jong et al. (2001) measured lifetime prevalence rate of PTSD in four post-conflict settings and found prevalence rates of: 37.4% in Algeria, 28.4% in Cambodia, 15.8% in Ethiopia and 17.8% in Gaza. Bramsen and Van der Ploeg (1999) assessed for PTSD prevalence in a sample population of civilian Dutch survivors of World War II 50 years after the end of the war, and found only a 4% PTSD prevalence rate.

Cardozo et al. (2004) found a 42% PTSD prevalence rate when examining mental health in post-war Afghanistan, whereas Abu-Saba (1999) found 75% rates among Beirut students who

had been exposed to a high number of traumatic war events. Both Cardozo et al. (2004) and Abu-Saba (1999) used self-report measures in their studies. As mentioned previously, such high prevalence rates may be attributable to response biases. In other words, high variability in PTSD prevalence rates may be due to response bias associated with self-report measures. The aforementioned studies did not perform structured clinical interviews, and therefore the extent to which self-reported symptoms of PTSD would match true clinical diagnosis remains unclear.

Rosner et al. (2003) investigated the prevalence of PTSD three years after the siege of Sarajevo ended. This study found an 18% PTSD prevalence rate in their sample population, a 32.7% prevalence rate in the same population sample among those seeking medical treatment, and a 38.6% prevalence rate in the same population sample among those seeking psychological treatment. However, a sample consisting of 98 persons and a high rate of non-responders suggests that these findings should be interpreted cautiously, which the authors of this study acknowledge as well.

The high variability in these findings across these studies makes it difficult to ascertain the true prevalence of PTSD in civilian survivors of war trauma and torture. Nevertheless, bearing in mind the high extent of trauma exposure and the possibility that the high numbers shown in some studies are created by sampling bias, it can be argued that the true prevalence rate is likely to be on the lower end, especially since the PTSD prevalence rates in most of these studies and other studies tends to cluster around a 25% prevalence rate marker (Green, 1996).

Furthermore, caution should be urged in drawing overall conclusions about the prevalence rates of PTSD for a number of reasons. For example, studies looking at war and torture trauma often refer to many different types of diverse experience, which may or may not be comparable across studies. Moreover, the quantity and severity of traumatic experiences that

participants have endured often varies considerably between studies. This is especially relevant when considering the evidence of a “dose-effect” relationship between trauma exposure and PTSD because the magnitude of trauma exposure directly affects the consequent risk of development of PTSD (Mollica et al., 1998).

Studies that assess PTSD following war trauma and torture also vary in the length of time between the trauma exposure and the diagnosis, thus furthering the difficulty in comparing studies (Johnson & Thompson, 2008). These studies often use different instruments for diagnosis. Sometimes this reflects the transition in the definition of pathology over time for example, a shift from DSM-III-R criteria to DSM-IV criteria. Other times, comparisons between the studies are complicated by the differences in criteria between clinical and research diagnoses. Finally, civilian survivors of war trauma and torture discussed in the literature are heterogeneous in terms of their national, cultural and religious origins. Therefore, prevalence rates for PTSD may vary between countries, cultures and religions (Moisander & Edston, 2003).

Importance of Belief System, Religion, and Culture to the Development of PTSD.

An inference can be drawn from the PTSD prevalence rate studies described above that certain people have a higher propensity to develop PTSD than others. Several studies have analyzed various factors and characteristics that explain these differences. For example, Basoglu, Parker, Ozmen et al. (1994), Basoglu, Paker, Paker et al. (1994), Basoglu et al. (1996), and Basoglu et al. (1997) consistently found that preparedness for torture (a traumatic event) is a protective factor in terms of the distress experienced during torture and the development of subsequent PTSD. Furthermore, and contrary to the “dose-effect” findings of the previously mentioned studies, Basoglu, Parker, Ozmen et al. (1994), Basoglu, Paker, Paker et al. (1994) suggested that repeated exposure to trauma may result in “immunization” against traumatic

stress. Additionally, social support was also found to have protective value against PTSD in torture survivors.

Allden et al. (1996) reached similar conclusions in analyzing the Burmese political dissidents population in Thailand, and found that camaraderie and a Buddhist concept of self-confidence were protective factors against the psychological effects of interrogation, imprisonment, threats of deportation, and torture. This study's findings that Buddhist beliefs can protect against the development of PTSD is also supported by Cheung (1994), which analyzed the development of PTSD among Cambodian refugees in New Zealand. Cheung (1994) found that those individuals who had strong Buddhist beliefs in reincarnation, fate, and the meaning of suffering were able to accept their trauma and suffering as necessary challenges to enable a better state of being in the next world. They were therefore somewhat protected from the development of PTSD. Similar results were reported by Scholte et al. (2004), who investigated mental health symptoms following the war and repression in Eastern Afghanistan. Although the researchers did not analyze the respondents' value of "Allah" (i.e. the Arabic word for God) as a protective factor, they nonetheless found that this was the main resource for emotional support when feeling sad, worried, or tense among the respondents. Their second preferred protective resource among these respondents was family support (Scholte et al., 2004).

Several of the above mentioned studies discuss cultural implications and beliefs related to the protective factors associated with the development of PTSD. An individual's understanding of cultural values and his or her acceptance or rejection of those values is often based upon his or her own cultural beliefs. Brune et al. (2002) highlighted the importance of these findings in their study. For example, Brune et al. (2002) found that cultural values and beliefs were an important predictor of therapy outcomes (i.e. crisis intervention, short-term or long-term therapies) and

used the term “belief systems” to describe these instilled cultural values and beliefs. This study analyzed “belief systems” in 141 traumatized refugees from different countries of origin, who were between the ages of 18 and 64. This study’s participants had been exposed to torture, imprisonment, and other forms of persecution, and/or war. Brune et al. (2002) assigned three categories to operationalize the term “belief system”: (1) no belief system (person had no specific religious or political conviction); (2) belief system of marginal importance (a religious or political conviction was present, but did not influence the lifestyle or behavior of the person in any major way); and (3) belief system of central importance (a religious or political conviction was present and influenced the lifestyle or behavior of the person in a major way). As mentioned above, the third category (belief system of central importance) was associated with better therapy outcomes.

While cultural values play an important role in the development and subsequent maintenance of PTSD symptomatology and diagnosis, nonetheless, the most frequently studied civilian survivors of war trauma largely originate from non-western cultures. Thus, a question of cultural bias and applicability of PTSD diagnosis is raised. For example, the instruments, researchers and interpretations of data are based on the western world’s belief systems and values. Attempts have been made to validate instruments by translating and back-translating into the language used among the study population (Cordozo et al., 2000; Scholte et al., 2004). Nonetheless, even after such efforts are made to minimize cultural differences, the instruments used to assess the presence of PTSD in studies may still not accurately reflect traumatic stress symptoms within “non-western cultures.” This is because PTSD symptoms may have different value or meaning in different cultures, and some symptoms may not be perceived as distressing (Nicholl & Thomsson, 2004).

Shrestha et al. (1998) acknowledge such limitations in diagnosing of PTSD in cultures where this diagnosis has not been validated, and argue that this limitation is true for most research on refugees. This argument has been backed by other authors such as Bracken, Giller, & Summerfield (1995) and Silove (1999) who question the validity of applying a western based ‘trauma model’ and the PTSD label to people from “non-western” cultures. Furthermore, Waters (2001) points to the sustained and growing critique of the way that PTSD has been ascribed to “non-western” and specifically, refugee populations. This has resulted in scarce attention to the social, political and economic factors that play a fundamental role in a refugee's experience (Waters, 2001).

To support the claim regarding the potential cultural bias in studying refugee populations in the context of PTSD, Marsella, Friedman, & Spain (1992) assert that the western criteria and assessment instruments used to diagnose the presence of PTSD are ethnocentric and biased. They argue that assessment instruments should consider cultural norms, language and concepts, and be based on the meaning that the post-traumatic experience holds for the “non-western” survivor. Marsella et al. (1992) argue that omitting such considerations can result in false positives and false negatives, as well as misunderstandings of the PTSD experience. Thus, it is important to be aware of the potential for cultural bias when designing and implementing studies involving refugee populations.

The Case of Refugees

Studies show that refugees experience traumatic events, which contributes to the onset of PTSD (O’Brien, 1994). Moving to a completely alien environment is likely to further result in severe distress due to factors such as the change of culture and language. For example,

Thulesius and Hakansson (1999) found a PTSD prevalence rate of 18–30% in Bosnian refugees in Sweden. After originally finding a PTSD prevalence rate of 65% among Bosnian refugees with PTSD just after resettlement in the United States, Weine et al. (1998) found that even though the severity decreased, there was still a high rate of PTSD symptoms, even one year after the resettlement and several years after the initial traumatic experiences.

Similarly, the Mollica (1987) study found that 92% of the South East Asian refugees were faced with language barriers, 62% had major difficulties in finding and keeping employment, and 54% had problems finding housing upon their arrival. Other common problems included fear and uncertainty about their future, and the legal right to remain in their country of exile. Steel, Silove, Bird, McGorry, and Mohan (1999) found that these adaptational difficulties, the loss of culture and support, along with health, welfare and asylum difficulties accounted for 14% of the variance in PTSD symptoms. Taking into consideration the above mentioned studies and that the refugee trauma experiences are unique in determining the course and development of PTSD, more research needs to be developed that targets specific refugee experiences.

Since refugees often immigrate after experiencing traumatic events, there may be a variety of pressing health and mental health needs for such populations of refugees (Burnett & Peel, 2001). Many refugees experience or witness events such as rape, torture, war, imprisonment, murder, physical injury and even genocide, prior to fleeing their homes, which are strong risk factors for developing PTSD. For example, Carey-Wood, Duke, Karn, and Marshall (1995) reported that two-thirds of refugees in their population sample who reside in the United Kingdom experienced anxiety and depression. It has been commented by many researchers that the health problems developed in the country of refuge by the general refugee population may be

related to factors such as the prior experience of trauma, as well as socio-economic deprivation factors (Bardsley & Storkey, 2000) and exile related factors, such as lack of social support and isolation (Gorst-Unsworth & Goldenberg, 1998; Kivling-Bodn & Sundbom, 2002; Sndergaard, Ekbald, & Theorell, 2001; Silove, Sinnerbrink, Field, Manicavasagar, & Steel, 1997; Weine et al., 1995).

War Experiences and Exile-Related Stressors. Refugees often experience significant losses - their homes, professions, loved ones, communities, cultural and national identity. These experiences and losses force refugees to reevaluate assumptions about their social roles, lives, and core identities. Because refugees experience the loss of one's home, profession, community and cultural identity for a prolonged period of time, these stressors are considered chronic sources of stress. The importance of chronic sources of stress has been documented in the refugee literature. Arcel, et al. (1995) found that seven out of the eight risk factors for psychiatric onset that the researchers observed were chronic stressors during the study's experience running the "Bosnia Women and their Families" (BOSWOFAM) relief program in Croatia. The seven chronic stressors identified in this study were: marginalization and minority status; socioeconomic (SES) disadvantage; poor physical health; starvation or malnutrition; head trauma and injuries; collapse of social supports; and difficulties adapting to the host culture.

However, certain studies have identified buffering factors that can often mitigate or offset the impact of chronic stressors. For example, Jablensky, Marsella, Ekblad et al. (1994) observed the following seven buffering factors for refugee mental health: presence of extended family; gainful employment; presence of human rights organizations; availability of self-help groups; small camps; opportunities to engage in traditional cultural practices; and situational transcendence. Although these buffering factors were originally framed as protective factors, in

their frequent absence they can be similarly understood as chronic sources of stress associated with living in exile.

On the basis of the available literature, it is assumed that for many of the survivors of ethnic cleansing in Bosnia and Herzegovina (Bosnia), the war and resulting experiences of dislocation and exile represent risk factors of chronic stress, which can lead to the development of clinically significant levels of psychological distress. The assumptions and conclusions on which this literature is based are consistent with the results of research done with refugees from other regions where people experienced violent political conflicts, including Southeast Asia (Kinzie et al., 1986, 1989; Mollica et al., 1998), the Middle East (Gorst-Unsworth & Goldenberg, 1998), Africa (Geltman & Stover, 1997), and Latin America (Michultka, Blanchard, & Kalous, 1998). Research examining the mental health status of refugees from these and other regions has consistently found high rates of posttraumatic and depressive symptomatology in refugee adults as well as children, using both clinical and nonclinical community samples (Miller et al., 2002).

Several clinical reports and a great number of empirical studies suggest that what happens to refugees after they leave their homeland (i.e. the stresses encountered in exile) may contribute significantly to the high rates of observed distress (e.g. Beiser, Johnson, & Turner, 1993; Gonsalves, 1990; Gorst- Unsworth & Goldenberg, 1998; Miller, 1999; Pernice & Brook, 1996; Steel et al., 1999). For example, in a study of Southeast Asian refugees in New Zealand, Pernice and Brook (1996) found that post-migration or exile-related variables, such as unemployment, discrimination, and social isolation, were all significantly associated with levels of self-reported anxiety and depression. In another study, Clarke, Sack, and Goff (1993), examined the impact of war and forced exile on Cambodian adolescents and young adults and

found positive relationships between war events, various exile-related factors, and symptoms of both PTSD and depression.

In another study of a nationally diverse group of refugees attending a mental health clinic in Norway, Lavik, Hauff, Skrondal, and Solberg (1996) examined the relationship of unemployment and a lack of participation in educational activities to levels of emotional and behavioral difficulties. They found that both exile-related variables were positively related to levels of anxiety, depression, and aggressive behavior in their sample. Although their findings emphasize the unfavorable psychological effects of prolonged unemployment among those living in exile, they also suggest a pattern of distress related to the loss of meaningful activity in the daily lives of refugees. This pattern was also evident in the narratives of Bosnian refugees in Chicago, who were interviewed as part of an ethnographic study by Miller et al. (2002). Participants described a stark contrast between their highly active, socially embedded lives in Bosnia, and their current experience of isolation and lack of purpose and meaning in their daily lives. In this study Miller et al. (2002) concluded a positive relationship between PTSD symptomatology and the levels of prior exposure to political violence, which is consistent with the findings of previous research studies (e.g., Mollica et al., 1998; Papageorgiou et al., 2000).

Cultural Issues Related to Post-trauma Research. Research on posttraumatic reactions has mostly been conducted within the United States and Western Europe, to assess and meet the needs of refugees from developing countries (Kleber, Figley, & Gersons, 1995). Differences in the prevalence of posttraumatic stress disorder (PTSD) across ethnic and cultural groups have been reported (Manson, 1985; Marsella, Friedman, Gerrity, & Scurfield, 1996). Despite a concentration on Southeast Asian refugees (Abueg & Chun, 1996; Sack, Seeley, & Clarke, 1997; Ton-That, 1998), surprisingly few empirical studies have investigated posttrauma reactions in

Asia itself. Studies of Asians living in the United States have yielded discrepant results, even within the same ethnic groups (Cambodians & Vietnamese). There have been reports of high PTSD prevalence rates (75–100%: Carlson & Rosser-Hogan, 1994; Kinzie et al., 1990), as well as comparatively low PTSD prevalence rates (15–25%: Abe, Zane, & Chun, 1994; Kroll et al., 1989). Such discrepancies raise the obvious question of why such high variability in PTSD prevalence rates exist in these studies.

One answer could be the role cultural bias plays in such research studies. For instance, there are several conceptual issues related to cross-cultural trauma research. Generally, cross-cultural research, including the context of trauma, requires interactions between researchers and participants in which there is a search for and acquisition of knowledge (Herring, 1999). From single case to community-size research projects, culturally responsive researchers need to be capable of meeting the needs of culturally diverse populations in the research relationship. However, there is a realization that current research methodologies and practices are not meeting the challenges of the broad range of cultural identities represented in today's societies (Lee, 1995). Therefore, a significant reason for the discrepancies mentioned above could be that western diagnostic criteria are not applicable in "non-western" cultures (Knipscheer & Kleber, 2005). Nonetheless, only a very small number of studies question the validity of using western concepts and measurements in populations of non-western cultures (Kinzie et al., 1990; Kroll et al., 1989).

Emotional distress experienced by members of a non-western culture may not be expressed in the same manner as in the western cultures (Kleinman & Cohen, 1997). Although different cultural meanings may underlie the presence or absence of symptoms, one must also be cautious in assuming that a particular cluster of symptoms, assumed to coincide with a disorder, can be

explained similarly in different cultures (Bracken, Giller, & Summerfield, 1995). For example, there is a complex association between the expression of distress and the occurrence of somatic symptoms in non-western cultures. Thus, future studies should pay more attention to the role cultural bias and the role western diagnostic criteria play in research on populations of non-western culture.

Since, the PTSD concept has been applied effectively in the diagnosis and treatment of individuals exposed to a number of different trauma situations including war, torture, rape, natural disasters and industrial accidents (Friedman & Jaranson, 1994), the majority of research studies have been based on populations residing in western countries, and who are not necessarily of western origin (Roth & Fonagy, 1996). Consequently, some authors have challenged the applicability of the concept to non-Western populations (e.g. Bracken, 2001). Although similar symptoms may exist in different cultures, these symptoms do not necessarily have the same value or meaning; for example in some cultures dreams of the dead are perceived as positive and comforting (Zur, 1996). Likewise, cultures vary in their understanding of what constitutes “normal” emotional expressions. For example, Zur (1996) described post-traumatic stress experienced by Quich Mayan war widows in Guatemala, a culture where experiencing anger or sadness is seen as harmful, and expressions of grief are only permitted during a nine-day funeral ritual. Kirmayer (1996) discusses the differences between cultures by comparing how they promote conscious and non-conscious ways of dealing with distress. Somatization, the unconscious process by which psychological distress is expressed as physical symptoms, was seen as a “normal” or “adaptive” response to trauma. Kirmayer’s study also suggested that intrusion and avoidance symptoms vary in their “normality” across cultures.

Waters (2001) also discusses criticisms of the use of the PTSD concept in non-Western cultures. This study suggested that the concept minimizes the reality of the refugee story, because it only focuses on clinical diagnosis, ignoring the cultural and political implications of the experience. The focus on the past trauma events as determining the current psychological difficulties may undermine the importance of the current situation and the ongoing stressors faced by the refugee.

Furthermore, researchers such as Bracken (2001) and Young (1995) also discuss the development of the PTSD concept with regard to changes in Western society and psychiatry. They propose that PTSD is not a syndrome that has always existed, but one that has been socially constructed within Western society at a time of increased awareness of psychological distress as a reaction to trauma. Therefore, these researchers argue that PTSD is a “disorder of our times” (Bracken, 2001, p. 742), and that the concept of PTSD is based on Western notions of “individuality.” Extending such a philosophy to psychological treatment is suggested to result in an emphasis on individual treatment methods, focused on the intra psychic world and utilizing professional-client relationships (Bracken, Giller, & Summerfield, 1995). As such, this philosophy and approach is not universal, and it is reported that “one-on-one” exploratory work is rarely used outside of Western cultures (Kinzie, 2001). In other cultures relationships with others and the outside world may be perceived differently; interpersonal relationships or spiritual issues may be central. Furthermore, the types of trauma experienced by refugees may not be directed at individuals but at entire ethnic groups through genocide and ethnic cleansing (Weine et al., 1995). Such acts have been argued to be capable of causing “collective traumatization” (Weine et al., 1998, p. 1721), although ultimately symptoms will be experienced at an individual level.

The idea that cultural values may play an important role in the development and presentation of PTSD is not unique to the concept of PTSD, but is applicable to all western diagnostic concepts (Thakker & Ward, 1998). However, although the question of the universality of PTSD remains a controversial topic, the majority of authors do recognize that the concept is applicable to refugees, and advocate that wider cultural practices and beliefs should always be explored (Friedman & Jaranson, 1994). For example, Friedman & Jaranson (1994) concluded that the PTSD concept is indeed useful, but requires further broadening to incorporate “ethno-cultural differences” in the expression of traumatic stress. Moreover, Zur (1996), made a key observation when he urged researchers to that it is more important to look at how people make sense of their own worlds through cultural concepts, rather than seeking to prove the universality of the PTSD concept.

Refugees from Bosnia

As many clinical reports and empirical studies have shown, the exposure to the violence and destruction of armed conflicts has consistently been found to endanger mental health, but the experience of exile may itself account for a significant amount of the variance in the patterns of psychological distress so commonly seen in refugees (Gonsalves, 1990; Gorst- Unsworth & Goldenberg, 1998; Miller, 1999; Pernice & Brook, 1996; Steel, Silove, Bird, McGorry, & Mohan, 1999). Over a million people were driven from their homes in Bosnia, when the armies of neighboring Serbia and Croatia, combined with Bosnian Serb and Bosnian Croat nationalist groups, began to aggress against the country’s Muslim population (Malcom, 1994; Weine, 1999). Concentration camps once again appeared on the European landscape, and the term ethnic cleansing was used to describe the process by which ultranationalist Serb military and

paramilitary forces either killed or displaced hundreds of thousands of Muslims to create large, ethnically homogenous Serb regions in what had formerly been a pluralistic, multiethnic society (Donia & Fine, 1994; Malcom, 1994; Weine, 1999).

Ethnic cleansing is a type of genocide that is designed to cripple the identities of its victims and spread terror (Weine & Laub, 1995). For refugees who fled the atrocities and established themselves in other countries, vivid radio, television, and newspaper reports of barbarism and war continually reminded them of their own former experiences of war and ethnic mass murder. In addition to the risk of being re-traumatized, many of these refugees worried about family members and friends left behind in the zone of danger. Thus, numerous studies have documented high rates of psychological trauma and depression among Bosnians in refugee camps (Ajdukovic & Ajdukovic, 1998), as well as clinical settings (Drozdek, 1997; Pappas & Bilanakis, 1997; Pejovic & Jovanovic, 1996; Weine et al., 1998). For example, in their initial assessment of adult Bosnian refugees resettled in Chicago, Weine et al. (1998), using the PTSD Symptom Scale (PSS; Foa, Riggs, Dancu, & Rothbaum, 1993), found that 74% of respondents met diagnostic criteria for PTSD. Other studies of Bosnian refugees have also found significantly elevated levels of posttraumatic and depressive symptomatology in children as well as adults (Angel, Hjern, & Ingleby, 2001; Drozdek, 1997; Geltman, Augustyn, Barnett, Jlass, & Groves, 2000; Kocijan-Hercigonja, Rijavec, Marusic, & Hercigonja, 1998; Pappas & Bilanakis, 1997; Thulesius & Hakansson, 1999).

In a study of the experience of Bosnian refugees living in the United States, Keyes and Kane (2004) presented a phenomenological account of the experiences Bosnian refugees lived through. The results of their qualitative study showed that Bosnian refugees experienced culture shock, loneliness, and feelings of dejection, humiliation, and inferiority as well as psychic

numbness, grief, nostalgia, and feeling as if they belonged nowhere. These reactions to being resettled have been described by researchers as having negative mental health outcomes (Akhtar, 1992; Fullilove, 1996; Jensen, 1996; Pernice & Brook, 1996; Sundquist & Johansson, 1996). In addition to those feelings, Bosnian refugees also reported experiencing feelings of relief and safety because of leaving behind the threat of death, feelings of gratefulness for their new freedom to hope for a better future, and the restored ability to notice beauty as well as a beginning sense of normalcy in their new lives (Keyes & Kane, 2004).

Physical Illness and Health Behaviors

Psychological Trauma and Physical Health. In addition to the more obvious relationship between a history of psychological trauma and development of mental illness, there is growing evidence that a history of psychological trauma also places individuals at risk for the occurrence of physical illness (Norman et al., 2006). PTSD has been linked to numerous negative health outcomes including increased risk for certain physical illnesses including arthritis, respiratory, nervous, digestive diseases (e.g., Boscarino, 1997; Goodwin & Davidson, 2005; Schnurr, Spiro, & Paris, 2000), and cardiac disease (e.g., Boscarino & Chang, 1999). This relationship remains evident even after controlling for other factors commonly associated with PTSD and physical illness such as: substance abuse, smoking (Beckham et al., 1998), physical injury (McFarlane, Atchison, Rafolowicz, & Papay, 1994), age, ethnicity, and other health-related factors (Boscarino & Chang, 1999) as well as other psychiatric disorders such as depression (Asmundson, Stein, & McCreary, 2002; Schnurr & Spiro, 1999).

In fact, PTSD appears to be associated with increased risk for the presence of a physical illness more than any other anxiety disorder (Schonfeld et al., 1997; Weissberg et al., 2002). In

light of these relationships, it is not surprising that trauma exposure and PTSD are associated with greater healthcare utilization and somatic symptoms (Newman et al., 2000; Schnurr et al., 2000; Stein et al., 2004). Research shows that PTSD mediates the relationship between trauma and physical health consistently across studies (Green & Kimerling, 2004). For example, Schnurr and Green (2004) proposed a model where PTSD mediates this relationship through multiple pathways. These include biological alterations brought on by PTSD (e.g., changes in the hypothalamic-pituitary-adrenal [HPA] axis, noradrenergic function, and immune function), engagement in risky behaviors associated with PTSD (e.g., smoking, poor diet), altered attention responses to physiological processes, and other psychological alterations (e.g., poor coping). They propose that these changes are associated with increased cumulative cost to an organism of going through repeated cycles of adaptation to stress. This further leads to an increase in susceptibility to illness.

When refugees arrive in the United States they receive many new, as well as familiar health-related messages. These messages are incorporated into their existing life style patterns, which are likely to change as they adjust to the new culture. Broadly speaking “acculturation is the process by which foreign-born individuals and their children acquire and accommodate the values, beliefs, language, customs and mannerisms of the new country in which they live, including health behaviors such as dietary choices, physical activity patterns and substance abuse” (Unger et al., 2000, p. 303). This process can involve behavior adoption of both beneficial and risky health behaviors. Therefore, as acculturation occurs, behaviors gradually come to resemble those of the mainstream culture.

Subjective Health, Smoking, and Refugees. As mentioned previously, there is emerging evidence that a history of psychological trauma has an effect on an individual's

physical and mental health. The World Health Organization (1948, p. 100) broadly defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Subjective or self-reported health is frequently measured with a single question such as “how would you rate your overall health?” The respondent then provides a rating using a scale from very poor to excellent (Froom, Melamed, Triber, Ratson, & Hermoni, 2004). For example, smoking and how smokers report their subjective health has been examined in several studies involving refugees and war trauma that resulted with mixed findings. Shields and Shooshtari (2001) found that heavy smoking, irregular exercise, and unhealthy lifestyle changes were significantly associated with perceptions of fair/poor health rather than good health. Colsher et al. (1990), using a sample of participants from four different locations in the United States, also found that individuals who smoked were more likely to report poorer self-perceived health status.

Smoking is a serious health-related behavior that is associated with five million deaths per year worldwide (World Health Organization, 2008). Although half of those who have ever smoked have stopped using tobacco products (Fiore, Hatsukami, & Baker, 2002), only 23% of smokers with PTSD have quit, placing these individuals near the bottom of a ranking of people with various mental disorders and who stopped smoking (Lasser et al., 2000).

The health concerns of refugees, and how their traumatic experiences influence health behaviors, have typically been studied less frequently than other immigrant groups. Relatively little research has been published about Bosnian refugees and their health concerns (Lipson, Weinstein, Gladstone, & Sarnoff, 2003). One noteworthy health issue is the prevalence of smoking in this population. Bosnian smoking rates in Bosnia are very high both among the general population (48%), among family physicians (40%), nurses (51%) living in Bosnia

(Hodgetts, Broers, & Godwin, 2004) and among newly arrived Bosnian refugees in the U.S. (51%) (Barnes, Harrison, & Heneghan, 2004). Thus, smoking rates are high before and after leaving Bosnia. The rates are also higher than smoking rates in the U.S. (23%), and higher than smoking rates among refugees from Cuba (31%) and Vietnam (36%) (Barnes, Harrison, & Heneghan, 2004). This may be explained by the wide availability of cigarettes in Bosnia compared to other parts of the world, in addition to the social acceptability of smoking in Bosnia versus other countries.

Some studies suggest an association between stress and high smoking rates. For example, in a study of healthcare professionals working in a public hospital in Sarajevo, Bosnia, the smokers ($N = 39$) recalled smoking more cigarettes per day during the war when compared to before the war, and reported smoking more because of the war-related stress (Creson, Schmitz, & Arnautovic, 1996). Despite limited access to cigarettes and a substantial, eight-fold (800%) increase in cigarette prices, 89% of these healthcare workers reported a significant increase in smoking since the war began. Authors attributed this increase to coping with stressors such as limited food intake, extended working hours in acute trauma care, as well as negative emotional states such as anxiety or fear. Based on these findings, research suggest that PTSD in general, and trauma-related physiological arousal, in particular, may play an important role in smoking behaviors in samples exposed to potentially traumatic events.

Similarly, in a study of 11 Bosnian refugees living in the U.S. participants perceived their current smoking as a result of stress associated with being a refugee and adjusting to life in the U.S. (Barnes, & Almasry, 2005). Furthermore, Bosnian refugees living in the U.S. report that just as when they lived in Bosnia, smoking and coffee drinking are important social activities that bond families and friends together and provide important opportunities for social exchange

(Barnes, Harrison, & Heneghan, 2004; Barnes & Almas, 2005). “In the Bosnian society, cigarettes are regarded as ‘social tools’ along with coffee and food. It is rare that one visits an office or home without being offered at least some of the above. Should a smoker light a cigarette in a business or social setting, it is customary to offer a cigarette and light to everyone present,” (Creson, Schmitz, & Arnautovic, 1996, pp. 642–643).

Weaver, Cajdric, Jackson & Erik (2008) examined current patterns of smoking and smoking history within a sample of resettled Bosnian refugees in a few large mid-western cities in the United States. They found that cultural factors appear to be associated with rates and patterns of smoking. For example, rates of Bosnian refugees’ cigarette smoking in the United States (59%) met and exceeded rates reported in epidemiological studies from Bosnia and Herzegovina (48%). In addition, potentially traumatic events, PTSD, and PTSD-related physiological arousal may also affect an individual’s smoking behavior. To date, little is known about the connection between cultural factors, exposure to potentially traumatic events, and trauma-related effects as it relates to patterns of smoking and subjective health. Helweg-Larsen & Stancioff (2008) found that the risk perceptions of Bosnian refugees varied in important ways from the consistent pattern of risk perceptions found in studies of smokers and non-smokers from the U.S. First, Bosnian smokers tended to view their personal risk of lung cancer and heart attack as comparable to the average non-smokers’ risk. Essentially, smokers did not perceive their smoking to increase their risk for heart attack and lung cancer. This is in contrast to research showing that U.S. smokers recognize that they are more at risk for health problems than non-smokers are (Weinstein, 1998).

Thus, from the Helweg-Larsen and Stancioff (2008) study cited above, it can be concluded that cultural factors, exposure to potentially traumatic events, and trauma-related

effects may play a role in the risky health behaviors and perceptions of refugees. For example, U.S. smokers might be relatively more realistic (or less unrealistic) about their smoking risk than people in some other countries or cultural settings. Second, although smokers did think they were less at risk than other smokers (displaying an optimistic comparative bias) non-smokers did not show this oft replicated optimistic comparative bias (that is, non-smokers did not think they were less at risk than other non-smokers). They also found that participants who were more acculturated had higher perceptions of the average smoker's risk of getting heart disease or lung cancer, regardless of smoking status (Helweg-Larsen & Stancioff, 2008). Thus, it appears that the process of adapting to the norms of the new culture was associated with the realization that smoking is dangerous. Since there is some evidence to suggest that a history of psychological trauma places individuals at risk for the occurrence of physical illness, and in particular the effect on smoking habits, more research should be performed to further examine the effects of psychological trauma on the health behaviors of refugees.

The next chapter discusses the appropriate methodology and statistical analyses used to answer the research questions posed in Chapter 1. Chapter 4 presents the analysis of the data, while chapter 5 provides a summary of the findings, implications and discussion of the analyses in Chapter 4.

Chapter 3: Research Design and Methodology

Problem and Purpose Overview

As discussed in previous chapters, much has been written about the relationship between severity of PTSD symptomatology and general health behavior outcomes. In particular, those with more severe PTSD symptoms tend to have poor health behavior outcomes. However, published reports on the relationship between PTSD symptomatology and general health behavior outcomes specifically among Bosnian refugees are lacking. Without this information, clinicians and researchers concerned with the current health status of this community may be without critical guidance when it comes to design and implementation of services, including mental health outreach and provisions, for Bosnian, as well as other refugee communities after resettlement following wartime trauma.

Therefore, the main objective of this study was to determine if there is a relationship between the severity of PTSD symptomatology and health outcomes, as well as whether there are differences in the severity of PTSD symptomatology and particular health behaviors among adult Bosnian Muslim male refugees settled in the greater Chicago area. It is important to note that this study focused exclusively on measuring the presence of PTSD symptomatology among the participants, rather than developing and assigning a diagnosis of PTSD. Moreover, this study only addressed current health behavior outcomes among the participants, while pre-war and pre-migration health behaviors, health status, morbidity and disability status were not examined. These factors were not examined due to the preliminary scope of this study.

Data Collection and Instrumentation

Survey administration took place on September 30, 2008 prior to the start of the religious holiday ceremony, at the White Eagle Restaurant in Niles, IL. All study participants were adult Bosnian Muslim male refugees present on the day of a religious holiday ceremony.

As part of the University of Illinois Institutional Review Board (IRB) protocol, the consent form (Appendix D) was read out loud to participants in the Bosnian language (Appendix E) to assure participant anonymity. Those individuals who consented to participate completed a questionnaire prior to the beginning of the official holiday prayer. The consent form and the questionnaire were translated to Bosnian language, using back-translations.

Instrument. In order to determine if there is a relationship between the severity of PTSD symptomatology and health outcomes, as well as whether there are differences in the severity of PTSD symptomatology and particular health behaviors among Bosnian Muslim refugees residing in the greater Chicago area, the *Bosnian Refugees in Chicago Questionnaire (BRCQ)* was constructed by the author (Appendix B). The BRCQ was constructed as a modified compilation of questions from the core component of the Behavioral Risk Factor Surveillance System (BRFSS), the Impact of Events Scale (IES), a question regarding participants' year of immigration to the United States, and a question about past traumatic experiences related to war in Bosnia.

The Bosnian language version of the BRCQ consisted of 30 questions and took less than 10 minutes to complete (Appendix C). Section 1 of the BRCQ (questions 1 – 8) contained questions related to participants' general health behavior outcomes. Section 2 of the BRCQ (questions 9 – 24) contained the Impact of Events Scale (IES), which measures posttraumatic stress symptomatology, as well as a question regarding types of individuals' past traumatic

experiences. Finally, section 3 of the BRCQ (questions 25 – 30) collected demographic information and the participants' length of residence in the United States. While the BRCQ originally contained 30 questions, only 28 were used for data analysis. Questions 7, regarding disability, and 29 (regarding gender) of the BRCQ were removed from all analysis.

Components of the BRCQ.

Overview of the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a collaborative project of the Centers for Disease Control (CDC) and all U.S. states and territories. State health departments conduct the cross-sectional telephone survey monthly in accordance with a protocol with technical and methodological assistance from the CDC, and each state submits monthly collected surveillance data to CDC for editing and summary updates (CDC, 2006). At the end of each year, CDC's Behavioral Surveillance Branch (BSB) and states publish analyses of data (CDC, 2006). Since 1984, the BRFSS has collected information on health conditions and behavioral risk factors mainly related to chronic disease and injury in the adult population age 18 years and older (CDC, n.d.). More specifically, this annual national surveillance system examines health status, health conditions, health risk behaviors, as well as preventative health practices and access to health care. The BRFSS questionnaire consists of three parts: core component section, optional modules, and state-added questions. The BRFSS core component includes questions about current health-related perceptions, conditions, and behaviors (e.g., health status, health insurance, diabetes, tobacco use, disability, and HIV/AIDS), as well as demographic questions. The questionnaire is constructed annually through the collaboration of the CDC and states (CDC, n.d.).

For the quality of the BRFSS measure, many studies demonstrate that the BRFSS measures are both reliable and valid. For example, Nelson, Holtzman, Bolen, Stanwyck, and

Mack (2001) comprehensively reviewed and summarized more than 200 studies on reliability of measures on the BRFSS. They concluded that the BRFSS measures, including those in the core component section, are of moderate to high reliability and validity. However, since the BRFSS questions used in the BRCQ survey were not administered in the standardized manner, as a telephone survey, the complexity of questions and the way in which they were administered might affect the results. Therefore, even though the BRFSS has proven to be reliable and valid as a telephone survey, it has not been proven reliable and valid for this particular population and administered in this manner.

Overview of the Impact of Event Scale (IES) – Bosnian Version. The IES (Horowitz, Wilner, & Alvarez, 1979) is a self-report scale that is used to assess the frequency of intrusive and avoidant phenomena associated with the experience of a particular event. The IES is one of the most widely used global self-report instruments used for the assessment of posttraumatic stress reactions (Joseph, 2000).

The IES has been used in numerous studies with a variety of adult populations, including combat veterans (Green, Grace, Lindy, & Leonard, 1990), victims of assault (Elliot & Briere, 1995), survivors of disasters (Johnsen, Eid, Lovstad, & Michaelsen, 1997), and firefighters (Bryant & Harvey, 1996). Briere and Elliot (1998) examined the clinical utility of the IES in general population, and found that the IES has sufficient reliability and validity when used as a brief clinical screen for posttraumatic intrusion and avoidance. Furthermore, they found no significant differences regarding gender or race, suggesting its applicability to a range of individuals.

The IES consists of 15 items that the individuals rate according to the frequency of their occurrence in the last 7 days. Each symptom-item is rated on a four-point scale marked 0 (*Not at*

all), 1 (*Rarely*), 3 (*Sometimes*), and 5 (*Often*). There are seven items evaluating posttraumatic intrusion (i.e. items corresponding to questions 10, 13-15, 19, 20, and 23 of the BRCQ), and eight items tapping posttraumatic avoidance (i.e. items corresponding to questions 11, 12, 16-18, 21, 22, and 24 of the BRCQ), yielding two subscale scores and a total scale score. Intrusion subscale items total 0 to 35 points, while avoidance sub-scale items total 0 to 40 points, for a total scale score of 0 to 75.

The total scale score is used as a measure of general distress. Total scores ranging from 0 to 8 are in the sub-clinical range, and indicate no meaningful impact. Scores ranging from 9 to 25 are in the mild range, and may signal impact event. Scores above 26 and 44 represent moderate and severe range. For example, for scores ranging between 26 and 43, there is a 75% chance that an individual has PTSD, or at least some of the symptoms of PTSD (Coffey & Berglind, 2006). Additionally, while a total score of 44 and above represents a severe impact, it is recommended that a total score of 35 be used as the best cutoff for a probable diagnosis of PTSD (Neal, Walter, Rollins, et al., 1994).

The Bosnian version of the IES was validated in a study by Powell and Rosner (2005). Their study assessed the internal consistency and discriminant and convergent validity of the Bosnian version of a self-report measure of PTSD, the Posttraumatic Stress Diagnostic Scale (PTDS). The authors found that the PTDS and its subscales (including IES) demonstrated high internal consistency. Furthermore, the construct validity of the PTDS was supported by appropriate correlations with other relevant measures of trauma related psychopathology. Overall, the Bosnian version of the PTDS appears to be an effective measure for screening and assessing current PTSD.

Measures

In order to determine whether there is a relationship between the PTSD status and health behavior outcomes, as well as whether there are differences in the severity of PTSD symptomatology and particular health behaviors among adult Bosnian Muslim male refugees living in the greater Chicago area, the following variables were measured.

There were two measures of PTSD symptomatology used in this study. One was used to measure the severity of PTSD symptomatology (SPS), and another for PTSD status (PTSS). The continuous version (SPS), was used to quantify the severity of PTSD symptomatology, and the categorical version (PTSS), was used to classify individuals as either having presence of PTSD symptomatology, or not having presence of PTSD symptomatology.

Severity of PTSD Symptomatology (SPS). SPS score was measured on a continuous scale with a range of 0 - 75. The SPS score was computed as the sum of questions 10-24 from the BRCQ (questions 10-24 were obtained from the IES). Response choices to questions 10-24 were coded numerically as: 0 = Not at all; 1 = Rarely; 3 = Sometimes; 5 = Often, and; 9 = Not applicable. Responses of “Not applicable” were treated as missing. If a study participant was missing more than three of the 15 questions, their SPS score was treated as missing. Otherwise, missing values for a given study participant were replaced with the average of the non-missing values for that study participant, and the score was calculated as usual. A low score indicated a study participant with less severe PTSD symptomatology, while a high score indicated a study participant with more severe PTSD symptomatology.

PTSD Status (PTSS). PTSS was measured on a categorical scale with two categories, 0 = No PTSD or 1 = PTSD. This measure was derived from the severity of PTSD symptomatology

(SPS) score. If the SPS score was 34 or less, PTSD was coded as 0 = No PTSD. If the SPS score was 35 or greater, PTSD was coded as 1 = PTSD.

General Health (GH). In order to determine if there is an association between severity of PTSD symptomatology (SPS) and general health (GH) (research hypothesis 1), GH was measured on an ordinal scale with five categories. This measure was obtained from question 1 of the BRCQ (*Would you say that in general your health is?*). Response choices were recoded so that “Not sure” was treated as missing, 1 = Poor; 2 = Fair; 3 = Good; 4 = Very Good, and 5 = Excellent. Thus, lower values represented poorer health, and larger values represented better health.

Routine Checkup (RC). In order to determine if there is an association between severity of PTSD symptomatology (SPS) and the recentness of a routine medical checkup (RC) (research hypothesis 2a), RC was measured on an ordinal scale with five categories. This measure was obtained from question 4 of the BRCQ (*About how long has it been since you last visited a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.*). Response choices were recoded so that “Not sure” was treated as missing, 1= Never; 2 = 5 or more years ago; 3= Within the past 5 years; 4 = Within the past 2 years, and 5 = Within the past year. Thus, lower values represented a less recent routine checkup, while larger values represented a more recent routine checkup.

Dental Visit (DV). In order to determine if there is an association between severity of PTSD symptomatology (SPS) and the recentness of a dental visit (DV) (research hypothesis 2b), DV was measured on an ordinal scale with five categories. This measure was obtained from question 6 of the BRCQ (*How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontists.*). Response choices

were recoded so that “Not sure” was treated as missing, 1 = Never; 2 = 5 or more years ago; 3 = Within the past 5 years; 4 = Within the past 2 years, and 5 = Within the past year. Thus, lower values represented a less recent dental visit, while larger values represented a more recent dental visit.

Smoking Status (SS). In order to determine if there is an association between severity of PTSD symptomatology (SPS) and the frequency of smoking (SS) (research hypothesis 2c), SS was measured on an ordinal scale with three categories. This measure was obtained from question 8 of the BRCQ (*Do you smoke cigarettes every day, some days, or not at all?*). Response choices were recoded so that “Not sure” was treated as missing, 1 = Not at all; 2 = Some days, and; 3 = Every day. Thus, lower values represented less frequent smoking, while larger values represented more frequent smoking.

Physical Activity (PA). In order to determine if there is a difference in severity of PTSD symptomatology (SPS) between those who did and those who did not participate in physical activity (PA) in the past month among Bosnian refugees living in Chicago (research hypothesis 2d), PA was measured on a categorical scale with two categories. This measure was obtained from question 5 of the BRCQ (*During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?*). Response choices of “Not sure” were treated as missing. The study participant’s physical activity was recorded as “Yes” if they participated in some form of physical activity such as exercise, golf, gardening or walking within the past month, or “No” if they did not participate in some form of physical activity in the past month.

Health Care Coverage (HCC). In order to determine if there is a difference in the severity of PTSD symptomatology (SPS) between those who do and those who do not have

health care coverage (research hypothesis 3a), HCC was measured on a categorical scale with two categories. This measure was obtained from question 2 of the BRCQ (*Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?*). Response choices of “Not sure” were treated as missing. The study participant’s health care coverage status was recorded as “Yes” if they have health care coverage, or “No” if they do not have health care coverage.

Sufficient Funds (SF). In order to determine if there is a difference in the severity of PTSD symptomatology (SPS) between those who had sufficient funds (SF) and those who did not have sufficient funds to pay for health care services when they needed it in the past (research hypothesis 3b), SF was measured on a categorical scale with two categories. This measure was obtained from question 3 of the BRCQ (*Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?*). Response choices of “Not sure” were treated as missing. The study participant’s ability to pay for health care when they needed it in the past was recorded as “Yes” if they had the ability to pay for health care services, or “No” if they did not have the ability to pay for health care services.

Demographics. Information was collected regarding participants’ age, gender, marital status (coupled and uncoupled), employment status (employed and unemployed), education level, time since immigrating to the United States, and types of past traumatic experiences.

Population and Sample

This study was approved by the Institutional Review Board at the University of Illinois. Adult male Bosnian Muslim refugees living in the greater Chicago area, present on the day of religious holiday prayer, were asked to participate in the study by filling out a questionnaire. The

data were collected during a Muslim religious holiday prayer in which only adult men are required to participate, while participation for women is optional. Therefore, the overwhelming majority of individuals present were men, which is reflected in the data collected. Bosnian Muslim refugees immigrated to the United States during and after the war in Bosnia. Data were collected using non-probability convenience sampling, and the administration of questionnaires took place on September 30, 2008.

A total of 637 surveys were included in the data analysis. There were 599 responses that provided information about the age of men who completed the survey. Respondents were between 18 and 74 years old, with $M = 44.10$, and $SD = 11.85$.

Total number of responses analyzed for marital status was 629. Data showed that most of the respondents, 87%, described themselves as either married, or being a member of an unmarried couple (i.e. coupled), while 13% of the respondents consider themselves as either divorced, widowed, or never married (i.e. uncoupled).

A total of 630 responses were analyzed for employment status. Data showed that the greatest majority of participants (86%) were employed (i.e. employed for wages or self-employed), while only 14% described themselves as unemployed (i.e. out of work for more than a year, out of work for less than a year, student, or retired).

There were 636 responses analyzed for education. Most men (32%) completed a four-year high school, while 27% only completed some high school. Close to 20% of participants completed some college or technical school, while around 14% held at least a bachelor degree. Around 7% of respondents only completed eight grades of schooling and never attended high school.

Total number of responses analyzed for year of immigration was 605. Most participants

immigrated to the United States between 1994 and 1999, with most arriving in 1997 (19%). The second largest immigration wave was in 1998 (16%). About 11% of participants arrived in each of the following years: 1994, 1996, and 1999. Less than 7% reported immigrating to the United States in 1993, while more than 9% arrived in 1995. Close to 8% immigrated in 2000, while a total of around 2% arrived in 2001 and 2002.

Data Analysis

All statistical analyses were performed using SPSS for Windows version 17 (SPSS Inc., Chicago, IL). All of the analyses were two-sided with a 0.5 alpha level. Demographic variables were summarized using the mean, standard deviation, and range for continuous variables, and frequency and percent for categorical variables. Previous types of trauma exposure variables were summarized using frequencies and percents. Cronbach's alpha used to measure the internal consistency reliability of the severity of PTSD symptomatology (SPS) score was .96.

Research hypotheses 1, 2a, 2b, and 2c were tested using the chi square test for independence. The research hypothesis for chi square test of independence states that the two variables are dependent, or related. This is true if the observed counts for the categories of the variables in the sample are different from the expected counts. Hence, the null hypothesis was that the two variables are independent (Morgan, Gliner, & Harmon, 2006, pp. 201-207). Therefore, if the Pearson chi square probability value was less than the assigned alpha level of .05, then the null hypothesis was rejected, and it was concluded that there is an association between the severity of PTSD symptomatology (SPS) and general health (GH), recentness of a routine medical checkup (RC), recentness of a dental visit (DV), and frequency of smoking (SS).

If, on the other hand, the probability of the test statistic was greater than the probability of the alpha error rate, it was concluded that there is no relationship between the variables (i.e. variables are independent). Furthermore, standardized residuals were used to determine which cells were major contributors to rejecting the null hypothesis for the statistically significant chi square tests. When the absolute value of the residual in a cell was greater than the absolute critical value of 2, it was concluded that the cell was a major influence on a significant chi square test statistic. In addition, Phi and/or Cramer's V statistics were reported in order to assess the strength of the relationship between variables.

Research hypotheses 2d, 3a, and 3b were tested using a two-sample *t* test. The two-sample *t* test was used to test whether population means are significantly different from each other, using the means from randomly drawn samples (Morgan, Gliner, & Harmon, 2006, pp. 181-185). If the *t* test was statistically significant, then the null hypothesis was rejected, and it was concluded that there is a difference in the average severity of PTSD symptomatology (SPS) between those who do and do not have health care coverage (HCC), and those who do and do not have sufficient funds to pay for health services (SF), those who have and have not participated in physical activity (PA) in the last month. The size of the difference between the two groups was demonstrated by reporting the average SPS score separately for each group. In addition, Cohen's *d* statistic was reported in order to measure the size of the difference between two independent sample means.

While the BRCQ originally contained 30 questions, only 28 were used for data analysis. Questions 7 (regarding disability), and 29 (regarding gender) of the BRCQ were removed from all analysis. Question regarding disability (question 7 of the BRCQ) was excluded from the analysis because of the problematic issue regarding the definition of disability. People's

understanding of definitions of disability and the concept of disability can vary. For example, it is possible for one person to define themselves as disabled, whereas another person with an identical condition may not. This is often because people view being ‘disabled’ as a stigmatizing label. Achieving appropriate definition of disability is beyond the scope of this study, and therefore the author decided to exclude this question from the analysis. Question regarding gender (question 29 of the BRCQ) was excluded from analysis because the survey was completed by an overwhelming majority of men (over 99%), and therefore including participants’ gender in the analysis was not needed. Therefore, after excluding questions 7 and 29, only the information collected from 28 questions of the BRCQ was used for the purpose of analysis. All missing data cases were left out of the analyses using pairwise deletion. Hence, the number of analyzed responses differed for each variable due differences in respondents’ completion of the BRCQ survey.

The next chapter presents the analysis of the data and answers research questions posed in Chapter 1. Chapter 5 provides a summary of the findings, implications and discussion of the analyses in Chapter 4.

Chapter 4: Analysis of Data

Overview

The current study was designed to examine the relationship of PTSD symptomatology and health behavior outcomes for adult Bosnian Muslim male refugees in the greater Chicago area. In order to determine if there is a relationship between the severity of PTSD symptomatology and health outcomes, as well as whether there are differences in the severity of PTSD symptomatology and particular health behaviors among adult Bosnian Muslim male refugees settled in the greater Chicago area, the *Bosnian Refugees in Chicago Questionnaire (BRCQ)* was constructed by the author. The BRCQ consisted of 30 questions, and was constructed as a modified compilation of questions from the core component of the Behavioral Risk Factor Surveillance System (BRFSS), and the Impact of Events Scale (IES). Additional questions include participants' year of immigration to the United States, and past traumatic experiences related to war in Bosnia.

Adult male Bosnian Muslim refugees living in the greater Chicago area, present on the day of religious holiday prayer, were asked to participate in the study by filling out a questionnaire. The data were collected using non-probability convenience sampling, and the administration of questionnaires took place on September 30, 2008.

Presentation of Descriptive Characteristics of Respondents

In order to further analyze individual characteristics of study participants, demographic variables (i.e. age, marital status, education, employment status and year of immigration) were additionally analyzed according to PTSD Status (PTSS) using crosstabs and Pearson chi square tests of independence (Table A3). If Pearson chi square test statistic was statistically significant,

standardized residuals were used to determine which cells were major contributors to this difference (Hays, 1994, pp. 856-861). When the absolute value of the cell's residual was greater than 2, it was concluded that the cell was a major influence on a significant chi square test statistic. Appropriate measure of relationship was also reported as either Phi (ϕ) for two-by-two tables, or Cramer's Phi (V) for tables with more than one degree of freedom (df) (Hays, 1994, pp. 866-869). For $df = 1$, $\phi = .1$ is a small effect, $\phi = .3$ is a medium effect, and $\phi = .5$ is considered a large effect. For $df \geq 2$, $V = .07$ is a small effect, $V = .21$ is a medium effect, and $V = .35$ is a large effect.

Age. Age responses were further categorized into five groups: 18-24, 25-34, 35-49, 50-65, and over 66 years of age (Table A4). Most respondents, 90% ($n = 158$), in the 50-65 year old category displayed presence of PTSD symptomatology, followed closely by 35-49 year old group where 82% ($n = 213$) indicated presence of PTSD symptomatology. Most participants who were 66 or older also reported symptoms of PTSD (73%, $n = 50$). In age groups 18-24 and 25-34 years old, most participants did not report PTSD symptomatology. In particular, 64% ($n = 7$) who were in 18-24 year old age group did not have presence of PTSD symptomatology, while 54% of those 25-34 years old also reported no PTSD symptoms. The relationship between age and PTSD status was significant ($\chi^2(4) = 80.3, p < .001$), and age had a large effect on presence of PTSD symptomatology for these men ($V = .4$). An examination of standardized residuals determined that major contributors to a statistically significant test statistic were categories of individuals who were in the following age groups: 18-24, 25-34, and 50-65 years old. For example, among the respondents who were 50-65 years old, a greater number of participants had the presence of PTSD symptomatology than expected. In addition, among those who were 18-24

and 25-34 years old, standardized residuals show fewer participants with PTSD symptomatology than expected.

Marital Status. Most men who described themselves as “coupled” had presence of PTSD symptomatology (79%, $n = 369$), while over 57% ($n = 39$) of men who are considered as “uncoupled” also showed presence of PTSD symptomatology (Table A5). The relationship between marital status and PTSD status was significant ($\chi^2(1) = 15.9, p < .001$), and marital status had a small effect on presence of PTSD symptomatology for these men ($\phi = -0.2$). Further examination of standardized residuals, showed that among survey respondents who did not have the presence of PTSD symptomatology, more described themselves as uncoupled than was expected.

Employment Status. Most men who were employed had presence of PTSD symptomatology (75%, $n = 344$), while 82% ($n = 60$) of men who were unemployed also had presence of PTSD symptomatology (Table A6). The relationship between employment and PTSD status was not significant ($\chi^2(1) = 1.6, p = .207$). Although findings indicated no association between employment and PTSD status, it should be noted that over 75% of employed and 82% unemployed participants displayed presence of PTSD symptomatology.

Education. Data analysis found that most men who are high school graduates (86%, $n = 153$) and those with some high school education (83%, $n = 122$) had presence of PTSD symptomatology (Table A7). In addition, 76% ($n = 29$) of the participants who only attended grades 1 through 8 had presence of PTSD symptomatology, while the majority of those with some college (69%, $n = 68$) also showed presence of PTSD symptomatology. College graduates reported similar displays of PTSD symptomatology, with 49% ($n = 35$) for those without and 51% ($n = 36$) for individuals with PTSD symptomatology. The relationship between education

and PTSD status was significant ($\chi^2(5) = 42.7, p < .001$), and education had a medium effect on presence of PTSD symptomatology ($V = 0.3$). An examination of standardized residuals determined that major contributors to a statistically significant test statistic were categories of individuals whose highest level of education was a high school degree or GED, and those with a college degree. For example, among the respondents whose highest level of education was a high school degree, a greater number of participants had the presence of PTSD symptomatology than expected. In addition, among the participants with at least a college degree, standardized residuals showed fewer participants with PTSD symptomatology than expected.

Immigration Year. Immigration year responses were further categorized into four groups: 1992-1994, 1995-1997, 1998-2000, and those who immigrated in 2001 and after (Table A8). Analysis showed that most men displayed presence of PTSD symptomatology regardless of the year when they immigrated to the United States. For example, 80% ($n = 174$) of those who immigrated between 1995 and 1997 presented PTSD symptoms, while 77% ($n = 151$) of respondents who arrived between 1998 and 2000 also reported presence of PTSD symptoms. Additionally, 75% ($n = 71$) of individuals who immigrated between 1992 and 1994 reported PTSD symptomatology. There was no significant relationship between year of immigration to the United States and PTSD status ($\chi^2(3) = 1.0, p = .804$).

Past Traumatic Experiences. Frequencies of past traumatic exposure show that a great majority, close to 95% ($N = 634$) of the participants, reported experiencing traumatic events during the war in Bosnia (Table A9). The top three types of past traumatic exposures reported by the participants included: uncertainty about the fate of loved ones (75%, $n = 476$), loss of homes and possessions (67%, $n = 422$), and witnessing bombing and other means of mass killings (61%, $n = 384$). Less than 5% ($n = 29$) of respondents did not experience any of the

listed traumatic events.

Presentation of Results with Associated Research Questions and Hypotheses

Research Question 1.

Is there a relationship between PTSD status (PTSS) and general health (GH) among adult Bosnian Muslim male refugees living in Chicago?

Research Hypothesis 1.

H₀: There is no association between PTSD status (PTSS) and general health (GH).

H_a: There is an association between PTSD status (PTSS) and general health (GH).

A chi square test of independence was used to test the null hypothesis that there is no association between PTSD status and ratings of general health. The relationship between PTSD status and general health rating was significant ($\chi^2(4) = 1.0, p < .001$) (Table A10). Additionally, ratings of general health had a large effect on presence of PTSD symptomatology ($V = 0.5$). An examination of standardized residuals determined that major contributors to a statistically significant test statistic were categories of individuals who rated their health as excellent, fair, or poor. For example, among the respondents who rated their health as excellent, fewer participants had the presence of PTSD symptomatology than expected (71%, $n = 45$). In addition, among the participants who rated their health as fair (86%, $n = 140$) or poor (96%, $n = 96$), standardized residuals show more participants with PTSD symptomatology than expected. These results indicate a support of a relationship between presence of PTSD symptomatology and ratings of general health among adult Bosnian Muslim male refugees living in Chicago.

Research Question 2.

Are there differences in the severity of PTSD symptomatology and particular health behaviors among adult Bosnian Muslim male refugees settled in the greater Chicago area?

Research Question 2a.

What is the relationship between PTSD status (PTSS) and the recentness of a routine medical checkup (RC) among Bosnian refugees living in Chicago?

Research Hypothesis 2a.

H₀: There is no association between PTSD status (PTSS) and the recentness of a routine medical checkup (RC).

H_a: There is an association between PTSD status (PTSS) and the recentness of a routine medical checkup (RC).

A chi square test of independence was used to test the null hypothesis that there is no association between presence of PTSD symptomatology and the recentness of a routine medical checkup. The relationship between PTSD status and the recentness of a routine medical checkup was not significant ($\chi^2(4) = 2.1, p = .716$) (Table A11). These results indicate that there is no relationship between presence of PTSD symptomatology and the recentness of a routine medical checkup among adult male Bosnian Muslim refugees living in Chicago. Although findings indicated no association between the recentness of a routine medical checkup and PTSD status, it should be noted that most participants, regardless of the recentness of their routine check-up, reported presence of PTSD symptomatology.

Research Question 2b.

What is the relationship between PTSD status (PTSS) and the recentness of a dental visit (DV) among Bosnian refugees living in Chicago?

Research Hypothesis 2b.

H₀: There is no association between PTSD status (PTSS) and the recentness of a dental visit (DV).

H_a: There is an association between PTSD status (PTSS) and the recentness of a dental visit (DV).

A chi square test of independence was used to test the null hypothesis that there is no association between PTSD status and recentness of a dental visit. The relationship between PTSD symptomatology and dental visit was significant ($\chi^2(4) = 15.2, p < .005$), and recentness of a dental visit had a small effect on presence of PTSD symptomatology ($V = 0.2$) (Table A12). An examination of standardized residuals determined that a major contributor to a statistically significant test statistic was a category of individuals who visited a dentist within the past year (anytime less than 12 months ago), and did not have presence of PTSD symptomatology (29%, $n = 72$). For instance, among the respondents who visited a dentist within the past year, a fewer number of participants had the presence of PTSD symptomatology than expected. These results indicate a significant difference between the observed and expected frequencies. Therefore, a relationship exists between presence of PTSD symptomatology and the recentness of a dental visit among adult male Bosnian Muslim refugees in Chicago.

Research Question 2c.

What is the relationship between PTSD status (PTSS) and the frequency of smoking (SS)?

Research Hypothesis 2c.

H₀: There is no association between PTSD status (PTSS) and the frequency of smoking (SS).

H_a: There is an association between PTSD status (PTSS) and the frequency of smoking (SS).

A chi square test of independence was used to test the null hypothesis that there is no association between PTSD status and the frequency of smoking. The relationship between PTSD

status and the frequency of smoking was significant ($\chi^2(2) = 11.3, p < .005$) (Table A13).

Additionally, frequency of smoking had a small effect on presence of PTSD symptomatology ($V = 0.1$). An examination of standardized residuals determined that major contributors to a statistically significant test statistic were those respondents who smoke every day and do not have PTSD symptomatology (17%, $n = 39$). Furthermore, among the respondents who smoke every day, a greater number of participants had the presence of PTSD symptomatology than expected. These results indicate a relationship between presence of PTSD symptomatology and smoking frequency among adult Bosnian Muslim male refugees.

Research Question 2d.

Is there a difference in severity of PTSD symptomatology (SPS) between those who have participated in physical activity (PA) in the past month and those who have not participated in physical activity among Bosnian refugees living in Chicago?

Research Hypothesis 2d.

H_0 : There is no difference in severity of PTSD symptomatology (SPS) between those who have participated in physical activity (PA) in the past month and those who have not participated in physical activity.

H_a : There is a difference in severity of PTSD symptomatology (SPS) between those who have participated in physical activity (PA) in the past month and those who have not participated in physical activity.

An independent-samples t test was performed comparing the mean PTSD symptomatology score for the individuals who participated in physical activity in the past month ($M = 43.8, SD = 18.8$) with that for the individuals who did not participate in physical activity in the past month ($M = 50.3, SD = 18.7$) (Table A14). The alpha level was .05. The results of this test, $t(498) = -$

3.9, $p < .001$, indicated that the difference between these groups was statistically significant. Additionally, participation in physical activity in the past month had a small effect on the severity of PTSD symptomatology ($d = - 0.3$). These results suggested that, on average, survey respondents reported moderate to severe levels of PTSD symptomatology, and that respondents who did not participate in physical activity in the past month reported higher severity levels of PTSD symptomatology than respondents who participated in physical activity in the past month.

In response to research question 2, results indicate a relationship between the severity of PTSD symptomatology and recentness of a visit to the dentist, and frequency of smoking. Specifically, among the respondents who visited a dentist within the past year, fewer participants had the presence of PTSD symptomatology than expected. Additionally, among the respondents who smoke every day, a greater number of participants had the presence of PTSD symptomatology than expected. Furthermore, this study found differences in PTSD symptomatology between those who do and do not participate in physical activity. Moreover, the respondents who did not participate in physical activity in the past month reported higher severity levels of PTSD symptomatology than those who participated in physical activity in the past month. Although this study found no relationship between the severity of PTSD symptomatology and the recentness of a routine medical check-up, most respondents reported the presence of PTSD symptomatology regardless of the recentness of their routine medical check-up.

Research Question 3.

What is the relationship between severity of PTSD symptomatology (SPS) and access to health care due to cost among Bosnian refugees living in Chicago?

Research Question 3a.

Is there a difference in severity of PTSD symptomatology (SPS) between those who have health care coverage (HCC) and those who do not have health care coverage among Bosnian refugees living in Chicago?

Research Hypothesis 3a.

H₀: There is no difference in severity of PTSD symptomatology (SPS) between those who have health care coverage (HCC) and those who do not have health care coverage.

H_a: There is a difference in severity of PTSD symptomatology (SPS) between those who have health care coverage (HCC) and those who do not have health care coverage.

An independent-samples *t* test was performed comparing the mean PTSD symptomatology score for the individuals who have health care coverage ($M = 42.9, SD = 19.6$) with that for the individuals who do not have health care coverage ($M = 55.7, SD = 15.7$) (Table A15). The alpha level was .05. Result of the Levene's test for equality of variances was less than the alpha level, and therefore equal variances were not assumed. The results of an independent samples *t* test, $t(335) = -7.7, p < .001$, indicated that the difference between these groups was statistically significant. Additionally, having health care coverage had a large effect on the severity of PTSD symptomatology ($d = -0.8$). These results suggested that, on average, survey respondents reported moderate to severe levels of PTSD symptomatology. Specifically, the respondents who did not have health care coverage reported higher severity levels of PTSD symptomatology than respondents who did have health care coverage.

Research Question 3b.

Is there a difference in severity of PTSD symptomatology (SPS) between those who had sufficient funds (SF) to pay for health care services when they needed it in the past and those

who did not have sufficient funds to pay for health care services among Bosnian refugees living in Chicago?

Research Hypothesis 3b

H₀: There is no difference in severity of PTSD symptomatology (SPS) between those who had sufficient funds (SF) to pay for health care services when they needed it in the past and those who did not have sufficient funds to pay for health care services.

H_a: There is a difference in severity of PTSD symptomatology (SPS) between those who had sufficient funds (SF) to pay for health care services when they needed it in the past and those who did not have sufficient funds to pay for health care services.

An independent-samples *t* test was performed comparing the mean PTSD symptomatology score for the individuals who have sufficient funds to pay for health care service ($M = 49.9$, $SD = 18.6$) with that for the individuals who did not have sufficient funds ($M = 43.7$, $SD = 19.6$) (Table A16). The alpha level was .05. The results of this test, $t(510) = 3.7$, $p < .001$, indicated that the difference between these groups was statistically significant. Additionally, having sufficient funds to pay for health care services when needed had a small effect on the severity of PTSD symptomatology ($d = 0.3$). These results suggested that, on average, survey respondents reported moderate to severe levels of PTSD symptomatology. Moreover, the respondents who did have sufficient funds to pay for health care services reported higher severity levels of PTSD symptomatology than respondents who had sufficient funds.

In response to research question 3, it can be concluded that there is a relationship between severity of PTSD symptomatology and access to health care due to cost among adult Bosnian Muslim male refugees living in Chicago. In particular, those without health care coverage and those with insufficient funds for health care services reported higher severity of PTSD

symptomatology than respondents with health care coverage and sufficient funds to pay for health care services.

Chapter 5: Discussion

Findings and Conclusions

Overall, the results of this study support the existence of a relationship between the presence of PTSD symptomatology and certain health behavior outcomes among adult male Bosnian Muslim refugees living in the greater Chicago area. Furthermore, the findings of this study support the existence of a relationship between the severity of PTSD symptomatology and certain health behavior outcomes among the study participants.

It is important to note that this study focused exclusively on measuring the presence of PTSD symptomatology among the participants, rather than developing and assigning a diagnosis of PTSD. Moreover, this study only addressed current health behavior outcomes among the participants, while pre-war and pre-migration health behaviors, health status, morbidity and disability status were not examined. These factors were not examined due to the preliminary scope of this study.

Age. There are numerous studies that analyze age as a contributing factor to the development of PTSD. For example, Cardozo et al. (2000) found that people older than 65 were at an increased risk of developing PTSD following the war in Kosovo. This finding was also supported by Eytan et al. (2004) and Cheung (1994). Additionally, previous studies suggest that older age of refugees at the time of immigration correlates with poor acculturation (Tran, 1992), poor psychological adjustment (Ying and Akursu, 1997), decreased participation in the labor market (Westermeyer et al., 1990; Tran, 1992), and economic instability (Johnson, 1989).

Although most of the respondents in the present study were under the age of 65, a relationship was found between age and the presence of PTSD symptomatology. Specifically, there were fewer than expected respondents in the 18-24 year old age category who had the

presence of PTSD symptomatology, whereas there were more than expected respondents in the 50-65 year old age category. These results are not surprising, as the respondents in the 18-24 year old age group may be more prone to acculturation and have better proficiency of the English language and are therefore more likely to adapt better to the current living environment and cultural surroundings. Furthermore, the respondents in this group were children during the time of the war in Bosnia, and were not exposed to combat trauma to the same extent their elders were. In contrast, the people who were in the 50-65 year old age group who had a higher presence of PTSD symptomatology were more likely to have been directly engaged in combat as soldiers and therefore exposed firsthand to more severe forms of trauma. Additionally, Weine et al. (1995) found, in a group of newly resettled Bosnian refugees that the number of traumatic events experienced by an individual correlated positively with age.

This study adds to the wealth of evidence that support the existence of the “dose-effect” relationship between the severity of war trauma and PTSD severity (e.g. Abu-Saba, 1999; Ai et al., 2002; Cardozo et al. 2000; Cheung, 1994; Dahl et al., 1998; Michultka et al., 1998; Rosner et al. 2003; Scholte et al., 2004; and Silove et al., 1997). A “dose-effect” relationship exists when the magnitude of a stressor is directly proportional to the consequent risk of developing PTSD (Meichenbaum, 1994). Moreover, Michultka et al. (1998) investigated civilian war trauma in Central American refugees, focusing on the diagnosis of PTSD as it related to war experience and demographic characteristics. This study found that 68% of the refugees met the diagnostic criteria for PTSD. In addition, the diagnosis of PTSD was best predicted by the number of war experiences reported, the severity of war trauma experienced, and the level of anxiety and/or depression present. Ai et al. (2002) studied 129 adult Kosovar refugees (age 18 to 79 years old,

55% male) who resettled in the United States, and found that the higher levels of PTSD were associated with the more traumatic events that were reported.

The present study supports the “dose-effect” relationship between age and the presence of PTSD symptomatology. As previously mentioned, this study found that there were more than expected respondents who were in the 50-65 year old age group that had the presence of PTSD symptomatology, while those in the 18-24 year old age group had less than expected. This finding is not surprising since, as previously mentioned, these respondents were more likely to have been directly engaged in combat as soldiers and therefore exposed firsthand to more severe forms of trauma. Moreover, a large number of respondents (approximately 87%) described themselves as coupled, which would indicate that the older age groups were more likely to be married during the war and upon their arrival to the United States. These respondents were therefore more likely to have additional stressors of worrying about the safety and well-being of their spouses and/or children. Hence, it is not surprising that the respondents in the 50-65 age group reported having a higher presence of PTSD symptomatology.

Marital status. The present study found the existence of a relationship between marital status and the presence of PTSD symptomatology. Specifically, among the respondents who did not have the presence of PTSD symptomatology, there were more that described themselves as “uncoupled” than was expected. In other words, among the respondents who described themselves as married or “coupled,” more than expected had the presence of PTSD symptomatology. In contrast, Blair (2000) found in a study of Cambodian refugees that individuals who were able to live with immediate or extended family after fleeing their country reported significantly lower levels of depression and PTSD. Additionally, Nicholson (1997) found that unmarried Southeast Asian refugees were more depressed than their married

counterparts.

The findings of the present study are somewhat surprising given the conclusions of previous studies mentioned above. Nevertheless, given the central importance of marriage and family in Bosnian cultural values, Weine et al. (2004) suggested that war-related trauma may actually be better conceptualized and interpreted as a family issue rather than an individual clinical issue, which could explain the findings of this study. Furthermore, it is also quite possible that people who are not coupled may not have had additional stressors, such as worrying for the well-being and existential survival of their spouses and/or children during the time of war, while residing in exile, and upon their arrival to the United States. Therefore, although the findings of this study differ from the findings of previous literature, when war related trauma is viewed as a family experience, coupled with the potential that being married may act as an added stressor, the interpretation of the current findings suggest that further examination of the relationship between marriage and PTSD symptomatology is needed to obtain a better understanding.

Employment Status. Although the overall findings of this study are consistent with conclusions of the studies cited in the literature review, there were a few results that contradicted these previous studies. Specifically, the present study found no relationship between employment status and the presence of PTSD symptomatology among the respondents. Many Bosnian refugees, like refugees from other regions of the world, work as custodians, janitors, construction workers, and housekeeping staff, as these jobs require minimal English or formal training (Forbes, 1985). Unfortunately, such work typically places refugees in settings where their limited English impedes communication with other employees, or where there are no other employees with whom to communicate. In contrast, the findings of Gorst-Unsworth and

Goldenberg (1998) and Drozdek (1997) provided support for claims that levels of social support are an important factor in long-term response to trauma. The studies performed by Lie (2002) and Steel et al. (1999) confirm the findings of Gorst-Unsworth and Goldenberg (1998) and Drozdek (1997), specifically found that factors such as employment and welfare were responsible for the maintenance of PTSD symptoms in traumatized refugees.

However, all of the studies mentioned previously were performed within the first few years following the migration of refugees to their new host country. Regardless of the employment status, there was a large presence of PTSD symptomatology in both groups of respondents in this study – those who were employed, and those who were unemployed. This suggests that researchers should perform longitudinal follow-up studies with refugees after their initial studies, as the findings of this study suggest that employment status becomes irrelevant as a contributing factor to the presence of PTSD symptomatology in the long run.

Education. The present study found the existence of a relationship between the levels of education and the presence of PTSD symptomatology among the respondents. Specifically, this study found that there were fewer than expected respondents whose highest level of education was a high school degree that did not have the presence of PTSD symptomatology. Moreover, the results showed that the presence of PTSD symptomatology was lower than expected among the respondents who had at least a four-year college degree. These findings are not surprising, as those individuals who are more educated tend to be more proficient in the English language and possess more knowledge and skill to seek and utilize various social services available to them in coping with PTSD. Conclusions of the present study corroborate the findings of previous literature. In particular, fewer years of education was found to be predictive of anxiety/depression and demoralization (Lavik et al., 1996; Ying and Akursu, 1997), while higher

levels of education, job training, and skills were associated with greater participation in the job market and general economic self-sufficiency among refugees (Johnson, 1989; Tran, 1992).

Year of Immigration. This study found no association between the presence of PTSD symptomatology and the respondents' year of immigration to the United States. Although no significant relationship was found, it should be noted that the overall presence of PTSD symptomatology was high regardless of the year of immigration. These findings are somewhat surprising, since one would expect that those who immigrated later would have a higher prevalence of PTSD symptomatology as they were exposed to war trauma longer than those who arrived earlier. However, these results should be interpreted using caution because this study offered no information about whether those who arrived later were in exile somewhere in Europe and not present in Bosnia.

Traumatic Events. The findings of this study showed that a great majority of the participants reported experiencing multiple traumatic events, such as witnessing bombings and other means of mass killings, loss of homes and possessions, uncertainty about the fate of loved ones, loss of family members to imprisonment, murder or forced separation, etc. These results are consistent with the findings and conclusions of previous studies with Bosnian refugees (Drozdek, 1997; Pappas & Bilanakis, 1997; Pejovic & Jovanovic, 1996; Thulesius & Hakansson, 1999; Weine & Laub, 1995; Weine et al., 1998). In other words, the higher the degree of trauma exposure, the more likely one is to develop PTSD. Specifically, if people are exposed to multiple traumatic events, or if traumatic events continue to occur over a prolonged period of time, the likelihood of developing PTSD is increased. Furthermore, PTSD severity scores have been shown to positively correlate with the number of traumatic events and individual experiences (Blair, 2000; Weine et al., 1995).

General Health Rating and PTSD Status. The findings of the present study concluded that a relationship exists between PTSD status and the general health rating among the respondents. Specifically, among the respondents who rated their health as excellent, a fewer number had the presence of PTSD symptomatology than expected. In addition, among those who rated their health as either fair or poor, a greater than expected number of participants had PTSD symptomatology. These findings are not surprising considering that trauma survivors, especially those with lasting PTSD symptoms frequently report high rates of problems with physical health (Norman et al., 2006; Schnurr, 1996).

In fact, PTSD has been linked to numerous negative health outcomes including increased risk for certain physical illnesses including arthritis, respiratory, nervous, digestive diseases (e.g., Boscarino, 1997; Goodwin & Davidson, 2005; Schnurr, Spiro, & Paris, 2000), and cardiac disease (e.g., Boscarino & Chang, 1999). Furthermore, this relationship remains evident even after controlling for other factors commonly associated with PTSD and physical illness such as: substance abuse, smoking (Beckham et al., 1998), physical injury (McFarlane, Atchison, Rafolowicz, & Papay, 1994), age, ethnicity, and other health-related factors (Boscarino & Chang, 1999) as well as other psychiatric disorders such as depression (Asmundson, Stein, & McCreary, 2002; Schnurr & Spiro, 1999). Finally, it is important to note the health concerns of refugees and how their traumatic experiences influence health behaviors have typically been studied less frequently than for other immigrant groups. This is especially true for research about Bosnian refugees and their health concerns (Lipson, Weinstein, Gladstone, & Sarnoff, 2003).

The results of the present study indicate the presence of a relationship between the presence of PTSD symptomatology and the recentness of a dental visit, as well as a relationship

between the presence of PTSD symptomatology and smoking. Additionally, differences in severity of PTSD symptomatology were observed among those who do and those who do not participate in physical activity. However, no relationship was detected between the presence of PTSD symptomatology and the recentness of a routine medical check-up.

Recentness of a Routine Medical Check-up and PTSD Status. For the most part, the overall findings of this study are consistent with the findings of previous studies examining health behavior outcomes among individuals affected by trauma. However, it was somewhat surprising that this study did not detect the existence of a relationship between the presence of PTSD symptomatology and the recentness of a routine medical check-up. For example, previous studies found a greater association between PTSD and an increased risk for the presence of a physical illness more than for other anxiety disorder (Schonfeld et al., 1997; Weissberg et al., 2002). In light of these relationships, it is not surprising that multiple studies found that trauma exposure and PTSD are associated with greater healthcare utilization and somatic symptoms (Newman et al., 2000; Schnurr et al., 2000; Stein et al., 2004). The present study, however, found no association between recentness of a routine medical checkup and presence of PTSD symptomatology. This finding was somewhat surprising, and may be attributed to the construction of the question in the survey and its interpretation by the respondents. Specifically, the respondents could only report the recentness of their last visit to the doctor for a routine medical check-up, and not the frequency of visits, regardless of the purpose. Therefore, although it is possible that individuals with PTSD symptomatology visited a doctor's office more frequently in the past year than those without PTSD symptomatology, the frequency of these visits was not assessed due to the construction of the question. Since this was a preliminary study analyzing the relationship between PTSD symptomatology and health behavior outcomes,

the author suggests further assessments and the use of mixed methodology studies to determine the utilization and frequency of medical visits by refugees.

Recentness of a Visit to the Dentist and PTSD Status. The present study found the existence of a relationship between the recentness of a dental visit and the presence of PTSD symptomatology. Although this author was unable to find any studies that examined whether a relationship exists between dental visits and PTSD symptomatology, these results can perhaps be compared to the findings of studies that examined the broader category of healthcare utilization among refugees with experiences of war trauma. The findings of the present study support the conclusion that a relationship exists between the recentness of a dental visit and PTSD symptomatology; however, it is important to note that among the respondents who visited a dentist within the past year, less than expected had the presence of PTSD symptomatology. This result does not support the findings within the broader category of healthcare utilization; hence, the author questions truthfulness in self-reporting with respect to this question. Furthermore, other factors need to be examined in order to determine whether those influenced the current findings. For example, further exploration should be completed with respect to certain demographic categories, such as whether respondents in the 18-24 year-old age group, who had a less than expected presence of PTSD symptomatology, were over-represented in the reporting of the most recent dental visit. Since this was a preliminary study analyzing the relationship between PTSD symptomatology and recentness of a dental visit, the author suggests further assessments and the use of mixed methodology studies to determine the utilization and frequency of dental visits by refugees.

Smoking Frequency and PTSD Status. The present study found a relationship between smoking frequency and the presence of PTSD symptomatology. Specifically, the study found

that there were a higher number of those respondents who have PTSD and reported smoking every day. This finding supports the conclusions of numerous previous studies on smoking among Bosnian refugees. For example, Weaver, Cajdric, Jackson and Erik (2008) examined current patterns of smoking and smoking history within a sample of resettled Bosnian refugees in a few large mid-western cities in the United States, and found that cultural factors appear to be associated with rates and patterns of smoking. In particular, authors noted that cigarette smoking in Bosnian culture was an important part of socializing similar to the ways in which food and coffee are part of the social experience. Authors found that rates of cigarette smoking among Bosnian refugees in the United States (59%) met and exceeded rates reported in epidemiological studies from Bosnia and Herzegovina (48%) (Weaver, Cajdric, Jackson & Erik, 2008).

Furthermore, Helweg-Larsen and Stancioff (2008) found that in addition to cultural factors, exposure to potentially traumatic events, and trauma-related effects may play a role in the engagement in risky health behaviors and real perceptions of risk among Bosnian refugees. Additionally, they found that participants who were more acculturated had higher perceptions of the average smoker's risk of getting heart disease or lung cancer, regardless of smoking status (Helweg-Larsen & Stancioff, 2008). Thus, it is important to note that while this study does not in any way measure an individual's levels of acculturation or adaptation, it does support findings that Bosnian refugees who have PTSD symptomatology do engage in risky health behavior, such as smoking, and smoking more frequently.

Physical Activity. The present study found differences in the severity of PTSD symptomatology among those individuals who do and do not participate in physical activity. The wide-ranging benefits of regular physical activity are well documented and include both short-term and long-term benefits. Short-term benefits of regular physical activity include increased

energy, decreased stress, improved sleeping, and stronger heart, muscles, bones and joints (Pace, 2000); long-term, physical activity increases longevity and decreases risk of heart disease, diabetes, high blood pressure, obesity and development of some cancers (Batty & Thune, 2000; Pace, 2000). The benefits of physical activity extend to mental health benefits, such as decreasing depression, anxiety and reducing stress (Meyer & Broocks, 2000; Salmon, 2001). Although physical activity has a number of benefits, it is related to a person's social and economic status, with those individuals in lower social and economic groups being less active (Ford et al., 1991).

Therefore, it is not surprising that the results of the present study show that those who do not engage in physical activity have more severe levels of PTSD symptomatology than those who are physically active. Additionally, this study concluded that regardless of whether or not they engaged in physical activity, respondents reported moderate to severe levels of PTSD symptomatology. Furthermore, this particular finding confirms the conclusions of previous research studies that found associations between PTSD symptomatology and engagement in risky behaviors, such as smoking, poor diet, lack of exercise, etc. (Schnurr & Green, 2004).

Health Care Coverage and Sufficient Funds. Finally, the results of this study indicated the existence of a relationship between the severity of PTSD symptomatology and access to health care due to the availability of healthcare coverage and sufficient funds to pay for healthcare services among the respondents. Specifically, those without health care coverage and those with insufficient funds to pay for healthcare services reported higher levels of severity of PTSD symptomatology than respondents with healthcare coverage and sufficient funds to pay for health care services. These findings are not surprising because a large number of refugees are either unemployed or employed in low paying, menial jobs that may or may not offer health

insurance (Lipson et al., 2003). This lack of healthcare insurance could potentially act as another stressor and thus increase the severity of existing PTSD symptomatology. Furthermore, another potential explanation of the differences in the severity of PTSD symptomatology is that refugees who have PTSD are more likely to have other physical health ailments, and thus the lack of insurance and subsequently access to healthcare could act as an additional stressor that increases the severity of existing PTSD symptomatology.

Study Implications

Refugees arriving in the United States are typically placed with one of the ten largest national voluntary resettlement agencies (VOLAGs). In order to receive funds, VOLAGs must sign a cooperative agreement with the State Department (Patrick, 2004). VOLAGs are typically religious or community-based non-governmental organizations that oversee the resettlement of refugees in the United States as part of their core mandate. The ten largest VOLAGs are: Church World Service, Episcopal Migration Ministries, Ethiopian Community Development Council, Hebrew Immigrant Aid Society, State of Iowa Bureau of Refugee Services, International Rescue Committee, Lutheran Immigration and Refugee Service, United States Conference of Catholic Bishops, U.S. Committee for Refugees and Immigrants, and World Relief.

The State Department awards the Reception and Placement (R&P) Grant to VOLAGs. VOLAGs use these funds to provide the following services to refugees approved for resettlement: pre-arrival resettlement planning; reception upon arrival; basic needs support for at least 30 days immediately following arrival, which includes housing, furnishings, food, and clothing; community orientation; referral to social service providers; and short term case management (between 90 to 180 days). Based on the description of the existing VOLAG

activities, refugee resettlement programs in the United States focus on providing refugees with services upon their immediate arrival and for a very brief time period following their arrival, usually less than eight months (Patrick 2004).

Furthermore, the current refugee health care and resettlement policies in the United States are primarily developed to protect the physical health and wellbeing of the host population (Weinstein, Sarnoff, Gladstone, & Lipson, 2000). Specifically, such policies are designed primarily for screening and elimination of communicable diseases, such as tuberculosis, malaria, and HIV. Therefore, it is not surprising that important opportunities to enhance the mental and physical health of refugees upon their arrival to their host country are often missed.

When refugees are in the process of being admitted into the United States, they are required to undergo three medical assessments. The first assessment occurs while they wait for their admittance to the United States. The physicians of the International Organization for Migration (IOM) or officials from the State Department conduct this examination. The second examination consists of a brief review of the medical records and a visual inspection at the port of entry into the United States. Finally, the last examination is a domestic health examination conducted at a local public health facility in the first few days upon the arrival of the refugees to their resettlement destination (Weinstein et al., 2000). If a refugee requires treatment for an infectious disease, such as tuberculosis, upon arrival to the United States, then health care employees of local public health departments provide the appropriate treatment for the infectious disease (Morris, Popper, Rodwell, Brodine, & Brouwer, 2009).

Therefore, because of this focus on the welfare of the host society, the current refugee health care and resettlement policies in the United States give inadequate consideration to chronic diseases and mental health issues of resettled refugees. Furthermore, the long-term

effects of the refugee experience and its consequences on the mental and physical well-being of refugees who have resettled in the United States are not addressed and not considered by the current health care policies. Specifically, adequate attention is not given to the overall goal of long-term refugee self-sufficiency several years after their resettlement. Therefore, changes are needed in the current health care and resettlement policies for refugees that address the welfare of refugees in terms of mental and physical health, as well as their overall welfare several years after their arrival to the United States. Implementing these changes in the current refugee policy may benefit the host society as well, especially in terms of having more effective long-term refugee resettlement that results in enhanced productivity and ultimately, reduces the burdens and costs to the current medical system.

This study found high rates of presence of PTSD symptomatology among adult Bosnian Muslim male refugees who arrived to the United States more than a decade ago, and reside in the greater Chicago area. Furthermore, this study found the existence of a relationship between the presence of PTSD symptomatology and health behavior outcomes, as well as the existence of a relationship between the severity of PTSD symptomatology and particular health behaviors. The conclusions of this study support the need to assess and address the mental and physical well-being of refugees several years after their resettlement to the United States. Such interventions should be done on a long-term and ongoing basis, extending past the first few months after the arrival of the refugees to their host country.

The findings of this study also have important implications regarding the recognition, identification, and assessment of long-term health behavior outcomes and PTSD symptomatology among refugees resettled in the United States. Special recognition must be given to the multiple barriers that refugee populations face as a part of their resettlement and

experiences as refugees in their host country. This is especially important with respect to the help-seeking process and cultural beliefs of refugees, such as shame and stigma associated with mental health and mental illness, as well as language barriers. Mental health service providers should be properly educated in order to successfully address these barriers. Therefore, evidence-based practices that include a cultural component specific to the population of refugees being served need to be developed.

In light of such findings, culturally competent and linguistically appropriate health education interventions and programs need to be implemented. Applying such programs could be possible with the involvement of refugee resettlement agencies, health centers that serve refugees, as well as other community-based refugee service centers. Furthermore, these programs would require the training of health promoters and educators who serve refugee populations, as well as the creation of health education materials tailored for specific groups. For example, health education programs such as those focusing on the negative affects of smoking, the benefits of regular physical activity, and the prevention of chronic diseases need to be developed and offered through such service centers beyond the first few months following the arrival of the refugees to their host country. In addition, effective age specific programs for refugees, such as those whose are over the age of 50 and were exposed to war trauma, should also be designed, developed and offered through such service centers.

With respect to these important implications on the mental and physical well-being of refugees, consideration should be given to the inclusion of mandatory mental health screening for refugees upon their arrival to the United States. Such screenings would allow for the detection of a need for more comprehensive mental health assessments on an individual basis, which would in turn help address, develop, and provide adequate mental health services for

refugees. These mental health screenings should be performed by trained employees and service providers associated with the resettlement agencies. The findings of such screenings would help create culturally appropriate community-based programs and interventions tailored for the specific refugee group. Therefore, the administration of mental health screenings upon refugee arrival to the United States might benefit early detection and treatment of mental health issues among traumatized refugees, and may ultimately maximize their self-sufficiency, productivity, and their overall well-being.

Limitations

The results of this study should be viewed with caution due to a number of limitations. First, the sample utilized convenience procedure and therefore is not random. Thus, it might not be considered statistically representative of the broader Bosnian refugee community in Chicago, or elsewhere in the United States. Participants live in one geographical area, Chicago, Illinois, and vary in terms of educations, economic level and age. The voluntary nature of the study also means that participants self-selected to engage in the study process. Therefore, no information was available for those individuals who chose not to participate in the study. For example, it is unknown whether those who did not volunteer to participate had the presence of PTSD symptomatology or whether there are differences in their PTSD symptomatology from the available data.

Second, an overwhelming majority of the study participants were adult men. Data collection occurred during a Muslim religious holiday prayer, and an overwhelming majority of men participated in the study. This is because according to Bosnian and Islamic cultural and religious traditions, only adult Muslim men are required to visit the congregation during prayers,

while women are not. Because of this, the study limits itself to adult Bosnian Muslim men, and the results of this study might not necessarily be generalized to other populations with PTSD (e.g., women, children, etc.). However, it is important to note that most men in Bosnia (those older than 18 years of age at the time of the war) were exposed to combat during the war. Therefore, this study presented an opportunity to assess PTSD symptomatology of those individuals who might have been the most exposed to the traumatic experiences during the war in Bosnia and Herzegovina.

The third limitation involves the first time use of the BRCQ instrument and its application to the Bosnian community. The BRCQ was constructed by the author, as a modified compilation of questions from the core component of the Behavioral Risk Factor Surveillance System (BRFSS), the Impact of Events Scale (IES), a question regarding participants' year of immigration to the United States, a question about past traumatic experiences related to war in Bosnia. Since the BRFSS questions used in the BRCQ survey were not administered in the usual manner, as a telephone survey, the complexity of questions and the way in which they were administered might have affected the results. Therefore, even though the BRFSS has proven to be reliable and valid as a telephone survey, it has not been proven to be reliable and valid for this particular population and as administered in this manner. In addition, a revised version of the Impact of Events Scale (IES) has recently been developed (Weiss & Marmar, 1997), adding several hyper-arousal items and rewording several items. However, the current study utilized the Bosnian version of the original IES, which was validated in a study by Powell and Rosner (2005). While every attempt was made to try to address a large spectrum of possible health behavior outcomes and to assess presence and severity of PTSD symptomatology, there is no prior evidence that BRCQ is applicable to Bosnian refugees.

Fourth, some of the participants did not complete the form in its entirety, choosing to complete only some of the questions instead of completing all of them as instructed. Since the participants did not ask questions about the survey during the administration, it is not clear why the survey was not completed in full. Possibilities include not understanding the survey completion procedure entirely, misunderstanding the directions, personal choice not to answer certain questions, or that the translation of the instructions and questions was not sufficient to result in correctly completed forms. During the analysis, all missing data was excluded, and therefore it is unknown whether there are differences between those who only completed some versus those who completed all of the questions.

Despite the use of the Bosnian version of IES, as well as translations and back-translations of BRFSS questions, further development efforts need to be conducted on this, and any other first-time used, translated psychometric testing instrument. These efforts include factor analysis, reliability, and validity testing. Such testing is beyond the scope of the present study, and therefore the results of the BRCQ measure must be used with caution. Additionally, BRCQ does not measure all aspects of constructs of PTSD symptomatology or health behavior outcomes. This study, therefore, offers a starting point in the area of health behavior outcomes and PTSD symptomatology measurement for this group of refugees, and as such, inherently faces these first time use limitations.

Fifth, there was no measurement of pre-war health behaviors as this is not a longitudinal study, so it is not possible to assess health behaviors of these individuals in pre-war Bosnia. For example, a question regarding one's disability status (i.e. question 7 of the BRCQ) was originally included in the BRCQ during the data collection, but was later excluded from all data analyses because of inability to establish existence of disability prior to occurrence of war trauma.

Sixth, there was no measure assessing the stage of refugee adjustment and assimilation. Therefore, it cannot be assumed that the current levels of PTSD symptomatology and health behavior outcomes are a result of refugee adjustment stage, although it can be theorized that the war trauma and refugee experience had an impact on their PTSD symptomatology as well as health behavior outcomes.

Another limitation is due to the research design requiring retrospective recall of types of trauma exposure and associated symptoms. Such recall may be vulnerable to bias. Finally, it must be acknowledged that the questionnaire used was based on constructs of health, including mental health, which may not be identical to notions of traumatic stress and health behavior outcomes in Bosnian culture. For instance, the cultural tendency to keep problems within the family unit, or within one self, may have contributed to under reporting of symptoms and/or over reporting of acceptable health behaviors.

The results of this study, which are discussed in detail above, showed that for the most part a relationship exists between the presence of PTSD symptomatology and the general health rating, certain health behavior outcomes and the availability of health care insurance and funds for adult male Bosnian refugees living in the greater Chicago area. These findings are especially important in light of the very high presence of PTSD symptomatology among the respondents, who fairly represent the adult male Bosnian refugee population living in the Chicago area. The high rate of PTSD symptomatology raises the question of whether this refugee population has been able to integrate properly in their host country, and more specifically whether they have been able to integrate after residing in their host country for more than a decade. These questions require further inquiry and studies with this refugee population,

as the results of this study suggest that there is a need for long-term intervention and work in the areas of psychological and physical well-being for Bosnian refugees living in the United States.

Future Research

The present study should be used to encourage additional research in the area of PTSD symptomatology and health behavior outcomes in war trauma-exposed refugee populations years after their permanent resettlement in their host countries. The results of this study found the existence of a relationship between PTSD symptomatology and health behavior outcomes, and suggest the need for intervention approaches and long-term support for refugee populations. While the study is not widely generalizable, due to the limitations noted previously, it does provide a basis for further exploration.

Replication of the study with methods that address limitations is highly recommended. Additionally, a larger, randomized sample may offer different or more robust results. Another suggestion for future research is to use a differently designed instrument in order to examine not only the PTSD symptomatology and health behavior outcomes, but also to assess the prevalence, co-morbidity, and correlates of psychiatric disorders and health behavior outcomes in Bosnian refugees living throughout the United States. Additionally, it would be beneficial to assess current and past medical and mental health services utilized by the Bosnian refugee community in the United States, including access to and usage of those services. This type of research might be helpful in terms of intervention and treatment planning, as well as long-term support.

This particular study utilized a self-report measure to assess for PTSD symptomatology and health behaviors. An advantage to this approach includes having more forthcoming identification of symptoms. However, a one-on-one interview with participants may have

elicited richer information and deeper insight regarding the issues not assessed by the survey. Traditional Bosnian cultural norm of talking over coffee, along with taking time to get to know each refugee's story in their familiar surroundings might add a qualitative dimension and enrich the information obtained in the present study.

Findings of this study suggested that a relationship exists between age and the presence of PTSD symptomatology. Therefore, with the broad age range considered in this study (18-74), potentially useful information for groups such as children and adolescents was not tapped. In particular, the difference between adolescents and adults in terms of psychological well being mentioned in the literature might lend itself to further exploration. Examining these differences in the family context might add another interesting perspective. For example, future examination into the complexities and effects of inter-familial relationships in the family context, specifically the impact on the child/parent relationships in US Bosnian refugee community should be performed.

While not all refugees exposed to trauma develop PTSD, more research is needed to determine resilience factors of those who do not have PTSD symptomatology. Therefore, more studies should be aimed towards examining and explaining resilience factors. These factors may be used to build an empirically based model for providing long-term education that will help develop programs and policies, such as those focused on enhancing employment sustainability skills among refugees.

As a result of the findings of this study, the evidence suggests the need for continuing mental health interventions and long-term support for this population. This population continues to deal with complicated reactions as a result of the traumatic events sustained during the war in Bosnia, as well as during their refugee experience in the United States. Therefore, interventions

targeted toward the overall goal of long-term refugee sufficiency will assist in addressing a number of the mental health issues that Bosnian refugees continue to experience, as well as in improving their overall health behavior outcomes and well-being.

Summary

This chapter presented the findings and conclusions of this study. While the findings of this study cannot be generalized to all refugees, or even to all Bosnian refugees, there is sufficient evidence to support the important finding that a relationship exists between the presence of PTSD symptomatology and health behavior outcomes. This study also supports the continuing contention that there is a need for long-term intervention and an ongoing support in areas of psychological and physical well-being for Bosnians refugees. These factors need to be examined on an ongoing basis as a part of developing better policies and more effective service delivery to Bosnian and other refugee populations.

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Appendix A: Tables

Table A1

Diagnostic criteria PTSD according to DSM-IV-R (APA, 2000)

<p>A. The person has been exposed to a traumatic event in which both of the following were present:</p> <ul style="list-style-type: none"> (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others (2) the person's response involved intense fear, helplessness or horror
<p>B. The traumatic event is persistently re-experienced in one (or more) of the following ways:</p> <ul style="list-style-type: none"> (1) recurrent and intrusive recollection of the event, including images, thoughts, or perceptions (2) recurrent distressing dreams of the event (3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated) (4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event (5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
<p>C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:</p> <ul style="list-style-type: none"> (1) efforts to avoid thoughts, feelings or conversations associated with the trauma (2) efforts to avoid activities, places or people that arouse recollections of the trauma (3) inability to recall an important aspect of the trauma (4) markedly diminished interest or participation in significant activities (5) feeling of detachment or estrangement from others (6) restricted range of affect (e.g. unable to have loving feelings) (7) sense of a foreshortened future (e.g. does not expect to have a career, marriage, children or a normal lifespan)
<p>D. Persistent symptoms of increased arousal (not present before the trauma) as indicated by two or more of the following:</p> <ul style="list-style-type: none"> (1) difficulty falling or staying asleep (2) irritability or outbursts of anger (3) difficulty concentrating (4) hypervigilance (5) exaggerated startle response
<p>E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than a month</p>
<p>F. The disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning</p>

Table A2

Diagnostic Criteria for PTSD in ICD-10 (WHO, 1994)

A. The patient must have been exposed to a stressful event or situation (either short or long-lasting) of exceptionally threatening or catastrophic nature, which would be likely to cause pervasive distress in almost anyone
B. There must be persistent remembering of 'reliving' of the stressor in intrusive 'flashbacks', vivid memories or recurring dreams, or in experiencing distress when exposed to circumstances resembling or associated with the stressor
C. The patient must exhibit an actual or preferred avoidance of circumstances resembling or associated with the stressor which was not present before exposure to the stressor
D. Either of the following must be present: (1) Inability to recall, either partially or completely, some important aspects of the period of exposure to the stressor (2) persistent symptoms of increased psychological sensitivity and arousal (not present before exposure to the stressor), shown by any two of the following: (a) difficulty in falling or staying asleep (b) irritability or outbursts of anger (c) difficulty in concentrating (d) hypervigilance (e) exaggerated startle response
E. Criteria B, C, and D must all be met within 6 months of the stressful event or of the end of a period of stress.
* <i>(For some purposes, onset delayed more than 6 months may be included, but this should be clearly specified)</i>

Table A3

Demographic Variables According to PTSD Status

VARIABLE	PTSD Status		TOTAL
	NO PTSD	PTSD	
Age			
18 – 24	1.2% (7)	0.7% (4)	1.9% (11)
25 – 34	8.1% (49)	6.9% (42)	15.0% (91)
35 – 49	7.6% (46)	35.2% (213)	42.8% (259)
50 – 65	3.0% (18)	26.1% (158)	29.1% (176)
66 and above	3.0% (18)	8.2% (50)	11.2% (68)
Marital Status			
Coupled	18.0% (96)	69.2% (369)	87.2% (465)
Uncoupled	5.4% (29)	7.3% (39)	12.8% (68)
Employment Status			
Employed	21.2% (112)	65.0% (344)	86.2% (456)
Unemployed	2.5% (13)	11.3% (60)	13.8% (73)
Education			
Grades 1 – 8	1.7% (9)	5.4% (29)	7.1% (38)
Grades 9 – 11	4.7% (25)	22.8% (122)	27.5% (147)
Grade 12 or GED	4.7% (25)	28.6% (153)	33.3% (178)
College: 1 – 3 Years	5.8% (31)	12.7% (68)	18.5% (99)
College: 4 Years or more	6.5% (35)	6.7% (36)	13.3% (71)
Refused	0.0% (0)	0.4% (2)	0.4% (2)
US Immigration Year			
1992 - 1994	4.4% (23)	13.6% (71)	18.0% (94)
1995 - 1997	8.6% (45)	33.4% (174)	42% (219)
1998 – 2000	8.8% (46)	28.9% (151)	37.7% (197)
2001 – 2002	0.4% (2)	1.9% (10)	2.3% (12)

Table A4

Crosstabulation of PTSD Status with Age

Age	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
18 – 24 years	7 (2.8)***	4 (-1.5)	80.3**	—	0.4
25 – 34 years	49 (6.2)***	42 (-3.4)***			
35 – 49 years	46 (-1.7)	213 (0.9)			
50 – 65 years	18 (-3.5)***	158 (1.9)			
66 years and above	18 (0.6)	50 (-0.3)			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 4, N = 605) = 80.3, p < .001, V = 0.4

*** Standardized residual less than or greater than critical value |2|.

Table A5

Crosstabulation of PTSD Status with Marital Status

Marital Status	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
Coupled	96 (-1.2)	369 (0.7)	15.9**	- 0.2	—
Uncoupled	29 (3.3)***	39 (-1.8)			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 1, N = 533) = 15.9, p < .001, V = - 0.2

*** Standardized residual less than or greater than critical value | 2 |.

Table A6

Crosstabulation of PTSD Status with Employment Status

Employment Status	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
Employed	112 (0.4)	344 (-0.2)	1.6	—	—
Unemployed	13 (-1.0)	60 (0.6)			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 1, N = 529) = 1.6, p = .207

*** Standardized residual less than or greater than critical value | 2 |.

Table A7

Crosstabulation of PTSD Status with Education

Education	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
Grades 1 through 8 (elementary)	9 (0.0)	29 (0.0)	42.7**	—	0.3
Grades 9 through 11 (some high school)	25 (-1.6)	122 (0.9)			
Grade 12 or GED (high school graduate)	25 (-2.6)***	153 (1.4)			
College 1 year to 3 years (some college / technical school)	31 (1.6)	68 (-0.9)			
College 4 years or more (college graduate)	35 (4.5)***	36 (-2.5)***			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 5, N = 535) = 42.7, p < .001, V = 0.3

*** Standardized residual less than or greater than critical value |2|.

Table A8

Crosstabulation of PTSD Status with Immigration Year

Immigration Year	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
1992 - 1994	23 (0.5)	71 (-0.2)	1.0	—	—
1995 – 1997	45 (-0.5)	174 (0.3)			
1998 – 2000	46 (0.3)	151 (-0.2)			
2001 +	2 (-0.4)	10 (0.2)			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 3, N = 522) = 1.0, p = .804

*** Standardized residual less than or greater than critical value |2|.

Table A9

Frequencies of Past Traumatic Experiences

VARIABLE	FREQUENCY (N)	PERCENT (%)
Imprisonment (including concentration camps)	170	26.7
Physical torture (including beatings)	153	24.0
Psychological torture (including threats)	254	39.9
Witnessing murder of family members and friends	192	30.1
Forced labor	158	24.8
Starvation and malnutrition	274	43.0
Witnessing combat atrocities	214	33.6
Witnessing bombing and other means of mass killings	384	60.3
Loss of family members to imprisonment, murder, or forced separation	292	45.8
Loss of homes and possessions	422	66.2
Uncertainty about the fate of loved ones	476	74.7
Have not experienced any of these events	29	4.6

Table A10

Crosstabulation of PTSD Status with General Health

General Health	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
Excellent	45 (7.5)***	18 (-4.3)***	1.0**	—	0.5
Very Good	14 (0.4)	37 (-0.2)			
Good	35 (0.5)	96 (-0.3)			
Fair	22 (-2.8)***	140 (1.6)			
Poor	3 (-3.7)***	77 (2.1)***			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 4, N = 487) = 1.0, p < 0.01, V = 0.5

*** Standardized residual less than or greater than critical value |2|.

Table A11

Crosstabulation of PTSD Status with Time Since Last Visit to Doctor

Time Since Last Visit to Doctor	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
Within past year (less than 12 months ago)	49 (0.0)	165 (0.1)	2.1	—	—
Within past 2 years (1 year but less than 2 years ago)	22 (-0.7)	88 (0.4)			
Within past 5 years (2 year but less than 5 years ago)	27 (0.9)	71 (-0.5)			
5 or more years ago	17 (-0.3)	61 (0.1)			
Never	6 (0.5)	15 (-0.3)			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 4, N = 521) = 2.1, p = .716

*** Standardized residual less than or greater than critical value | 2 |.

Table A12

Crosstabulation of PTSD Status with Time Since Last Visit to Dentist

Time Since Last Visit to Dentist	<i>PTSD Status</i>		χ^2	ϕ	V
	No PTSD	PTSD			
Within past year (less than 12 months ago)	72 (2.0)***	177 (-1.1)	15.2**	—	0.2
Within past 2 years (1 year but less than 2 years ago)	20 (-1.1)	92 (0.6)			
Within past 5 years (2 year but less than 5 years ago)	18 (0.4)	53 (-0.2)			
5 or more years ago	8 (-1.9)	59 (1.0)			
Never	2 (-1.7)	25 (0.9)			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 4, N = 526) = 15.2, p < .005, V = 0.2

*** Standardized residual less than or greater than critical value | 2 |.

Table A13

Crosstabulation of PTSD Status with Current Smoking Frequency

Current Smoking	<i>PTSD Status</i>		χ^2	Φ	V
	No PTSD	PTSD			
Every Day	39 (-2.1)***	191 (1.2)	11.3**	—	0.1
Some Days	12 (1.3)	23 (-0.7)			
Not At All	73 (1.6)	182 (-0.9)			

Notes:

* Standardized residuals appear in parentheses below group frequencies.

** χ^2 (df = 2, N = 520) = 11.3, p < .005, V = 0.1

*** Standardized residual less than or greater than critical value | 2 |.

Table A14

Comparison of Mean Levels of PTSD Symptomatology by Physical Activity

	Physical Activity		<i>t</i>	<i>df</i>	<i>d</i>
	Yes	No			
SPS Score	43.8	50.3	-3.9**	498	-0.3
	(18.8)	(18.7)			

Notes:

* Standardized deviations appear in parentheses below means.

** $p < .001$

Table A15

Comparison of Mean Levels of PTSD Symptomatology by Health Care Coverage

	Healthcare Coverage		<i>t</i>	<i>df</i>	<i>d</i>
	Yes	No			
SPS Score	42.9	55.7	-7.7**	335	-0.8
	(19.6)	(15.7)			

Notes:

* Standardized deviations appear in parentheses below means.

** $p < .001$

Table A16

Comparison of Mean Levels of PTSD Symptomatology by Sufficient Funds

	Sufficient Funds		<i>t</i>	<i>df</i>	<i>d</i>
	Yes	No			
SPS Score	49.9 (18.6)	43.7 (19.7)	3.7**	510	0.3

Notes:

* Standardized deviations appear in parentheses below means.

** $p < .001$

Appendix B: Bosnian Refugees in Chicago Questionnaire (English Version)

The goal of the following study is to evaluate the affects of traumatic war-time experiences, like the 1992-1995 war in Bosnia and Herzegovina, on people's general health behaviors. By evaluating the affects of traumatic war-time experiences on people's health behaviors, we hope to be able to identify and offer information and recommendations that will benefit people with such experiences.

Section 1: General Health behavior outcomes

Please answer the following questions honestly. If you do not know the answer to a particular question, you may leave it unanswered. All surveys are anonymous and answers will remain confidential. Therefore, your identity will not be known to the administrators of this survey or anyone else. You do not have to answer questions that make you feel uncomfortable, and you may choose to skip those questions you do not wish to answer.

1. Would you say that in general your health is

EXCELLENT.....	1
VERY GOOD.....	2
GOOD.....	3
FAIR.....	4
POOR.....	5
NOT SURE.....	9

2. Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

YES.....	1
NO.....	2
NOT SURE.....	9

3. Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

YES.....	1
NO.....	2
NOT SURE.....	9

4. About how long has it been since you last visited a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.

Within past year (anytime less than 12 months ago).....	1
Within past 2 years (1 year but less than 2 years ago).....	2
Within past 5 years (2 years but less than 5 years ago).....	3
5 or more years ago.....	4
Never.....	6
Not sure.....	9

5. During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

YES.....	1
NO.....	2
NOT SURE.....	9

6. How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontists.

Within past year (anytime less than 12 months ago).....	1
Within past 2 years (1 year but less than 2 years ago).....	2
Within past 5 years (2 years but less than 5 years ago).....	3
5 or more years ago.....	4
Never.....	6
Not sure.....	9

7. Are you limited in any way in activities because of physical, mental, or emotional problems?

YES..... 1

NO..... 2

NOT SURE..... 9

8. Do you now smoke cigarettes every day, some days, or not at all?

Every day..... 1

Some days..... 2

Not at all 3

Not sure 9

Section 2: Past Traumatic Experiences

Typically in war situations, like the 1992-1995 war in Bosnia and Herzegovina, people experience unimaginable horrors and terrible losses. These horrors and losses manifest themselves as traumatic experiences that may have significant affects on people’s lives, and particularly in their health behaviors. Please answer the following questions honestly. If you do not know the answer to a particular question, you may leave it unanswered. All surveys are anonymous and answers will remain confidential. Therefore, your identity will not be known to the administrators of this survey or anyone else. You do not have to answer questions that make you feel uncomfortable, and you may choose to skip those questions you do not wish to answer.

9. Below is a list of several traumatic events that are usually experienced by refugees and people who lived through a war. Please read this list carefully and circle all that apply to you.

Imprisonment (including concentration camps).....	1
Physical torture (including beatings).....	2
Psychological torture (including threats).....	3
Witnessing the murder of family members and friends.....	4
Forced labor	5
Starvation and malnutrition.....	6
Witnessing combat atrocities.....	7
Witnessing bombing and other means of mass killings.....	8
Loss of family members to imprisonment, murder, or forced separation...	9
Loss of homes and possessions.....	10
Uncertainty about the fate of loved ones	11

For the following 15 questions, please refer to the traumatic events you listed in the previous question. The following is a list of difficulties people may encounter after stressful life events. Please read each item and then indicate how distressing each difficulty has been for you ***during the past 7 days*** with respect to that disaster. How much were you distressed or bothered by these difficulties?

10. I thought about it when I didn't mean to.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

11. I avoided letting myself get upset when I thought about it or was reminded of it.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

12. I tried to remove it from memory.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

13. I had trouble falling asleep or staying asleep because of thoughts about it that came into my mind.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

14. I had waves of strong feelings about it.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

15. I had dreams about it.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

16. I stayed away from reminders of it.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

17. I felt as if it hadn't happened or wasn't real.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

18. I tried not to talk about it.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

19. Pictures about it popped into my head.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

20. Other things kept making me think about it.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

21. I tried not to think about it.

NOT AT ALL.....	0
RARELY.....	1
SOMETIMES.....	3
OFTEN.....	5
NOT APPLICABLE.....	9

22. I was aware that I still had a lot of feelings about it, but I didn't deal with them.

NOT AT ALL..... 0
RARELY..... 1
SOMETIMES..... 3
OFTEN..... 5
NOT APPLICABLE..... 9

23. Any reminder brought back feelings about it.

NOT AT ALL..... 0
RARELY..... 1
SOMETIMES..... 3
OFTEN..... 5
NOT APPLICABLE..... 9

24. My feelings about it were kind of numb.

NOT AT ALL..... 0
RARELY..... 1
SOMETIMES..... 3
OFTEN..... 5
NOT APPLICABLE..... 9

Section 3: Demographics

The following section is designed to provide us with an opportunity to study and classify the affects of traumatic war-time experiences, like the 1992-1995 war in Bosnia and Herzegovina, on people's general health behaviors according to general demographic categories. Please answer the following questions honestly. If you do not know the answer to a particular question, you may leave it unanswered. All surveys are anonymous and answers will remain confidential. Therefore, your identity will not be known to the administrators of this survey or anyone else. You do not have to answer questions that make you feel uncomfortable, and you may choose to skip those questions you do not wish to answer.

25. What is your age?

NOT SURE..... 9

26. Are you...?

Married.....	1
Divorced.....	2
Widowed.....	3
Separated.....	4
Never married.....	5
A member of an unmarried couple.....	6
Refused.....	9

27. What is the highest grade or year of school you completed?

Never attended school or only attended kindergarten.....	1
Grades 1 through 8 (Elementary).....	2
Grades 9 through 11 (Some high school).....	3
Grade 12 or GED (High school graduate).....	4
College 1 year to 3 years (Some college or technical school).....	5
College 4 years or more (College graduate).....	6
Refused.....	9

28. Are you currently...?

Employed for wages.....	1
Self-employed.....	2
Out of work for more than 1 year.....	3
Out of work for less than 1 year.....	4
Homemaker.....	5
Student.....	6
Retired.....	7

29. Are you...?

MALE.....	1
FEMALE.....	9

30. What year did you immigrate to the United States?

— — — —

Appendix C: Bosnian Refugees in Chicago Questionnaire (Bosnian Version)

Molimo Vas da budete iskreni dok odgovarate na slijedeca pitanja. Ako ne znate odgovor na odredjeno pitanje, mozete ga preskociti. Ova anketa je anonimna i svi odgovori na pitanja su povjerljivi. To znaci da niko, pa cak ni administratori ovog istrazivanja, nisu u mogucnosti otkriti Vas identitet. Ne morate odgovararati na pitanja koja Vas cine nelagodnim, i mozete preskociti pitanja na koja ne zelite odgovoriti.

Generalno Zdravstveno Ponasanje I Posljedice

1. Kako bi ste ocijenili Vase generalno zdravstveno stanje?

Odlicno.....	1
Veoma Dobro.....	2
Dobro.....	3
Zadovoljavajuce.....	4
Slabo.....	5
Nisam siguran/a.....	9

2. Da li imate bilo kakvu vrstu zdravstvene zastite (ukljucujuci zdravstveno osiguranje, pretplacene planove kao HMO planovi, ili drzavne planove kao sto je Medicare)?

Da.....	1
Ne.....	2
Nisam siguran/a.....	9

3. Da li je u posljednjih 12 mjeseci postojao period kada ste trebali posjetiti doktora ali to niste uradili zbog cijene?

Da.....	1
Ne.....	2
Nisam siguran/a.....	9

4. Koliko je otprilike proslo od vasesg zadnjeg rutinskog doktorskog pregleda? (rutinski pregled je generalni fizicki pregled, a ne pregled za specificnu povredu, bolest, ili stanje)

Manje od godinu dana	1
Manje od 2 godine (vise od 1 godine ali manje od 2).....	2
Zadnjih nekoliko godina (vise od 2 ali manje od 5 godina).....	3
Vise od 5 godina.....	4
Nikada	6
Nisam siguran/a.....	9

5. Da li ste u posljednjih mjesec dana, osim na Vasem regularnom poslu, ucestvovali u bilo kakvoj vrsti fizickih aktivnosti?

Da.....	1
Ne.....	2
Nisam siguran/a.....	9

6. Koliko je prošlo od kako ste posljednji put posjetili zubara ili zubarsku kliniku zbog bilo kojeg razloga, uključujući i specijalistički pregled?

Manje od godinu dana	1
Manje od 2 godine (više od 1 godine ali manje od 2).....	2
Zadnjih nekoliko godina (više od 2 ali manje od 5 godina).....	3
Više od 5 godina.....	4
Nikada.....	6
Nisam siguran/a.....	9

7. Da li ste na bilo koji način spriječeni u obavljanju svakodnevnih aktivnosti zbog fizičkih, mentalnih, ili emocionalnih problema?

Da.....	1
Ne.....	2
Nisam siguran/a.....	9

8. Da li ste pušac?

Da, pušim svaki dan.....	1
Da, pušim nekim danima.....	2
Ne	3
Nisam siguran/a.....	9

Prošla Traumatska Iskustva

9. Ispred Vas je navedena lista nekoliko traumatskih događaja koja su cesta za izbjeglice i osobe koje su preživjele rat. Molimo Vas pažljivo pročitajte ovu listu i zaokružite sve događaje koje su vezani za Vaša iskustva.

Bio/la sam u zarobljenstvu (uključujući logore).....	1
Doživio/la sam fizičko mučenje (uključujući udaranje).....	2
Doživio/la sam psihološko mučenje (uključujući prijetnje).....	3
Vidio/la sam svojim ocima ubistva članova obitelji ili prijatelja.....	4
Bio/la sam primoran/a na rad	5
Bio/la sam iscrpljivan/a gladju i neuhranjen/a.....	6
Doživio/la sam borbu na prvoj liniji fronta.....	7
Doživio/la sam granatiranje i ostale vrste masovnog ubistva ljudi.....	8
Izgubio/la sam članove obitelji zbog zarobljenstva ili primoranog razdvajanja.....	9
Izgubio/la sam dom i imovinu.....	10
Bio/la sam u neizvjesnosti o sudbini meni bliskih osoba.....	11
Nisam doživio/doživjela niti jedan od navedenih događaja	12

Da biste odgovorili na sljedećih 15 pitanja, molimo Vas prisjetite se događaja koje ste naveli u prethodnom pitanju. Ispred Vas je navedena lista reakcija Ispred Vas je navedena lista reakcija koje ljudi obično opisuju kao odgovore na stresni događaj. Molimo Vas da pažljivo pogledate svaku stavku i naznačite koliko često su navedene reakcije na taj događaj bile prisutne kod Vas **u posljednjih sedam dana**. Ukoliko nisu bile prisutne u naznačenom periodu, molimo Vas da označite "nikada".

10. Razmišljao/la sam o događaju čak i kada to nisam želio/la.

Nikada.....	0
Rijetko.....	1
Ponekad.....	3
Cesto.....	5
Ne odnosi se na mene.....	9

11. Pokušavao/la sam da ne budem uznemiren kada sam razmišljao o tom događaju ili kada sam ga se prisjetio.

Nikada.....	0
Rijetko.....	1
Ponekad.....	3
Cesto.....	5
Ne odnosi se na mene.....	9

12. Pokušavao/la sam taj događaj izbrisati iz sjećanja.

Nikada.....	0
Rijetko.....	1
Ponekad.....	3
Cesto.....	5
Ne odnosi se na mene.....	9

13. Imao/la sam problema da zaspim ili sam se budio/la noću, jer su mi se nametale slike ili misli o tom događaju.

Nikada.....	0
Rijetko.....	1
Ponekad.....	3
Cesto.....	5
Ne odnosi se na mene.....	9

14. Imo/la sam navale jakih osjećanja vezanih za taj događaj.

Nikada.....	0
Rijetko.....	1
Ponekad.....	3
Cesto.....	5
Ne odnosi se na mene.....	9

15. Sanjao/la sam taj događaj.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
16. Izbjegavao/la sam sve što me na to podsjeća.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
17. Imao/la sam osjećaj kao da sam sve samo sanjao/la.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
18. Pokušavao/la sam da o tome uopšte ne govorim.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
19. Slike događaja su mi bile stalno pred očima.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
20. Druge stvari su me uvijek iznova podsjećale na taj događaj.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |

21. Nisam bio/la u stanju izaći na kraj sa osjećanjima vezanim za taj događaj .
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
22. Pokušavao/la sam ne misliti o tome.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
23. Sa svakim sjećanjem su ponovo navirali stari osjećaji.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |
24. Moja osjećanja vezana za događaj su bila kao otupjela.
- | | |
|---------------------------|---|
| Nikada..... | 0 |
| Rijetko..... | 1 |
| Ponekad..... | 3 |
| Cesto..... | 5 |
| Ne odnosi se na mene..... | 9 |

Dio 3: Demografija

25. Koliko Vam je godina?

Nisam siguran/a..... 9

26. Da li ste...?

U braku.....	1
Razveden/a.....	2
Udovac/ica.....	3
Rastavljen/a.....	4
Nikada oženjen/udata.....	5
U vezi.....	6
Odbijam odgovoriti.....	9

27. Koji je najvisi razred ili godina skole koju ste završili?

Nikada nisam pohađao/la skolu.....	1
1 do 8 razred osnovne skole.....	2
1 do 3 razred srednje skole(Some high school).....	3
4 razred srednje skole.....	4
1 do 3 godine fakulteta.....	5
4 ili više godina fakulteta.....	6
Odbijam odgovoriti.....	9

28. Da li ste trenutno...?

Zaposlen/a za nadnicu.....	1
Samo-zaposlen/a.....	2
Ne zaposlen/a više od 1 godine.....	3
Ne zaposlen/a manje od 2 godine.....	4
Domacica.....	5
Student.....	6
Penzioner.....	7

29. Da li ste...?

Musko.....	1
Zensko.....	2

30. Koje ste se godine uselili u Sjedinjene Američke Države?

Appendix D: Consent To Participate In A Research Study (English Version)
University of Illinois, Urbana-Champaign
College of Applied Health Sciences
Department of Kinesiology and Community Health
Faculty Supervisor – Dr. Reginald Alston (alston@illinois.edu)
Researcher – Lejla Delic-Ovcina, MS (ldelic@illinois.edu)
(217) 333 - 2307

Title of Study: *The Case of Adult Bosnian Muslim Male Refugees in Chicago: Current Health Behavior Outcomes and PTSD symptomatology*

Introduction: Before agreeing to participate in this study, it is important that you read this consent form and understand the purpose, procedures, risks, and benefits of the study as well as your right to withdraw from the study at any time. Please note that no guarantee or assurance can be made as to the results of the study.

Purpose of Study: The purpose of this study is to assess the relationship of post-traumatic stress disorder (PTSD) symptomatology and health behavior outcomes for Bosnian refugees in the greater Chicago area. Individuals who choose to participate will be asked to complete a questionnaire.

Procedures and Duration: You will be asked to complete a questionnaire before the beginning of today's Eid prayer. The questionnaire should take less than 10 minutes to complete.

Risks/discomforts: You have the right to decide whether or not to remain in the study. Participation in this study presents no more than minimal risk to you. This means that the probability and magnitude of harm or discomfort anticipated in the study are not greater than those ordinarily encountered in daily life. You might experience sensitivity to knowledge about your health behaviors, or war-related past traumatic experiences, which could be disturbing to you. Every effort will be made to minimize this risk and you will not be asked about details of your past traumatic experiences, instead your general knowledge about broad topics will be assessed. You may discuss discomfort and risks in Bosnian language with the researcher, Lejla Delic-Ovcina (217) 333 – 2307.

Benefits: You may not directly benefit from participating in this study. However, study findings will be presented to your congregation after the data has been collected and analyzed. Findings may be used for a greater societal benefit, such as to develop recommendations for improving refugees' health behavior outcomes, and further develop current prevention and education practices related to refugee mental health.

Confidentiality and Anonymity: Every effort will be made to maintain confidentiality and anonymity of your responses. No one except investigators of this study will have access to completed questionnaires. Furthermore, questionnaire responses will not contain your name or other identifying information. This will assure anonymity. All data retrieved from the completed questionnaires will be stored at a secured location. The data from the study may be published and presented at conferences; however, the results of this study will only be presented in aggregate or as a group.

Compensation: You will not receive any compensation by participating in this study.

Right to refuse or withdraw: Your participation is strictly voluntary. You do not have to answer questions that make you feel uncomfortable, and you may choose to skip those questions you do not wish to answer. You may refuse to participate or may discontinue participation at any time without any penalty.

Consent to participate: By choosing to complete the questionnaire, this indicates that you have read and understood the information provided above, that you willingly agree to participate, that you may withdraw your consent at any time and discontinue participation without penalty, and that you will receive a copy of this form.

Offer to answer questions: If you have any other questions about this study, you may call Lejla Delic-Ovcina or Dr. Reginald Alston at (217) 333 - 2307. Additionally, you may email Lejla Delic-Ovcina (ldelic@illinois.edu) or Dr. Reginald Alston (alston@illinois.edu). If you have any questions about your rights as a research participant, you may call the University of Illinois' Institutional Review Board at (217) 333-2670, or send an email to irb@illinois.edu

Thank you for your help.

Appendix E: Consent To Participate In A Research Study (Bosnian Version)

University of Illinois, Urbana-Champaign
College of Applied Health Sciences
Department of Kinesiology and Community Health
Supervizor Istrazivanja – Dr. Reginald Alston (alston@illinois.edu)
Istrazivac – Lejla Delic-Ovcina, MS (ldelic@illinois.edu)
(217) 333 - 2307

Naziv Studije: *Slučaj Punoljetnih Bosnjackih Muskih Izbjeglica u Cikagu: Posljedice Zdravstvenog Ponasanja i PTSP simptomatologija (The Case of Adult Bosnian Muslim Male Refugees in Chicago: Current Health Behavior Outcomes and PTSD symptomatology)*

Uvod: Prije nego date svoju saglasnost za ucesce u ovoj studiji, veoma je vazno da procitate ovu formu i razumijete svrhu, postupak, rizike, i koristi ovog istrazivanja, kao i Vase pravo da odustanete u svako doba. Takodje, vazno je da razumijete da ne postoje nikakve garancije vezane za rezultate ovog istrazivanja.

Cilj studije: Svrha ovog istrazivanja je ispitivanje povezanosti izmedju simptoma post-traumatskog stresnog poremećaja (PTSP) prouzrokovanog ratnim događanjima i posljedica koje se odrazavaju na zdravstveno ponasanje bosnjackih izbjeglica u Cikagu i okolini. Osobe koje odluce da ucestvuju ce biti zamoljene da danas ispune anketu.

Postupak i trajanje: Molimo Vas da danas, prije Bajram namaza, izdvojite 10-ak minuta svoga vremena, i ispunite nasu anketu.

Rizici/nelagode: Vase je pravo da odlucite zelite li biti dio ovog istrazivanja. Ucesce u ovoj studiji Vama ne predstavlja vise od minimalnog rizika. To znaci da vjerovatnoca uznemirenosti koju biste mogli osjetiti tokom ucesca u ovom istrazivanju nije nista veca od nelagoda i uznemirenosti s kojima se svakodnevno susrecete. Postoji mogucnost da ce te biti uznemireni zbog spoznaje o Vasem zdravstvenom ponasanju, ili zbog prisjecanja na traumatska iskustva vezana za događaje tokom rata. U nadi da smanjimo svaku vrstu rizika, pitanja u ovoj anketi su generalnog karaktera i necete biti pitani o detaljima vezanim za traumatska iskustva iz Vase proslosti. Za vise informacija obratite se Lejli Delic-Ovcina na broj telefona (217) 333 – 2307.

Koristi: Postoji mogucnost da necete imati direktne koristi od sudjelovanja u ovoj studiji. Rezultati ovog istrazivanja ce biti predstavljeni clanovima Vaseg Dzemata nakon zavrsetka studije. Nalazi ce biti iskoristeni za sveukupnu drustvenu korist, kao sto je razvoj i unapredjenje zdravstvenog stanja izbjeglica, i poboljsanje

danasnje prakse prevencije i obrazovanja u mentalnom zdravlju vezanih za izbjeglice.

Tajnost i anonimnost: Odgovori na Vasa pitanja biti ce anonimni i ostati u tajnosti. Niko osim istrazivaca ove studije nece imati pristupa ispunjenim anketama. Nadalje, ispunjene ankete nece sadrzavati Vase ime, niti bilo kakvu vrstu prepoznatljivih informacija. Sve ankete su anonimne. Ispunjene ankete ce biti pohranjene na osiguranoj lokaciji. Postoji mogunost da ce podaci i rezultati ove studije biti objavljeni u naucnim zurnalima i prikazani na konferencijama, ali samo u skupnom obliku.

Naknada: Ucesce u ovoj studiji je bez ikakve naknade.

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