MONASH University

Trauma and acculturation:

Psychosocial factors influencing mental health of Bosnian refugees resettled in Australia and Austria

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In the case of the four included publications, my contribution to the work involved the following:

Thesis Chapters/Papers (in order of appearance)	Publication Title	Status	Nature and % of student contribution	Co-author name(s) Nature and % of Co-author's contribution*	Co-author(s), Monash student Y/N*
Paper 1	Acculturation, acculturative stress and mental health of adult refugees: A systematic review	Submitted	50% Conceptualisation, literature search and review, writing first full draft	Prof Eisenbruch 20% review of the manuscript Dr Kiropoulos 10% review of the manuscript Prof Renzaho 10% review of the manuscript Prof Kissane 10% review of the manuscript	N
Paper 2	Effects of acculturative stress on PTSD, depressive, and anxiety symptoms among refugees resettled in Australia and Austria.	Published	80% Conceptualisation, data analyses, writing first draft	Dr Kiropoulos 20% contribution to methodology and review of the manuscript	N
Paper 3	Trauma and Mental Health in Resettled Refugees: Mediating Effect of Host Language Acquisition on Posttraumatic Stress	In press	70% conceptualisation, data analyses, writing first draft	Dr Nathan Alkemade 20% data analyses and review of the manuscript Dr Litza Kiropoulos 10% review of the manuscript	N

Thesis Chapters/Papers (in order of appearance)	Publication Title	Status	Nature and % of student contribution	Co-author name(s) Nature and % of Co-author's contribution*	Co-author(s), Monash student Y/N*
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The undersigned hereby certify that the above declaration correctly reflects the nature and extent of the student's and co-authors' contributions to this work. In instances where I am not the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

Main Supervisor signature: [redacted] **Date:** 24.08.2017

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"In short, the Other is just fine, but only insofar as his presence is not intrusive, insofar as this Other is not really other …"

Violence by Slavoj Žižek

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Abstract

The extent of the relationships between traumatic events, acculturative stress and acculturation and mental health outcomes among refugees is poorly understood. Research investigating mental health of refugees indicates that exposure to war-, conflict-and persecution-related traumas commonly experienced by refugees can have a long-lasting negative effect on the mental health of refugees. Such experiences are commonly associated with symptoms of posttraumatic stress disorder (PTSD), depression and anxiety. In addition to trauma-related exposure, research investigating mental health of refugees has identified cumulative negative effects of stress associated with migration and acculturation experiences. This research has predominantly concentrated, however, on investigating the impact of acculturative stress on mental health and has rarely considered the potential protective effects of strong cultural orientation towards the host and ethnic cultures.

The aim of this study was to test a conceptual integrated model of psychological trauma-focussed and acculturation factors that influence mental health outcomes among Bosnian refugees. Specifically, this study investigated the influence of war-related traumatic exposure and intercultural factors, namely acculturative stress and host and ethnic cultural orientations, on PTSD, depressive and anxiety symptoms. This relationship was tested among long-term resettled Bosnian refugees living in two different countries (Australia and Austria) reflecting two different acculturative contexts of multicultural Australia and monocultural Austria.

Using multiple recruitment methods, 138 refugees were recruited (55% male, age M=40 years) who had resettled in Australia and Austria on average 18 years prior. Participants completed self-report surveys assessing basic demographics,

acculturative stress, cultural orientation towards host and ethnic cultures, PTSD, depressive and anxiety symptoms.

Hierarchical regressions indicated that traumatic exposure significantly predicted symptoms of PTSD, depression and anxiety. Furthermore, after controlling for age, gender and exposure to traumatic events, acculturative stress also predicted severity of the PTSD and anxiety symptoms, while the depressive symptoms were only predicted by exposure to traumatic events. Some results differed based on the country of residence. Investigating specific acculturative stressors, path model analysis identified a significant indirect pathway from traumatic exposure to mental health symptoms via host language acquisition; hence indicating that stress associated with host-country language acquisition at least partially mediated the relationship between traumatic exposure and the severity of PTSD and anxiety symptoms, but not depression. Lastly, structural equation modelling tested the integrated model of the relationships between traumatic exposure, acculturative stress and host and ethnic cultural orientations for mental health outcomes. The results showed that traumatic exposure was the strongest direct and indirect predictor of PTSD, depressive and anxiety symptoms; the acculturative stress was a significant risk factor impeding host cultural orientation, but not ethnic orientation; and this relationship between acculturative stress and host cultural orientation mediated the effect of traumatic exposure on all mental health outcomes.

The findings of this thesis suggest that an integrated trauma-focused and acculturative model might be best placed to explain mental health outcomes among refugees. The experienced traumas, together with everyday demands and stress associated with acculturation, evidently influence refugees' ability to effectively negotiate culturally appropriate behaviours in their host country, acquire the host language necessary to

function and develop a sense of belonging and identification with the host culture. The consequent accumulative effects of acculturative stressors and inability to acculturate effectively to the host culture, collectively and negatively influence refugees' mental health, beyond the influence of traumas experienced prior to migration. These acculturative factors need to be addressed alongside provision of effective psychotherapy, especially since they are barriers not only to the integration of refugees, but also to their constructive engagement with mental health services needed to support refugees in recovery from war-related traumas.

1. INTRODUCTION

1.1 Rationale to this thesis

Displacement and migration is as old as history. Uprooting, population movement and subsequent change in location of residence is a universal phenomenon. The nature of these movements has continued to change, however, with wars and persecution acting as major push factors, along with newer factors shaping the migration. Civilians increasingly are the targets and main casualties of wars (Westin, 2002), leading to catastrophic uprooting of the whole population. In this wholesale process of systematic violence and persecution individuals, families and whole communities can experience extremely traumatic events that can put them at higher risk for mental health problems. Although the damaging effect of war and persecution-related traumatic events on mental health is well established (Porter & Haslam, 2005; Steel et al., 2009), less is known about the social determinants of mental health, facing them not only in the early displacement phase but also for the rest of their lives after resettlement.

Forced migration is arguably one of the most stressful processes a person can face. It severs not only the personal existence of the person fleeing, but also impairs every aspect of their social reality and everyday lives. Inevitably, populations flight and after resettlement are exposed to often new and differing cultures, which demand rapid change and adaptation. This process of cultural and psychological change resulting from the contact between two different cultures is defined as acculturation (Berry, 1997).

One cannot stereotype populations who migrate. Inter-group differences are no less significant than between-group differences. That said, acculturative patterns depend not only on the migrating communities, but also on their host country.

Specifically, acculturative patterns depend on the inter-cultural distance and societal dissimilarities between migrant and host groups, such as values, beliefs and religion. They also depend on the levels of acculturative stressors associated with adaptation and everyday living in the new society. The policies of the host society (e.g., integration, multiculturalism, separatism) clearly have a profound effect on acculturation. This set of factors jointly affects the orientation of the migrating populations towards the host culture, as well as how they seek to maintain – or discard - their linguistic, religious and ethnic heritage. To focus on populations forcibly displaced by war, it is apparent that there is dual challenge, overcoming the scars of trauma and coping with the stress associated with acculturation and adaptation to the new country.

Given that the mental health problems go hand in hand with forcible migration in the wake of war, the acculturative process of forcibly displaced populations has become the subject of new interest. Although links between acculturative patterns and mental health in migratory populations are well investigated, research on the impact of acculturative stressors and cultural orientations towards host and ethnic cultures, in particularly among refugees, remains nascent. The scholarship shows that associated acculturative stressors – such as need to acquire the host language, experiences of discrimination, loss of social status and/or lack of social support, are commonly associated with worse mental health (Miller et al., 2002; Porter & Haslam, 2005). On the other hand, there is less emphasis on understanding the impact of preferential cultural orientations towards host or ethnic cultures and how these relationships affect refugees' mental health.

Perhaps one reason for this overreliance on stress-associated investigations of mental health research in refugee populations may be a reflection of the dominant

theoretical paradigm underlying this field of research. The trauma-focussed approach has provided a well-grounded understanding of the potential for traumatic experiences to lead to devastating psychological sequelae such as posttraumatic stress disorder (PTSD), depression and anxiety disorders (Ozer, Ozer, Best, Lipsey, & Weiss, 2008; Steel et al., 2009; Steel, Silove, Bird, McGorry, & Mohan, 1999; Steel, Silove, Phan, & Bauman, 2002). This approach focuses on traumatic exposure as the main predictor underlying the onset of psychological problems and has widely been applied to refugees in an attempt to identify the prevalence, diagnosis and risk factors associated with exposure to war related traumas (Miller & Rasco, 2004).

This approach has been criticised by authorities such as Derek Summerfield trenchant critic of what he calls 'the trauma industry', who is acerbic in challenging the exclusive focus on traumatic experiences and the individual at the centre of this relationship (Summerfield, 1999). Others have also challenged the wholesale imposition of Western categories in diagnosing psychiatric distress among culturally-diverse refugees (Eisenbruch, 1991) and overlooking the importance of social factors embedded in the socio-political context of the individual (Ryan, Dooley, & Benson, 2008).

Following this lead, the research has increasingly expanded to broaden the narrow focus on trauma, and has incorporated additional social stressors that likely contribute and influence psychological well-being of refugees. In contrast to the trauma-focused model, a psychosocial approach assumes that social factors and everyday stressors are shaping and sometimes driving the mental health problems (Rasmussen et al., 2010). As such, the psychosocial advocates see stress rooted in the everyday stressors (e.g., displacement, discrimination, loss of social networks) as the primary cause of distress and mental health problems (Miller & Rasmussen, 2010).

These stressors are proposed as mediators of the relationship between war-related traumas and psychological well-being (Miller & Rasco, 2004; Miller & Rasmussen, 2010). Furthermore, acculturative orientation towards host and ethnic cultures associated with this process is linked to everyday stressors affecting the psychological adaptation to the host society and subsequently promoting or worsening the mental health of refugees. In short, it is essential that enquiry into mental health of displaced populations who have permanently resettled in countries like Australia and Austria closely considers not only the accumulated psychological scars of successive traumatic exposures but also the mounting social stressors faced in coping with the process of migration and acculturation. In short, the two models at stake and of this relevance to thesis are the trauma-focused and psychosocial models.

1.2 Aim of this thesis

The conceptual models mentioned contribute to explain the complex relationships between psychological-social factors and mental health issues commonly faced by refugees. The aim of this thesis is to integrate these models by investigating how factors associated with each of them explain the relationships with mental health outcomes. In particular, an integrated trauma-focused psychosocial perspective is applied that incorporates 1) psychological and social risk factors, 2) individual and system factors, and 3) follows the phase-based forced migration process. Specifically, this thesis builds upon prior research to investigate how trauma-related risk factors, and mediators associated with everyday acculturative stressors and cultural orientation towards host and ethnic cultures, affect posttraumatic mental health outcomes (i.e., PTSD, depressive and anxiety symptoms) of refugees. Furthermore, this study tests not only individual factors but also system factors by investigating these relationships in two samples of Bosnian refugees resettled in two

different host countries of resettlement: Australia and Austria – therefore investigating the influence of differing acculturation contexts (multicultural and mono-cultural) that underpin the acculturative context in which refugees resettled.

1.3 The structure of this thesis

The introduction sets the context by presenting a brief historical and socio-cultural description of war in Bosnia. This is followed by a description of the resettlement process of Bosnian refugees resettled in Australia and Austria. In the following chapter three, a definition and description of relevant concepts is presented, including distinction between migration, forced displacement and refugee status. The chapter includes a short general description of relevant push and pull factors relevant to different phases, and concludes with a pertinent definition of culture and its significance to understanding of the migration process and mental health.

Chapter four presents an in-depth discussion of trauma-related exposure and associated mental health problems in the general population and, more specifically, refugees. This chapter discusses the associated prevalence rates and trajectories of mental health problems among refugees. Chapter five presents a literature review on the risk factors associated with exposure to traumatic events and forced migration in the chronological order including pre-, peri- and post-migratory factors. Acculturation, acculturative stressors and their impact on mental health among refugees are presented and the evidence evaluated in the systematic review of literature (presented as an individual paper submitted for publication).

Chapter six outlines and critiques the dominant theoretical approaches underlying this research study: trauma-related and psychosocial frameworks. Firstly, it draws on the dominant trauma-focused framework that focuses on pathological conditions and which underpins the understanding of post-traumatic mental health.

Secondly, it draws on the psychosocial models for understanding the ways in which migration-related stressors influence adaptation and mental health. This psychosocial framework also provides linkages to acculturation theory, which underpins the understanding of cultural identity and orientation, and changes exerted by the migration process. That said, an integrated conceptual framework is presented and offered to understand the impact of both trauma- and migration-related factors on mental health. The introductory section closes with the outline of the tested conceptual and empirical models, including aims and hypotheses.

The methodology chapter describes the design of the study, including the recruitment efforts employed and the standardised measures utilised to assess the predictors and outcome variables. The general results section starts with a presentation of results in the order of investigation, and incorporates three independent papers arising from this study that have been published or submitted for publication. Lastly, an integrated discussion of the results is presented, including a discussion of clinical and policy implications, methodological limitations, future directions and a general conclusion.

2 SETTING THE CONTEXT OF THIS THESIS: HISTORICAL AND CULTURAL BACKGROUND OF BOSNIAN REFUGEES

In order to provide a better understanding of the cultural background of Bosnian refugees, it is necessary to briefly outline the recent history of this small but very important nation located in Eastern Europe. The following chapter starts with a short summary of the population demographics and experiences related to the war in Bosnia and Herzegovina. The chapter concludes with a brief description of resettlement trajectories of Bosnian refugees resettled in Australia and Austria.

2.1 Bosnian population

The last census conducted in Bosnia was in March 1991 - at the brink of the war. Population consisted of 4.4 million, of whom 43.5% were Bosniaks (or Bosnian Muslims), 31.2% Bosnian Serbs, 17.4% Bosnian Croats, 5.5% identified themselves as Yugoslavs and 2.4% represented other ethnic groups (World Refugee Statistics, 1997). During the Bosnian war (1992-1995), approximately 2.2 million Bosnians were uprooted and driven away from their homes. Half of those (1.2 million) left Bosnia and became refugees in many of the neighbouring countries. By 2005, 480,000 Bosnian refugees returned to their homeland, while 220,000 immigrated to a third country where they resettled permanently. Today, it is estimated that 1.4 million, or 38%, of the total Bosnian population has emigrated, with the largest emigration to USA (390,000), Germany (157,200) and Serbia (137,300) (Valenta & Ramet, 2011).

2.2 Context of experience of Bosnian refugees

2.2.1 The war in Bosnia and Herzegovina

The causes of the war in Bosnia and Herzegovina (Bosnia from here onwards) and more generally, the breakup of Yugoslavia, are complex. Many refer to the age old divisions based on religion, history or ethnicity dating back to the Ottomans, or more recent post World War II totalitarian regime of the Communist party and hegemony supressing any religious or ethnic identities (Malcolm, 1994; Westin, 2002).

The breakup of Yugoslavia started with the declarations of independence by Slovenia (1991), Croatia (1991) and then Bosnia in 1992. Brutal crimes and war strategies led by Bosnian Serbs against Bosniaks, and any other non-Serb minorities, led to mass forced displacement, reappearance of concentration camps, systematic executions and mass destruction of cultural and religious sites and monuments (Power, 2002). During the war, approximately 200,000 Bosnians were wounded and more than 250,000 killed, with Bosniaks the main target (World Bank Group, 1998). In some parts of Bosnia (e.g. towns and villages bordering with Serbia), 95% of the Bosniak population fled or were forcibly expelled or systematically executed (Malcolm, 1994). A new term - *ethnic cleansing* (Bell-Fialkoff, 1993) - was coined, reminiscent of the Nazi's *Sauberung*, or cleansing of Jews (Power, 2002). It implied not only the brutal practice of targeting civilians and ridding the territory of non-Serbs, but also a brutal war strategy aimed to dismembering the bond between citizens and their land by incapacitating the reproductive potential of the Bosniak ethnic group (Power, 2002). This was accomplished through a deliberate policy of destruction and degradation employing systematic rape and impregnation of young women in rape camps (Wood, 2013), and sexual torture of the worst kind, including

forcing fathers to castrate their sons and molest daughters (Power, 2002). The Helsinki (Human Rights) Watch report, published in the early months of the war, described "prima facie evidence that genocide is taking place" (Watch, 1992., page 1). Despite this early and subsequent evidence of systematic executions, expulsions and mass destruction from official and open source reports, often calling for international, American, European and United Nations military interventions to end the war, Bosnian populations continued to experience numerous horrific atrocities for three and a half years.

2.2.2 Resettlement of Bosnians in Austria

This ever-escalating crisis in Bosnia led to a massive population movement and the biggest refugee crisis experienced in Europe post-World War II. Despite the persecution and horrendous atrocities experienced, Bosnians that were lucky enough to have reached safe destinations such as Germany, Austria, Switzerland, and other Western European countries, were not regarded as convention refugees, nor offered full protection. Instead, they were provided with temporary protection visas, in anticipation of future repatriation (Westin, 2002). In addition, high unemployment rates and rising economic burden of refugee resettlement in the host countries exposed already vulnerable refugees to negative public opinion, fuelled by racist and anti-immigration political activity that lead to upsurge in violence against refugees, migrants and other minorities in most European countries, and generating social exclusion, isolation, intolerance and discrimination against refugees and other minorities (Baumgartl & Favell, 1995; Björgo & Witte, 1993; Westin, 2002) .

The huge influx of refugees to European countries had a major impact on the admission processes and the provision of protection under the 1951 Convention in Austria. Instead of provision of permanent resettlement and political asylum, shift

occurred towards temporary protection and repatriation after the war as the most popular solution to the refugee crisis (Aleinikoff, 1995; Sopf, 2001). Consequently, of the estimated 91,400 registered Bosnian refugees in Austria, 4,477 applied for asylum, but only 1,277 were recognised as Convention refugees (International Centre for Migration Policy Development) (ICMPD, 1999 cited in Franz, 2005). More than two thirds of applications for asylum were rejected based on the premise that refugees failed to demonstrate that they themselves - as individuals - were persecuted. As such, concentration camp and rape survivors were often denied asylum, claiming that these acts are expected to happen in war situations and are not directed against specific individuals (Davy, 1995)

Consequently, Bosnian refugees that arrived in Austria were almost automatically provided with temporary protection visas, which simultaneously acted as de-facto suspension of asylum (Franz, 2005). As such, de-facto refugees in Austria that were granted temporary protection visas were housed in temporary accommodations and were denied the right to work and travel in Austria, receive social security benefits or reunite with family members outside of Austria (Bauer, 2008; Franz, 2005). As a result, these de-facto refugees found employment on the black market, enabling them to move out of crowded, temporary housing and eventually acquire working permits (Franz, 2005). Consequently, due to the newly introduced settlement quota system in the 1990s, Bosnians were granted residency permit only once they were employed or had an employed immediate family member (Krause & Liebig, 2011). Unfortunately, this process usually took years to achieve, exposing individuals and families to many years of stress associated with the migratory process. At the end of the war, those who did not achieve other residency status in Austria were forcefully returned to Bosnia (Franz, 2005). Therefore, overall

settlement of Bosnian refugees in Austria was achieved through processes implementing immigration policies rather than provision of protection via humanitarian visas. Currently there are about 150,000 Bosnians living in Austria, which make up about 1.9% of population (Statistics Austria, 2011).

2.2.3 Resettlement of Bosnians in Australia

Refugees resettled in Australia usually arrived under government sponsored humanitarian programs. These refugees were mostly identified by the United Nations Higher Commission for Refugees (UNHCR), who have three solutions proposed to deal with refugees world-wide: voluntary reparation, local integration in the country of first asylum, and third country resettlement. This last option is the least common as it bears high costs for the host country and high burden on the refugees itself (UNHCR, 2011). Those refugees that are sponsored by the government receive assistance with accommodation, transport, language training, access to health and mental health services, and financial support. Refugees sponsored by a family member or other sponsors receive access to most of the above-mentioned services, apart from accommodation and transport. The third group of refugees are those who enter Australia without valid visa, but subsequently apply onshore for protection under the United Nations 1951 Convention Article 1, categorising them as asylum seekers. The inhumane treatment of onshore asylum seekers and prolonged detention in Australia has received a lot of attention from media, human rights agencies and academia around the world. However, because asylum seeking process and impact of prolonged detention are not investigated in this study, this topic is not reviewed in this thesis.

In the 1990s, Bosnians were the largest group of refugees who received humanitarian sponsored visas and were permanently resettled in Australia (Jupp,

2002). As such, they immediately received permanent residency and unrestricted access to all services afforded to Australian citizens including language training, access to health services and income support. In addition, refugees resettled permanently in Australia had an option to reunite with their immediate family members and bring them to live in Australia (DIAC, 2009). Currently about 25,000 Bosnian refugees are resettled in Australia, with the majority living in Victoria and New South Wales (ABS, 2013).

2.3 Societies of settlement

The classification of cultural diversity for Australia and Austria in the current study is based on work by Banting, Johnston, Kymlicka, and Soroka (2006) who proposed eight criteria by which to place societies on a dimension of acceptance of multiculturalism. These include government policies promoting multiculturalism, adoption of multiculturalism in school curriculum, ethnic representation on the media, exemptions of cultural groups from dress codes that are rooted in the dominant society (e.g., Sunday closing), allowing dual citizenship, funding of ethnocultural organisations, funding of bilingual education and native language instructions, and affirmative action for disadvantaged immigrant groups. It should be noted that this classification of societies might be misleading in some cases. For example, multiethnic countries or countries with a large population of migrants and multilingual countries (i.e., countries with more than one official language) might not necessarily be identified as culturally diverse. Instead, policies and practices that promote maintenance of cultural heritage, languages and facilitate cultural contact are considered more important in promoting cultural pluralism (Berry, Westin, et al., 2006). On the basis of these categories, Banting et al. (2006) assigned a strong multicultural orientation for Australia and a weak multicultural policy orientation for

Austria. Culturally plural societies are argued to provide better support during the resettlement process and strong public support for cultural diversity (Murphy, 1965 cited in (Berry, Westin, et al., 2006).

3 FORCED MIGRATION AND IMPACT OF CULTURE

The following chapter starts with a summary of the definition of forced migration, including distinctions between migration, forced displacement and finally, refugee status. It also includes a short general description of push and pull factors relevant to different phases of migration including pre-, peri- and post-migration phase (in-depth discussion of these factors is included in chapter five). This follows a short definition of culture and its significance to understanding of the migration process and mental health.

3.1 Forced Migration

Migration is a worldwide phenomenon that refers to the change in location of residence (Bhugra, 2004b). It is a highly heterogeneous process perpetuated by the need to find a better future, employment, or merely an outcome of the globalised world. Forced migration on the other hand, involves people who, while all displaced, experience diverse historical and political causes and find themselves in significantly different situations and predicaments (Malkki, 1995). Limited by choice, forcibly displaced populations leave their homes in an effort to escape conflict, violence and persecution, and ultimately ensure their own and their family's survival. The process itself can be permanent and distal involving trans-national resettlement, or local and temporal, containing internal displacement for the duration of conflict. Either option involves not only loss of social networks, but also includes a sense of loss, dislocation, alienation and isolation (Bhugra, 2004b).

The vast majority of forced migrants involve displacement within the borders of their country of origin. Nonetheless, about a third of the 59.5 million forcibly displaced persons in 2014 (UNHCR, 2015) are forcibly displaced populations, such as asylum seekers and refugees, seeking refuge in countries worldwide. Article 1 of the

1951 UN Refugee Convention (United Nations, 1951) defines a refugee as "a person who is outside his/her country of nationality or habitual residence; has a well-founded fear of persecution because of his/her race, religion, nationality, membership in a particular social group or political opinion; and is unable or unwilling to avail himself/herself of the protection of that country, or to return there, for fear of persecution". Until the request for refugee status is accepted, the person is referred to as an asylum seeker. The Convention also distinguishes refugees from migrants who leave their homes voluntarily (e.g., economic migrants seeking financial opportunities elsewhere).

3.1.1 Phases of forced migration

The process of forced migration itself is argued to constitute of phases involving a series of *events*, which are influenced by a number of *factors* over a prolonged period of *time* (Bhugra, 2004a). In response, these phases are influenced by different push and pull factors at social and individual levels. Although presented as separate and distinct phases of migration, these distinctions are arbitrary because the phases have no specific starting and finishing point. Rather, they overlap and even though some factors may present as the characteristics of one phase, they may reoccur in the subsequent phase.

At the first phase of pre-migration, personal characteristics such as concepts of the self and psychological, social and biological vulnerabilities play a role (Bhugra, 2004a). These are furthermore influenced by the forced nature of migration, which for refugees may involve experiences of interpersonal violence and traumas including torture, rape, killings, loss of family members, bombardment and deprivation of food, health care and shelter (Schweitzer, Melville, Steel, & Lacherez, 2006; Silove, Sinnerbrink, Field, Manicavasagar, & Steel, 1997; Steel et al., 1999).

At the second phase of peri-migration, the transition period begins, which may be as short as few days or weeks, or up to several years long. During this period, forced migrants experience the transition from leaving their place of residence as they seek refuge, asylum and even permanent resettlement in neighbouring regions, countries and far away nations (Bhugra, 2004a). Factors associated with daily stressors related to living in the refugee-camps (Miller & Rasmussen, 2010), harm associated with long-term detention during the asylum process (Steel et al., 2004) and losses experienced due to separation from family members, communities and social networks (Miller et al., 2002) are the features of this phase.

At the third phase of post-migration, individuals learn to negotiate contact and living among members of the same ethnic culture and wider host community. This process is referred to as acculturation (Berry, 1997) and it begins as soon as two cultures come into meaningful contact. The factors related to everyday functioning in a new society and culture become relevant as forced migrants have to learn to deal with acculturative stressors including, but not limited to, lower socio-economic status (Syed et al., 2006), unstable working conditions and economic loss due to occupational or social status (Beiser & Hou, 2001; Mölsä et al., 2014; Teodorescu, Heir, Hauff, Wentzel-Larsen, & Lien, 2012), host language acquisition difficulties (Söndergaard & Theorell, 2004) and perceived discrimination (Aichberger et al., 2015; Ellis et al., 2010b; Li & Anderson, 2015).

Knowledge about migration of displaced populations is of particular importance because forced migration has a lasting effect on social, economic and psychological wellbeing of individuals and whole societies. The psychological effects and implications of the forced migration depend not only on the scale and reasons for the migration, the individual characteristics of the forcibly displaced person, but also on

the characteristics of the receiving society and its inhabitants (Bhugra, 2001). Therefore, the enhanced interpretations and understanding of the migration process and its impact on mental health is dependent upon many complex inter-related factors including psychological, social and cultural factors of an individual and collective nature (Bhugra, 2004a).

3.2 Culture

During contact between members of two differing cultural backgrounds, culture becomes an important filter between the individual and the host society. Culture describes features that are shared between people of similar background. These include beliefs and value system of a society, but also racial, cultural, social and ethnic identities (Bhugra & Becker, 2005). Identity is a perception of oneself as unique from others and relates to racial (i.e., biological and physical distinctive features), social (i.e., culturally defined personality characteristics defined as social roles) and ethnic (i.e., shared cultural characteristics including history, beliefs, language, values, food, religion) identities.

The contact between society and its members is affected by the cultural difference and distance between the individual's ethnic culture and the host culture. Cultural distance can support or hinder cultural, social and psychological adjustment among displaced populations (Bhugra, 2001, 2004a), including the adaptation of the language, behavioural attitudes, and engagement experience between members of the ethnic and host societies. Furthermore, along with migration and acculturation, cultural and ethnic identity, which form part of one's identity, change with development at the personal and social level.

3.2.1 Culture and psychopathology

The question of relationship between culture and psychopathology is concerned with understanding how socio-cultural and psychological variables interact with bio-physiological states, and how these influence the psychopathological syndromes. Debate on the relationship between culture and mental illness claims that culture influences the interpretation and understanding of underlying disease entities that are otherwise objective and universally diagnosable (Marsella, 1988). Research has been able to demonstrate that the effect culture imposes is profound and reaches into etiological, distributional and phenomenological dimensions of mental health disorders (Kirmayer, 1998; Marsella, 1988). Notion of culture helps understand how individual's psychological distress can be understood in the context of what is happening to them and their cultural changes in identity (Bhugra, 2004b).

Indeed, different cultural beliefs, values and language influence how different cultures express their mental health symptoms, treat them or impact on how they seek help for them (Stuart, Minas, Klimidis, & O'Connell, 1996, 1998). Cultural beliefs may impact how cultures label mental illness and their symptoms, and cultural values impact how they understand them (Crosby, 2013). Significant linguistic differences may impact communication about mental illness and may lead to inaccurate diagnosis of mental health illness (Bäärnhielm, Edlund, Ioannou, & Dahlin, 2014; Cross & Singh, 2012; Pirkis, Burgess, Meadows, & Dunt, 2001). Furthermore, individual factors such as gender, cultural identity and stress of adaptation to a new culture constitute risk and resilience factors for mental health problems (Bhugra, 2004b). Therefore, understanding culture and cultural differences is of pertinent importance in understanding mental health of refugees.

4 TRAUMA AND MENTAL HEALTH PROBLEMS COMMONLY ASSOCIATED WITH EXPOSURE TO TRAUMATIC EVENTS

Trauma can refer to many different types of events, including natural disasters, assaults and accidents, sexual abuse and rape, military and combat experience, torture, war and persecution. Any event that involves exposure to actual or perceived threat to life or serious injury of an individual, their loved ones or those around them, has a potential to be traumatic (ACPMH, 2013). Traumatic events are distinguished between single event experiences and cumulative, repeated or ongoing. Single event experiences such as assaults and accidents are classified as *Type I* traumas (Terr, 1991). The latter forms of traumatic events are often referred to as *Type II* traumas, or interpersonal traumas because of the personal human-induced nature of the trauma.

Although single event traumas can have devastating consequences, interpersonal traumas are more likely to be experienced as more extreme and be more pathogenic. In addition to the initial threat, interpersonal traumas challenge individual's assumptions about the safety and predictability of the world and capacity for others to deliberately cause harm (Foa, Steketee, & Rothbaum, 1989), and can threaten aspects of the self that are at the core sense of self-integrity consequently leading to more chronic difficulties (Forbes et al., 2012).

4.1 Traumatic exposure in the general population

Epidemiological studies indicate that exposure to potentially traumatic events is very high among the world's population as the majority of people have or will experience at least one traumatic event in their life. Surveys with community populations indicate that lifetime exposure to potentially traumatic events ranges from

50% to 65%. In the US (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), 61% of men and 51% of women reported at least one traumatic event in their lifetime. A population-wide survey conducted in Australia (Creamer, Burgess, & McFarlane, 2001) with 10,000 Australians estimated that 65% of men and 50% of women had experienced trauma in their life. Multiple traumatisations were most common in both studies. The most prevalent forms of exposure relate to witnessing injury, life-threatening accidents and natural disasters.

4.2 Traumatic exposure among refugees

Refugees are exposed to a myriad of potentially traumatic events that are based on deliberate and targeted persecution against their ethnic, cultural, religious or political beliefs and values. While there are significant differences between the experiences, refugees often report multiple prolonged exposures to ongoing threat including targeted persecution, interpersonal violations or deprivation of human rights (Steel et al., 1999; Steel et al., 2002). The traumatic events experienced by refugees are defined by its interpersonal nature. The experiences can be personal or witnessed and may include torture, rape, threat to life, killing of family members or friends, bombardment and shelling, deprivation of basic human rights such as food, water, shelter, or medical attention, but also deprivation of religion, safety and security. Furthermore, refugees experience great losses, which may be actual or symbolic, including loss of family members, friends and relatives, loss of possession, social or economic status, cultural belonging and even identity (ACPMH, 2013; Silove, 1999).

4.3 Mental health problems associated with traumatic exposure in the general population

Traumatic exposure can lead to many different sequelae. Individual reactions to a traumatic event may involve emotional, behavioural, cognitive or physiological reactions (ACPMH, 2013). Most people experience some form of emotional reaction to the traumatic event including fear, anxiety, sleep disturbance, guilt or anger (ACPMH, 2013). While most people recover naturally using their coping mechanism and available social support (Bonanno, 2004), in a minority of those exposed, symptoms may persist and potentially develop into mental health disorders.

There is a wide interest in the psychological effects of war, conflict and violence-related traumatic exposure among refugees. Primary focus of the epidemiological research conducted with war affected populations concentrates on documenting the pathological presentations - predominantly PTSD, depression and anxieties (Fazel, Wheeler, & Danesh, 2005; Forbes et al., 2012; Lindert et al., 2009; Momartin, Silove, Manicavasagar, & Steel, 2003; Porter & Haslam, 2001; Steel et al., 2009). Other psychological presentations have also received increased interest, including prolonged grief (Hinton, Peou, Joshi, Nickerson, & Simon, 2013; Momartin, Silove, Manicavasagar, & Steel, 2004b; Nickerson et al., 2014), adult separation anxiety (Silove, Momartin, Marnane, Steel, & Manicavasagar, 2010), anger (Hinton, Rasmussen, Nou, Pollack, & Good, 2009), somatic and substance related problems (de Jong et al., 2001; Mollica et al., 1998), marital difficulties (Spasojevic´, W., & K., 2000), social and occupational difficulties and disability (Mollica et al., 1999; Steel et al., 2002), learning difficulties (Rousseau, Drapeau, & Corin, 1996), cultural bereavement (Eisenbruch, 1991) and other cultural re-presentations associated with trauma (Hinton, Vuth, Luana, Angela, & H., 2010). The

most common mental health disorder presenting among the general population and refugees following exposure to traumatic events is PTSD (ACPMH, 2013).

4.3.1 Posttraumatic Stress Disorder

PTSD is identified as a trauma- and stressor-related disorder that occurs in response to a traumatic event. PTSD is characterised by four symptom clusters including intrusions (e.g., re-experiencing of the traumatic event through flashbacks or nightmares), persistent avoidance of stimuli associated with the traumatic event(s) (e.g., avoiding people, places or memories associated with the event), persistent negative alterations in cognitions and mood (e.g., negative beliefs about self or cessations of previously enjoyed activities), and alterations in arousal and reactivity (e.g., irritable or angry outbursts, physical arousal, startle response). The diagnosis of PTSD requires one or more symptoms to be present at least for a month and interfere with daily functioning (APA, 2013).

4.3.2 Comorbidities and other pathological disorders

The comorbidity involving PTSD is extensive, with over 80% of individuals with PTSD reporting additional disorders (Breslau, Davis, Peterson, & Schultz, 2000; Creamer et al., 2001). A mental health disorder commonly reported in response to traumas is major depressive disorder (Breslau et al., 2000; Fazel et al., 2005; Shalev et al., 1998). Other disorders may also occur, either alone or in conjunction with PTSD, including anxiety, bipolar, substance use and somatic disorders (ACPMH, 2013). Depression is a mood disorder defined by an extremely depressed mood state that lasts at least two weeks and is characterised by a sense of inadequacy, hopelessness, indecisiveness, diminished interest in activities and pleasure, changes in appetite and sleep patterns, or a significant loss of energy (APA, 2013).

Another group of mood disorders encapsulating presentations of symptoms associated with traumatic exposure are anxiety disorders. This group includes generalised anxiety disorder, panic disorders and specific phobias. While each anxiety disorder has a different symptom, all symptoms cluster around present or eminent excessive, irrational fear and dread, and preparation for possible, upcoming negative events (Barlow, 2002). Anxiety disorders commonly occur alongside other mental health symptoms including PTSD, which may mask anxiety symptoms or make them worse (Craske et al., 2009).

The frequent sequelae following exposure to traumas involve a presentation of comorbid diagnosis. The most common comorbid diagnosis involves presentations of PTSD with depression and/or anxiety disorders. This combination of presentations has been demonstrated in general population (Creamer et al., 2001; Kessler et al., 1995) and a diversity of trauma affected populations, including injury survivors (O'Donnell, Creamer, & Pattison, 2004), victims of domestic violence (Stein & Kennedy, 2001) and natural disasters (Kar & Bastia, 2006), and refugees (Bleich, Koslowsky, Dolev, & Lerer, 1997; Mollica et al., 1999).

Similarly to the general population, comorbidity between disorders such as PTSD, depression and anxiety is also more common among refugees than the occurrence of pure PTSD (Fazel et al., 2005; Momartin, Silove, Manicavasagar, & Steel, 2004a). Diagnostic overlap identified varies from 9.5% in a large cross-sectional community study involving 1,200 participants from South Sudan (Ayazi, Lien, Eide, Ruom, & Hauff, 2012), to 21% in a large-scale epidemiological survey of 534 Bosnian refugees (Mollica et al., 1999) to 42% in a large cross-sectional study involving 420 randomly selected refugees from Cambodian households residing in California US (Marshall, Schell, Elliott, Berthold, & Chun, 2005). Compared to

refugees with either depression or PTSD alone, refugees with comorbid presentations are more likely to report worse impairments in personal, social and occupational outcomes (Mollica et al., 1999; Mollica et al., 2001).

4.4 Prevalence of PTSD, depression and anxiety disorders in the general population

Although exposure to traumatic events is very common, the majority of persons exposed to traumas do not develop mental health disorders, including PTSD. Trajectories of recovery post trauma indicate that the majority of people display one of the following four stress responses: relatively stable healthy functioning, gradual recovery, delayed reactions or chronic dysfunction (Bonanno, 2004; Bonanno, Westphal, & Mancini, 2011). The longitudinal evidence on the trajectories of stress responses showed that the degree of psychological distress is very high in the early aftermath of traumatic experiences, upon which psychological symptoms start to dissolve in the subsequent weeks and months following traumatic exposure as individuals make use of their coping strategies and support systems (Bonanno, 2004; Bonanno et al., 2011; Breslau, 2001).

The prevalence of mental health disorders nonetheless varies widely across nations and populations. For example, a survey conducted by the World Health Organisation with up to 20 nations around the world reported lifetime prevalence estimates for anxiety disorders 4.8-31.0% and mood disorders 3.3-21.4% (Kessler et al, 2007). Twelve-months prevalence rate for PTSD specifically range between 0.4% to 3.8% (Karam et al., 2014). In Western nations such as Australia and the US, reported prevalence is even higher. For example, population wide surveys conducted in Australia (Australian National Survey of Mental Health and Wellbeing) indicated that of those people who experienced a potentially traumatic event in their lifetime,

7.2% developed PTSD (Chapman et al., 2012; McEvoy, Grove, & Slade, 2011). Furthermore, of those people with at least one disorder, 20% also met a diagnosis for a comorbid disorder. Specifically, of those people who reported a 12-month prevalence for any anxiety disorder (including PTSD), 58% also reported a comorbid affective disorder diagnosis, and 33% reported comorbidity with substance use disorder (Teesson, Slade, & Mills, 2009).

4.5 Prevalence of PTSD, depression and anxiety disorders among refugees

Estimates of prevalence rates for PTSD, depression and anxiety disorders among refugee populations are varied. A meta-analysis of 81,866 refugees and conflict-affected persons from 40 countries (Steel et al., 2009) reported prevalence rates ranging from 0%-99% for PTSD and 3%-85.5% for depression among independent studies. Grouped estimates were much lower at 30.6% for PTSD and 30.6% for depression. Another meta-analysis (Fazel et al., 2005) examined prevalence rates in 7'000 refugees resettled in high-income countries. Applying systematic criteria to examine only larger and more rigorous studies, findings indicated the prevalence rate for PTSD at 9%, depression at 5% and anxiety at 4%. The authors nonetheless concluded that the refugees were ten times more likely to experience PTSD than the general population, and that overlap with depression and anxiety was probable.

Similar results were reported in an epidemiological longitudinal study assessing the mental health long-term consequences of war involving 854 refugees from the Balkan resettled in Germany, Italy and UK (Bogic et al., 2012) and 3,313 non-displaced people from Balkan that stayed in the area of conflict (i.e., Bosnia, Croatia, Kosovo, Macedonia and Serbia) (Priebe et al., 2013). Findings demonstrated that mental health disorders were highly prevalent with 43.7% and 43.4% of refugees

reporting anxiety and mood disorders (Bogic et al., 2012). Considering non-displaced people, Priebe et al. (2013) reported that mental disorders were slightly less prevalent with 33.5% and 28.3% of responders reporting anxiety and mood disorders respectively.

The reported differences in the prevalence rates have been attributed to sample difference (e.g., clinical vs. community samples), the variation in the measures and diagnostic assessments (e.g., self-report vs. clinical measures, different cut-off points) and sampling methods of individual studies (e.g., length of time since conflict, length of residence in host country) (Fazel et al., 2005). Cultural variations in expressions of distress (Bhui, Warfa, Edonya, McKenzie, & Bhugra, 2007) and factors relating to specific cohorts (e.g., high rates of torture in some refugee populations) (Steel et al., 2009) have also been identified as potential reasons for the discrepancy in the prevalence rates reported for refugees.

Different cultural backgrounds and locations of the studies have also been identified to influence the evident differences in the prevalence rates reported across studies. Specifically, Bogic, Njoku, and Priebe (2015) systematically examined the reported evidence on prevalence rates in 29 studies reporting on long-term mental health outcomes in 16,010 war-affected refugees. Their findings indicated typical estimated prevalence in the range of 20% for PTSD, depression and anxiety disorder among refugees who have been resettled for five or more years. Nonetheless, differences in the estimates were identified when cultural background and location of the studies were considered. Highest prevalence rates for PTSD were identified for refugees from former Yugoslavia (33%-77%) and Cambodia (45%-86%), while lowest rates were reported for refugees from Sub-Saharan Africa (13%-50%). Results also varied based on location of the studies. In particular, studies conducted in

Australia reported lowest PTSD prevalence rates (4%-13%), while studies conducted in the US reported highest PTSD prevalence rates (13%-86%). Highest prevalence rates for depression were demonstrated for studies conducted in Western countries or refugee camps in developing nations (39% - 55%) and for refugees from former Yugoslavia (31%-42%) and Cambodia (50%-80%). Much lower prevalence rates were reported for anxiety disorders including generalised anxiety disorder (0.7%-14%), panic disorder (0.6%-10%), social phobia (0.3%-27%) and agoraphobia (8%-9%). Lowest rates were reported among Vietnamese refugees settled in Australia and highest rates among Cambodian refugees resettled in the US (Bogic et al., 2015).

4.6 Trajectories of mental health problems across time

Despite the identified differences, evidence suggests that refugees experience significantly higher prevalence rates of posttraumatic mental health problems compared to the general population (ACPMH, 2013; Fazel et al., 2005; Lindert et al., 2009). That said, refugees possibly also best demonstrate the human capacity to survive and recover despite the greatest losses and assaults on human identity and dignity (Muecke, 1992). In fact, recovery trajectories among refugees are reported to be very similar to trajectories found in the general population; while a degree of psychological distress seems to be very high in the early aftermath of traumatic experiences and resettlement, psychological symptoms often reduce in the subsequent years (Lie, 2002; Mollica et al., 2001).

Overall, the passage of time generally demonstrates that the prevalence rates of mental health problems experienced post trauma to be consistent, and if change occurred it was in the decreased direction over time (Lie, 2002; Steel et al., 2002). Studies that looked at longer resettlement demonstrated significant decreases in the symptoms. In a hallmark study that followed South East Asian refugees resettled in

Canada across three different time-points, Beiser and colleagues (2001) recorded gradual significant decreases in depressive symptoms 10 years post-resettlement from 6.5% to 4.4% and finally 2.3% over a ten-year period. Pooled estimates of depression rates among long-term resettled refugees (five years plus) similarly identified depression symptoms generally decreased across length of resettlement (Bogic et al., 2015).

Findings from a population-based study conducted with 1,162 Vietnamese refugees resettled in Australia (Steel et al., 2002) demonstrate that risk of mental illness fell consistently across time from 6.3% at 0-4 years, to 3.0% at 5-9 years and was almost non-existent (0.8%) at 10 years plus post-resettlement. However, those refugees who experienced three or more trauma events had a heightened risk of mental illness at each time-point (30%, 12% and 4.7% respectively). Nonetheless, even this group demonstrated significant declines as the risk for mental illness decreased significantly over time and after 10 years was comparable with risk in refugees with no trauma exposure.

Nonetheless, a substantial minority of refugees exposed to traumatic events will remain vulnerable and retain their symptoms for many years. For example, Mollica, Caridad, and Massagli (2007) reported persistent chronicity of PTSD symptoms 3.5 years later in a sample of highly traumatised Bosnian refugees remaining in the conflict area. Similar findings were reported in other longitudinal studies of Bosnian refugees one year (Weine et al., 1998) and three years post resettlement (Lie, 2002). These refugees experience pronounced difficulties in psychological adjustment (Lie, 2004) and the development of negative psychological symptoms, which can severely affect everyday functioning (Mollica et al., 2001). Furthermore, refugees with comorbid presentations have reported worse long-term outcomes than refugees with

either disorder alone. The levels of personal, social and occupational disability demonstrate multi-fold impairments in the short-term (Mollica et al., 1999; Mollica et al., 2001) and long-term outcomes (Momartin et al., 2004a). This and other risk factors associated with mental health problems commonly identified in refugees will be discussed in-depth in the next chapter.

5 THE RISK FACTORS ASSOCIATED WITH MENTAL HEALTH PROBLEMS IN REFUGEES

5.1 Migration and psychopathology of refugees

During the phases of forced migration, different factors are at play predisposing individuals, and whole displaced populations, to higher risk facts for mental health problems. The push factors experienced at the pre-migration phase often involve exposure to war, persecution and other human rights violations. These experiences put refugees at higher risk of developing PTSD, depression and anxiety symptoms. These mental health problems can furthermore be affected by the individual personality characteristics including their age, gender and socio-economic status. During the peri-migration phase, factors associated with the transition process from the country of origin to the country of resettlement become important. During this process, refugees may experience prolonged detention or limited protection, exposing them to additional risk of mental health problems. Finally, in the post-migration phase, members of the displaced populations are faced with chronic daily stressors, loss of their own culture and the need to adapt to the new culture. Although presented as occurring at separate phases of migration, these distinctions are arbitrary because the phases have no specific starting and finishing point. Hence, migratory factors may present as the characteristics of one phase, but they may also reoccur in the subsequent phase. Nevertheless, multiple, compounding and enduring exposure to these factors is commonly associated with long-term mental health problems. Thus, understanding the impact of individual and contextual influences during all the phases

of forced migration is pertinent to understanding mental health of refugees and assessing their relationship poses important empirical challenges.

5.2 Pre-migratory factors

The pre-migratory phase of migration has been identified to have lower levels of psychopathology than the latter post-migratory phase, due to the younger age at the initial pre-migratory stage and the higher levels of stress associated with acculturation and the potential discrepancy between attainment of goals and actual achievement in the latter post-migratory stage (Bhugra, 2004a). However, this conclusion is challenged when forced populations such as refugees are considered. Namely, prior to migration, refugees are very often exposed to a myriad of traumatic events that are based on deliberate and targeted persecution against their ethnic, cultural, religious or political beliefs and values. While there are significant differences between the experiences among refugees, research evidence suggests that refugees are generally exposed to multiple, sometimes extreme traumas such as torture, rape and death of family members (Steel et al., 2002), which puts them at higher risk for developing serious mental health problems (Steel et al., 2009). In fact, the longitudinal evidence on the trajectories of stress responses of refugees showed that the degree of psychological distress is very high in the early aftermath of traumatic experiences (Steel, 2002) (predominantly experienced in pre-migration stage), upon which psychological symptoms start to decrease over time as individuals make use of their coping strategies and support systems (Bonanno, 2004). Hence the pre-migratory period possibly denotes the most-stressful phase of migration relevant to refugees, during which they not only have to come to terms with deprivation and loss, but also significant exposure to traumas inflicted to their own individual but also their family and community.

5.2.1 Traumatic exposure

Exposure to war, conflict and persecution-related traumatic events commonly experienced by refugees frequently leads to psychopathology including symptoms of PTSD, depression and anxiety. In a recent meta-analysis (Steel et al., 2009) of 161 studies including 81,866 people from conflict affected populations including refugees and displaced persons, exposure to war-related traumas was associated with presentation of PTSD, depression and anxiety symptoms. The associated prevalence rate reached 30.6% for PTSD and 30.6% for depression. Significant impact of war-related traumas on mental health has also been established cross-culturally. For example, systematic reviews on the topic among war-affected populations established that exposure to war-related traumatic events was associated with mental health problems including PTSD and anxiety among Arabs (Al-ghzawi, Mohammed ALBashtawy, Azzeghaiby, & Alzoghaibi, 2014), South Sudanese (Tempany, 2009), Bhutanese (Mills, Singh, Roach, & Chong, 2008), Tibetans (Mills et al., 2005) and Syrians (Quosh, Eloul, & Ajlani, 2013).

5.2.1.1 Trauma type

Certain types of traumatic events are significantly more likely to lead to greater psychiatric morbidity. Epidemiological findings involving 854 refugees from Balkan resettled in Germany, Italy and UK suggest that more PTSD symptoms are associated with certain types of war-related traumatic events in particular lack of food or water, being ill without access to medical care, lack of shelter and torture (Bogic et al., 2012). Among non-displaced people these events relate to lack of food or water, life-threatening illness, serious injury, sudden death of a dear person, witnessing murder or death, being tortured, being lost, mine explosion, combat and sudden death of a dear person, not due to violence (Priebe et al., 2013). While significant differences in

the exposure to traumatic events were identified between the countries of residence, the relationships between traumatic events and mental health outcomes were almost identical across the countries of residence.

Torture has also been identified to result in greater psychiatric morbidity (Silove, Steel, McGorry, Miles, & Drobny, 2002). Exposure to torture has been reported widely by refugees, displaced people and persecuted people and ranges from 3% reported by Bhutanese refugees in Nepal (Shrestha, Sharma, Van Ommeren, & et al., 1998), to 36% in Syrian Kurdish refugees in Iraq (Quosh et al., 2013), to 85% reported by Turkish political prisoners (Basoglu et al., 1994). Moisander and Edston (2003) reported that prevalence rates of PTSD associated with experience of torture in refugees from six different countries ranged between 69% and 92%. Steel et al. (2009) reported a much lower 21% incidence of torture among war-affected populations reporting on 84 studies from 40 countries. Nonetheless, these findings suggest that torture is prevalent in countries affected by conflict with responders from 29 out of 40 countries reporting exposure. Steel et al. (2009) established that after adjusting for methodological differences between the studies, torture was the strongest predictor of PTSD and depression, hence demonstrating the devastating effects of torture on the mental health of refugees.

5.2.1.2 Dose effect

Research with refugees has focused heavily on the *dose-effect* relationship - the extent to which degrees of exposure to traumatic experiences predicts the severity of symptoms or its diagnosis. Individual studies report refugees experience as many as 14.8 potentially traumatic events (Arcel, Folnegović-Šmalc, Tocilj-Šimunković, Kozarić-Kovačić, & Ljubotina, 1998). Currently, there is a wealth of evidence to support the existence of *dose-effect* relationship between diverse forms of cumulative

traumatic exposure and greater psychiatric morbidity (e.g., de Jong et al., 2003; Carlson & Rosser-Hogan, 1991; Miller et al., 2002; Mollica et al., 1998; Silove, Steel, McGorry, & Mohan, 1998; Vaage et al., 2010; Weine et al., 1998). Although the strength of the association between trauma exposure and symptoms of PTSD, depression and anxiety varies across studies and countries of origin a very clear *dose-effect* is evident suggesting that greater the exposure to traumatic events, the greater the risks and intensity of mental health problems experienced subsequently.

Longitudinal studies support these findings. For example, (Steel et al., 2002) reported that in a sample of long-term resettled Vietnamese refugees (10 years plus) exposure to three or more traumatic events had an eight-fold increase in risk of mental health illness compared to those who did not report any trauma exposure. Further evidence for this is demonstrated by Steel et al. (2009) (meta-analysis including 84 studies from 40 countries) who identified that cumulative ratio of potentially traumatic events experienced by refugees was associated with prevalence of PTSD and depression hence consolidating the evidence form individual studies and demonstrating a clear dose-effect of traumatic exposure in relation to PTSD and depression.

Not only the manifold but also the complexity of traumatic events carries a greater risk for developing mental health problems. The *cultural trauma* (Comas-Díaz, Lykes, & Alarcón, 1998) or *genocidal trauma* (Weine & Laub, 1995), commonly experienced by refugees, has been suggested to be very complex because it has a severe impact on every aspect of not only individual, but also their family and the wider community, affecting social, historical and cultural dimensions of the lives of those affected (Weine & Laub, 1995). This kind of community traumatisation not only impacts on individuals but also often results in complex social processes that

have effects on the microcosm as well as macrocosm level of the community, adding to the complexity of the trauma experience and its consequences. Hence leaving those refugees, who have experienced more complex, repetitive or cumulative traumatic events, to remain at greater risks for psychopathology (Foa et al., 1989; Steel et al., 2009) and impairment in personal, social and occupational functioning (Mollica et al., 1999; Mollica et al., 2001; Shalev et al., 1998; Steel et al., 2002).

However, traumatic event itself does not sufficiently explain why PTSD and other mental health disorders develop or persist, and it is important to note that direct exposure is not explaining the full range of symptom. In fact, traumatic exposure typically accounts for less than 25% of variance in PTSD, anxiety or depressive symptoms prevalent in war-affected populations (Miller & Rasmussen, 2010). Other factors commonly associated with severity and chronicity of posttraumatic symptoms include personal and societal factors (Kroll, 2003) which consequently may affect level of stressor exposure and pathological symptoms.

5.2.2 Personal characteristics

Despite the common experiences of adversity shared among refugees in general, overgeneralisation is cautioned within and across refugee groups (Perera et al., 2013) as mental health problems of refugee groups can differ based on their personal characteristics.

5.2.2.1 Age

Empirical research proposes age differences in mental health outcomes following traumatic exposure. It particular, older individuals seem to report more PTSD and depression symptoms following traumatic exposure, then younger individuals. For example, meta-analysis conducted by Porter and Haslam (2005) with 56 studies and including 67,294 refugees and displaced persons identified that

refugees of older age reported more PTSD and depressive symptoms. This age difference has been reported among refugees of different cultural background resettled in different countries (e.g., Bosnian refugees in US (Mollica et al., 2001; Weine et al., 1998), Afghan, Iranian and Somali refugees in Netherlands (Gerritsen et al., 2006), Sudanese and Ugandan refugees and displaced people in West Nile (Karunakara et al., 2004), and within refugees of the same cultural background resettled in different nations (e.g., ex-Yugoslavs in Germany, Italy and UK (Bogic et al., 2012).

5.2.2.2 Gender

Empirical evidence also proposes gender difference in the exposure to traumatic events and subsequent mental health outcomes. Empirical evidence indicates that women are more likely to report exposure to interpersonal trauma (e.g., sexual abuse, rape, childhood sexual abuse, domestic violence), while men are more likely to report non-sexual physical assault, combat and injury (Mills et al., 2011). Consequently, research demonstrates that women report higher prevalence rates of PTSD associated with exposure to traumas (Breslau et al., 1998; Chapman et al., 2012; Kessler et al., 1995; Pietrzak, Goldstein, Southwick, & Grant, 2011). Although some researchers have identified a link between exposure and higher probability of PTSD in females (Hapke, Schumann, Rumpf, John, & Meyer, 2006) others have questioned this link arguing that higher exposure to interpersonal trauma can only partially explain the higher prevalence rate among women (Mills et al., 2011; Tolin & Foa, 2006), and other factors including severity of trauma, type and severity of symptoms and comorbidities have been identified to influence this relationship (Christiansen & Elklit, 2013; Chung & Breslau, 2008). Systematic evidence regarding depression (Piccinelli & Wilkinson, 2000) demonstrates strong evidence that adverse childhood

experiences, socio-cultural roles with related adverse experiences and psychological attributes related to vulnerability to life events and coping skills put women at more risk for depression (Piccinelli & Wilkinson, 2000).

Results are discordant when refugee populations are considered. Although individual cross-sectional studies conducted with war-affected population commonly report an association between gender and mental health, (e.g., Blight, Ekblad, Persson, & Ekberg, 2006; Gerritsen et al., 2006; Laban, Gernaat, Komproe, Schreuders, & De Jong, 2004) larger studies and systematic reviews offer different conclusions. For example, a large population based cross-sectional study (Hollander, Bruce, Burström, & Ekblad, 2011) conducted with 43'168 refugees and non-refugees (56.5% refugees) resettled in Sweden reported significant gender differences. Using purchase of psychotropic drugs as a proxy variable for moderate mental health problems, findings indicated that female refugees were more likely to purchase those drugs thus indicating more mental health problems. Meta-analytic findings identified that female refugees had more PTSD and depressive symptoms relative to non-refugees (Porter & Haslam, 2005). Epidemiological studies demonstrated that female refugees reported more mood disorders but not PTSD or anxiety disorders (Bogic et al., 2012). Similarly, female gender was associated with higher levels of PTSD among non-displaced people (Priebe et al., 2013). Systematic review of 29 studies on long-term mental health outcomes among 16,010 war-affected refugees reported that female gender was associated with higher levels of depression and unspecified anxiety, but not PTSD (Bogic et al., 2015). Results from a meta-analysis conducted with war-affected refugees (Steel et al., 2009) reported that gender was not associated with higher risk of PTSD or depression symptoms.

The differences in these findings may suggest that in the general population, males and females are exposed to differing types of traumatic events, while in war-affected populations, males and females may experience similar traumatic events during war and displacement (Bogic et al., 2015), although there is some indication that female refugees, compared to males of the same cultural background, are exposed to higher rates of war-related and post-migratory factors (Perera et al., 2013). Furthermore, differences among the studies and reviews identified above regarding age and gender differences could be a reflection of heterogeneity between the study sample characteristics (e.g., clinical versus community sample), incidence of torture experience between the samples or different assessment methods (self-report versus clinical assessments).

5.2.2.3 Socio economic factors

Research suggests that refugees with restricted economic opportunities such as unemployment, underemployment, lower socio-economic status and lower education level face higher risks for mental health problems (Li, Liddell, & Nickerson, 2016). For example, experiencing economic difficulties was associated with a 2.6 to 3.9 times higher risk of symptoms of psychological distress and depression among 220 Sudanese recent arrivals in Canada (Simich, Hamilton, & Baya, 2006). In a 10-year longitudinal study conducted with South-East Asian refugees (Beiser & Hou, 2001), unemployment was a strong risk factor associated with depression. Consistent with this, systematic reviews and meta-analyses conducted with war-affected populations confirm this association of socioeconomic disadvantage with poorer psychological health among war-affected populations in low-medium income countries (Roberts & Browne, 2011), depression in resettled refugees (Bogic et al., 2015) and poorer

mental health outcomes in refugees compared to non-displaced persons (Porter & Haslam, 2005).

5.3 Peri-migratory factors

In addition to exposure to war- and persecution-related traumatic experiences, research indicates that daily stressors experienced during displacement and transition to the country of resettlement (i.e., peri-migratory phase) are associated with higher risks for mental health problems. In a meta-analysis involving 22,221 refugees and 45,073 non-displaced persons, Porter and Haslam (2005) identified that displacement variables impacted on the mental health of refugees and non-displaced persons. In particular, refugees had worse outcomes if they lived in institutional accommodation, were displaced internally within their own country and whose country of origin was still under ongoing conflict.

Detention has also been identified as highly damaging to the mental health of refugees and asylum seekers. Children and adults exposed to prolonged detention (two or more years) in Australia demonstrated a ten-fold and three-fold increase respectively in psychiatric disorders subsequent to detention including symptoms of PTSD and depression (Steel et al., 2004). Majority of adult (86%) and children (80%) had more than one psychiatric disorder indicating a prevalence rates of PTSD and depression higher than those found in the general refugee population who have not been detained (Fazel & Stein, 2002; Silove, 2002). All adults also reported additional exposure to trauma within detention including distressing and upsetting memories of detention, feelings of sadness and hopelessness about being in detention, intrusive images of events that happened in detention, which puts them at an increased risk for mental health problems (Steel et al., 2004).

Temporary protection is also identified to be damaging to the mental health of refugees. Steel et al. (2011) conducted a two-years longitudinal survey with 104 refugees from Iran and Afghanistan consecutively attending community mental health service in Australia. Their findings demonstrated that despite very similar levels of exposure to traumatic events in the pre-migratory stage, refugees on temporary protection visas reported greater stress arising from post-migratory stressors when compared to refugees who received permanent protection visa on arrival to Australia. In particular, refugees on temporary protection had higher baseline scores and demonstrated increases in anxiety, depression and overall stress at both baseline and follow-up two years later. In comparison, refugees who received permanent protection had lover scores at baseline and demonstrated improvements in their symptoms over time. PTSD symptoms also differed between the two groups of refugees. Refugees on temporary protection visas demonstrated higher severity of PTSD symptoms at baseline and follow-up, while refugees on permanent protection reported low symptoms severity at baseline with no change at follow-up. Steel et al. (2011) concluded that resettlement under safe condition may have led to reduction of PTSD symptoms at baseline, therefore liming the range of further improvement over two years.

Negative effects of prolonged detention and temporary residency status have also been associated with PTSD and other anxiety and mood disorders in different refugees and non-displaced people of various cultural backgrounds (Bogic et al., 2012; Priebe et al., 2013; Steel et al., 2009) Furthermore, the significant impact has been identified to contribute to the ongoing risk of PTSD and depression even after controlling for other risk factors including female gender, older age, extent of past traumas, length of residency and family separation (Steel et al., 2006) .

5.4 Post-migratory factors

The next section will provide a brief summary of the post-migratory factors associated with resettlement and acculturation identified to affect mental health outcomes among refugees. A more detailed review, embedded with a theoretical perspective and following a systematic methodological review is presented in the paper submitted for publication that is included following this section, and forms part of the work undertaken during this thesis.

5.4.1 Types of stressors

Refugee resettlement and acculturation are complex processes that have received lots of attention in the psychological and social work literature. Evidence from these fields suggests that refugees are susceptible to accumulated risks for mental illness due to stress associated with post-migration and adaptation to the new culture and host society (Davidson, Murray, & Schweitzer, 2008; Rasmussen et al., 2010; Steel et al., 2002). Loss of all that is familiar may in particular present as a threat to one's identity, aggravating grief and despair (Stein, 1986). Cultural similarities and dissimilarities between the cultures of origin and host culture especially affect groups exposed to forced migration, who did not think about, intend, or prepare for migration (Stein, 1986). These experiences are common to refugees and associated everyday factors have been suggested to affect refugee's mental health (Bhugra, 2001).

Greater number of post-migratory stressors is commonly associated with worse mental health outcomes. Systematic reviews identified that greater exposure to post-migratory stressors was associated with PTSD, anxiety symptoms and depression in particular among refugees and asylum seekers (Li et al., 2016) and among long-resettled refugees (Bogic et al., 2015). Consistent with this, meta-analysis identified

post-migration stressors as moderators of the relationship between war-related traumatic exposure and mental health outcomes (Porter & Haslam, 2005). In particular, worse outcomes were observed for refugees living in institutional accommodation, who experienced limited economic opportunity (i.e., right to work, access to employment and maintenance of socioeconomic status), who were internally displaced or repatriated to their country of origin.

Investigating the relationship between pre-and post-migratory effects on mental health in a longitudinal study of long-term resettled ex-Yugoslav refugees across three different countries (Bogic et al., 2012) identified that pre-migratory, war-related and post-migratory factors were all found to significantly predict mood disorders, (6.9%, 12.2% and 16.1%) anxiety disorders (5.0%, 11.0% and 11.5%) and PTSD (7.3%, 14.2% and 12.8%). However, rates of anxiety and mood disorders were lower in participants who felt accepted by their host country and interestingly enough stayed significant, although weakened once the post-war factors were introduced. While the post-war factors accounted for more variance in the rates of mood and anxiety disorders, war factors did so for PTSD.

In addition to systematic review, individual studies have consistently found that post-migratory stressors contribute to poorer mental health outcomes among refugees. For example post-migratory stressors relating to lower socio-economic status (Syed et al., 2006), unstable working conditions and unemployment (Beiser & Hou, 2001; Mölsä et al., 2014; Teodorescu et al., 2012) (Miller 2002), lower host language acquisition (Beiser & Hou, 2001; Söndergaard & Theorell, 2004), perceived discrimination (Aichberger et al., 2015; Ellis et al., 2010b; Li & Anderson, 2015), loss of loss of one's community and social networks and corresponding sense of isolation and lack of social support (Miller 2002, 2004), unresolved family reunion (Lie, 2002)

have been found to be associated to higher levels of PTSD and depression symptoms. These findings have been demonstrated even after accounting for the effect of pre-migratory traumatic exposure (Schweitzer, Brough, Vromans, & Asic-Kobe, 2011; Schweitzer et al., 2006), indicating a significant cumulative effect of post-migratory acculturative factors.

5.4.2 Length of residence

Finally, although length of residence in the host country is often reported in studies of refugee mental health, the findings on its relationship with mental health outcomes are discordant. In some studies, length of time in resettlement seems to reduce the effect of post-migratory stress (e.g., Hmong refugees in United States; Westermeyer, Neider, & Vang, 1984) South East Asian refugees in US (Beiser & Hou, 2001), (Chung, Bemak, & Wong, 2000), while in others length of residence was associated with higher levels of depressive (Chung & Kagawa-Singer, 1993; Schweitzer et al., 2006; Tran, Manalo, & Nguyen, 2007) and anxiety symptoms (Chung & Kagawa-Singer, 1993; Schweitzer et al., 2006). In some studies, no association were found between length of residence and depressive symptoms (Nicassio, Solomon, Guest, & McCullough, 1986; Takeda, 2000), and length of residence and symptoms of PTSD (Schweitzer et al., 2006). However, the majority of these studies investigated the relationship between length of resettlement and mental health outcomes in recently resettled refugees, hence limiting their conclusions.

Longitudinal evidence suggests that influence of post-migratory stresses lessen over time. Findings from a population-based study of l1, 161 Vietnamese long-resettled refugees (M= 11.42 years) in Australia (Steel et al., 2002) indicated that the risks of mental illness fell across time. Investigation of the pre-migratory traumas and post-migration factors including family separation, household composition,

employment status and host language acquisition, suggested that post-migratory factors had no influence on any of the mental disorders investigated in the later stage of resettlement. These findings suggest that migration stressors might diminish after prolonged resettlement, while the effects of pre-migration traumas persisted.

Furthermore, there is longitudinal evidence to suggest that mental health symptoms start to decrease after a specific period of resettlement. In particular, longitudinal study conducted with 325 Ethiopian refugees (Fenta, Hyman, & Noh, 2004) reported that risk for depression was low during the first few years in resettlement, but then starts to increase until it reaches a peak at about 15 years post-resettlement, after which it starts to decrease and remains low. Tran et al. (2007) identified similar inverted U-shape relationship between symptoms of depression and length of residence, postulating that depression increases during the initial period of resettlement and then begins to decrease with increased length of stay in the host country (after 12.5 years in their sample). These findings would suggest that the early stages of resettlement are identified as highly stressful, until an adaptive time point is reached, when stress starts to decrease with increased length of stay in the host country (Fenta et al., 2004).

The outlined findings therefore support the acculturation stress model proposed by (Berry, 1997), which suggests that the early stages of acculturation are identified as highly stressful until an adaptive time point can be reached when stress starts to decrease and improvement in psychological wellbeing is probable. However, very few studies have investigated the relationship between acculturative stress and mental health outcomes among refugees. A systematic review of this evidence is presented in the next section.

5.5 Paper 1: Acculturation and mental health of adult refugees: A systematic review

Kartal, D., Kiropoulos, L., Eisenbruch, M., Renzahno, A. & Kissane D. (Submitted). Acculturation and mental health of adult refugees: A systematic review

Abstract

Aim: The aim of this review was to assess the evidence on the relationship between acculturation and mental health outcomes among refugees.

Method: A systematic search generated a list of 869 potentially relevant publications of which 29 were included in this review. Studies were included if a mental health variable was considered as an outcome and acculturation was identified as a variable of interest irrespective of how acculturation was operationalized (i.e., uni-linear, bi-linear, typographical or proxy assessments).

Results: The search yielded five mental health outcomes, including general psychological distress, posttraumatic stress disorder (PTSD), depressive, anxiety and somatic symptoms. Among refugee samples, acculturation was predominantly assessed using proxy variables and very few studies utilised structured bi-dimensional assessments. Evidence on the relationship between acculturation and mental health in refugees was limited and largely discordant. Very limited evidence demonstrated the protective value of ethnic cultural orientation, while assimilationist orientation was associated with higher levels of psychological distress. Similarly, very limited evidence identified that weaker cultural orientation, either towards ethnic or host cultures, is a risk factor for PTSD. Some studies showed that stronger cultural orientations were a protective factor for depressive symptoms. Studies conducted using proxy variables were more consistent demonstrating that lower levels of acculturative stress and increased language acquisition were associated with fewer depressive symptoms, especially in the later stages of resettlement.

Conclusion: Evidence supporting the relationship between acculturation and mental health in refugees is very limited and still in its early stages. The findings do suggest the importance of assisting refugees' adjustment to a new culture and maintenance of their ethnic culture and its importance for the mental health of refugees. A critical discussion of these findings in light of

the wider theoretical and research knowledge on acculturation is outlined, including limitations and suggestions for future research directions.

Introduction

The number of forcibly displaced populations worldwide is steadily increasing. Over the past decade alone, the number of such people has increased from 32.9 million in 2006 to 42.5 million in 2011 to 59.5 million in 2014 (UNHCR, 2015). About one-third of these are refugees and asylum seekers seeking refuge in countries worldwide. The adverse impact of forced migration on mental health is well established (Beiser, 2005; Bhugra, 2003, 2004a). The associated pre- peri- and post-migration factors play a role in the increased risk for posttraumatic stress disorder, depressive, anxiety and somatic symptoms, prevalent among displaced populations and refugees in particular (ACPMH, 2013; Fazel et al., 2005; Lindencrona, 2008; Momartin et al., 2003; Porter & Haslam, 2001; Steel et al., 2009).

An acculturation framework, which investigates learning and adaptation to the new culture (Berry, 1997), is frequently applied to investigate the migration process and the adaptation of migrating populations to the new country and culture. Much research over the past few decades provided evidence to support the idea that acculturation patterns have a significant effect on mental health in migrants. However, only recently has attention turned to investigate this relationship in the context of forced migration and among refugees in particular (Allen, Vaage, & Hauff, 2006; Lurie & Nakash, 2015).

This review, therefore, proposes to systematically assess the available evidence base underlying the relationship between acculturation and mental health outcomes in refugees using the acculturation framework.

Migration and mental health

Migration as a process is influenced by different push and pull factors at social and individual levels. Forced migration is a process that constitutes of three phases over a prolonged period of time (Bhugra, 2004a). At the first phase of pre-migration, personal characteristics and psychological, social and biological vulnerabilities play a role (Bhugra, 2004a). During peri-

migration, forced migrants experience daily stressors associated with the transition period, such as living in temporary refugee camps, seeking asylum and prolonged detention (Miller & Rasmussen, 2010; Steel et al., 2004). At the third phase of post-migration, factors related to everyday functioning in a new society and culture become relevant, as forced migrants deal with language difficulties, economic loss of occupational or social status, discrimination, restrictive policies and breakup of social and family ties (Bhugra & Becker, 2005; Porter & Haslam, 2005). At this stage, the process of acculturation also begins, where migrants learn to negotiate both contact with and living among members of the same ethnic culture and wider host community. Cultural differences and distance between an ethnic and the host society also become important as the level of stress experienced depends on the level of difference between the cultures (Bhugra, 2004a). Hence, forced migration imposes many diverse psychological, social and cultural factors on individuals and whole communities.

Furthermore, these various push and pull factors experienced during migration are identified as risk factor for mental health problems. The prevalence of mental health problems is particularly influenced by duration of relocation, language difficulties, lack of social support, economic difficulties, difference between the cultures of origin and host culture, and acceptance by the host culture (Bhugra, 2001, 2004a; Porter & Haslam, 2005). In refugee populations specifically, research has identified elevated prevalence rates for posttraumatic stress disorder (PTSD), anxiety and depressive symptoms (Fazel et al., 2005; Steel et al., 2009). These mental health problems in refugees are influenced by migratory factors including lower socio-economic status (Syed et al., 2006), unstable working conditions and unemployment, (Beiser & Hou, 2001; Mölsä et al., 2014; Teodorescu et al., 2012), lower language acquisition (Söndergaard & Theorell, 2004) and perceived discrimination (Aichberger et al., 2015; Ellis et al., 2010b; Li & Anderson, 2015).

Additionally, migrating populations often find themselves in cultural environments that put them at odds from their heritage culture (Berry, 1997, 2006b). If the host culture is not accepting and social support from the original culture is unavailable, individuals can experience a sense of rejection and alienation, which has negative implications for their mental health (Bhugra, 2004a). The migration can therefore be thought of as a complex process that exposes individuals to psychological, economic, social and cultural conditions, which put them at higher risk of mental illness.

Acculturation models

During migration, members of the ethnic and host-country cultures are brought into contact, during which they learn and engage with the opposite culture and its members. The process of cultural and psychological change resulting from this contact between two different cultures is defined as acculturation (Berry, 1997). During the process, both cultures can be shaped by cross-cultural interactions and can influence acculturative patterns towards the other culture. These patterns are influenced by differences between the cultures in beliefs, values and religion, but also host-country policies on migration (Berry, 2006b). Furthermore, these patterns influence the acculturative attitudes of the individuals in both host and ethnic cultures brought into contact.

The concept of acculturation has developed substantially over the past few decades. The early models proposed that adoption of the host culture requires the shedding of the culture of origin and adoption of the beliefs and values of the host culture (Gordon, 1964). Proponents of this early uni-dimensional model argued that there is only one outcome of the acculturation – adoption or assimilation into the host culture. This model has been criticized for ignoring the possibility of a bi-dimensional relationship between the host and ethnic cultures. Hence, more recently, a complex definition has been proposed, defining acculturation as a bi-dimensional, bi-directional, complex process driven by the "*cultural maintenance"* of the culture of origin and "*contact and participation"* with the host culture

(Berry, 1997, 2006a). Stress, coping and adaptation are highlighted as underlying mechanisms of this process (Berry, 1997; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Consequently, acculturation is seen as the result of *stress* and *conflict* arising out of contact and participation with the host culture during the acculturative process. Personal characteristics, resources, strategies and social support influence the process of coping with acculturative stress, which is exacerbated by differences and cultural distance between the host and ethnic cultures at the time of contact. The degree of acculturative stress itself influences the minority group's cultural orientation.

This combination of cultural maintenance on the one hand, and contact and participation with the host culture on the other, are related to multiple dimensions or domains concerning the individual's behaviours, values, beliefs and identity. More specifically, these domains are assessed as preferences for language use, social affiliations, cultural traditions, communication styles, identity, perceived discrimination, generational status, family socialization, cultural knowledge, and beliefs or values (Bhugra, 2001; Masgoret & Ward, 2006; Zane & Mak, 2003). The interaction of cultural orientation towards the ethnic and host cultures along these dimensions determines which of the four acculturation strategies is preferred or adapted: *integration* (orientation toward both ethnic and host culture), *assimilation* (orientation towards host culture), *separation* (orientation towards ethnic culture) or *marginalization* (orientation towards neither culture) (Berry, 1997, 2006a). This bi-dimensional conceptualization of acculturation has been gradually accepted and confirmed empirically (Flannery, Reise, & Yu, 2001).

Acculturation and mental health

In addition to the different models offered to conceptualise acculturation, the evidence underlying the effect of acculturation on mental health is also mixed. A systematic review and meta-analysis investigating acculturation of Asian-American migrants (Gupta, Leong,

Valentine, & Canada, 2013) showed that when acculturation was assessed as assimilation towards the host culture, a significant negative relationship with depression was found.

However, when acculturation was assessed as orientation towards the ethnic culture, a non-significant relationship with depression resulted. Different outcomes were reported by another systematic review (Koneru, Weisman de Mamani, Patricia, & Betancourt, 2007) which identified that higher levels of assimilation in migrants were associated with increased substance use and abuse, while the findings related to the relationships with distress and depression were inconclusive. Yet another meta-analysis (Nguyen & Benet-Martínez, 2012) identified that integration or biculturalism (i.e., high identification with both ethnic and host cultures) related to better psychological and socio-cultural adaptation. This relationship was stronger than when there was a preference for one culture only (ethnic or host). However, this relationship was moderated by how acculturation was measured. Specifically, when typological assessments were used, this relationship was weaker than when bi-linear measures were used. The mixed results presented in these findings therefore highlight conceivable problems associated with comparability between different models of conceptualization and operationalization of acculturation.

Limitations of the current research

Considering the demonstrated mixed research findings, it is no surprise that operationalization of acculturation has been criticized (for discussion see Hunt, Schneider, & Comer, 2004; Rudmin, 2009; Salant & Lauderdale, 2003; Schwartz, Schwartz, Unger, Zamboanga, & Szapocznik, 2010). While most researchers now agree on the bi-dimensional conceptualization of acculturation, operationalization of acculturation still varies. Large variations result from the variability of measures used, although this has progressed from using predominantly uni-linear measures to a more accepted bi-linear assessment of acculturation.

Currently, uni-linear, bi-linear and typological approaches are all widely used to assess acculturation (Nguyen & Benet□Martínez, 2007). Assessment of uni-linear acculturation yields scores along a single continuum, with lower scores indicating separation, high scores indicating assimilation, and middle scores indistinguishably indicating engagement or disengagement with both cultures (i.e., integration or marginalisation). Bi-linear assessments on the other hand produce two separate scale scores representing each cultural (i.e., ethnic and host culture) orientation. The low or high classification along the two cultural orientations jointly indicates preference for one of the four acculturative orientations (e.g., high scores on both ethnic and host orientation indicate integration). Lastly, the typological assessment includes four separate scales that directly assess acculturative orientations, therefore yielding four separate scores, one each for integration, assimilation, separation and marginalisation.

Despite the availability of these more advanced assessment measures, acculturation is frequently conceptualized and operationalized as a singular simplified concept. This is achieved using proxy measures of assessments (Schwartz et al., 2010). Proxy measures, by inference, indicate acculturation status by assessing the length of residence in the host country or acquisition of host language (Rudmin, 2009). The reductionist process of such assessment has been criticized as insufficient assessment of acculturation complexities (Berry, 2003; Rudmin, 2009). On the other hand, research evidence does show consistent main effect of proxy variables on health indices and psychiatric disorders on their own, and when these have been used in a multi-dimensional scale of acculturation. Hence, some researchers have been supportive of their inclusion and use (Escobar & Vega, 2000).

Finally, acculturation research has also been criticized for its generalizability, as most of the early empirical work has derived from studies conducted with Asian and Hispanic cultures migrating to the United States (Rudmin, 2009). Therefore, the findings and the

ethno-specific assessments of acculturation might not entirely generalize to the forcibly displaced population such as refugees who firstly, experience different push and pull factors (e.g., pre-migratory exposure to traumas); secondly, come from different cultural backgrounds (e.g., African, Indo-European, Middle-Far Eastern); and thirdly, migrate to different host societies that have different cultural and political environments (e.g., Europe, Australia). Indeed, limited research conducted with refugees indicates that refugees living in societies with restrictive policies lack choice in their acculturative strategy, struggle with integration and remain vulnerable to psychosocial stress (Phillimore, 2011).

Although acculturative frameworks applicable to refugees are developed (Allen et al., 2006; Silove, 1999), there have been no attempts as far as we know, to systematically examine the empirical evidence of the relationship between acculturation and mental health outcome applicable to refugees. The aim of this review is therefore to assess the evidence base investigating the relationship between acculturation, acculturative stress and mental health of refugees. We decided to investigate this relationship irrespective of how acculturation was operationalised (i.e., uni-linear, bi-linear, typographical or proxy assessments) in order primarily to map the available evidence. Then, we offer a critical discussion of the findings in light of the knowledge and limitation outlined in the above paragraphs. We conclude with suggestions for future directions in research and policy applicable to refugee populations.

Method

Search strategy

This review was formulated guided by the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) statement that aims to provide practical and systematic guidance in researching and reporting of systematic reviews. As such, specific inclusion and exclusion criteria were developed prior to the search, which were based on the previously published literature. A comprehensive search was conducted in the MEDLINE,

CINAHL, PsycINFO, and PILOTS databases using MeSH headings or thesaurus where available (for "*mental health*" or "*mental disorder*", "*acculturation*" and "*refugees*") and topic keywords with the following combinations: "*refugees*" AND "*mental health*" or "*mental disorder*" or " "*posttraumatic stress*" "*post-traumatic stress*" or "*depression*" or "*anxiety*" AND "*acculturation*" or "*assimilation*" or "*integration*" or "*separation*" or "*marginal**" or "*resettlement*" or "*discrimination*" or "*ethnic identity*". The search was conducted in August 2012 and an update of literature completed in April 2015. The combined search generated a list of 869 potentially relevant publications of which 145 were duplicates that were excluded. Of the remaining 724 publications, after a final screen of titles and abstracts, the list was reduced to 149 publications, which were then assessed at the full-text level, according to the predefined inclusion criteria outlined in Table 1. The majority of these studies were rejected because they only focused on acculturation rather than on acculturation as a risk factor for mental health. Figure 1 presents a flow diagram outlining the systematic review process. The final list included a total of 29 studies identified as meeting the inclusion criteria.

Table 1

Predefined Study Inclusion Criteria

1. The study was published between 1980 and 7th April 2015 in a peer-reviewed journal in the English language
2. The study identified acculturation as a predictor or risk factor for mental health (i.e., studies that investigated how mental health symptoms impacted acculturation were not included)
3. The study reported quantitative results for mental health outcomes
4. The population under consideration comprised predominantly refugees (i.e., samples with asylum seeking majority were excluded based on the notion that due to their nature of the temporary status in the host society, they may not have fully engaged in the process of acculturation. Furthermore, their mental health was more likely to be impacted by the peri-migration factors such as detention, fears for their family members left behind, etc.)
5. The population under study comprised adults over 18 years of age

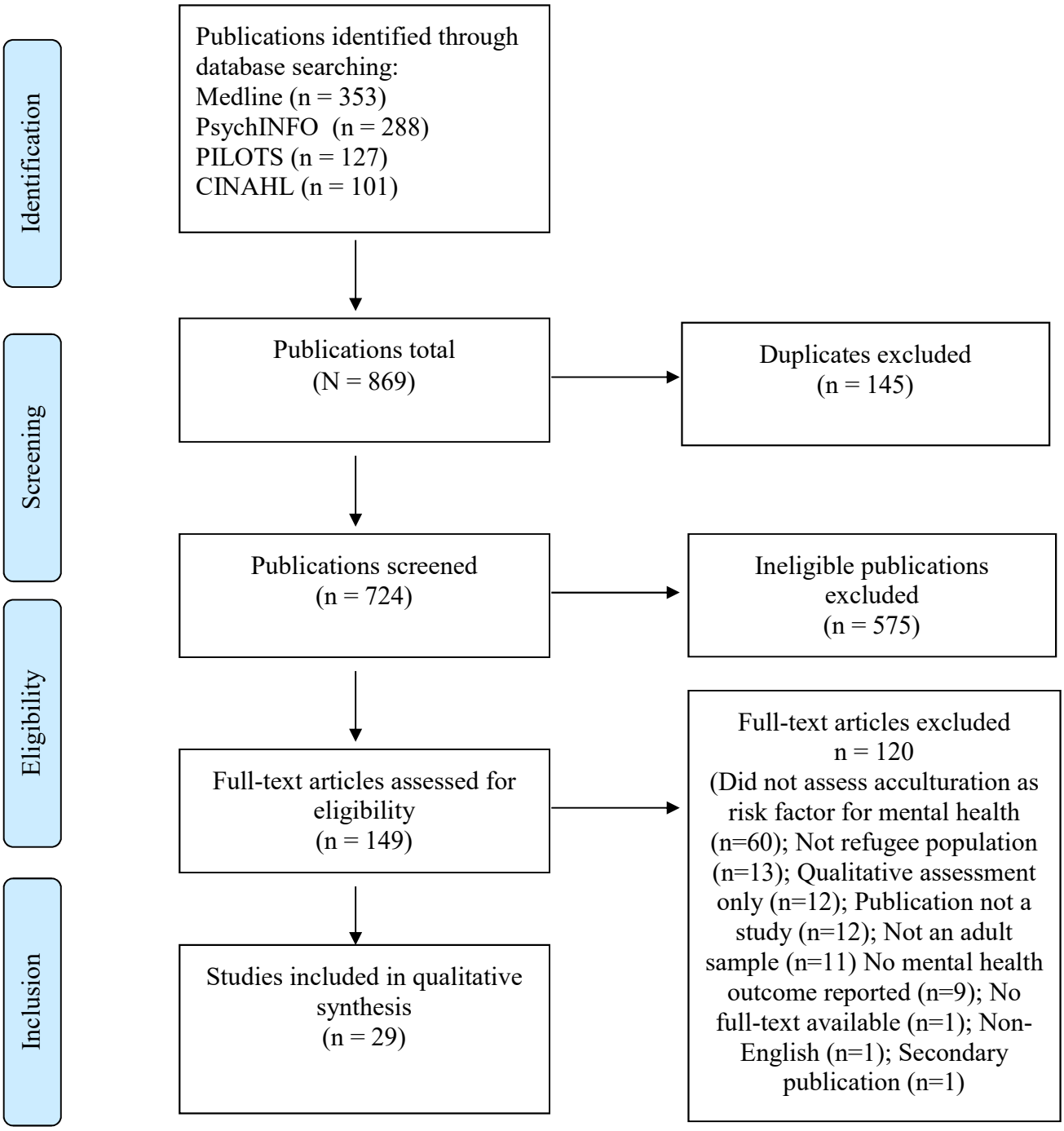

Fig.1: Study selection diagram of the studies included in the review

Study selection

Studies were included that used uni-linear, bi-linear, typographical or proxy measures of acculturation and acculturative stress. The following variables were identified and grouped during the review process as proxy acculturation variables: 1) language acquisition or preference, 2) ethnic identity and 3) length of residence in host nation.

In addition to investigating acculturation, the studies needed to report on mental health as an outcome. All mental health outcomes were considered as long as they reported quantitative results predicted or associated with acculturation, acculturative stress or a proxy variable of acculturation. While the literature on this relationship predominantly included samples of migrants, refugees are considered to be a more complex group and this review therefore included only those studies that had a refugee sample.

Although caution was exercised when ascertaining the relevance of each study, a certain degree of subjectivity in this process cannot be denied. Inclusion and exclusion of studies that did not clearly satisfy the above-explained criteria was deliberated by the research team to ensure that the decision was based on mutual agreement.

Results

Study and sample characteristics

Of the 29 studies identified, more than half were published post 2000 (n=18) and the majority were conducted in the US (n=18, 62%) or Canada (n=4, 17%); two were from Australia (8%), two from Norway and one each from the Netherlands and New Zealand. One study was international, including refugees from Germany, Italy and United Kingdom. All but four studies used a cross-sectional design. Ethnicities of the study samples predominantly included South East Asian background (n=16) (i.e., Vietnamese, Cambodian, Burmese, Laotian), but other ethnic communities were included as well, comprising African (n=4) (i.e., Sudanese, Somalian, Ethiopian) Middle Eastern (n=2) (i.e., Iraqi, Kurdish) and Eastern

European background (n=4) (i.e., Bosnian, Croatian, Kosovar, Russian). Two studies included a mixed group of refugees from all around the world.

Table 2 presents details of studies included in the systematic review, including sample characteristics, acculturation measures and psychological measures used, and major findings.

Table 2

Description of the studies included in the systematic review

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
Studies that used uni-dimensional acculturation measure								
Cheung, 1995	Cambodian refugees in New Zealand (cross-sectional)	n/r	223	Constructed a validated acculturation scale (uni-directional)	General Health Questionnaire (GHQ28)	Less acculturation was associated with more psychiatric morbidity	n/a	n/a
Studies that used bi-dimensional acculturation measure								
Birman & Tran, 2008	Vietnamese refugees in US (cross-sectional)	11.5 (range 9 months-28 years)	212	Language Identity Behaviour Scale (LIB) (bi-directional)	Hopkins Symptom Check List; (HSCL-25)	American acculturation was not associated with anxiety or depression symptoms Ethnic behavioural acculturation predicted anxiety (β=0.15*) but not depressive symptoms Ethnic behavioural acculturation predicted life satisfaction (β=0.15*)	n/a	Language acquisition was associated with less anxiety (r=-0.16*) but not depressive symptoms
Birman et al., 2014	Russian refugees in US (cross-	5.9 (3.14)	391	Language Identity	Hopkins Symptom Check List; (HSCL-	American acculturation had	Length of resettlement	n/a

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
	sectional)			Behaviour Scale (LIB) (bi-directional)	25)	an indirect effect on depressive symptoms through occupational success (β=-.074*) Russian acculturation had an indirect effect on depressive symptoms through social support (β=-.042*)	predicted distress (β=-.26***)	
Knipscheer et al, 2006	Bosnian nationals and refugees in Netherlands (cross-sectional)	9.9 (range 2-34)	76	Lowlands Acculturation Scale (LAS) (bi-dimensional)	General Health Questionnaire (GHQ-28)	Preservation of traditions subscale predicted severity of subjective mental health symptoms (β=-.26*)	Length of resettlement did not predict mental health symptoms	
Oppedal & Idsoe, 2012	Refugees from 34 different nationalities arrived as unaccompanied minors in Norway	3.7 (2.49)	1641	Host and ethnic culture competence (bi-directional)	Centre for Epidemic Studies Depression (CES - D)	Cultural competence in host and ethnic culture predicted depressive symptoms (host β=-.11*; ethnic β=-.16**)	n/a	n/a
Teodorescu et al,	Refugees of		61	Constructed a	Structured Interview	Weaker social	n/a	n/a

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
2012	mixed background, in Norway			validated measure of social integration with host and ethnic culture (bi-dimensional)	for Disorders of Extreme Stress (SIDES) Hopkins Symptom Check List (HSCL-25) Impact of Event Scale – Revised	integration into host culture was associated with PTSD (r=.375**), complex PTSD (r=.469***) and depressive symptoms (r=.529***) Weaker social integration with ethnic culture was only associated with complex PTSD symptoms (r=.275*).		
Studies that used an acculturative stress measure								
Bogic et al., 2012	Ex-Yugoslav refugees in Germany, Italy and United Kingdom	9.3 (4.4)	854	Post-migration stressors (selection of 6 items)	Mini International Neuropsychiatric Interview (MINI)	Post-migration stressors were associated and predicted anxiety (adjusted OR 1.24***) and PTSD symptoms (adjusted OR=1.21**)	n/a	n/a
Fenta et al, 2004	Ethiopian immigrants and refugees in Canada (cross-sectional)	9.2 (range 1-29)	342	Post migration stress including discrimination Multigroup	Composite International Diagnostic Interview for Depression	Post-migration stressful life experiences predicted depressive	Length of resettlement identified as a risk factors	n/a

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
				Ethnic Identity Measure Length of resettlement		symptoms (β=.38***)		
Jorden et al, 2009	Somali refugees in Canada (cross-sectional)	"more than 10 years ago"	169	Acculturation stress	Beck Depression Inventory Impact of Event Scale – Revised	Acculturation stress was associated with more PTSD and depressive symptoms however, it was only predicted by Family Pressures - a subscale of Acculturation Stress scale (r=.49***)	n/a	Language acquisition did not predict PTSD (β=-.05) or depressive symptoms (β=-.05)
Nicholson, 1997	South East Asian refugees in US (cross-sectional)	9.2 (3.3)	447	Current Stress Scale	Hopkins Symptom Check List (HSCL-25) Harvard Trauma Questionnaire	Acculturation stress was associated with and predicted symptoms of PTSD (r=.40), depression (r=.45) and anxiety (r=.35)	n/a	n/a
Schweitzer et al, 2011	Burmese refugees in Australia (cross-sectional)	3.61 (2-16 months)	70	Post-Migration Living Difficulties	Hopkins Symptom Check List (HSCL-37) Harvard Trauma Questionnaire	Higher levels of post-migration living difficulties were associated with more traumatization	n/a	n/a

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
						(β=.30*) depression, (β=.32*) anxiety (β=.28*) and somatisation (β=.39**)		
Tran, 1993	Vietnamese refugees in US (cross-sectional)	5.71 (4.09)	147	Acculturation stress (selection of 15 variables)	Centre for Epidemic Studies Depression (CES - D)	Acculturation stresses had no significant direct effects on depression, however, it had the strongest indirect effect on depression (IE=.388**)	n/a	n/a
Studies that utilized a proxy measure								
Beiser & Hou, 2001	South East Asian refugees in Canada (longitudinal)	(over 10 years post-resettlement)	608	Language acquisition	Major depressive disorder (a composite score incorporating various depressive scales and interviews)	n/a	n/a	Language acquisition had no effect on depressive symptoms during the initial period of resettlement, whereas it significantly predicted depression 10 years later (β=-.101)
Beiser & Hou, 2006	South East Asian refugees in	10 years post resettlement	647	Ethnic identity	Depressive Affect Measure	Association between ethnic	n/a	Language difficulty was

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
	Canada (cross-sectional)			Language difficulty^		identity and depressive symptoms was insignificant. However, there was a significant interaction between ethnic identity and language acquisition, as ethnic identity reduced the negative impact of failure to acquire the language (β=.15***)		associated with depressive symptoms (r=.16***)
Chung et al, 2000	Vietnamese college students of refugee background in US (cross-sectional)	Arrived 1971-75 or 1980-85	358	Length of resettlement (dichotomous)	Hopkins Symptom Check List (HSCL-21 - derived from HSCL-58)	n/a	Longer residence associated with less distress	n/a
Chung & Kagawa-Singer, 1993	South East Asian refugees in US (cross-sectional)	Vietnamese 5.50 women; 5.90 men; Cambodians 3.68 women, 3.83 men; Laotians women 5.36, 5.26 men;	2180	Language difficulty^ Length of resettlement (dichotomous)	Health Opinion Survey - depression and anxiety	n/a	Years in resettlement predicted depressive symptoms (β=.08*) and anxiety (b=.08*) symptoms only for those who lived in the US	Language difficulty predicted depressive symptoms only for those who lived in the US longer than 5 years (β=.12**). Language

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
							longer than 5 years	difficulty also predicted anxiety symptoms for those living in the US longer (β= .10**) and shorter (β=.12***) than 5 years
Chung & Bemak, 2002	South East Asian refugees in US (cross-sectional)	Vietnamese 5.50 women; 5.90 men; Cambodians 3.68 women, 3.83 men; Laotians women 5.36, 5.26 men;	2180	Language acquisition Length of resettlement	Health Opinion Survey	n/a	Length of resettlement predicted distress for Vietnamese women (β=-.21***), and Cambodian women (β=-.17) only	Language acquisition predicted distress for Cambodian women (β=-.17**) and men (β=-.19**), and Laotian men (β=-.11*) only
Clarke et al, 1993	Cambodian adolescence refugees in US (cross-sectional)	23.03 (2.1) and 17.74 (2.6)	69	Language acquisition	Children's Schedule for Affective Disorder and Schizophrenia (K-SADS) Diagnostic Interview for Children and Adolescence (DICA, PTSD section only)	n/a	n/a	Language acquisition predicted depression (β=-0.388*), but not PTSD symptoms
Corvo &	Bosnian refugees	8.7	34	Language	Hopkins Symptom	n/a	n/a	Language

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
Peterson, 2005	in US (cross-sectional)	(range 1-15 months)		acquisition	Check List (HSCL-25)			acquisition did not predict psychological distress or depression symptoms
Cummings et al, 2011	Kurdish refugees in US (cross-sectional)	12.8 (3.5)		Language acquisition	Geriatric Depression Scale	n/a	n/a	Language acquisition was associated with depressive symptoms (r=-.29*)
Hinton et al, 1997	Vietnamese and Chinese refugees in US (longitudinal)	Less than 6 months at T1 and 18-24 months at T2	114	Language acquisition	Hopkins Symptom Check List - Vietnamese version	n/a	n/a	Language acquisition predicted depressive symptoms (β=-.097*) at T2 (18-24 months post resettlement), but not at Time 1 (less than 6 months duration of resettlement)
Nicassio et al, 1986	Laotian refugees in US (cross-sectional)	42.67 (n/r) months	48	Language acquisition Length of resettlement	Centre for Epidemiological Studies of Depression scale (CES-D)	n/a	Length of resettlement was not associated with depressive symptoms	Language acquisition predicted depressive symptoms (β=-.463**)
Nilsson et al, 2008	Somali refugee women in US (cross-sectional)	5 (2.95) years	62	Language acquisition	Hopkins Symptom Check List (HSCL-21)	n/a	Length of resettlement did not predict	Language acquisition did not predict

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
				Length of residence			psychological distress	psychological distress
Schweitzer et al, 2006	Sudanese refugees in Australia (cross-sectional)	65% less than 2 years	63	Length of residence	Harvard Trauma Questionnaire (HTQ) Hopkins Symptom Check List (HSCL-37)	n/a	Length of residence predicted depressive (β=.27**) anxiety (β=.37**) and somatisation (β=.24*), but not PTSD symptoms	n/a
Takeda, 2000	Iraqi refugees in US (cross-sectional)	12.7 (9.3) months	105	Language acquisition Length of residence	Centre for Epidemic Studies Depression (CES - D)	n/a	Length of residence did not predict depressive symptoms	Language acquisition did not predict depressive symptoms
Tran et al, 2007	Vietnamese migrants and refugees in US (cross-sectional)	7.01 (5.22)	311	Length of residence	Centre for Epidemic Studies Depression (CES - D)	n/a	Length of residence predicted depressive symptoms (β=.56**)	n/a
Westermeyer, Bouafuely et al, 1989	Hmong refugees in US (cross-sectional)	5 (n/r)	97	Language acquisition Self-assessed language proficiency Individual indicators of acculturation	Hamilton Depression Scale (HAM-D) -Anxiety/ Somatization Hamilton Anxiety Scale (HAM-A) Somatic anxiety Symptom Checklist	n/a	n/a	Language acquisition was associated with somatization on 3 different scales (SCL-90, r=-.24*; HAM-A, r=-.50***; HAM-D, r=-.67***)

Author	Sample (Study design)	Length of residence (in years) M, (SD/range)	N	Acculturation measure	Measure of mental health outcome	Acculturation / Acculturative stress[1]	Length of resettlement1	Language Acquisition/ Difficulty1
				(e.g., utilization of American mass media, number of American friends, attendance at ethnic cultural activities etc.)	(SCL-90) - Somatization Brief Psychiatric Rating Scale (BPRS)			Self-assessed language proficiency was associated with somatization only on BPRS (r=-.25*)
Westermeyer et al, 1984	Hmong refugees in US (longitudinal)	18 months (4.2) at T1; 42 months at T2;	89	Language acquisition	Zung Scale for depression Symptom Checklist (SCL-90) – Depression and Anxiety	n/a	n/a	Lack of language acquisition was not associated with anxiety or depressive symptoms but it was associated with more depressive symptoms at T2

NOTE: [1]Pearson's correlations or standardized beta values were provided when available. *p<.05, **p<.01, ***p<.001; n/a: not applicable

Acculturation measures

Assessing the measurement types of acculturation, we identified four types of measures used to assess acculturation. These included uni-linear acculturation measures (n=1), bi-linear acculturation measures (n=5), acculturative stress measures (n=7) and proxy measures of acculturation (n=17). No study in the current review used typological assessment of acculturation. While there was no consistency in the type of domains used to assess acculturation, the majority of the acculturation scales using uni- or bi-linear measures assessed acculturation by incorporating items that measure stress associated with acquisition of language, cultural and/or behavioural domains. Seven studies identified as using a measure of acculturative stress incorporated items that measure stress experienced in different life domains including but not limited to employment, housing and language problems, peer and family pressures, and discrimination, producing one total score as an indicator of the acculturative stress. Seventeen studies identified as using a proxy measure of acculturation predominantly used the host language acquisition (13 studies) or length of resettlement in the host country (8 studies) as a single factor indicating acculturation.

Mental health outcome measures

Types of mental health outcomes identified in the reviewed studies included assessment of general psychological distress, PTSD, depressive, anxiety and somatic symptoms. Instruments used to measure these outcomes predominantly included well-known, validated and reliable measures for general psychological distress (GHQ-28, HOS, HSCL-21, HSCL-25), PTSD symptoms (DICA, HTQ, IES-R, MINI, UCLA PTSD Index), depressive symptoms (BDI, CIDI- Depression, CES-D, Depressive Affect Measure, Depression Self Rating Scale, Geriatric Depression Scale, HAM-D, HSCL-25-depression, HSCL-37-depression, K-SADS), anxiety symptoms (HSCL-25-anxiety, HSCL-37-anxiety, HOS, HAS-A, MINI) and somatic symptoms (HSCL-37-somatization, SCL-90-somatization).

Table 3 summarizes the included studies, based on the type of acculturation measurement and related mental health outcomes assessed in these studies.

Table 3

Type of acculturation measure used and mental health outcomes assessed

Methodological design of acculturation	**Mental health outcome measured**				
	Psychological distress	PTSD[1]	Depressive symptoms	Anxiety symptoms	Somatic symptoms
Uni-linear measures (n=1)					
Cheung 1995	✓				
Bi-linear measures (n=5)					
Birman & Tran, 2008			✓	✓	
Birman et al, 2014	✓				
Knipscheer et al, 2006	✓				
Oppedal & Idsoe, 2012			✓		
Teodorescu et al, 2012		✓	✓		
Acculturative stress measures (n=7)					
Bogic et al, 2012		✓		✓	
Fenta et al, 2004[2]			✓		
Jorden et al, 2009		✓	✓		
Nicholson, 1997		✓	✓	✓	
Perera et al, 2013		✓			
Schweitzer et al, 2011		✓	✓	✓	✓
Tran, 1993			✓		
Proxy measures of acculturation (n=17)					
Beiser & Hou, 2001			✓		
Beiser & Hou, 2006			✓		
Chung et al, 2000	✓				
Chung & Kagawa-Singer, 1993			✓	✓	
Chung & Bemak, 2002	✓				
Clarke et al, 1993		✓	✓		
Corvo & Peterson, 2005	✓		✓		
Cummings et al, 2011			✓		
Fenta et al, 2004[2]			✓		
Hinton et al, 1997			✓		
Nicassio et al, 1986			✓		
Nilsson et al, 2008	✓				
Schweitzer et al, 2006		✓	✓	✓	✓
Takeda, 2000			✓		
Tran et al, 2007			✓		
Westermeyer et al, 1989					✓
Westermeyer et al, 1984			✓	✓	
Total N= 29 individual studies	n=7	n=8	n=21	n=7	n=3

Note: [1]Posttraumatic Stress Disorder; [2]Study assessed acculturation with multiple measures;

Acculturation and symptoms of general psychological distress

Seven studies included in this review examined the relationship between acculturation and general psychological distress; however, the results are mixed. When acculturation was assessed with a uni-linear scale, lower rates of psychological distress were identified among participants who were more assimilated into the host culture (Cheung, 1995); however, these results differed based on participants' age and gender. Bi-linear assessment of acculturation (Knipscheer & Kleber, 2006) identified that preservation of cultural traditions and skills acquisition were associated with less psychological distress; however, this relationship was only significant for the clinical sample, and not the community sample. Birman, Simon, Chan, and Tran (2014) identified that American acculturation contributed to better life satisfaction and reduced psychological distress via its effect on occupational success, while Russian acculturation had the same effect via co-ethnic social support.

Studies using proxy measures of acculturation identified that refugees with longer resettlement duration (Chung et al., 2000) and better language acquisition (Chung & Bemak, 2002) reported less psychological distress. However, the relationships varied based on participants' age, ethnicity and gender. On the other hand, amongst Somalian refugees who were also victims of domestic violence, language acquisition and length of residence did not contribute to explaining the level of psychological distress, once the traumatic experience of physical assault and aggression were considered (Nilsson, Brown, Russell, & Khamphakdy-Brown, 2008). Similarly, no relationship between language acquisition and psychological distress was identified in recently resettled refugees from Bosnia (Corvo & Peterson, 2005).

Acculturation and PTSD symptoms

Eight studies included in this review examined the relationship between acculturation and PTSD symptoms. Teodorescu et al. (2012) used a bi-linear acculturation measure and identified that weaker social integration with the host-culture was associated with higher

levels of PTSD and complex PTSD symptomatology, while weaker social integration into the ethnic community was associated with complex PTSD only. Five studies used an acculturative stress measure and found that greater acculturative stress was associated with greater PTSD symptoms (Bogic et al., 2012; Jorden, Matheson, & Anisman, 2009; Nicholson, 1997; Perera et al., 2013; Schweitzer et al., 2011). Specifically, Schweitzer and colleagues (2011) reported that greater symptoms of traumatization were equally predicted by traumatic events and acculturative stresses.

Finally, two studies that used a proxy measure to assess acculturation found non-significant relationships between language acquisition and trauma-related symptoms (Clarke et al., 1993), and between length of residence and symptoms of PTSD (Schweitzer et al., 2006).

Acculturation and depressive symptoms

There were 21 studies investigating the relationship between acculturation and depressive symptoms in refugee populations and three of those studies used bi-linear acculturation measures. Oppedal and Idsoe (2012) found that less depressive symptoms were reported by those refugees who also reported increased cultural competence in both ethnic and host cultures. Teodorescu et al. (2012) reported that weaker social integration with the host culture was associated with higher levels of depressive symptoms, while social integration with the ethnic culture was not at all related to depressive symptoms. Birman and Tran (2008) failed to find a significant relationship between any of the three domains of host and ethnic cultural orientation (language, identity, behavioural) and depressive symptoms. Similarly, Beiser and Hou (2006) also failed to find an association between ethnic identity and depressive symptoms; however, in that same study, depression interacted with language acquisition and that interaction in turn had a significant negative association with ethnic identity. This suggested that ethnic identity moderated the effects of language acquisition by reducing the effect of language acquisition on depressive symptoms.

Out of the five studies identified in this review that used a measure of acculturative stress, all identified that acculturative stress was positively associated with depressive symptoms (Fenta et al., 2004; Jorden et al., 2009; Nicholson, 1997; Schweitzer et al., 2011; Tran, 1993).

Twelve studies in this review used a proxy measure of acculturation including 10 that used language acquisition, five that used length of residence and one that used ethnic identity (some studies used both proxies). Out of the 10 studies that used language acquisition as a proxy measure, eight studies identified significant negative relationships between language acquisition and depressive symptoms (Beiser & Hou, 2006; Clarke, Sack, & Goff, 1993; Cummings, Sull, Davis, & Worley, 2011; Nicassio et al., 1986) including four studies that investigated this relationship in refugees in long-term resettlement or by using a longitudinal design (Beiser & Hou, 2001; Chung & Kagawa-Singer, 1993; Hinton, Tiet, Tran, & Chesney, 1997; Westermeyer, Neider, & Vang, 1984). Beiser and Hou (2001) investigated this relationship in a sample of 608 South East Asian refugees over three different time points. The findings suggested that language acquisition had no effect on depressive symptoms during the initial period of resettlement; however, language acquisition predicted depressive symptoms once refugees had resettled for longer than 10 years. Similar findings were reported in the two other longitudinal studies where language acquisition was not significantly related to depression within the early stages of resettlement; however, the relationship became significant once the refugees were in the US for 12 or more months (Hinton et al., 1997) or 42 months (Westermeyer et al., 1984). These results were further confirmed by Chung and Kagawa-Singer (1993), who demonstrated that in a large sample of 2180 refugees, language acquisition was associated with depressive symptoms only for those who lived in the US for longer than 5 years. The two studies that investigated this relationship in recently resettled samples of refugees (both less than one year duration) both

found no significant relationship between language acquisition and depressive symptoms (Corvo & Peterson, 2005; Takeda, 2000).

Using the length of resettlement as the proxy measure of acculturation, two studies found no association between length of residence and depressive symptoms (Nicassio et al., 1986; Takeda, 2000), while three studies identified that length of residence was associated with higher levels of depressive symptoms (Chung & Kagawa-Singer, 1993; Schweitzer et al., 2006; Tran et al., 2007). In particular, Tran and colleagues (2007) proposed an inverted U-shape relationship between symptoms of depression and length of residence, postulating that depression increases during the initial period of resettlement and then begins to decrease with increased length of stay in the host country (after 12.5 years in their sample). Similar results were identified in a sample of 325 Ethiopian refugees where risk for depression was low during the first few years in resettlement, but then starts to increase until it reaches a peak at about 15 years post resettlement, after which it starts to decrease and remains low (Fenta et al., 2004). Even though these two studies found different results in refugees in the very early stages of resettlement, both studies found that that depressive symptoms seem to decline during the 12-15 years post resettlement.

Acculturation and anxiety symptoms

Seven studies investigated the relationship between acculturation and anxiety symptoms. In the one study that used a bi-linear acculturation scale (Birman & Tran, 2008), ethnic behavioural acculturation was associated with increased anxiety, while host culture acculturation did not predict anxiety symptoms. In another four studies that used a measure of acculturative stress, results were comparable and indicated that acculturative stress predicted anxiety symptoms (Bogic et al., 2012; Nicholson, 1997; Schweitzer et al., 2011; Schweitzer et al., 2006). Longer duration of residence was associated with more anxiety symptoms (Chung & Kagawa-Singer, 1993; Schweitzer et al., 2006), while those who had low host-language proficiency were more likely to experience anxiety symptoms irrespective of their

length of resettlement (Chung & Kagawa-Singer, 1993). Contrary to these findings, Westermeyer and colleagues (1984) did not find a link between language acquisition and anxiety symptoms in their sample of 89 Hmong refugees who had resettled in the US for the 3.5 years.

Acculturation and somatic symptoms

Three studies investigated the relationship between acculturation and somatic symptoms and found that irrespective of how acculturation was operationalized, it was associated with more somatic symptoms. In particular, more acculturative stress (Schweitzer et al., 2011) and longer length of residence (Schweitzer et al., 2006) were associated with more somatic symptoms, while lower language acquisition was associated with more somatic symptoms several years into the resettlement period (Westermeyer, Bouafuely, Neider, & Callies, 1989). In addition, fewer somatic symptoms were reported by those who used American mass-media, had a native-born American friend, and were engaged in American rather than native-Hmong cultural activities (Westermeyer et al., 1989).

Discussion

This study systematically reviewed 29 studies that examined the relationship between acculturation, acculturative stress and mental health problems in refugee adult populations. Studies varied widely in regard to sample, methodology, measurements and mental health outcomes assessed. The search identified five mental health outcomes assessed in relation to acculturation including general psychological distress, PTSD, depressive, anxiety and somatic symptoms.

Evidence on the relationship between acculturation and mental health in refugees was largely discordant. Very limited support for a relationship between acculturation and general psychological distress demonstrated the protective value of ethnic cultural orientation, while assimilationist orientation was associated with higher levels of psychological distress. These

results differed based on the acculturative measures used, ethnic group and gender of the participants. Similarly, a very limited evidence (in numbers) suggests that weaker identification with either ethnic or host culture is a risk factor for PTSD. This limited evidence none the less provides support for previous systematic reviews that identified strong orientation to both ethnic or host culture, and especially to both cultures (i.e., biculturalism), related to better psychological and health related adjustment (Nguyen & Benet-Martínez, 2012) . The evidence behind a relationship between acculturation and depression was also mixed. Although some studies showed that ethnic and host cultural orientations were a protective factor for depressive symptom, other studies found no such relationship.

Studies conducted using proxy variables were more consistent demonstrating that lower levels of acculturative stress and increased language acquisition were associated with fewer depressive symptoms, especially in the later stages of resettlement. Longitudinal research supported this, identifying that depressive symptoms start to decrease after prolonged resettlement (i.e., longer than 10 years). Higher levels of acculturative stress were associated with more PTSD, anxiety and somatic symptoms and, although very limited, some evidence suggests that shorter resettlement and language difficulties were associated with more anxiety and somatic symptoms, but not PTSD. This finding supports the acculturation stress model proposed by Berry (1997), which suggests that the early stages of acculturation are identified as highly stressful, until an adaptive time point is reached, when stress starts to decrease, and improvement in psychological wellbeing is probable.

The few studies in this review that used bi-dimensional assessments confirm prior research conducted on migrants, which found that stronger orientation towards the host culture (Gupta et al., 2013) and towards both ethnic and host cultures (Nguyen & Benet-Martínez, 2012) are associated with better psychological and health outcomes. However, it is important to indicate that these conclusions are based on very limited evidence, often relying

on a couple of cross-sectional studies only. In addition, no study identified in this review used typological assessment of acculturation, which would allow for comparison of all four acculturation strategies and their impact on mental health. As such, we do not know much about the relationship between marginalization (i.e., rejection of both cultures) and mental health outcomes.

The mixed results presented in these findings therefore highlight conceivable problems associated with comparability between different models of conceptualization and operationalization of acculturation. Generalizability of the findings may be difficult because the participants across studies differ based on their ethnic, linguistic, religious and cultural background, and results may be influenced by different cultural beliefs and values. Males and females seem to also adapt differently, which may be due to their previous held gender roles. The effects of these factors should be investigated before we can make firm conclusions and generalize the findings across different cultures and genders.

Implications and future directions

Understanding migration-related factors that impact mental health is critical for interventions aimed at improving adjustment and mental health for refugees. The findings in this review progressively indicate that refugees who shed away their ethnic cultural background or those who do not adapt to their host culture, may be at high risk of not adjusting to the new life, which may be detrimental to their mental health problems, especially in light of pre-existing likelihood of exposure to pre-migratory risk factors such as traumatic exposure. It is therefore very important to engage with refugees early on in the post-migration period and to help them learn and engage with the host culture, but also help them to maintain and value their cultural heritage. This could be done by: providing free language classes that would help with host country language acquisition; assisting community groups to build their ethnic associations (e.g., religious, social, political) enabling them to continue to value their ethnic heritage and stay in contact with members of their cultural background; reducing risk factors and barriers

for mental health by permitting access and enabling employment, social services and health care; developing immigration, education and other policies that promote acceptance of minorities such as asylum seekers and refugees; and reducing practices that promote stereotyping, discrimination and racism.

These objectives can be implemented though targeted policy and education, academic research, media, school curriculum and use of social media. This top-down approach would provide refugees with a more accepting environment, enabling them to choose more adaptive acculturation strategies, which leads to better psychological and social adjustment (Nguyen & Benet-Martínez, 2012), employment and higher productivity (Colic-Peisker, 2003) and better functioning as equal members of multicultural societies. Hence, empowering refugees and giving them control to plan for their future, could be one of the best predictors of adaptive acculturation not only on an individual, but also societal level.

The acculturation process in refugee populations appears to have received little attention in research, limiting our understanding of acculturation and its impact on mental health. It is therefore crucial that we conduct future research incorporating learning from this and prior findings. Despite the abundance of research conducted with migrants and recent consensus with regard to superior bi-dimensional conceptualization of acculturation (Chun, Balls Organista, & Marín, 2003; Schwartz et al., 2010), the research conducted with refugee populations is still plagued by basic conceptual and operationalized pitfalls associated with acculturation research. The underutilization of bi-linear and typological models of acculturation and overreliance on the proxy measures reflects the lack of clear definition of the acculturation construct and confusion about its core components. Therefore, there is an urgent need for more epidemiological, theoretically based and targeted future research with diverse cultural groups. Specifically, this research needs to: conceptualize acculturation based on the acculturation theory that incorporates multiple acculturation domains; operationalize

acculturation assessments by using bi-linear and typological tools, and conduct research globally with diverse cultural refugee groups, preferably using longitudinal designs.

An additional factor that this review did not consider, but is one that cannot be dismissed in the research of refugee mental health, is the psychological trauma that many refugees experience pre-migration. In lieu of the established evidence identifying war-related traumatic events as the strongest risk factors for PTSD, depressive and anxiety symptoms in refugees (ACPMH, 2013; Porter & Haslam, 2005; Steel et al., 2009), future research needs to consider these risk factors which adversely impact not only refugees' mental health, but can also impact their ability to cope with acculturative stressors and their attitudes towards acculturation. Furthermore, individual (e.g., age, gender, psychiatric history, coping mechanisms and emotional regulation) and contextual characteristics (e.g., distance between ethnic and host societies, host country resettlement policies and orientations such as multiculturalism or melting pot) cannot be dismissed and need to be investigated together with individual psychological and social predictors of mental health in refugees.

Limitations

Firstly, it is possible that not all research evidence was identified using our search strategy. Secondly, the majority of the reviewed studies used a cross-sectional design, which makes it difficult to attribute causality to acculturation. Thirdly, the majority of the studies identified were conducted with South-East Asian refugees resettled in the US or Canada, which limits the generalizability of these findings. Furthermore, the cultural dissimilarity between ethnic and host societies, and the context of the receiving countries have previously been nominated as potential confounders (Schwartz et al., 2010) and may influence the relationship between acculturation and mental health. However, these moderators could not be investigated in the current review and future research may wish to investigate the influence of contextual factors on the mental health outcomes among refugees.

Conclusion

The current review is the first of its kind focusing on the relationship between acculturation and mental health in adult refugee populations. The findings indicate that the literature investigating the relationship between acculturation and mental health in refugees is very limited and still in its early stages. While there was very little evidence that higher levels of cultural orientation with the host and ethnic culture were associated with better mental health outcomes, the evidence was limited by number of studies, and findings varied across samples, acculturative domains and even gender. Albeit based on the limited evidence, our findings do indicate the importance of assisting refugees' adjustment to the new culture and the maintenance of their ethnic culture to the mental health of refugees.

The wide range of conceptual approaches of acculturation, the variety of sample characteristics, and the differing acculturative measurements used, all contribute to the diversity and complexity of assessing acculturation in refugees. Future research needs to investigate these relationships from a more unified theoretical model of acculturation applicable to refugee populations, using bi-linear and typological measures assessing acculturation in refugees from diverse cultural backgrounds, with differing length of residence and settlement in diverse host societies.

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6 THEORETICAL PERSPECTIVES ON REFUGEE MENTAL HEALTH

Despite the continuous growth of research in the area of mental health, research investigating mental health of refugees is still lagging behind the research concerning general population. Furthermore, the theoretical frameworks are rarely providing the structural basis for the research directions or designs of individual studies (Lustig et al., 2004). This might be a reflection of complexity of refugee experiences and presentations as not all contributing factors can be assessed simultaneously. Focus on some factors may also reflect availability and confusion of the multitude of theoretical models on offer.

This chapter provides an overview of dominant theoretical perspectives and their critique underpinning the research of refugee mental health. Firstly, it draws on the dominant trauma-focused framework that underpins the understanding of post-traumatic mental health focusing on pathological conditions. Secondly, it draws on the psychosocial models for understanding the ways in which migration-related stressors influence adaptation and mental health. This framework also provides linkages to acculturation theory, which underpins the understanding of cultural identity and orientation and changes exerted by the migration process. Finally, the integrated conceptual framework is offered to understand the impact of both trauma- and migration-related factors on mental health. This model acknowledges the individual characteristics and impact of trauma-related experiences but also emphasises the impact of acculturation and contact between the members of the refugee and host cultures. The chapter concludes by arguing that that the complexity

and multifactorial nature of refugees' experience requires an integrated approach to investigating and understanding refugee mental health.

6.1 The trauma-focused model

The trauma-focused model, also known as traumatology, trauma-focused psychiatric epidemiology or medical model of trauma, is the most prevalent framework guiding research on study of psychological trauma. This framework incorporates the psychiatric epidemiology (i.e., prevalence, correlates and causes of psychopathology) with traumatology (i.e., the study of psychological trauma) (Miller, Kulkarni, & Kushner, 2006). With its roots in the biomedical model of psychiatry, this model prioritises identification of universal patterns of distress, focusing on pathological conditions (predominantly PTSD) including diagnosis and epidemiology of symptoms, subsequently guiding the treatment for the experienced mental health problems (Miller et al., 2006)

Various empirical models have emerged from the trauma-focused framework. These models attempt to explain mental health symptoms associated with trauma, including PTSD and other anxiety disorders, in terms of the sensitivity of cognitive, affective, and somatic stress response to threat. These include the biological model (Van der Kolk, Greenberg, Boyd, & Krystal, 1985), the cognitive processing model (Horowitz, 1997), the behavioural model (Keane, Zimering, & Caddell, 1985) and the emotional processing model (Foa & Kozak, 1986; Foa et al., 1989). These models views fear as a multi-systemic information and response structure underlying the pathology of the associated symptoms (Foa & Kozak, 1986; Foa et al., 1989). They integrate learning, cognitive and personality theories to understand cognitions and catastrophic interpretations proposed to develop and maintain the symptoms (Ehlers & Clark, 2000; Resick & Schnicke, 1992).

Trauma-focused approach is guided by the assumption that a traumatic experience itself is the crucial factor that can potentially lead to pathological mental health (Miller et al., 2006). Ameliorating these traumas in treatment, preferably using trauma-focused therapy improves mental health of the individual and enables their functioning with ongoing stressors experienced in everyday life (ACPMH, 2013). Consistent with this approach, the individual is placed at the centre of the analysis, while under-emphasising the influence of other institutions including families, communities and communal institutions (Miller et al., 2006). Applied to war affected populations, trauma-focused advocates consider the war-related traumas (such as experience of torture, witnessing rape and killing, loss of family members, combat) as the main risk factor precipitating psychological distress (Miller & Rasmussen, 2010). This model is the most predominant model utilised to assess the mental health and psychological well-being of refugees.

The trauma-focused model has demonstrated long-established evidence with various trauma-affected populations including military, rape and child sexual abuse victims (e.g., Chard, 2005; Cohen, Deblinger, Mannarino, & Steer, 2004; Monson et al., 2006; Resick & Schnicke, 1992). Similarly, trauma-focused model has been applied to war affected populations in attempt to identify the prevalence, diagnosis and risk factors associated with war-related exposure commonly reported by refugees. To date, there is ample evidence documenting the cross-cultural validity of the PTSD features and the disorder (e.g., de Jong et al., 2001; Kinzie, Sack, Angell, Manson, & Rath, 1986; Weine et al., 1998) in diverse cultural contexts (Marsella, Friedman, & Spain, 1996; Mollica et al., 1998; Schulz, Resick, Huber, & Griffin, 2006). Consequently, the trauma-focused model has been the most prevalent model

proposing to explain the relationship between traumatic exposure and risk of psychiatric disorders.

6.1.1 Critique of the trauma-focused model

Trauma-focused model has been extensively criticised in its cross-cultural application (e.g., Miller & Rasco, 2004; Ryan et al., 2008; Summerfield, 1999). Issues raised criticising the trauma-focused model among other things include lack of cultural sensitivity and applicability of Western notions of traumas and individualised concept such as PTSD (Kirmayer, 2001; Pupavac, 2006); failure to fully capture the variety of trauma-related reactions and account for changes and possible comorbid presentations among victims of multiple and prolonged exposure (Drožđek, Wilson, & Turkovic, 2013); Steel 2001); and failure to consider the socio-political context in which trauma occurs and shapes the posttraumatic world view, cultural norms and constructions of individual and societies (Wilson, 2007). Therefore, cross-cultural psychiatry argues that trauma-focused approach has failed to consider diversity of cultural and historical context that give meaning to how individuals from different cultures and in different contexts conceptualise, understand and present the posttraumatic sequelae.

Considering war-affected populations in particular, a recent trend has emerged critiquing the narrow focus of the trauma-focused model on the direct effects of war-related traumatic exposure on mental health (Miller et al., 2006; Miller & Rasco, 2004; Ryan et al., 2008). Specifically, nature and extent of demands certain social groups encounter are socially patterned (Ryan et al., 2008). Refugees in particular comprise disadvantaged groups, persecuted for their religious, cultural, political and other beliefs. Hence, the nature of these experiences is not incidental but targeted, exposing refugees to multiple stressors during persecution period but also later on

during transit and migration. Where levels of variation in nature of stressors is so multi-fold, the concern is that other stressors such as migration and resettlement factors, on the whole play a more significant role (than what trauma-focused advocates believe) in determining psychological well-being (Ryan et al., 2008). Critics argue that focusing only on the high impact trauma that occurred in the pre-migration period is risky as it potentially overlooks the impact of daily stressors (Miller & Rasmussen, 2010) and important basic needs in the present life (Ryan et al., 2008) that influence the psychological well-being of refugees (Silove, 1999). Indeed, factors such as poverty, inadequate housing, unemployment, discrimination, social marginalisation, changes in family structures and functioning have been reported by refugees as their main concerns at least in the early stages of resettlement and have consistently shown to have a significant impact on mental health outcomes (de Jong et al., 2001; Miller et al., 2002; Porter & Haslam, 2005; Rasmussen et al., 2010). Therefore, trauma-focused model is criticised for over-estimating the magnitude of direct effects of war exposure in explaining psychological distress within war-affected populations.

In response to this critique, and paralleling them research investigating mental health of war-affected populations took a new psychosocial direction by broadening the narrow focus on direct effects of trauma and placing greater emphasis on other stressors occurring in the socio-political environment of refugees.

6.2 Psychosocial models

Contrasting the trauma-focused model, a psychosocial approach accentuates multiple levels (individual, family, community and society), which influence human development (Bronfenbrenner, 1977).

6.2.1 Socio-ecological model

In tradition with the psychosocial approach, the socio-ecological model of refugee distress proposed by (Miller & Rasco, 2004) is offered to explain how daily stressors affect mental health of refugees. This framework proposes that stress is rooted not only in the war-related traumas but also in the social and material everyday stressors associated with displacement and migration. The socio-ecological model therefore emphases the macro-system, identifying different stressors that can affect mental health of refugees (Rasmussen et al., 2010).

In contrast to the individual level focus on the war exposure and its adverse effects emphasised by the trauma-focused model, this model includes different risk stressors at different phase of migration and at different level of social ecology (Miller & Rasmussen, 2016). Specifically, it is argued that exposure to war and conflict gives rise to a constellation of different stressors, not necessarily associated with war but with displacement and migration, which affect psychological wellbeing. Proponents of this model identified four factors that might account for the strong relationship between daily stressors and mental health of war-affected populations (Miller & Rasmussen, 2010; Miller & Rasmussen, 2016). These include *temporal proximity* of daily stressors representing immediate and ongoing sources of stress, rather than distal experiences that might have ameliorated by the natural process of psychological recovery. Daily stressors "*represent noxious stimuli that are largely beyond people's control*" (Miller & Rasmussen, 2010), hence they can cause a host of adverse psychological and physical outcomes, especially considering their prolonged nature. Thirdly, daily stressors are *pervasive* as most war-affected population are confronted with daily challenges as opposed to a highly variable nature of the war-related traumas reported by war-affected populations. Finally, daily stressors include *a diverse set of stressful phenomena* ranging from lower-intensity stressors (such as

poverty, housing, unemployment), to potentially traumatic experiences (such as domestic violence or child abuse). Hence, daily stressors can not only expose refugees to additional potentially stressors but their proximal and pervasive nature can overwhelm individual and family coping resources putting them at higher risk for mental health problems (Miller & Rasmussen, 2010; Miller & Rasmussen, 2016). Daily stressors that have been shown to influence mental health of war-affected populations include poverty (Pernice & Brook, 1996; Rasmussen et al., 2010; Tay et al., 2015), perceived discrimination (Ellis et al., 2010b), unemployment due to lack of relevant skills or due to host-country restrictions on permission to work (Beiser, Johnson, & Turner, 1993) (Priebe et al., 2013; Silove, 1999) and resettlement difficulties (Miller et al., 2002; Schweitzer et al., 2006).

An advantage of this model is in the argument that the addition of the daily stressors to the model significantly increases the overall explanatory power of the model and adds to explanation of the direct relationship between traumatic war exposure and mental health (Miller & Rasmussen, 2010). Psychosocial advocates specifically argue to extend the focus from war-related traumas by maintaining that everyday stressors mediate the impact of war-related traumas on mental health and sometimes even directly cause the mental health problems (Rasmussen et al., 2010). However, proponents of this model are cautious to note that the direct effects of the war-related traumas cannot be relinquished, but instead suggest that the trauma-focused model needs to be adapted to include other intervening variables experienced during displacement and migration that additionally explain the impact of traumas onto mental health (Miller & Rasmussen, 2010; Nickerson, Bryant, Silove, & Steel, 2011).

6.2.2 Critique of the socio-ecological model

Critics of the socio-ecological model argue that the direction of causation between trauma, daily stressors and mental health outcomes proposed by Miller and colleagues has been misinterpreted. In particular, critics argue that poor mental health and more specifically the PTSD symptoms cause or exacerbate daily stressors and not the other way around (Neuner, 2010). Indeed, empirical literature investigating the influence of psychosocial stressors unfortunately does not clarify if the psychosocial stressors are causes, mediators or outcomes of mental health. Due to the subjective evaluation of daily stressors, it is therefore argued that interpretation of daily stressors is influenced by the refugee's PTSD symptom and more specifically negative bias in evaluation and interpretation (Neuner, 2010), which is a core element of anxiety and depression (Mathews & MacLeod, 2005).

The neurobiological research provided further evidence for the above argument. Specifically, it is argued that traumatic exposure alters the neural pathways in the brain that are associated with cognitive domains and executive functioning (Etkin, Gyurak, & O'Hara, 2013), with large effects on working and verbal memory, attention, learning and information processing (Bremner et al., 1993; Gilbertson, Gurvits, Lasko, Orr, & Pitman, 2001; Polak, Witteveen, Reitsma, & Olff, 2012; Scott et al., 2015; Shaw et al., 2002). Hence, it may be possible that PTSD symptoms to some level could reduce the cognitive functioning, therefore influencing the subjective evaluation of the stressor and subsequently diminishing the capacity to cope with daily stressors (such as finding employment or learning the new skills necessary for functioning in the host society). However, there is only very limited research investigating this hypothesis (e.g., influence of PTSD symptoms on acquisition of language, but no consideration for coping mechanisms), and more

research conducted with war affected populations is needed before any conclusions can be reached about this argument.

The definition of the daily stressors proposed by socio-ecological model is also criticised. Specifically, daily stressors as defined by the socio-ecological model do not reflect the current conceptualisation of stress and the dichotomy proposed is not useful for understanding the relationship between stress and mental health (Neuner, 2010). Specifically, Neuner (2010) argues that traumatic stressors can be war-related as well as non-war-related, experienced or witnessed, and irrespective of this they can cause the memory distortions which are the features of the PTSD disorder (Brewin, 2001). Furthermore, (Neuner, 2010) argues that posttraumatic research has already demonstrated that other non-traumatic stressors are risk factors that may mediate or moderate the relationship between traumatic stressors and PTSD. In particular, Neuner reiterates (Layne et al., 2006) that post-war conditions may operate through specific mechanism such as trauma and loss remembrance and re-victimisation and reactive symptoms of distress.

Therefore, it is the complexity and the direction of the ecological model that is being criticised. Although, there is evidence that the combination of war-related and environmental factors both have a major role in development of mental health problems among refugees, the examination of the direction between these factors is still lacking and future research is needed before we can answer this question with certainty.

6.2.3 Acculturation model

Another model that furthers our understanding of the influence of the socio-cultural environment on psychological wellbeing is the study of acculturation. While it is sharing overlap with socio-ecological model, the acculturation model differs from

the socio-ecological model in the attention it gives to the contact between the two societies. Specifically, the acculturation approach provides an individual- and group-level analysis of the relationship between individual and its environment and signifies the influence of the contact between people of different cultural background and the cultural and psychological change it exerts on the individual and groups (Berry, 1997).

Concept of acculturation has developed substantially over the past few decades. The early models proposed that acculturation requires the shedding of the culture of origin and adoption of the beliefs and values of the host culture (Gordon, 1964). This early model argued that there is only one outcome of the acculturation – adoption or assimilation into the host culture. This uni-directional model has been criticized for ignoring the possibility of a bi-directional relationship between the host and origin cultures (Teske & Nelson 1974; cited in Sam, 2006) - i.e., a relationship where by the two groups in contact influence each other. Therefore, a more bi-dimensional perspective emerged, arguing that it is possible to acquire the new culture without necessarily losing the original culture (Berry 1980). Today, most current psychological thinking regards acculturation as a bi-directional and bi-dimensional process.

Owing to seminal work conducted by Berry (Berry, 1997, 2006c) and others (Lazarus & Folkman, 1984; Rudmin, 2009) over the past few decades, the following definition of acculturation is currently accepted defining acculturation as a complex process driven by the *cultural maintenance* of the culture of origin and *contact and participation* with the host culture (Berry, 1997, 2006a). This process is influenced by two components: *attitudes or preferences* towards the host and culture of origin and *behavioural engagement* (i.e. actual practices) towards the host and culture of

origin. This interplay of the attitudes and behaviours towards the host and origin cultures is thought to promote the development and persistence of two independent identities: *ethnic identity and national identity* (Phinney, 1989; Phinney & Devitch-Navarro, 1997). Ethnic identity refers to that part of acculturation where the individual determines the *subjective sense* of belonging to his or hers cultural group while national identity refers to the membership with one's new culture (Phinney, 1989). Ethnic identity is seen as the most important aspect of acculturation (Liebkind & Jasinskaja-Lahti, 2000). Acculturation is therefore understood as a process of one's preference to maintain their culture of origin and identity and one's behavioural engagement (contact and participation) with the host society (Berry, 1997).

Stress, coping and adaptation are highlighted as underlying mechanisms of the acculturation process (Berry, 1997; Folkman et al., 1986). Firstly, the acculturation process is influenced by the operation of the moderating factors that exist prior and during acculturation taking place (Berry, 2006c). These can include reasons for migration or personal characteristics such as age, gender and education, or any other stressors steaming from the experience of having to deal with two cultures in contact (e.g., discrimination, social support, length of acculturation). These factors can act as risks or protective factors dependable on their degree and level. Next, acculturation is influenced by the subjective appraisal of these factors and the degree of stress assigned to them (Berry, 2006c). This is defined as acculturative stress. Therefore, personal characteristics, resources, strategies and social support are seen to influence the process of coping with acculturative stress, which can be exacerbated by differences and cultural distance between the host and origin cultures at the time of contact. The degree of acculturative stress itself influences the minority group's cultural orientation towards the host and origin culture. Consequently, acculturation is

seen as the result of *stress* and *conflict* arising out of contact and participation with the host culture during the acculturative process.

The combination of cultural maintenance on the one hand, and contact and participation with the host culture on the other, are related to multiple dimensions or domains concerning the individual's behaviours, values, beliefs and identity (Berry, 1997, 2006c). More specifically, these domains are assessed as preferences for language use, social affiliations, cultural traditions, communication styles, identity, perceived discrimination, generational status, family socialization, cultural knowledge, and beliefs or values (Bhugra, 2001; Masgoret & Ward, 2006; Zane & Mak, 2003). The interaction of cultural orientation towards the ethnic and host cultures along the dimensions of these domains determines which of the four acculturation strategies is preferred or adapted i.e., *integration* (orientation toward both ethnic and host culture), *assimilation* (orientation towards host culture), *separation* (orientation towards ethnic culture) or *marginalization* (orientation towards neither culture) (Berry, 1997, 2006c).

These four acculturation styles have been criticised because they are based on the assumption that non-dominant groups can choose which acculturation style they want to adapt. Unfortunately, this is not always possible, as their experience depends on the conditions in the larger society. Berry (Berry, 2006b) identified four different strategies that represent the preferred acculturation attitudes of the host societies i.e., how they might want the immigrants/refugees to acculturate. These four strategies have been referred to as: *melting pot, segregation, exclusion and multiculturalism*. *Melting pot* refers to the attitudes of the host society where they seek or even enforce the assimilation of all their non-dominant groups. When separation or marginalisation of the non-dominant groups is sought or enforced by the host society, this is known as

segregation and *exclusion* respectively. On the other hand, if cultural diversity is valued and even encouraged by the society as whole, it is called *multiculturalism* (Berry, 2006b).

6.2.4 Critique of the acculturation model

While Berry's acculturation model is sensitive to the demands of cross-cultural transitions within a psychosocial stress model, it has been criticised for the narrow focus on the inter-cultural contact as root of all stressors placing demands on the individual (Ryan et al., 2008). In particular, it is argued that demands associated with contact with new culture are overemphasised at the expense of all other stressful factors and characteristic associated with migration process (Lazarus, 1997). Therefore, it is argued that acculturative demands are only a fraction of the broader demands brought about by forced migration (Ryan et al., 2008)

Furthermore, when applied directly to refugees, acculturation model misses to consider the critical pre-migration traumatic events, such as human rights violations, extreme trauma and torture, which challenge human adaptive systems and influence psychological well-being and functioning (Silove, 1999, 2013). This is particularly important considering that there is substantial evidence that these factors are primary predictors of mental health problems predominantly reported in refugee populations, over and above factors associated with resettlement and migration (Allen et al., 2006; Silove, 1999; Steel et al., 2009).

Lastly, while the two-dimensional conceptualization of acculturation has been gradually accepted and confirmed empirically (Flannery et al., 2001), concerns still exist about operationalization of acculturation (for discussion see Hunt et al., 2004; Rudmin, 2009; Salant & Lauderdale, 2003; Schwartz et al., 2010). Large variations and discrepancy in the empirical evidence are attributed to the variability of

acculturation measures used (Nguyen & Benet□Martínez, 2007). Although this has progressed from using predominantly uni-linear measures (assimilation versus separation assessment) to a more accepted bi-linear (ethnic and host cultural orientations jointly indicate preference for one of the four acculturative orientations) and typographical assessment of acculturation (direct assessment of acculturative orientations).

In summary, the acculturation model offers a valuable approach to investigating the bi-directional (origin and host cultural) influence of the social domains related to resettlement and acculturation among war-affected populations. However, the acculturation model omits to consider the important influence of the pre-migratory war-related traumas refugees are commonly exposed too, which have significant influence for mental health. Hence, a more integrated approach is needed to investigate psychosocial and contextual factors influencing mental health of refugees.

6.3 Integrated conceptual model of psychological well-being of refugees

6.3.1 The ADAPT model

Silove (1999, 2013) offers an integrated conceptual model for understanding psychosocial experiences of refugees and provides linkages to models of trauma and acculturation theory. The ADAPT model (*Adaptation and Development After Persecution and Trauma)* incorporates human right violations, acculturative factors and the inherent intercultural contact and conflict, but extends beyond to include the social pillars that assist the refugees' adaptation, psychological equilibrium and provide basis for adaptation. The following five major systems constitute an ADAPT model proposed by Silove (1999, 2013): safety system, attachment system, justice system, identity and role system and existential-meaning system.

Silove (1999, 2013) argues that human rights violations including individual and mass trauma and persecutions challenges and disrupt each of these systems and that targeted repair is existential to restoring individual and community mental health and psychosocial recovery. In particular, safety system is challenged by human rights violations through the perception of fear and threat therefore requiring establishment of individual and community safety and security. Attachment system is challenged by multiple experiences of actual and symbolic loss, and ruptured bonds and requires maintenance and repair of family and social bonds. Justice system is challenged by injustice of human rights violations and their unacknowledged or unmitigated nature, and requires creation of effective systems of justice. Identity and role system is challenged by disrupted institutions, sense of cohesion and agency and structures requiring reestablishment of social roles and identities. Finally, the existential and meaning system is challenged by the loss of faith in human beneficence resulting from exposure to human rights violations and requiring building of institutions that create communal coherence and meaning, whether religious, spiritual, existential, political or cultural.

The advantage of the ADAPT model over the acculturation model alone is that it firstly accommodates models of trauma and related diagnostic construct, as it provides a model for understanding the influence of traumatic experience on refugee functioning, adaptation and resettlement outcome. Secondly, it links the acculturation to the process of meaning making and adaption. In particular, acculturation process has an active role in the process of adaptation within the identity and role system, attachment system and existential meaning systems. The stress associated with the process of acculturation can negatively affect these adaptive systems, which are already profoundly affected by traumatic experiences (Allen et al., 2006).

6.3.2 The integrated conceptual framework for refugee acculturation

Drawing on the human rights conceptual ADAPT model proposed by Silove (1999, 2013) and Berry's (1997, 2003) conceptual acculturation model (Allen et al., 2006) offer an integrated conceptual framework for understanding refugee acculturation. The integrated framework incorporates the group level and individual level analyses, the impact of contact between the two cultures, the human rights violations and the different mechanisms of influence upon members of the two different cultures (i.e., origin and host).

From the human rights model, the integrated framework has taken to emphasise the individual pre-migratory experiences including trauma exposure and individual personality characteristics noting the importance of developmental and gender factors (Allen et al., 2006). Similarly, the integrated model emphasises the *cultural trauma* (Comas-Díaz et al., 1998) experienced at collective group-level, which together with individual trauma-related factors and characteristics, is argued to strongly influences the contact between the origin and host cultural groups (Allen et al., 2006).

From the acculturation model, the framework has taken to emphasise the importance of the acculturative contact between the origin and host cultures and its associated responses to the concerns of refugee resettlement. As such, host-country attitudes towards minority groups and cultural difference, the cultural diversity and social policies including any potential barriers and discrimination in housing and labour market still play an important role in how host-cultures influence the refugee experience of acculturation (Allen et al., 2006). However, for refugees, the responses of the host-cultures extend beyond these factors and include specific refugee services relevant to refugee resettlement policies such as status determination process, access to services and social supports extended to refugees to assist relocation, resettlement and cultural transition and amelioration of human rights violations experienced prior

to migration (Allen et al., 2006). The identified acculturative factors are argued to interact and influence cultural change in both origin and host cultures, consequently exerting major influences on psychological acculturation of the individual (Allen et al., 2006).

Finally, two adaptive outcomes of the acculturative process of refugees are identified: psychological and socio-cultural adaptation (Allen et al., 2006). Ward (1996, 2001) proposed that psychological adaptation refers to personal well-being, good mental health and satisfaction in the new cultural context, and is strongly influenced by factors such as life changes, personality and social support. On the other hand, socio-cultural adaptation refers to external psychological outcomes that link individuals to their new context, i.e. acquisition of culturally appropriate social skills that enable functional competence in the host society (Ward, 2001). Both adaptations are also affected by acculturation strategies and attitudes towards the host society, age at migration and time spent living in the host society (Ward & Rana-Deuba, 2000). Ward (2001) suggests that psychological adaptation is best analysed within the context of stress and psychopathology, while socio-cultural adaptation is linked to social skills and culture learning.

In summary, the integrated model for understanding the acculturation of refugees distinguishes between the group-level processes where extreme variations in refugee experience exist; and individual level process where important variables interact with acculturation process. These include antecedent conditions (individual and collective experiences of trauma, age, gender), and intervening conditions (acculturation orientation and strategies including acculturative stress that arise out of the contact between the host and origin culture). The adaptation is identified as

consequences of the above processes and are measured as psychological and socio-cultural adaptation (Ward, 2001).

6.4 Summary of the chapter

Though there has been a significant work conducted conceptualising the influence of trauma-related and acculturative factors on mental health among refugees, an integrated approach assessing these experiences is very novel. The range of theoretical approaches still proposing to study trauma and acculturation in isolation reflects problematic conceptual formulation. The diversity of investigative factors and the variations in study sample characteristics also reflect the difficulties associated with researching this topic. Nevertheless, the role of the cultural contact between the host and origin cultures, and the associated acculturative stress and acculturation processes have been underlined along refugees' direct exposure to human rights violations. The factors have been conceptualised within an integrated conceptual framework for understanding refugee acculturation. This framework will guide the investigations in the current study aimed at exploring the interaction between traumatic exposure and acculturative process on psychological wellbeing of refugees. The exact methodological approach including variables of interest and measurement approach are described in more detail in chapter seven.

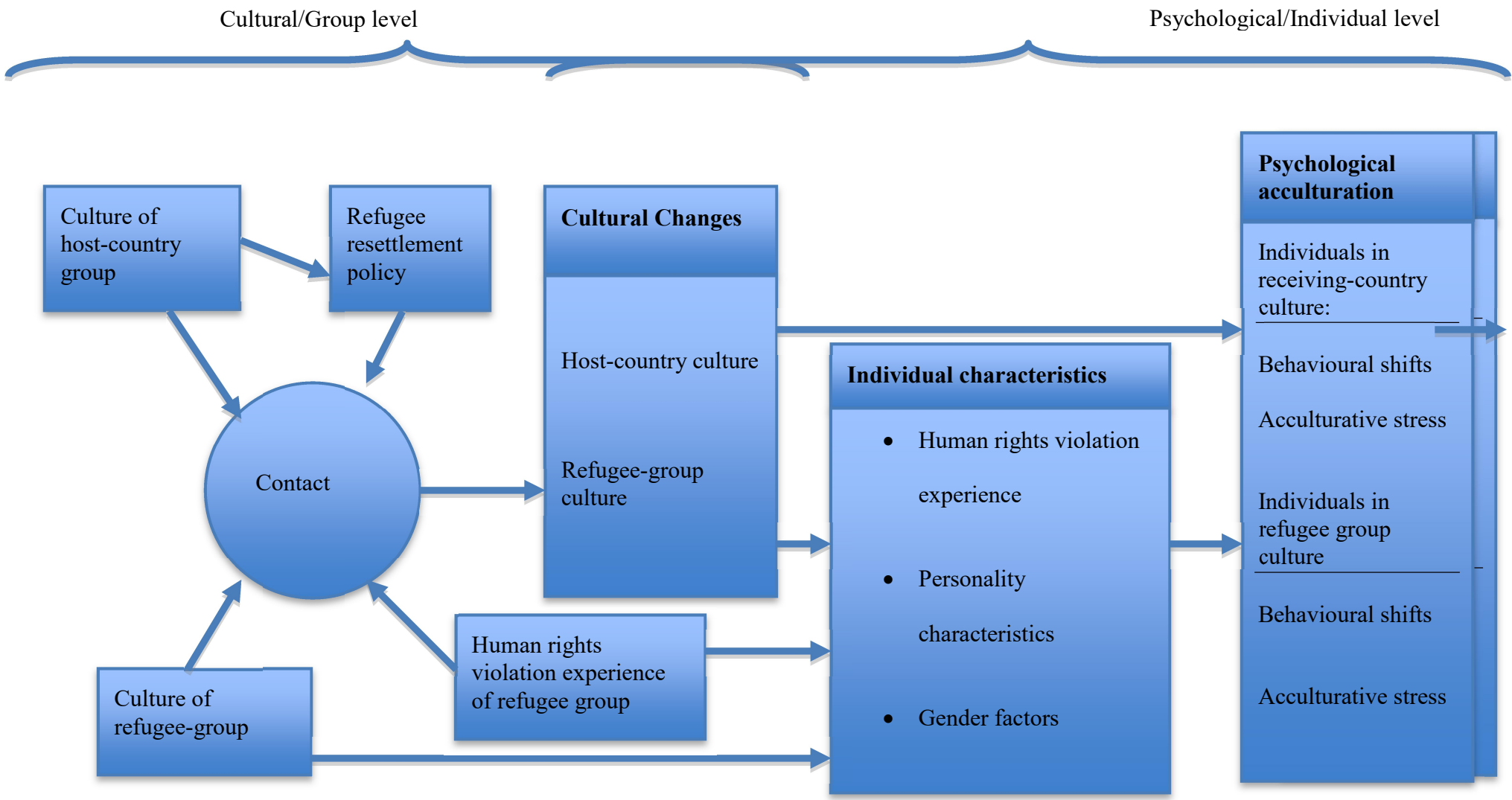
Cultural/Group level
Psychological/Individual level
Culture of host-country group
Refugee resettlement policy
Contact
Culture of refugee-group
Human rights violation experience of refugee group
Cultural Changes
Host-country culture
Refugee-group culture
Individual characteristics
Human rights violation experience
Personality characteristics
Gender factors
Psychological acculturation
Individuals in receiving-country culture:
Behavioural shifts
Acculturative stress
Individuals in refugee group culture
Behavioural shifts
Acculturative stress

Figure 1: Preliminary framework for understanding refugee acculturation within an integrated human rights conceptual framework (adapted from Berry, 2003 by Allen, Vaage & Hauff, 2006)

7 RESEARCH AIMS AND HYPOTHESES

7.1.1 Aim

The aim of this study was to test a theoretical integrated model of psychological and socio-cultural factors that influence mental health outcomes among Bosnian refugees. Specifically, this study investigated the impact of individual factors (demographics, traumatic exposure) and intercultural factors (acculturative stress, cultural orientation) on mental health outcomes (PTSD, depressive and anxiety symptoms) in Bosnian refugees living in two different acculturative contexts (Australian and Austrian). The empirical model tested is illustrated in Figure 2 and addressed in four separate studies described below.

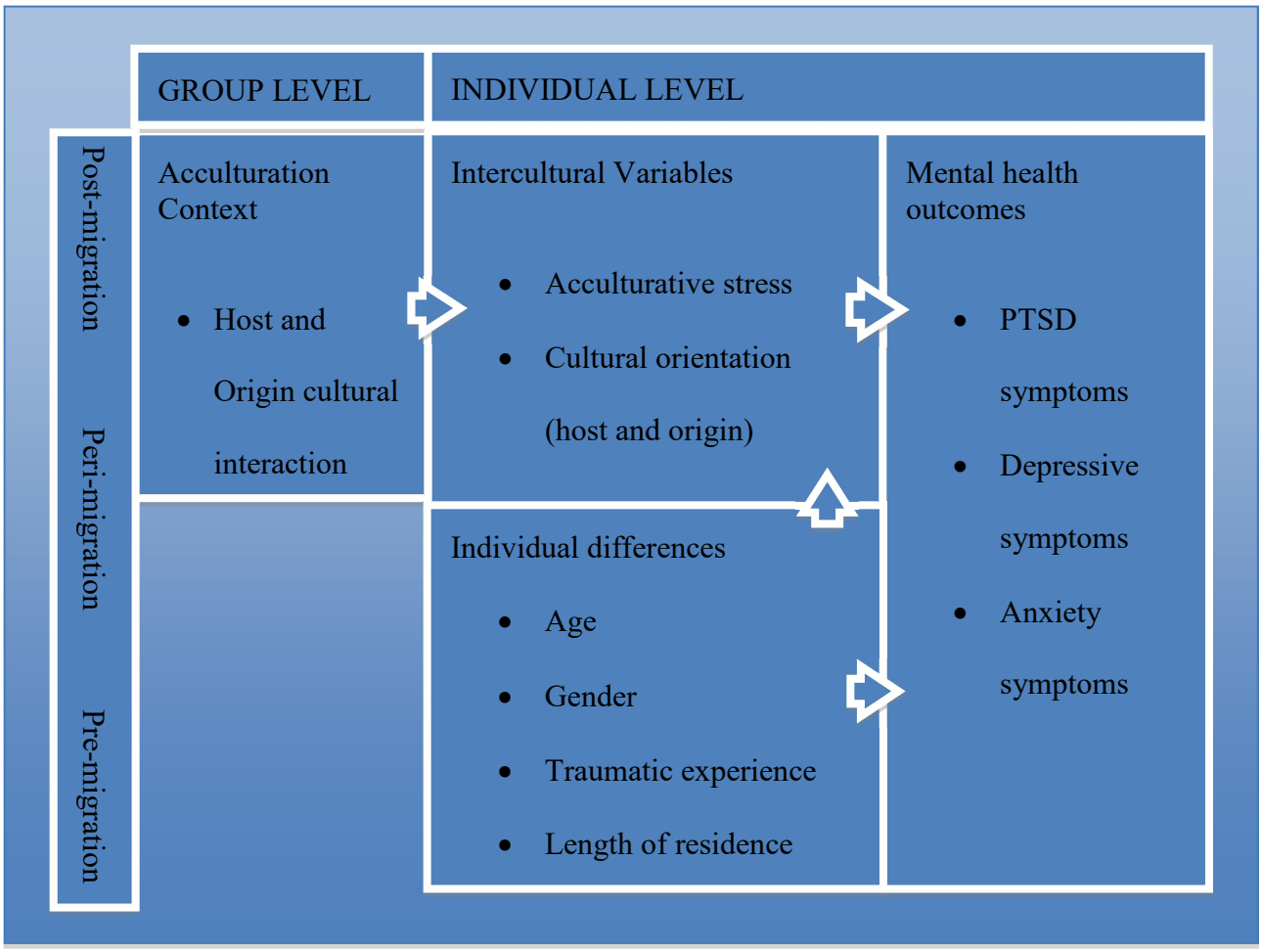

Figure 2: The empirical model tested

The next section presents the specific research questions and hypotheses tested in each of the four separate studies undertaken to explore the proposed theoretical model. The four studies were assessed in sequence exploring the specific aims and building up to an integrated model tested in study four. Figurative representations of studies 1-4 are depicted in Figure 3 below.

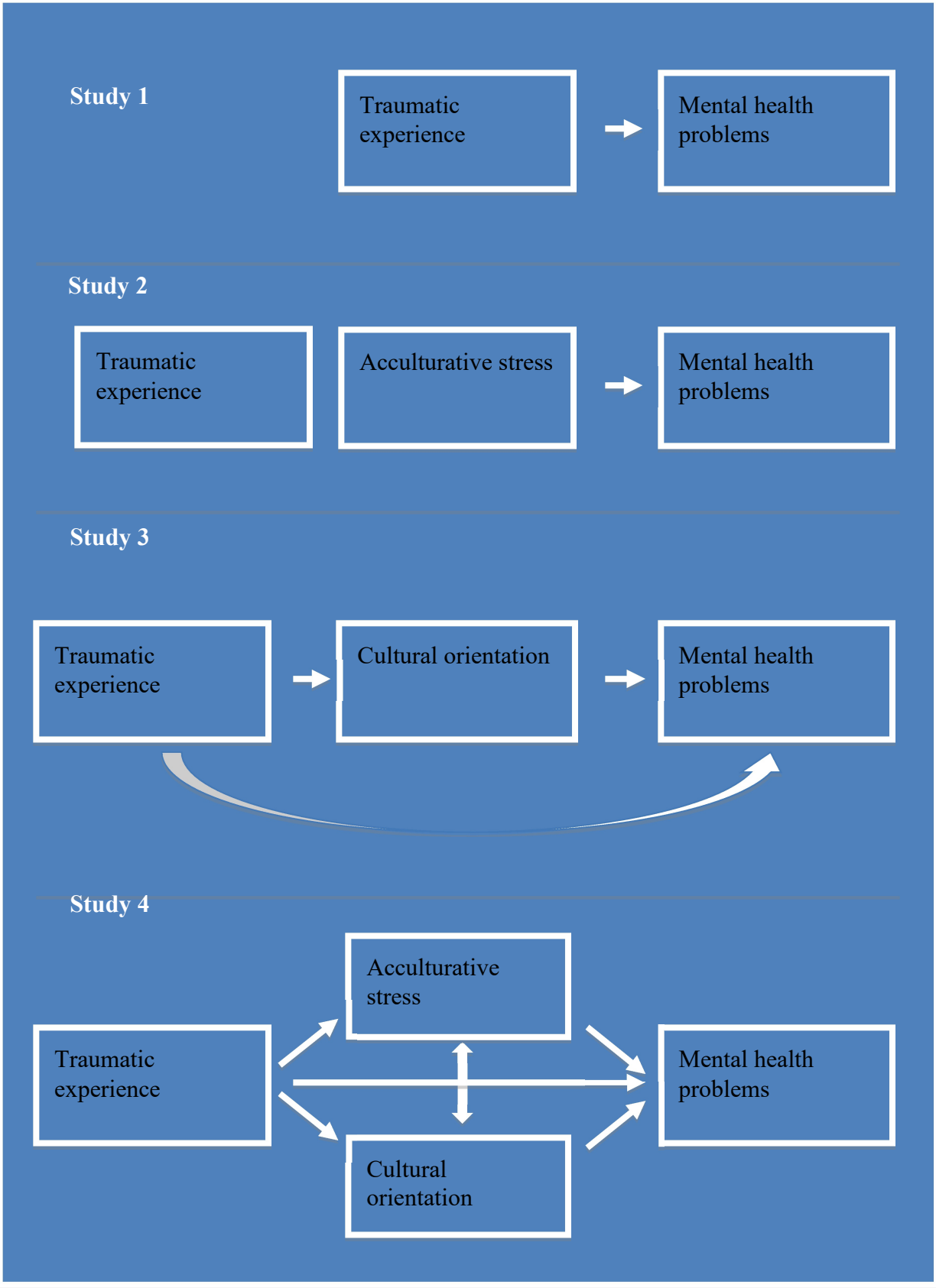

Figure 3: The tested empirical model of study 1, 2, 3 and 4

Study 1

What is the relationship between traumatic exposure and mental health problems in Bosnian refugees?

1) What is the level of traumatic exposure experienced by Bosnian refugees resettled in Australia and Austria? Is there a difference in the levels of traumatic exposure experienced by refugees resettled in Australia and those resettled in Austria?
2) What is the severity of mental health problems (i.e., PTSD, anxiety, depressive symptoms) experienced by Bosnian refugees resettled in Australia and Austria? Is there a difference in the severity of mental health problems experienced by refugees resettled in Australia and those resettled in Austria?
3) What is the relationship between traumatic exposure and mental health problems (i.e., PTSD, anxiety, depressive symptoms) in Bosnian refugees resettled in Australia and Austria?

Study 2

What is the relationship between acculturative stress and mental health problems in Bosnian refugees?

1) What is the level of acculturative stress experienced by Bosnian refugees? Is there a difference in the experience of acculturative stress between Bosnian refugees resettled in Australia and those resettled in Austria?
2) Is there a relationship between traumatic exposure, acculturative stress and mental health problems experienced by Bosnian refugees resettled in Australia and Austria? Is there a difference in this relationship between those refugees resettled in Australia and those resettled in Austria?

Study 3

What is the relationship between traumatic exposure, cultural orientation (i.e., ethnic and host) and mental health problems (i.e., PTSD, depression and anxiety symptoms) in Bosnian refugees?

1) What is the preferred cultural orientation (i.e., ethnic and host) of Bosnian refugees living in Australia and Austria? Do cultural orientation preferences differ between Bosnian refugees resettled in Australia and those resettled in Austria?
2) What are the specific linguistic, behavioural and identity preferences of Bosnian refugees living in Australia and Austria? Do the linguistic, behavioural and identity preferences differ between Bosnian refugees resettled in Australia and those resettled in Austria?
3) What is the relationship between traumatic experiences, cultural orientation (i.e., ethnic and host) and mental health problems (i.e., PTSD, depression, anxiety symptoms) in Bosnian refugees?

Study 4:

What is the relationship between traumatic exposure, acculturative stress, cultural orientation (i.e., ethnic and host) and mental health problems (i.e., PTSD, depression, anxiety symptoms)?

1) What is the relationship between acculturative stress and cultural orientation (i.e., ethnic and host) and mental health (i.e., PTSD, depression, anxiety symptoms) in Bosnian refugees resettled in Australia and Austria?
2) Does acculturative stress mediate the relationship between traumatic exposure and mental health outcomes?

3) Do ethnic and host cultural orientations mediate the relationship between traumatic exposure and mental health outcomes?

7.1.2 Hypotheses

Considering the theoretical and prior research on the relationship between the traumatic exposure, cultural orientation and PTSD, anxiety and depression symptoms, the following hypotheses were developed:

Study 1

a) There will be no difference in levels of traumatic exposure reported by those refugees resettled in Australia and those resettled in Austria

b) There will be no difference in severity of PTSD, and depressive and anxiety symptoms reported by those refugees resettled in Australia and those resettled in Austria

c) There will be a positive relationship between traumatic experiences and PTSD, depression, anxiety and stress symptoms

d) Older refugees will report more PTSD, and depressive and anxiety symptoms than younger refugees

e) There will be no difference in severity of PTSD, and depressive and anxiety symptoms between females and males

Study 2

a) Bosnian refugees resettled in Austria will report more acculturative stress compared to Bosnian refugees resettled in Australia

b) Acculturative stress will be associated with increased severity of PTSD, depression, anxiety symptoms across both groups

c) Those refugees who reported more traumatic exposure will report more acculturative stress which will negatively influence their mental health problems

d) Increased acculturative stress will be associated with increased levels of severity of PTSD and depressive and anxiety symptoms more so in the sample of Austrian Bosnians than in the sample of Australian Bosnians

Study 3

a) Refugees in Australia will have a stronger host cultural orientation, while refugees in Austria will have a stronger ethnic cultural orientation

b) Host cultural orientation will be negatively associated with severity of PTSD, depressive and anxiety symptoms

c) Ethnic cultural orientation will not be associated with severity of PTSD, depressive and anxiety symptoms

Study 4

d) Traumatic exposure will be positively associated with PTSD, depressive and anxiety symptoms

e) Acculturative stress will be positively associated with severity of PTSD, depression, anxiety

f) Host cultural orientation will be negatively associated with severity of PTSD, depression, anxiety

g) Ethnic cultural orientation will be positively associated with severity of PTSD, depression, anxiety

h) Traumatic exposure will be positively associated with acculturative stress

i) Traumatic exposure will be negatively associated with host cultural orientation and negatively associated with ethnic cultural orientation

j) Acculturative stress will be negatively associated with host cultural orientation and positively associated with ethnic cultural orientation

k) The relationship between traumatic exposure and mental health problems will be mediated by levels of acculturative stress

l) The relationship between traumatic exposure and mental health problems will be mediated by levels of host and ethnic cultural orientation

8 METHODOLOGY

This chapter outlines the methodological approach implemented in this study.

Research conducted with marginalised and vulnerable communities such as refugees is very important, however, it also poses particular methodological and ethical challenges. Prior exposure to war and persecution and other risks associated with migration and adaption to new life, renders refugees particularly interesting and relevant to psychosocial research. Nonetheless, these same factors also render refugees highly vulnerable to intensive and sometimes intrusive research (Newman & Steel, 2008). Therefore, establishing trust and rapport with refugee communities is of upmost importance (Miller, 2004) and an important ethical criterion protecting participants from any potential risks and harm associated with participation in research (Newman & Kaloupek, 2004).

To build trust and rapport with refugees in the current study, the student researcher (D.K.) engaged widely with the Bosnian communities in both Australia and Austria. As a native Bosnian and a refugee herself, negotiating cultural and linguistic issues surrounding engagement with the communities was somewhat easier than it would be for an outsider who did not come from the community or did not speak the language. Nonetheless, the unfamiliarity with research practices in general and somewhat moderate to high levels of stigma and illiteracy regarding mental health and trauma in general, posed different challenges. To inform and simultaneously engage the Bosnian community, a number of information provision seminars and meetings were organised with different community groups and community leaders using various means (e.g., ethnic radio, newspapers, face-to-face meetings, websites and educational seminars).

These means were critical in establishing rapport and engaging with the wider community members, inform them about mental health symptoms, pathways to care, research in general, but also advertising the current study and recruitment of interested potential participant.

Face-to-face meetings and seminars provided an opportunity to inform the community about trauma-related symptoms and their impact on the mental health of the individual, family and significant other relationships and the wider community. During these meetings community members were given a chance to ask questions about mental health in general (e.g., symptomatology, pathways to care) and current study specifically (e.g., research methodology, confidentiality, goals of the study). Furthermore, these meetings provided an opportunity for the student researcher to hear more about war- and migration-related experiences of community members, and issues and concerns related to mental health confronting them currently. It is important to note, however, that student researcher was aware of the potential for 'over-engagement' with the community members and in particular as a risk of discussing personal traumatic experiences or engagement in therapeutic work with community members. As such, all care was taken not to discuss personal traumatic experiences in great detail with community members, or offer any advice or promises beyond the scope of the research project or applicable ethical responsibilities. Nonetheless, care was taken to ensuring that community members were not left distressed after any such meetings and that any potentially distressed participants were linked in with appropriate support services. As such, information on available mental health services was provided and distributed in written form to all attending community members. This information included information on self-care, but also contact

details of suitable help-lines, general practitioners and mental health practitioners providing services in Bosnian language. Copy of this information is provided in the Appendix A.

8.1 Design

This study implemented a cross-sectional design utilising self-reported survey data collection. The study was conducted in Australia and Austria between January 2012 and January 2014. This study was reviewed and approved by the Monash University Human Research Ethics Committee, certificate number CF09/3238 – 2009001758. Copy of the approval letter is included in Appendix B.

To ensure access to a wider representation of Bosnian refugees, all information relating to the study, such as plain language statement, information on the mental health disorders, support services available as well as the actual survey, were available in Bosnian and English language. Considerable attention, however, was paid that both versions of the survey stay consistent and have cultural validity. To ensure this, a process of *back translation* was used, a process by which an independent translator interpreted the translated survey back to the Bosnian language. This process has been widely used in research and with refugee populations, demonstrating close resemblance to the meaning of the original items and maximising cultural relevance of the measures (Mollica et al., 1999; Mollica et al., 2001). This first step in this process involved survey translation from English into Bosnian by the student researcher, who is a native Bosnian speaker. Subsequently, the Bosnian version of the survey was independently crosschecked against the English version by a multilingual academic with a PhD in Slavic Linguistics and professorial teaching experience in Slavic languages (Bosnian, Croatian, Serbian) at Monash University, Australia. This person checked the

accuracy of the translation, paying particular attention to cultural sensitivity and linguistic interpretation such as inconsistency in meaning, or uncommon and unclear expressions. Any inconsistencies identified were resolved by mutual discussion and agreement. Copy of the English version of the survey is included in the Appendix C.

8.2 Participants

The study targeted participants from Bosnia and Herzegovina who were at least 18 years of age, had experienced war in Bosnia (1991-1995) and resettled in Australia or Austria.

8.3 Procedure

Participants were invited to participate by either filling a self-report survey in Bosnian or English language, or were offered to participate in an assisted self-report interview. Considering that gaining access to representative, community samples of refugees and minority groups is difficult using singular research recruiting methods, participants in this study were recruited using a mixed method approach to recruiting including, advertising flyers, "snow-balling", online recruitment, advertising in local media and recruitment through agencies whose members were of Bosnian background. These recruitment methods are described in more detail in the following section.

Advertising flyers – Printed flyers in Bosnian and English language were used to advertise the study. They were distributed to Bosnian associations, printed in their newsletter and distributed to community members who attended face-to-face seminars. Furthermore, printed flyers were provided to health professionals who might have contact with Bosnian community members. The professionals usually made the flyers available in their waiting rooms for prospective

participants to pick up if interested. Flyers outlined the study aims, objectives, design and provided research student's contact details and the link to the study's website (described below), where the participants could look up more detailed information about the study or proceed to complete the survey. Copy of the flyer is included in the Appendix D.

Snowballing – This entailed utilising researcher's personal connections in the community and potential referrals through Bosnian general practitioners, psychologists, journalists and other professionals likely to have access to the Bosnian community. These individuals and associations were asked to provide the flyers to the potential participants.

Online advertising – Participation in the study was also advertised online via various Bosnian websites (e.g., Bosnian forums, newspapers, community and sporting clubs, Bosnian language schools, and other ethnic agencies and organizations). In addition, networking communities such as Facebook and LinkedIn were utilised to invite participation. In addition, a website outlining the study purpose and aims was established and link provided to the webmasters of the above-mentioned organisations and agencies asking them to post a link onto their website. When participants visited any of those websites, they were able to see the advertising flyer inviting them to participate in study. Once they click on the link, they were directed to the study's website where the participants received the information outlined in the "Study website" paragraph below.

Advertisements in Bosnian newspapers and ethnic radio programs – Participation in the study was also advertised in the community ethnic newspapers and radio programs alongside articles or radio interviews on the topic of trauma and mental health. Potential participants were invited to visit the website or call

the researchers to arrange for time to have the interview or have the survey sent to them via mail if they are unable to access it online. The radio stations included were: *SBS (Special Broadcasting Service)* in Bosnian and *3ZZZ* Bosnian ethnic radio programs in Australia. Newspapers included *BOSNA magazine* in Australia, and *BIBER* in Austria.

Face-to-face seminars – Participation in the study was also invited through mental health seminars conducted for various Bosnian associations in both countries (e.g., pensioners clubs, sporting clubs, Bosnian student association at University of Vienna, *Im-Puls media - Bosnian Association for education, information and dialog*, in Vienna, Austria). These seminars were presented in Bosnian language by the student researcher and provided an opportunity to advertise the study but also to disseminate general information about common mental health disorders and symptoms associated with experience of traumatic events. Potential participants were invited to visit the website, pick up an advertising flyer, or take a hard-copy of the survey which they could mail back or arrange time for a semi-structured interview to assist with responding to the survey.

Study Website - The online version of the survey was created using *Qualtrics* – an online survey building software, and uploaded to the secure Monash hosted website. All information relating to the study and explained in the plain language statement were accessible via the website in both English and Bosnian language. The website also included additional information on the common symptoms of PTSD, anxiety, depression and alcohol abuse, and relevant culturally and linguistically appropriate support agencies including emergency services and professionals such as psychologists contactable and residing in both

countries who offered counselling and assistance to those who might need it. Those participants who were interested to participate were asked to click on the "proceed" button and to confirm their voluntary participation in the study. They were also asked to provide contact information such as email or phone number, which were to be used to contact the participants in the case of emergency or extremely high scores on mental health indicators, in order to offer information and referral to mental health services.

Participation reimbursement - In order to encourage participation, a prize-draw was offered to participants who took part in the study - an iPad. The prize draw took place at the end of recruitment phase and was announced on the study's website. Even with such an extensive range of recruitment options and a prize, recruitment was very slow and it was difficult to gather a large enough sample of participants to enable meaningful analyses. Upon further deliberation, and with permission from the ethics committee, a decision was made halfway into recruitment to offer gift-vouchers in the value of AUD20$ to participants who returned their surveys.

8.4 Measures

Demographics - The survey included a set of demographic questions inquiring about participant's age, gender, marital status, education, employment history, religion, ethnic identity and current living arrangements including duration of residence.

Trauma - Trauma history questions (yes/no) covered war-related (e.g., torture, concentration camp, killing) and other traumatic events (e.g., exposure to disasters, accidents and assaults) experienced during lifetime.

Acculturative stress - *Demands of Immigration Scale (DIS)* (Aroian, Norris, Tran, & Schappler-Morris, 1998) was used to measure acculturative stress experienced over the previous six months. This scale includes multiple subscales relating to *loss* (longing for people, places and things in the homeland), *novelty* (unfamiliarity with the tasks of daily living), *occupation* (difficulty finding acceptable work), *language* accommodation (having an inadequate level of English/German), *discrimination* (perceived) and *not feeling at home* (not feeling part of one's surrounding or social structure). Items are rated along a six-point Likert scale (1 = not at all to 6 = very much).

Cultural orientation **-** *Language, Identity, Behavioural Acculturation (LIB)* scale (Birman, Trickett, & Vinokurov, 2002) was used to measure cultural orientation towards host and ethnic cultures. This scale was developed to assess cultural orientation to American (host) and Russian (national) cultures independently, as it was based on a sample of Russian immigrants living in USA. It has therefore been adapted for this sample to yield an overall host cultural orientation score (Austrian or Australian) and ethnic cultural orientation score (Bosnian) indicated by three separate subscale scores for host and ethnic *language, identity* and *behavioural* orientation respectively. The *language* competence subscale consists of nine parallel items asking participants to rate their ability to speak and understand native (Bosnian) and host language (English or German). Ratings are made on a 4-point Likert scale ranging from *not at all* to *very well, like native.* The *identity* subscale consisted of 14 statements measuring identification with Bosnian and Australian/Austrian cultures. Items are rated on a 4-point Likert scale assessing the degree of identification with both cultures and the extent to which this association is positive. The *behavioural* subscale included

eighteen items rated on a 4-point Likert scale asking participants to rate the extent to which they engage in behaviours associated with each culture.

PTSD symptoms – The Bosnian translation (Powell & Rosner, 2005) of the *Posttraumatic Stress Symptom Scale – Self Report* (*PSS-SR)* (Foa, Riggs, Dancu, & Rothbaum, 1993) was used. Particularly, only part three regarding symptoms of experiencing, and part four regarding duration of the disturbance and the consequences of the symptomatology for important areas of functioning were used. Part three involved 17 items on a 4-point Likert scale from 0 = Not at all or only one time, to 3 = five or more times per week/very much/almost always. Part four involved two questions regarding duration, and nine items corresponding to nice areas of life measured on a 4-point Likert scale, and a question regarding suicidal thoughts. The PSS-SR has been shown to be reliable and valid (Cronbach's alpha for the total score = .92; and Alpha coefficients for reexperiencing = .78, avoidance = .80, and arousal scales = .82. One-month test-retest reliability displays .74 for the total score and .66, .56, and .71 for reexperiencing, avoidance, and arousal, respectively (Foa et al., 1993). The Bosnian version of the PDS corresponded well with the original version (reexperiencing = .85, avoidance = .82, arousal = .80 and total symptom score = .91).

Depressive and anxiety symptoms - The *Depression Anxiety Stress Scale (DASS-21)* is a short form of the 42 item self-report inventory and was designed to provide measures of the three related negative affective states of *depression, anxiety*, and *stress* over the previous seven days (Lovibond & Lovibond, 1995). The *depression* subscale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest or involvement, anhedonia, and inertia. The

anxiety subscale assesses autonomic arousal, skeletal musculature effects, situational anxiety, and subjective experience of anxious affect. The *stress* subscale assesses difficulty relaxing, nervous arousal, and being easily upset or agitated, irritable or over reactive, and impatient (Lovibond & Lovibond, 1995). The DASS-21 items are measured on a 4-point Likert scale (0 = Did not apply to me at all, and 3 = Applied to me very much, or most of the time). Alpha coefficients for the three subscale are as follows: *depression* = . 94, *anxiety* = . 87, and *stress* = . 91. Concurrent validity of the *DASS*-21 scale suggests high correlations with other measures of depression and moderate correlations with other anxiety measures (Antony, Bieling, Cox, Enns, & Swinson, 1998; Crawford & Henry, 2003).

9 RESULTS

The first section of the results presents the preliminary analysis of the data including data screening for missing values, outliers, normality and correlations between the variables. Next, reliability analyses of the scales are presented. In the main results, participants' characteristics are presented including demographics, traumatic exposure and prevalence of mental health problems. This is followed by presentation of the analyses and results in order of the four studies that make up this thesis. Each section starts by referring to the specific research question tested in the study, aim and hypotheses and finally presentation of the results. Published and submitted papers that report some or all analyses of the respective studies are integrated throughout the results section in its original format submitted for publication.

9.1 Data analyses

The data were entered, screened and cleaned using the Statistical Package for the Social Sciences (SPSS) Version 22 (SPSS, 2013). Preliminary data analyses including frequencies, X^2 tests, t-tests, correlations and analysis of variance and regressions were performed in SPSS. Mediation testing was computed utilising path analysis structural equation modelling tool in Mplus (Muthén & Muthén, 2010). The model building analyses were conducted with the total sample, while explorative analyses conducted with the two samples where conducted as a way to explore the contextual differences between multicultural and monocultural country of resettlement or to further explore the findings when they did not fit the hypothesised model. Further analyses that relate to the aims and hypotheses of individual studies are described in the series of papers for publications.

9.1.1 Preliminary analyses

In preparation for the data analysis the data set was verified and screened for missing data and outliers using the FREQUENCIES option in SPSS. A number of missing values were identified that appeared random. Subscale scores and total scores computations were performed by replacing the missing values with the mean score as per Tabachnick and Fidell's recommendation (Tabachnick & Fidell, 2001). In addition, it was identified that an online data collection glitch affected the data collection process. In particular, it appeared that if participants pressed the "next page" more than once the software skipped pages, and so skipped whole scales. In such case, the missing data was not replaced; but was dealt with in the analyses by selecting the list-wise deletion.

9.1.2 Assumption testing

Exploratory data analyses were conducted on all main variables to assess the statistical assumptions underlying each statistical analysis, including examining the box plots and stem and leaf diagrams, statistical analysis of skewness and kurtosis, the Kolmogorov-Smirnov statistic and the Shapiro-Wilk statistic. Normal distribution for the outcome variables (PTSD, anxiety, depressive symptoms) were somewhat skewed and linearity somewhat curved. Transformations were not undertaken for two reasons. Firstly, some skewness was considered to reflect the inherent nature of the variables and secondly, regression analyses are robust to moderate violations. Therefore, the analysis was not abandoned and Adjusted R^2 will be reported in the results of the regression. Multivariate outliers were identified using Mahalnobis Distance with $p < .001$ and all outliers were found to be genuine data sets, and were therefore retained. Pearson correlations were generated to explore relationships among the variables. The correlation matrix revealed that no variables were highly inter-correlated (above 0.8), indicating no evidence of multi-collinearity. The assumption of independence of observation, homoscedasticity and outliers were therefore all met. Any further information related to specific data analyses are detailed in the papers for publication.

9.1.3 Reliability testing

Although the scales of the study are widely used it was necessary to confirm the reliability of the scales for use with Bosnian refugees. Reliability analyses were carried out using Cronbach's alpha criterion. Individual reliability scores for each scale and each subscale is indicated in Table *1*.

Table 1

Reliability Analyses

Scale and subscales	α
Demands of Immigration scale	.939
Loss	.746
Novelty	.789
Language difficulties	.766
Not feeling at home	.867
Occupation	.839
Discrimination	.841
LIB- Host cultural orientation	.943
Language	.981
Identity	.941
Behaviour	.871
LIB –Ethnic cultural orientation	.915
Language	.948
Identity	.951
Behaviour	.827
PDS	.966
DASS	
Depressive symptoms	.963
Anxiety symptoms	.924

Note: N=138; LIB-Language Identify Behavioural scale; PDS-Posttraumatic Diagnostic Scale; DASS-Depression, Anxiety Stress Scale

9.2 Participants

Of the 170 attempted survey data sets 20 were excluded, as the participants did not proceed to submit their survey. As a result, these cases were deleted from the data file. Of the remaining 150 participants 138 (92%) reported experiencing war in Bosnia during 1991-95 and were therefore identified as refugees, while 12 (8%) participants migrated prior to war (between 1970 – 1990) and were therefore identified as migrants. Demographic characteristics, traumatic exposure and migratory reasons differed significantly between refugees and migrants (see Table 2). Furthermore, as migrants clearly did not satisfy the eligibility criteria of experiencing war in Bosnia and resettling as refugees, this subsample of

participants was excluded from all analyses. Due to the small sample size, data for the sample of migrants were also not utilised as a comparison group.

Table 2

Demographic characteristics of refugees and migrants

	Refugees N = 138 n (%)	Migrants N = 12 n (%)	Group differences
Age (M, SD)	40.20 (14.91)	69.67 (17.39)	t(148)=-6.48, p<.001
Gender			
Male	76 (55%)	3 (25%)	χ^2= 4.01, p=.045
Female	62 (45%)	9(75%)	
Current residence			
Australia	56 (41%)	11 (92%)	χ^2= 11.68, p<.01
Austria	82 (59%)	1 (8%)	
Length of residence	17.66 (5.07)	36.08 (16.61)	???
Marital status			
Married	81 (59%)	5 (42%)	χ^2= 13.32, p<.01
Single	28 (20%)	1 (8%)	
In a relationship	18 (13%)	1 (8%)	
Other	11 (8%)	5 (42%)	
Religion			
Islam	108 (78%)	4 (33%)	χ^2= 45.27, p<.001
Catholic	5 (4%)	7 (58%)	
Atheist	12 (9%)	0 (0%)	
Other	1 (1%)	0 (0%)	
Not declared	12 (9%)	2 (17%)	
Ethnic background			
Bosniak	110 (80%)	4 (33%)	χ^2= 53.58, p<.001
Croatian	2 (1%)	6 (50%)	
Mixed ethnicity	5 (4%)	0 (0%)	
Serbian	1 (1%)	0 (0%)	
Not declared	20 (15%)	2 (17%)	
Accommodation			
Own a home	44 (32%)	10 (83%)	χ^2= 21.18, p<.01
Rent	86 (62%)	2 (17%)	
Other	8 (6%)	0 (0%)	
Education level			
Postgraduate	18 (13%)	0 (0%)	χ^2= 42.29, p<.001
Tertiary	39 (28%)	1 (8%)	
Advanced Diploma	28 (20%)	0 (0%)	
High school	40 (29%)	2 (17%)	
Secondary or less	13 (9%)	9 (75%)	
Employment			
Professional	27 (20%)	0 (0%)	χ^2= 18.20, p<.001
White collar	30 (22%)	1 (8%)	
Blue collar	31 (22%)	0 (0%)	
Studying	19 (14%)	0 (0%)	
Other	31 (22%)	11 (92%)	

All subsequent analyses were conducted with the refugee sample only. Their demographic characteristics by country of resettlement are presented in Table *3*.

Table 3

Demographic Characteristics of The Refugee Sample by Country of Resettlement

	Australian Bosnian Refugee N = 56 n (%)	Austrian Bosnians Refugees N = 82 n (%)	Group differences
Age (M, SD)	44.61 (14.60)	37.20 (14.44)	t(136)=2.93, p=.004
Gender			
Male	26 (46.4%)	50 (61%)	n/s
Marital status			
Married/in a relationship	43 (76.8%)	56 (68.2%)	n/s
Single	13 (23.2%)	26 (31.7%)	
Education level			
Postgraduate	6 (10.7%)	12 (14.6%)	n/s
Tertiary	18 (31.1%)	21 (25.6%)	
Advanced Diploma	9 (16.1%)	19 (23.2%)	
High school	16 (28.6%)	24 (29.3%)	
Secondary or less	67(12.5%)	46(7.3%)	
Length of residence (M, SD; in years)	16.05 (3.46)	18.76, (5.69)	t(136)=-3.173, p=.002

The main results of this thesis are presented in the next section. The results follow the order of the research questions and corresponding studies set out in the Introduction: Research aims and hypothesis section. The results include three individual papers (either published or submitted for publication) representing findings from the four studies. Additional calculations, which were not included in the papers, but are relevant to the study's research question are also included. Paper one presents the findings from study 1 and 2, paper two presents the findings from study 3 and paper four presents the findings from study 4.

9.3 Study 1: What is the relationship between trauma-related experiences and mental health problems in Bosnian refugees?

9.3.1 Exposure to traumatic events

Eighty two percent of participants reported experiencing at least one traumatic event while 70% reported experiencing three or more traumatic events in their life (M=5.09, SD=4.03, range 0-16). Similarly, 80% of participants reported experiencing at least one war related event, and 64% reported experiencing more than three war related traumatic events (M=3.84, SD=2.95, range 0-11 events). Table *4* displays the percentage of Bosnian refugees who reported experiencing traumatic events including war-related and non-war related stressful or life-threatening life events. Most commonly, participants reported experiencing separation from family during war, direct bombardment and direct sniper fire. There were significant differences based on country of resettlement with Australian Bosnians reporting more traumatic life events than Austrian Bosnians $t(136) = 4.02$, $p<.001$. There were no differences reported by men and women.

Table 4

Traumatic Events Experienced by Bosnian Refugees

	n (%)
War-related traumatic events	
Separation from immediate family member	72 (52%)
Lost possessions (e.g., house)	69 (50%)
Experienced bombardment	68 (49%)
Lack of food/shelter/medicine	68 (49%)
Were in hiding	68 (49%)
Family member injured/tortured/killed	54 (39%)
Witnessing other people getting seriously injured/tortured/killed	38 (28%)
Witnessing family member getting seriously injured/tortured/killed	15 (11%)
Tortured	12 (9%)
Combat	10 (7%)
Concentration camp	9 (7%)
Other war related events	7 (5%)
Seriously injured	4 (3%)
Worked as a medical officer/doctor	5 (4%)
Other non-war related traumatic events	
Stressful event happened to someone close	59 (43%)
Not defined extremely stressful event	53 (38%)
Not defined life threatening events	41 (30%)
Serious physical attack or an assault	34 (25%)
Flood, fire or natural disaster	14 (10%)

Note: N=138

9.3.2 Severity of mental health symptoms

In order to examine the frequency of PTSD, depression, anxiety and stress symptoms, this study utilised the author's suggestions of cut-off scores at which a severity category could be identified. As indicated in Table *5*, participants predominantly reported normal levels of PTSD (66%), depressive (70%) and anxiety (58%) symptoms.

Significant difference between the countries of resettlement was reported for PTSD and anxiety severity categories. As demonstrated in Table 5, more Austrian Bosnians reported PTSD and anxiety symptoms within the normal range,

than did Australian Bosnians. There were no significant differences in severity categories reported by men and women.

Table 5

PTSD, Depressive and Anxiety Symptom Severity Scores

Symptoms	Total Sample n, %	Australian Bosnians n, %	Austrian Bosnians n, %	Group differences
Depressive symptoms				*Fisher's exact*
Normal	89 (70%)	29 (58%)	60 (77%)	=8.33, *p*=.071
Mild	7 (6%)	2 (4%)	5 (6%)	
Moderate	16 (12%)	10 (20%)	6 (8%)	
Severe	7 (6%)	3 (6%)	4 (5%)	
Extremely severe	9 (7%)	6 (12%)	3 (4%)	
Anxiety symptoms				*Fisher's exact*
Normal	80 (58%)	24 (48%)	56 (72%)	=9.74, *p*=.039
Mild	12 (9%)	5 (10%)	7 (9%)	
Moderate	16 (12%)	9 (20%)	7 (9%)	
Severe	7(5%)	3 (1%)	4 (5%)	
Extremely severe	13 (9%)	9 (2%)	4 (5%)	
PTSD symptoms				*Fisher's exact*
None/mild	83 (65.9%)	27 (53%)	56 (75%)	=14.89, *p*=.001
Moderate	21 (16.7%)	7 (14%)	14 (19%)	
Moderate-severe	19 (15%)	14 (27%)	5 (7%)	
Severe	3 (2%)	3 (6%)	0 (0%)	

Note: PTSD symptomatology N=126; DASS scales N=128; Percentages are rounded

Calculating the total severity scores indicated similar results. As can be seen in Table *6*, total sample of participants reported relatively moderate symptoms of PTSD, depressive and anxiety symptoms. Australian Bosnians compared to Austrian Bosnians reported significantly higher levels of PTSD, depressive and anxiety symptoms.

Table 6

Mental Health Symptoms Reported by Participants

	Total sample M (SD), n=138	Australian Bosnians M (SD), n=56	Austrian Bosnians M (SD), n=82	Group differences t(df), p, 95% CI
PTSD symptoms	8.58 (11.57)	13.29 (14.28)	5.37 (7.93)	t(71.06)=3.60, p=.001, 3.53-12.30
Depressive symptoms	3.76 (5.13)	5.42 (5.80)	2.69 (4.36)	t(83.99)=2.85, p=.006, .83-4.63
Anxiety symptoms	3.41 (4.52)	4.94 (5.38)	2.42 (3.58)	t(76.77)=2.92, p=.005, .80-4.23

Note: PTSD symptomatology N=126; DASS scales N=128;

9.3.3 Relationship between traumatic exposure, demographic variables and mental health problems

In order to investigate the associations between traumatic exposure, demographic variables and mental health outcomes, bivariate correlations were calculated using Pearson correlation coefficient (*r*).

As demonstrated in Table *7*, there were significant correlations between age, number of traumatic exposures and PTSD, depressive and anxiety symptoms. Associations between marital status (single), high education and unemployment did not reach significance, and were excluded from all subsequent analyses. Female gender indicated a marginally significant association with PTSD (*p*=.05), and was therefore included in all subsequent analyses.

Table 7

Correlations Between Demographics, Traumatic Exposure and PTSD, Depressive and Anxiety Symptoms

	1	2	3	4	5	6	7	8	9
1. Age	1	-.003	-.355**	-.109	.576**	.270**	.449**	.259**	.306**
2. Female gender		1	-.093	-.095	.054	.109	.174^	.093	.083
3. Single marital status			1	.065	-.179*	-.119	-.030	.127	.011
4. High education				1	-.234**	.137	-.048	.054	.071
5. Unemployed					1	.346**	.484**	.324**	.370**
6. Traumatic exposure						1	.695**	.600**	.642**
7. PTSD symptoms							1	.772**	.795**
8. Depression symptoms								1	.888**
9. Anxiety symptoms									1

Note: *p<.05, **p<.01, ^p=.05; PTSD- posttraumatic stress disorder

Separate linear regressions were conducted to predict PTSD symptoms, depressive symptoms and anxiety symptoms from the following variables: traumatic exposure, age and female gender. As can be seen in Table *8* traumatic exposure predicted PTSD, depressive and anxiety symptoms. In addition, age and female gender predicted PTSD, age predicted anxiety symptoms, while neither age nor gender predicted depressive symptoms.

Table 8

Linear Regression Analyses of PTSD, Depressive and Anxiety Symptoms Predicted by Age, Female Gender and Traumatic Exposure

	Total sample	Australian Bosnians	Austrian Bosnians
PTSD symptoms	F(3, 122)=52.265, p<.001	F(3, 47)=18.421, p<.001	F(3, 71)=29.452, p<.001
Adjusted R^2	.552	.511	.536
Age	.269***	.300**	.220**
Female gender	.125*	.092	.217**
Traumatic exposure	.604***	.591***	.630***
Depressive symptoms	F(3, 124)=24.485, p<.001	F(3, 46)=9.266, p<.001	F(3, 74)=.11.512, p<.001
Adjusted R^2	.357	.336	.291
Age	.113	.144	.040
Female gender	.029	-.077	.136
Traumatic events	.567***	.560***	.534***
Anxiety symptoms	F(2, 124)=31.556, p<.001	F(3, 46)=.9.644, p<.001	F(3, 74)=18.936, p<.001
Adjusted R^2	.419	.346	.411
Age	.151*	.174	.095
Female gender	.016	-.063	.115
Traumatic events	.601***	.553***	.624***

Note: *p<.05, **p<.01, ***p<.001;

9.4 Study 2: What is the relationship between traumatic exposure, acculturative stress and mental health problems in Bosnian refugees?

9.4.1 Levels of acculturative stress experienced by Bosnian refugees

Bosnian refugees reported moderate to high levels of acculturative stress, in particular stress associated with *loss* (longing for people, places and things in the homeland), *novelty* (unfamiliarity with the tasks of daily living), *occupational adjustment* (difficulty finding acceptable work) and *discrimination*. Except for the subscales *language* and *novelty*, levels of acculturative stress did not differ significantly between Australian Bosnians and Austrian Bosnians. As indicated in Table *9*, Australian Bosnians compared to Austrian Bosnians reported significantly more stress associated with accommodating to the host language, and significantly more stress associated with novelty and unfamiliarity with tasks of daily living.

Table 9

Levels of Acculturative Stress Reported by Participants

	Total sample M (SD) (n=131)	Australian Bosnians M (SD) n=51	Austrian Bosnians M (SD) n=80	Group differences
Loss	9.69 (3.43)	10.12 (3.52)	9.41 (3.35)	t(130)=1.15, p=.251
Language	6.29 (3.50)	7.53 (3.56)	5.50 (3.23)	t(129)=3.37, p=.001
Not at home	7.95 (3.58)	8.10 (3.40)	7.85 (3.30)	t(130)=.385, p=.701
Novelty	9.42 (4.38)	10.46 (4.31)	8.78 (4.32)	t(128)=2.17, p=.032
Occupational	11.70 (5.94)	11.84 (5.94)	11.61 (5.98)	t(129)=.216, p=.830
Discrimination	10.06 (4.16)	9.41 (4.44)	10.48 (3.94)	t(128)=-.1.44, p=.153

Note: N=138

9.4.2 Acculturative stress and mental health

In order to investigate the association between acculturative stress variables and mental health outcomes, bivariate correlations were calculated using Pearson correlation coefficient (*r*). As demonstrated in Table *10*, all associations between *Demands of Immigration* subscales and PTSD, depressive and anxiety severity symptoms were significant indicating small to moderate relationships. Consequently, all subscales were included in the subsequent linear regressions investigating the influence of acculturative stress on PTSD, depressive and anxiety symptomatology.

Table 10

Correlations Between Demands of Immigration Subscales and PTSD, Depressive and Anxiety Symptoms

DIS subscale	1	2	3	4	5	6	7	8	9
1. Loss	1	.527**	.521**	.401**	.432**	.473**	.410**	.312**	.342**
2. Language		1	.639**	.697**	.627**	.514**	.446**	.328**	.435**
3. Not feeling at home			1	.640**	.621**	.742**	.452**	.318**	.402**
4. Novelty				1	.733**	.475**	.416**	.324**	.433**
5. Occupation					1	.602**	.361**	.287**	.380**
6. Discrimination						1	.244**	.247**	.261**
7. PTSD symptoms							1	.772**	.795**
8. Depression symptoms								1	.888**
9. Anxiety symptoms									1

Note: DIS-Demands of Immigration scale; PTSD- posttraumatic stress disorder; *p<.05, **p<.01,

9.4.3 Relationship between traumatic exposure, acculturative stress and mental health

The paper included in the next section presents and discusses the results relevant to the relationship between traumatic exposure, acculturative stress and mental health outcomes.

9.5 Paper 2: Effects of acculturative stress on PTSD, depressive, and anxiety symptoms among refugees resettled in Australia and Austria

Kartal, D., & Kiropoulos, L. (2016). Effects of acculturative stress on PTSD, depressive, and anxiety symptoms among refugees resettled in Australia and Austria. *European Journal of Psychotraumatology, 7*. DOI:10.3402/ejpt.v7.28711

Abstract

Background: Research indicates that exposure to war-related traumatic events impacts on the mental health of refugees and leads to higher rates of posttraumatic stress disorder (PTSD), depression and anxiety symptoms. Furthermore, stress associated with the migration process has also shown to impact negatively on refugee's mental health, but the extend of these experiences is highly debatable as the relationships between traumatic events, migration and mental health outcomes are complex and poorly understood.

***Objective*:** This study aimed to examine the influence of trauma-related and post-migratory factors on symptoms of PTSD, depression and anxiety in two samples of Bosnian refugees that have resettled in two different host nations – Austria and Australia.

Method: Using multiple recruitment methods, 138 participants were recruited to complete self-report measures assessing acculturative stress, PTSD, depressive and anxiety symptoms.

Results: Hierarchical regressions indicated that after controlling for age, gender and exposure to traumatic events, acculturative stress associated with post-migratory experiences predicted severity of PTSD and anxiety symptoms, while depressive symptoms were only predicted by exposure to traumatic events. This model however, was only significant for Bosnian refugees resettled in Austria, as PTSD, depressive and

anxiety symptoms were only predicted by traumatic exposure in the Bosnian refugees resettled in Australia.

Conclusion: These findings point toward the importance of assessing both psychological and social stressors when assessing mental health of refugees. Furthermore, these results draw attention to the influence of the host society on post-migratory adaptation and mental health of refugees. Further research is needed to replicate these findings among other refugee samples in other host nations.

Background

Epidemiological research in the area of posttraumatic mental health indicates that prior trauma is a significant predictor of posttraumatic stress disorder (PTSD) (Ozer et al., 2008), and that depressive and anxiety symptoms are prevalent comorbid outcomes of traumatic experiences in general (ACPMH, 2013) and refugee populations (Fazel et al., 2005; Kirmayer et al., 2011; Steel et al., 2009; Steel et al., 2002). In addition, challenges associated with migration to a new country have been found to increase the risk of mental health problems in refugees (Porter & Haslam, 2005; Steel et al., 1999; Steel et al., 2002). These post-migratory challenges are often related to acculturation, defined as the process of simultaneous participation with the new culture and maintenance of the origin culture and identity (Berry, 1997). Acculturation is mutually influenced and changed by attitudes of the individual as much as the attitudes and preferences of the ethnic and host groups (Berry, 2003). The consequences of the process of acculturation have been found to be substantial and to influence mental health outcomes in migratory groups and individuals (Bhugra, 2004a; Sam & Berry, 2010).

Research has found inconsistent results indicating positive, negative or no association between acculturation and mental health outcomes in refugees (Aichberger et al., 2015; Berry, Phinney, Sam, & Vedder, 2006; Bhugra, 2003; Birman & Tyler, 1994; Escobar & Vega, 2000; Li & Anderson, 2015; Mölsä et al., 2014; Schwartz et al.,

2010; Syed et al., 2006). Furthermore, most empirical evidence has concentrated on exploring the acculturative process of the individual without exploring the impact of the host society, which has been suggested to be important in understanding the full process of acculturation and stress associated with migration (Schwartz et al., 2010). The question therefore remains whether the influence of post-migratory demands on mental health differs based on the individual's acculturation process alone, or is it also dependent on the characteristics of the local context reflecting the acculturative preferences of the host society.

This study examines the relative contribution of pre-migratory traumatic experiences and post-migratory acculturative stress in predicting mental health outcomes in Bosnian refugees who have resettled in two countries and explores the potential role of the local context in the acculturative process.

Traumatic exposure, acculturation and mental health outcomes

Research evidence suggests that refugees are exposed to multiple, sometimes extreme traumas such as torture, rape and death of family members (Steel et al., 1999; Steel et al., 2002), which puts them at higher risk for developing serious mental health problems (Steel et al., 2009). Compared to the general population, refugees can be about five and ten times more likely to present with depression and PTSD symptoms respectively (Fazel et al., 2005). While there is substantial evidence to indicate that trauma exposure is a risk factor for PTSD, depression and anxiety symptoms (Ozer et

al., 2008; Steel et al., 2009), empirical evidence on the relationship between acculturation and mental health is less consistent. Some research suggests that higher levels of acculturation with the host culture are associated with better mental health, while others reported that higher levels of acculturation with the host culture is associated with worse mental health outcomes - a phenomenon named the "immigrant paradox" (for discussion see: Berry, Phinney, et al., 2006; Bhugra, 2003, 2004a; Schwartz et al., 2010). Specific acculturative factors however, present a more consistent relationship with mental health. For example, acculturative stress experienced in response to migratory challenges is regularly identified as a significant risk factor for mental health problems (Berry, 2006c; Bogic et al., 2012; Ellis, MacDonald, Lincoln, & Cabral, 2008; Knipscheer & Kleber, 2006) and specifically associated with higher levels of PTSD symptoms (Jorden et al., 2009; Nicholson, 1997; Schweitzer et al., 2011) depressive symptoms (Fenta et al., 2004; Jorden et al., 2009; Schweitzer et al., 2011) and anxiety symptoms (Schweitzer et al., 2011; Schweitzer et al., 2006). Specifically, acculturative stressors relating to lower socio-economic status (Syed et al., 2006), unstable working conditions and unemployment, (Beiser & Hou, 2001; Mölsä et al., 2014; Teodorescu et al., 2012) lower language acquisition (Söndergaard & Theorell, 2004) and perceived discrimination (Aichberger et al., 2015; Ellis et al., 2010b; Li & Anderson, 2015) have been found to contribute to poorer mental health outcomes. These findings have been demonstrated even after accounting for the effect of pre-

migratory traumatic exposure, indicating a potential cumulative effect of post-migratory acculturative factors.

Theoretical framework

Acculturation is defined as a two-dimensional process underlined by the "*cultural maintenance"* of the culture of origin and "*contact and participation"* with the host culture (Berry, 1997). Early definitions of acculturation were criticised because they were based on the assumption that non-dominant groups can always choose which acculturation style they want to adapt (Berry, 1974). Unfortunately, this is not always possible and it is now widely accepted that the acculturative experience depends on the conditions of the host society as much as they depend on the individual acculturative preferences (Berry, 1997, 2006b). The variations in the conditions or contexts of acculturation are identified as acculturation strategies and represent the preferred acculturation attitudes of the host societies. The first, *melting pot* refers to the attitudes of the host society when the assimilation of all the non-dominant groups is sought or even enforced. When separation or marginalisation of the non-dominant groups is sought or enforced by the host society, this is known as *segregation* and *exclusion* respectively. The last, *multiculturalism* refers to attitudes of the society where cultural diversity is valued and encouraged by the host society as whole (Berry, 1997, 2006b; Berry, Phinney, et al., 2006). Hence, while it can be argued that the most contemporary societies incorporate groups of various cultural and ethnic backgrounds, they differ in

their policies as to how these groups should live together in the larger society and how they maintain their cultural and ethnic distinctiveness.

The current study proposes to consider the influence of acculturative factors by investigating the association between acculturative stress and mental health outcomes of refugees in two different acculturative contexts that differ in the strength of their multicultural policies. In the absence of the classification of acculturative strategies for each nation, the Banting and Kymlicka (2004) multicultural classification was utilised identifying Australia as "strong" and Austria as "weak" in their multicultural policies suggesting multicultural and monocultural (i.e., melting pot) acculturation strategies for these two countries, respectively. In addition to this classification, descriptive literature of the migratory experience of Bosnian refugees in these two countries was considered and is utilised to strengthen this classification. A short descriptive summary is presented in the next section.

Resettlement of Bosnians in Australia and Austria

In the 1990s, Bosnians were the largest group of refugees who received humanitarian sponsored visas and were permanently resettled in Australia (Jupp, 2002). As such, they immediately received permanent residency and unrestricted access to all services afforded to Australian citizens including language training, access to health services and income support. In addition, refugees resettled permanently in Australia

had an option to reunite with their immediate family members and bring them to live in Australia (DIAC, 2009).

On the other hand, the huge influx of refugees and asylum applications in Austria and other western European countries in the 1990s had a major impact on the admission processes and the provision of protection under the 1951 Convention (United Nations, 1951). Instead of provision of humanitarian protection and permanent resettlement, Bosnian refugees that arrived in Austria were almost automatically provided with temporary protection visa, were housed in temporary accommodations, were denied the right to work, receive social security benefits or reunite with family members outside of Austria (Bauer, 2008; Franz, 2005). As a result, these de-facto refugees found employment in the black market, enabling them to move out of crowded, temporary housing and eventually acquired working permits. Consequently, due to the newly introduced settlement quota system in the 1990s, Bosnians were granted residency permit only once they were employed or had an employed immediate family member (Krause & Liebig, 2011). Unfortunately, this process usually took years to achieve, exposing individuals and families to many years of stress associated with migratory process. This illustrates the differences in the experiences in the post-migratory environments that these two groups of refuges faced upon leaving their war-torn countries.

Aims of the current study

The current study proposes to investigate the impact of acculturative stress on mental health in Bosnian refugees who have experienced similar pre-migratory experiences associated with war exposure but have settled in two different societies – Australia and Austria. Given that both of these refugee groups left Bosnia due to the war and have experienced traumatic events and losses associated with war and prosecution, it is important to understand the impact of these contextual factors in the acculturative process. Furthermore, the differences in resettlement policies would be expected to generate varying experiences of acculturative stress. Specifically, this study will investigate the relationships between war-related experiences, acculturative stress and mental health in Bosnian refugees, and whether there are group differences in the above relationships between Bosnian refugees resettled in Austria and Australia. It was hypothesised that: (1) there will be no difference in levels of traumatic experiences reported by those refugees resettled in Australia and those resettled in Austria; (2) there will be no difference in levels of PTSD, and depressive and anxiety symptoms reported by refugees resettled in Australia and those resettled in Austria; (3) traumatic experience will be associated with increased levels of severity of PTSD and depressive and anxiety symptoms across both groups; and (4) increased acculturative stress would be associated with increased levels of severity of PTSD and depressive and anxiety

symptoms more so in the sample of Austrian Bosnians than in the sample of Australian Bosnians.

Method

Participants

Participants were eligible for inclusion in this study if they were older than 18 years of age, resided in Australia or Austria during data collection and were exposed to war events in Bosnia anytime between 1992 and 1995.

Data collection

Participants in this study were recruited between January 2010 and January 2013 using various recruiting options including, *snow-balling*, online recruitment, advertising in local media including newspapers, radio and television, and recruitment through social clubs and groups whose members were of Bosnian background. Participants responded to an anonymous self-report survey via hosted website or a hard copy of the survey which were returned anonymously in a prepaid envelope. The majority of participants (n=78, 57%) utilised a hardcopy version. There were no statistical differences between those who filled a hardcopy or an online version of the survey for any of the outcomes including PTSD (χ^2= 31.54; p=.29) depressive (χ^2= 17.86; p=.53) or anxiety symptoms (χ^2= 12.26; p=.66).

Measures

All measures used in the study were translated from English into Bosnian by the first author who is a native speaker and then back-translated by an independent bilingual

academic allowing for comparison between the two translations. Any discrepancies in translation were resolved by discussion and mutual agreement between the first author and the bilingual academic.

Sample characteristics

The questionnaire included a set of demographic questions (age, gender, education and marital status). Trauma history questions (yes/no) were assessed in relation to war-related (e.g., torture, concentration camp, killing) and other traumatic events (e.g., exposure to disasters, accidents and assaults) experienced during their lifetime.

Posttraumatic Diagnostic Scale

The Bosnian translation (Powell & Rosner, 2005) of the *Posttraumatic Diagnostic Scale* (*PDS;* Part 3 only*)* (Foa, Cashman, Jaycox, & Perry, 1997) was used for the assessment of current PTSD symptomatology. This measure is based on the DSM-IV PTSD symptom criteria (APA, 2013), which included 17 items scored on a 4 point Likert scale (from 0 = not at all or only one time, to 3 = five or more times per week/very much/almost always). The alpha coefficient for the current Bosnian version of the PDS was excellent ($\alpha = .97$).

Depression and Anxiety Scale

The *Depression Anxiety Stress Scales (DASS-21)* is 21 item self-report inventory and designed to provide measures of the three related negative affective states of *depression, anxiety*, and *stress* (Lovibond & Lovibond, 1995). In the current study, only

depression and anxiety scales were utilized and assessed for presence of symptoms over the past two weeks. Items are measured on a 4-point Likert scale (0 = did not apply to me at all, and 3 = applied to me very much, or most of the time). Alpha coefficients for the depression (α = .95) and anxiety (α = .92) *scales* in the current sample were excellent.

Demands of Immigration Scale

Demands of Immigration Scale (DIS) (Aroian et al., 1998) was used to measure acculturative stress experienced over the last six months. This scale includes multiple subscales relating to *Loss* (longing for people, places and things in the homeland), *Novelty* (unfamiliarity with the tasks of daily living), *Occupation* (difficulty finding acceptable work), *Language* accommodation (having an inadequate level of English/German), *Discrimination* (perceived) and *Not feeling at home* (not feeling part of one's surrounding or social structure). Items are rated along a six-point Likert scale (1 = not at all to 6 = very much). In the present study, the Cronbach's alpha for the total DI scale was excellent (α =.94) and ranged between .75 and .87 for the subscales indicating good internal consistency.

Statistical analyses

Differences in demographics, mental health and subscales of the DIS between the refugees resettled in Australia and Austria were examined using *t* tests and x^2 analyses. Hierarchical multiple regressions were used (controlling for exposure to traumas and demographic variables) to examine the effects of acculturative stress on PTSD,

depression and anxiety symptoms in the subgroups of refugees resettled in Australia and Austria. All data were analysed in SPSS version 22. This study was reviewed and approved by the Monash University Human Research Ethics Committee, certificate number CF09/3238 – 2009001758.

Results

Demographics

The demographic characteristics of the sample are presented in Table 1. A total sample of 138 participants was recruited into the study with 55% being male with a mean age of 40.20 years (range between 18-80 years). Forty one percent of participants resided in Australia and 59% resided in Austria, with those living in Australia being significantly older. Refugees who resettled in Austria had a significantly longer length of residence than those who resettled in Australia.

Table 1
Socio-demographic Characteristics of Participants

	Australian Bosnians N = 56	**Austrian Bosnians N = 82**	**Group differences**
	M/n (SD/%)	**M/n (SD/%)**	
Age	44.61 (14.60)	37.20 (14.44)	$t(136)=2.95$, $p=.004$
Gender			$\chi^2=2.85$, $p=.065$
Male	26 (46.4%)	50 (61%)	
Marital status			$\chi^2= 1.18$, $p=.186$
Married/in a relationship	43 (76.8%)	56 (68.2%)	
Single	13 (23.2%)	26 (31.7%)	
Education level			$\chi^2= 3.36$, $p=.645$
Postgraduate	6 (10.7%)	12 (14.6%)	
Tertiary	18 (31.1%)	21 (25.6%)	
Advanced Diploma	9 (16.1%)	19 (23.2%)	
High school	16 (28.6%)	24 (29.3%)	
Secondary or less	6 (10.7%)	4 (4.9%)	
Other	1 (1.8%)	2 (2.4%)	
Length of residence *(in years)*	16.05 (3.46)	18.76, (5.69)	$t(136)=-3.17$, $p=.002$

Exposure to traumatic events

Eighty two percent of the whole sample reported experiencing at least one traumatic event, while 70% reported experiencing three or more traumatic events in their life (M = 5.09, SD=4.03, range 0-16). Similarly, 80% of the whole sample reported experiencing at least one war related event, and 64% reported experiencing more than three war related traumatic events (M=3.84, SD=2.95, range 0-11 events). Table 2 lists

the types of traumatic events experienced by Bosnian refugees living in Australia and Austria. The most common experiences reported by participants include experiencing separation from family, direct bombardment and sniper fire. There were no differences in traumatic exposure reported by men and women, but there were significant differences based on the country of resettlement with Australian Bosnians reporting more traumatic exposure M=6.68 (4.00) than Austrian Bosnians M=4.01 (3.70); $t(136) = 4.02$, $p<.001$.

Mental Health Outcomes

As can be seen in Table 3, Australian Bosnians reported significantly higher levels of PTSD, depressive and anxiety symptoms compared to Austrian Bosnians.

Acculturative stress

Except for the subscale *Language*, levels of acculturative stress did not differ significantly between Australian and Austrian Bosnians. As indicated in Table 3, Australian Bosnians reported significantly more stress associated with accommodating to the host language compared to Austrian Bosnians.

Table 2
Traumatic Events Reported by Bosnian Refugees living in Australia and Austria

Traumatic experience	Australian Bosnians N=56 n (%)	Austrian Bosnians N=82 n (%)	Group differences
Separation from family	41 (73%)	35 (43%)	χ^2= 12.30, p=.001
Direct bombardment or sniper fire	34 (60%)	35 (43%)	χ^2= 3.60, p=.064
Other stressful event happened to family	30 (54%)	26 (32%)	χ^2= 5.30, p=.030
Family member injured, killed or tortured	30 (54%)	25 (30%)	χ^2= 7.25, p=.009
Other stressful or upsetting event	25 (45%)	27 (33%)	χ^2= 1.45, p=.279
Life threatening accidents	20 (36%)	21 (26%)	χ^2= 1.23, p=.340
Serious physical attack or assault	16 (29%)	18 (22%)	χ^2= 0.54, p=.546
Witnessed family injury, killing or torture	10 (18%)	5 (6%)	χ^2= 4.30, p=.050
Fire, flood or natural disaster	9 (16%)	5 (6%)	χ^2= 3.25, p=.088
Combat	8 (14%)	2 (3%)	χ^2= 6.77, p=.016
Torture	7(13%)	4 (5%)	χ^2= 1.52, p=.232
Concentration camp	5 (9%)	4 (5%)	χ^2= 0.72, p=.489
War related serious injury	4 (7%)	0 (0%)	χ^2= 7.13, p=.029

Note: χ^2= Fisher's exact test;

Table 3
Means, Standard Deviations and Univariate Analyses for Mental Health Symptoms and Acculturative Stress Reported by Refugee Group

	Australian Bosnians N=56 M (SD)	Austrian Bosnians N=82 M (SD)	Group differences
PDS	13.29 (14.28)	5.37 (7.93)	$t(71.06)=3.60$, $p=.001$
DASS-depression	5.42 (5.80)	2.69 (4.36)	$t(83.99)=2.85$, $p=.006$
DASS-anxiety	4.94 (5.38)	2.42 (3.58)	$t(76.77)=2.92$, $p=.005$
DIS Subscales			
Loss	10.12 (3.52)	9.41 (3.35)	$t(130)=1.15$, $p=.251$
Language	7.53 (3.56)	5.50 (3.23)	$t(129)=3.37$, $p=.001$
Not at home	8.10 (3.40)	7.85 (3.30)	$t(130)=.385$, $p=.701$
Novelty	10.46 (4.31)	8.78 (4.32)	
Occupation	11.84 (5.94)	11.61 (5.98)	$t(129)=.216$, $p=.830$
Discrimination	9.41 (4.44)	10.48 (3.94)	$t(128)=-1.43$, $p=.153$
Total DIS	52.13 (18.75)	48.80 (18.17)	$t(129)=1.01$, $p=.315$

Note: PDS= Posttraumatic Diagnostic scale; DASS-Depression = Depression, Anxiety and Stress scale; DIS = Demands of Immigration scale

Predictors of mental health outcomes

Hierarchical regression analyses were conducted to examine significant predictors of PTSD, depressive and anxiety symptoms separately for the Austrian and Australian samples, while controlling for exposure to traumatic events and demographic variables. As can be seen in Tables 4, 5 and 6, there were differences in the number and type of predictors for the two samples for PTSD, depressive and anxiety symptoms. In particular, when controlling for age, gender and traumatic exposure, (see Table 4) acculturative stress contributed significantly to explain 57% of variance in PTSD symptoms $F(9,119)= 18.49$, $p<.001$. When models were tested separately for each

refugee sample, the model was only significant for the Austrian Bosnian group. In particular, only the subscales of *Loss* contributed significantly to explain 58% of the variance in the PTSD symptoms F (9, 73)=12.26, p<.001.

Table 5 shows the hierarchical regression analysis for depressive symptoms scores. Acculturative stress was not a significant predictor of depressive symptoms for the total sample or when considered separately for each refugee sample. Number of traumatic events was the only significant predictor of depressive symptoms.

Similarly, acculturative stress was not a significant predictor of anxiety symptoms in the total sample or in the Australian Bosnian group (see Table 6). However, after controlling for age, gender and traumatic exposure, the acculturative stress subscales of *Language* and *Novelty* contributed significantly to explain 49% of the variance in anxiety symptoms F(9, 74)=9.01, p<.001 for the Austrian Bosnian group.

Table 4
Hierarchical Regression Analyses for PTSD Symptoms Scores Reported by Refugee Group

	Total sample (N=119)			Australian Bosnians (N=46)			Austrian Bosnians (N=73)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Adjusted R^2	.211***	.528***	.570*	.169**	.468***	.488	.145**	.533***	.581*
Age	.444***	.276***	.151^	.473**	.336**	.216	.333**	.220**	.143
Female gender	.169*	.133*	.125*	.196	.124	.198	.207^	.219**	.163*
Traumatic events		.588***	.558***		.562***	.424**		.630***	.604***
DIS-Loss			.155*			.107			.230*
DIS-Language			.059			-.013			.010
DIS-Not at home			.283*			.285			.225^
DIS-Novelty			-.089			.124			-.235
DIS-Occupation			-.029			-.072			.184
DIS-Discrimination			-.130			-.018			-.229^

Note: DIS= Demands of Immigration scale; *p<.05, **p<.01, ***p<.001; ^p<.10

Table 5
Hierarchical Regression Analyses for Depressive Symptoms Scores Reported by Refugee Group

	Total sample (N=119)			Australian Bosnians (N=46)			Austrian Bosnians (N=73)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Adjusted R^2	.071**	.373***	.375	.067	.372***	365	.010	290***	.331
Age	.283**	.123	.048	.351*	.191	.206	.114	.023	-.054
Female gender	.091	.045	.049	.066	-.019	.071	.141	.142	.138
Traumatic events		.574***	.583***		.570***	.444**		.538***	.597***
DIS-Loss			.122			.090			.155
DIS-Language			.075			-.188			.331^
DIS-Not at home			.019			031			-.058
DIS-Novelty			-.074			.307			-.454*
DIS-Occupation			-.086			-.147			.008
DIS-Discrimination			.122			.226			.156

Note: DIS= Demands of Immigration scale; *p<.05, **p<.01, ***p<.001; p<.10

Table 6
Hierarchical Regression Analyses for Anxiety Symptoms Scores Reported by Refugee Group

	Total sample (N=119)			Australian Bosnians (N=46)			Austrian Bosnians (N=73)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Adjusted R^2	.094**	.446***	.466	.087^	.382***	.411	.022	.434***	.493*
Age	.322***	.149*	.001	.382*	.231	.201^	.160	.051	-.123
Female gender	.086	.037	.062	.081	-.003	.135	.132	.133	.158^
Traumatic events		.618***	.571		.562***	.356*		.649***	.678***
DIS-Loss			.087			.083			.093
DIS-Language			.175			-.107			.489**
DIS-Not at home			.116			.208			-.022
DIS-Novelty			-.043			.312			-.357*
DIS-Occupation			-.024			-.091			.059
DIS-Discrimination			-.004			.060			.000

Note: DIS= Demands of Immigration scale; *p<.05, **p<.01, ***p<.001; ^p<.10;

Discussion

This study investigated the level of traumatic exposure and prevalence of mental health symptoms in two samples of Bosnian refugees resettled in Australia and Austria. Furthermore, mental health impact of age, gender, exposure to traumatic events and acculturative stress was investigated across both samples.

The results show high levels of exposure to traumatic events and high prevalence rates of PTSD, depressive and anxiety symptoms across both samples confirming prior research conducted with refugees in general (Fazel et al., 2005; Silove et al., 1998) and other Bosnian samples around the world (Knipscheer & Kleber, 2006; Mollica et al., 2001; Momartin et al., 2003). However, contrary to our hypothesis significant differences were also visible between the two groups included in this study. In particular, the Australian Bosnians were found to have experienced significantly more traumatic events and reported more PTSD, depressive and anxiety symptoms than Bosnians resettled in Austria. Australian Bosnians were significantly older than Austrian Bosnians, which has been associated with more mental health symptoms in refugees (Bogic et al., 2012) (Porter & Haslam, 2005), and might explain significantly more traumatic exposure and severity of posttraumatic symptoms identified in Australian Bosnians. In addition, this difference may be explained by different resettlement trajectories. In particular, Bosnian refugees that resettled in Australia went through resettlement under the UNHCR scheme, which granted resettlement and

residence to the most vulnerable and those who experienced particularly traumatic ordeals during the war (UNHCR, 2011). This is furthermore indicated by significant differences in types of traumatic events experienced and subsequently rationalizes the higher rates of mental health symptom found in the Australian Bosnians. These results also highlight the diversity of traumatic exposure found within the same refugee population, and are consistent with prior research conducted with ex-Yugoslav refugees, including Bosnians resettled in European countries that identified varying degrees of exposure and posttraumatic symptoms across samples resettled in different countries (Bogic et al., 2012).

Results also indicated that exposure to traumatic events remained the most powerful predictor of PTSD symptoms, which is consistent with prior research conducted with refugees (Bogic et al., 2012; Fazel et al., 2005; Ozer et al., 2008; Steel et al., 2009; Steel et al., 2002).

As predicted, acculturative stress was significantly associated with mental health. Particularly, in addition to exposure to traumatic events, acculturative stress was associated with greater experiences of cultural loss and nostalgia contributing to more severe PTSD symptoms in the Austrian Bosnian group. In addition, the results suggested that Austrian Bosnians who experienced more language difficulties and were less occupied with novel tasks of daily living were more likely to report anxiety symptoms. These results are in agreement with prior research (Schweitzer et al., 2011;

Söndergaard & Theorell, 2004) and indicate that some domains of acculturative stress promote mental health while others hinder it (Ellis et al., 2010b; Ellis et al., 2008; Knipscheer & Kleber, 2006). They suggest that bi-cultural (i.e., ethnic and host) orientation benefits mental health, as the ability to effectively negotiate between culturally appropriate behaviours, enables refugees to learn the necessary skills to function in the host society (e.g., acquire host language), while still holding onto their cultural aspects that promote better mental health.

However, as these results indicate, this may not be possible for all refugees, as the impact of the acculturative stressors differed across the two samples of refugees of the same cultural background that resettled in different host countries examined in this study. This difference suggests that the acculturative context and conditions of the host society may impose different acculturative stressors for refugees. As proposed by Berry's acculturation model (1997, 2006) the host society can impact on the acculturation process of refugees by imposing either encouraging or less desirable acculturative strategies that consequently either encourage or oppose ethnic diversity and participation in the larger society. As described in the current study, Austrian Bosnians generally experienced temporary residence with limited benefits and rights, while their counterparts in Australia experienced a supportive migration context, as they immediately received permanent residency, language training, access to health services and income support. Such a supportive approach to resettlement may have left them free

to engage and practice their own culture and/or engage with the host culture, which may have removed the additional cumulative impact of acculturative stressors identified in the Austrian Bosnian sample. Besides, establishing secure residence has been found to be important in the recovery process from trauma-related symptoms (Silove et al., 2007). While these findings confirm previous research, no causal pathway could be explored in this study, and further research is needed to fully explore these relationships.

Furthermore, and contradictory to our hypothesis, acculturative stress was not found to be a significant predictor of depressive symptoms and exposure to traumatic events was the only significant predictor of depressive symptoms across the two refugee groups in this study. These findings might be explained by considering the duration of resettlement. In particular, prior research in this area indicated that depressive symptoms associated with migration increase during the initial period of resettlement and then begin to decrease with increased length of stay in the host country (Fenta et al., 2004; Tran et al., 2007). These results seem to be consistent with the current sample of refugees who have been resettled in their respective host societies for a mean of 16 and 18 years (Australian and Austrian groups respectively), indicating a diminishing impact of the acculturative stressors in the later stages of resettlement.

Implications

Resettled Bosnian refugees seem to report high levels of trauma-related mental health problems many years after the war (> 16 years) indicating the continuing need for support from health and social services (Bogic et al., 2012). Building on our understanding of the trauma-related risk factors and challenges facing refugees, these findings indicate that health and social services supporting refugees should not be limited to evaluations of psychopathological risk factors only. The contributing effect of acculturative stress and the cultural and social stressors experienced in resettlement need to be considered as well, especially since they offer a potential target for intervention. While prior research and guidelines have been developed to draw attention to migratory stressors in the conflict zones, refugee camps and early in the resettlement (Miller & Rasmussen, 2010), the findings of the current study indicate that more could be done to address the long-term effects of traumatic exposure and migratory stress in assisting refugees' adaptation to the new environment in the long-term. Particularly, attention should be paid to enabling the refugees to maintain cultural and traditional aspects of their culture, since enabling them to do so may alleviate some of the migratory stressors associated with participation and functioning in the host society. Governmental immigration and resettlement policies that aim to promote successful adaptation of refugees should target psycho-socio-cultural stressors impacting mental

health. Indeed, the adaptation of refugees may be best supported by policies that value cultural variety and inclusion and promote multiculturalism.

Furthermore, models that incorporate both trauma-focused interventions and support socio-cultural adaptations of refugees should be promoted and integrated at the community level. The advantage of such models (e.g., Miller & Rasmussen, 2010; Silove, 1999) is that they target trauma and acculturative processes on an individual but also on a collective community level, therefore not only supporting the psychological wellbeing of individuals, but also assisting ethnic groups' adaptation into the wider host society.

Limitations

There are several methodological limitations in this study. First refers to the difficulties inherent in conducting research with refugees (Jacobsen & Landau, 2003). The current study included a relatively small convenience sample of refugees recruited using the snowballing method and thus the generalizability of the results is limited. In addition, retrospective reporting and reliance on self-reporting may run a risk of not remembering or misrepresenting the events and non-accurate measurement of symptoms (Kessler, Wittchen, Abelson, Zhao, & Stone, 2000) presenting a risk of recall bias (Southwick, Morgan, Nicolaou, & Charney, 1997). Nonetheless, this study has contributed to the literature by providing information about resettlement experiences of Bosnian refugees who resettled in Australia and Austria and their impact on mental

health. Another limitation is the possibility of the selection bias rather than the real differences between the refugee groups. The sample of refugees in this study may be more open to reporting their distress than the refugees in the host communities targeted who did not take part in the study. Finally, the DIS has not been validated in Bosnian refugee population.

Conclusion

The results of this study indicate that in addition to pre-migratory traumatic exposure acculturative stress has an effect on presentation of PTSD and anxiety, but not depressive symptoms. However, this effect was only found for some domains of acculturative stress indicating that some post-migratory stressors hinder the recovery from traumatic exposure while others may support recovery. Furthermore, this study offered a direct comparison of Bosnian refugees living in two different host societies. The findings indicated that the relationship between acculturative stress and mental health outcomes varied according to the country of resettlement, suggesting that acculturative stress experienced by Bosnian refugees may be influenced by the social context of the host society, in particular the immigration policies and attitudes of the wider society towards different cultures. In summary, findings of this study and group differences identified suggest that mental health of refugees is influenced by refugees' characteristics (e.g., traumatic exposure), post-migration risk factors (e.g., acculturative stressors) and resettlement trajectories (e.g., host nations' policies and attitudes). It

should be pointed on that no causal pathway can be established with these results and further research is needed to replicate these findings in larger samples of refugees of different cultural backgrounds living in different host nations.

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9.6 Study 3: What is the relationship between traumatic exposure, cultural orientation (ethnic and host) and mental health problems?

9.6.1 Levels of cultural orientation towards host and ethnic culture

Acculturation orientation towards ethnic and host culture was assessed with LIB scale. As indicated in Figure 4, participants in both countries embraced more the Bosnian cultural orientation than the Australian cultural orientation. The levels of ethnic cultural orientation differed between the refugees resettled in Australia and those in Austria. While both groups were more inclined towards the ethnic orientation, Australian Bosnians embraced the Bosnian culture significantly more than Austrian Bosnians. Levels of host cultural orientation did not differ significantly between Australian Bosnians and Austrian Bosnians (see Table 12).

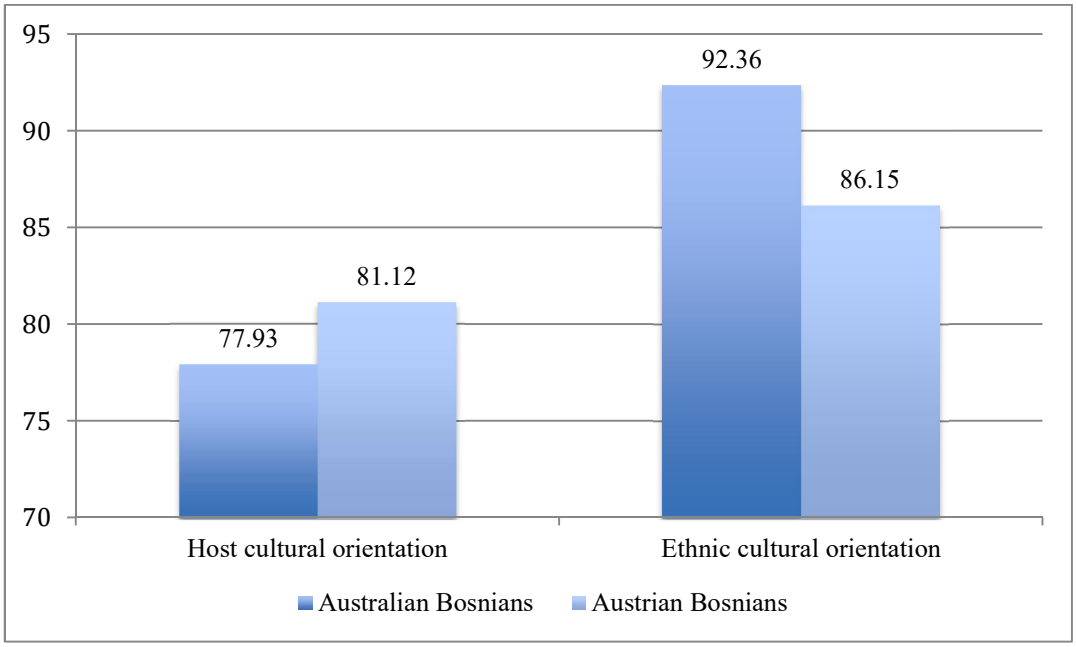


Figure 4: Levels of Host and Ethnic Cultural Orientation by Country of Residence

9.6.2 Levels of linguistic, identity and behavioural orientation

There were significant differences on the subscales of *language, identity* and *behavioural* orientation between Australian and Austrian Bosnians. While Australian Bosnians embraced significantly higher levels of host cultural identity, Austrian Bosnians reported higher levels of host language acquisition and behavioural preferences (see Table *11*). Considering the subscales of *language, identity* and *behavioural* orientations towards the ethnic cultural orientation, Australian Bosnians reported significantly higher levels of ethnic identity and ethnic behavioural orientation, than Bosnians in Austria. There were no differences in the ethnic language acquisition between the two groups.

Table 11

Levels of Cultural Orientation Towards Ethnic and Host Culture for the Total Sample and Australian and Austrian Subsamples

	Total refugee sample M (SD) (n=138)	Australian Bosnians M (SD) (n=56)	Austrian Bosnians M (SD) (n=82)	Group differences
Host cultural orientation	79.81 (17.96)	77.93 (16.91)	81.12 (18.71)	$t(132)$-1.01, p=.314
Language	25.02 (7.41)	22.34 (6.86)	26.90 (7.24)	$t(134)$=-3.64, p<.001
Identity	16.07 (6.20)	18.95 (5.91)	14.11 (5.64)	$t(134)$=4.81, p<.001
Behaviour	32.96 (7.15)	31.24 (7.31)	34.10 (6.85)	$t(133)$=-2.31, p=.022
Ethnic cultural orientation	88.72 (12.80)	92.36 (11.80)	86.15 (12.93)	$t(131)$=2.83, p=.005
Language	33.29 (4.65)	33.75 (4.59)	32.97 (4.69)	$t(134)$=.954, p=.341
Identity	22.78 (5.89)	24.78 (3.99)	21.42 (6.55)	$t(134)$=3.40, p=.001
Behaviour	32.58 (6.31)	33.87 (6.71)	31.70 (5.90)	$t(133)$=1.99 p=.049

9.6.3 Relationship between traumatic exposure, cultural orientation and mental health

In order to investigate the association between traumatic exposure, cultural orientation variables and mental health outcomes, bivariate correlations were calculated using Pearson correlation coefficient (*r*).

As demonstrated in Table *12*, traumatic exposure was only associated with host cultural orientation. This relationship was small and negative (*r*=-.179). The associations between traumatic exposure and mental health outcomes were significant indicating large positive relationships.

Country of resettlement (Australia) was significantly associated only with ethnic cultural orientation, suggested that those who resided in Australia were more inclined towards their ethnic orientation (*r*=.240). The associations with PTSD, depressive and anxiety symptoms were all significant indicating small to moderate positive relationships.

Considering cultural orientation indicators, host cultural orientation was significantly associated with PTSD, depressive and anxiety severity symptoms indicating small to moderate negative relationships. Ethnic cultural orientation was significantly associated only with PTSD symptoms indicating a small negative relationship (*r*=.208).

Table 12

Correlations Between Ethnic and Host Cultural Orientations and PTSD, Depressive and Anxiety Symptoms

	1	2	3	4	5	6
1. Traumatic exposure						
2. Country	.326***					
3. Host cultural orientation	-.179*	-.088				
4. Ethnic cultural orientation	.119	.240**	-.383***			
5. PTSD Severity	.695***	.337***	-.358***	.208*		
6. Depression severity	.600***	.260***	-.270***	.099	.772***	
7. Anxiety severity	.642***	.273***	-.314***	.166	.795***	.888***

Note: *p<.05, **p<.01, ***p<.001;

Next, separate stepwise regression analyses were undertaken to identify if cultural orientation towards host and ethnic culture predicted PTSD, depressive and anxiety symptoms. As can be seen in Table *13* when controlling for exposure to trauma and country of residence, only host cultural orientation contributed significantly and explained 53% of variance in PTSD symptoms, 38% variance in depressive symptoms and 45% of variance in anxiety symptoms.

Table 13

Hierarchical Regression Analysis Predicting PTSD, Depressive and Anxiety Symptoms from Host and Ethnic Cultural Orientation

	Model 1	Model 2
PTSD	$F(2, 120)= 58.432$, $p=.000$, Adjusted $R^2=.485$	$F(4, 118)= 34.793$, $p=.000$, Adjusted $R^2=.526$
Traumatic exposure	.654***	.616***
Country	.120	.103
Host cultural orientation		-.220**
Ethnic cultural orientation		.009
Depressive symptoms	$F(2, 121)= 36.074$, $p=.000$, Adjusted $R^2=.363$	$F(4, 119)= 19.904$, $p=.000$, Adjusted $R^2=.381$
Traumatic exposure	.592***	.565***
Country	.051	.055
Host cultural orientation		-.180*
Ethnic cultural orientation		-.051
Anxiety symptoms	$F(2, 121)= 45.026$, p=.000, Adjusted $R^2=.417$	$F(4, 119)= 25.890$, p=.000, Adjusted $R^2=.447$
Traumatic exposure	.635***	.604***
Country	.048	.037
Host cultural orientation		-.196**
Ethnic cultural orientation		.010

Note: **p<.01, ***p<.001;

9.6.4 Relationship between traumatic exposure, linguistic, behavioural and identity preferences and mental health problems

In order to investigate the contribution of each of the components of the cultural orientation (*language, identity* and *behaviour*) bivariate correlations were calculated using Pearson correlation coefficient (r) investigating association between traumatic exposure and cultural orientation indices.

As demonstrated in Table *14*, traumatic exposure was associated only with the *language* subscale of both host and ethnic cultural index. Specifically, those refugees who reported more exposures to traumatic events reported lower host language acquisition and higher ethnic language competence. Furthermore,

acquisition of the host language and behaviour orientation towards the host culture were significantly and negatively associated with PTSD, depressive and anxiety symptoms. These associations ranged from small (r=-.238) to moderate (r=-.411). Considering the subscales of the ethnic acculturation index, only ethnic cultural identity was significantly associated with severity of PTSD symptoms. This relationship was small and positive (r=.220).

Table 14

Correlations Between Ethnic and Host Cultural Orientations, Traumatic Exposure and PTSD, Depressive and Anxiety Symptoms

	1	2	3	4	5	6	7	8	9
1. Host Language									
2. Host Identity	.234**								
3. Host Behaviour	.725***	.405***							
4. Ethnic Language	-.186*	-.137	-.14						
5. Ethnic Identity	-.342***	.090	-.323***	.288**					
6. Ethnic Behaviour	.345***	-.150	-.314***	.313***	.462***				
7. Traumatic exposure	-.281**	-.009	-.108	.190*	.132	-.006			
8. PTSD symptoms	-.411**	-.096	-.318**	.169	.220*	.118	.695***		
9. Depressive symptoms	-.296**	-.105	-.238**	.142	.077	.015	.600***	.772***	
10. Anxiety symptoms	-.359***	-.116	-.267**	.146	.080	.073	.642***	.795***	.888***

Note: *p<.05, **p<.01, ***p<.001;

Subsequently, linear regressions were conducted investigating the individual subscales of the cultural orientation *language, identity* and *behaviour* and their influence on severity of PTSD, depressive and anxiety symptoms. As demonstrated in Table *15*, regression analyses indicated that only host language acquisition predicted PTSD (*language b*=-.338, *p*=.008), depressive (*language b*=-.291, *p*=.029) and anxiety (*language b*=-.382, *p*=.004) symptoms. In particular, higher levels of host language acquisition were associated with lower levels of PTSD, depressive and anxiety symptoms. Host behavioural orientation and ethnic identity, even though significantly correlated, did not predict PTSD, depressive or anxiety symptoms.

Table 15

Regression Analysis Predicting PTSD, Depressive and Anxiety from Host and Ethnic Subscales of Language, Identify and Behaviour (LIB) Scale

	Host	Ethnic
PTSD	F(3,119)=7.775, p<.0001	F(3, 119)=2.14, p=.098
Adjusted R^2	.143	.027
Language	-.338**	.106
Identity	.035	.166
Behaviour	-.095	.003
Depressive symptoms	F(3, 120)=3.996, p=.009	F(3, 120)=1.09, p=.356
Adjusted R^2	.068	.027
Language	-.291*	.134
Identity	-.038	.091
Behaviour	.003	-.074
Anxiety symptoms	F(3, 120)=6.102, p=.001	F(3, 120)=1.73, p=.164
Adjusted R^2	.111	.018
Language	-.382**	.103
Identity	-.040	.167
Behaviour	.042	-.043

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

This result led to further investigation of the mediating effect of host language acquisition on the PTSD, depressive and anxiety symptoms, which is investigated and discussed in the paper presented in the next section.

9.7 Paper 3: Trauma and Mental Health in Resettled Refugees: Mediating Effect of Host Language Acquisition on Posttraumatic Stress Disorder, Depressive and Anxiety Symptoms

This paper is submitted and is in revision stage in *Transcultural Psychiatry*.

Kartal, D., Alkemade, N., & Kiropoulos, L. (in submission). Trauma and Mental Health in Resettled Refugees: Mediating Effect of Host Language Acquisition on Posttraumatic Stress Disorder, Depressive and Anxiety Symptoms.

Abstract

This study examined the relationship between traumatic exposure, host language acquisition and mental health (posttraumatic stress, depressive and anxiety symptoms) in long-term resettled refugees. Participants included a community sample of Bosnian refugees (*N*=138), 55% male, mean age of 40 years old that had resettled in Australia and Austria on average 18 years prior. Two mediation models were tested based on two competing theories. Model A examined if language acquisition mediates the relationship between traumatic exposure and mental health problems experienced by refugees. Model B examined if mental health symptoms mediate the relationship between exposure to traumatic events and the acquisition of host language. The Model A fit the data well (CFI =1.00, SRMR = .017, RMSEA =.000, χ^2 *p*=.526), while Model B was rejected as an acceptable model for the data (CFI = .556, SRMR = .136, RMSEA = .352). In Model A, the indirect pathway from trauma to mental health via language acquisition was significant for PTSD (β=.067, *p*=.028) and anxiety symptoms (β=.063, *p*=.026) but not depression symptoms (β=.048, *p*=.071). The intervention strategies aimed at improving host language acquisition may be important not only in successful adaptation to daily living in the host country, but importantly to improve the mental health of traumatized refugees.

Introduction

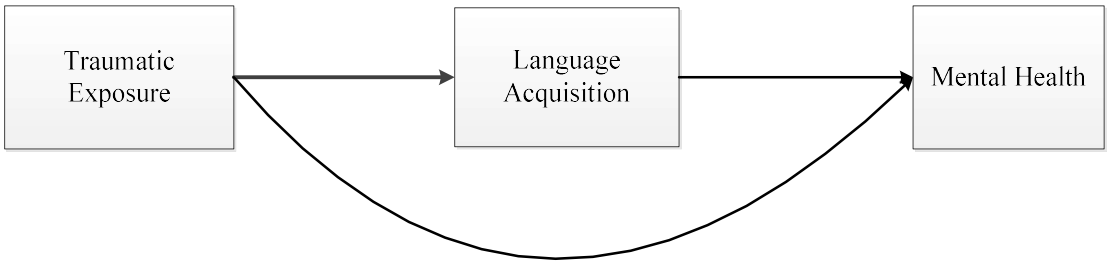
Research focusing on refugees, asylum seekers and displaced populations has identified high prevalence rates of mental health disorders following exposure to traumatic war events (Fazel et al., 2005; Kirmayer et al., 2011), especially for those persons exposed to interpersonal and multiple traumas (Steel et al., 2009). In addition, research evidence identified that migratory factors associated with adapting to the host culture occupationally, socially and psychologically, can exacerbate the mental health problems associated with exposure to traumatic experiences (Lindencrona, 2008; Porter & Haslam, 2005; Steel et al., 2002). Among migratory factors, host language acquisition is identified as a protective factor, buffering against the stress associated with adapting to the new environment and easing the process of completing daily living tasks (Beiser & Hou, 2001; UNHCR, 2001). On the other hand, the inability to acquire host language exposes refugees to additional stress, which negatively impacts their mental health (Robertson et al., 2006; Söndergaard & Theorell, 2004).

Research investigating host language acquisition has predominantly focused on migrant populations. Less is known about the relationship between language acquisition and mental health among refugees and whether findings in migrant populations are generalizable to refugees (van Tubergen, 2010). While there is robust evidence that past traumatic experiences commonly experienced by refugees affect mental health (Steel et al., 2009), little is known about the pattern and direction of the causal pathways between traumatic events, host language acquisition and mental health outcomes.

This study will investigate two models used to investigate the relationship between traumatic events, host language acquisition and mental health in a sample of

Bosnian refugees. The first model (Model A) proposes that while traumatic exposure has a direct impact on mental health, it also indirectly impacts mental health through its relationship with host language acquisition (see Figure 1). Whilst there is no previous research into this proposed model, various studies find support for the components of this model.

Model A: Language acquisition mediates the relationship between traumatic exposure and mental health



Model B: Mental health mediates the relationship between traumatic exposure and language acquisition.

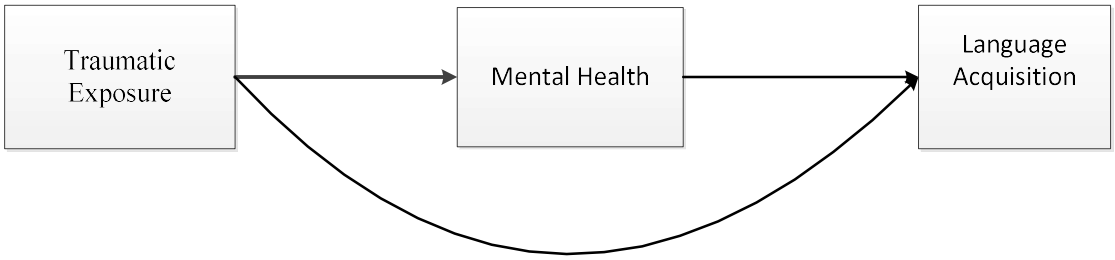


Figure 1

Proposed models explaining the relationship between traumatic exposure, host language acquisition and mental health

Trauma diminishes the capacity to deal with additional stress (Lindencrona, 2008), which indirectly increases the vulnerability to stress related psychopathology (Matheson, Jorden, & Anisman, 2008; Schweitzer et al., 2006; Steel et al., 1999). Research indicates that language acquisition is an important stressor associated with the migratory process. Knowledge and familiarity with the host language is a major

domain underpinning the process of acculturation that refugees go through during migration as they negotiate their participation in the new culture and maintenance of the origin culture and identity (Berry, 1997). The stress arising from this process associated with acquisition of host language is identified as a significant risk factor (Berry, 1997; Bogic et al., 2012; Ellis et al., 2008; Knipscheer & Kleber, 2006) predicting increased general distress, anxiety symptoms and even posttraumatic stress disorder (PTSD) symptoms (Beiser & Hou, 2001, 2006; Kartal & Kiropoulos, 2016; Schweitzer et al., 2011; Silove et al., 1998; Söndergaard & Theorell, 2004).

The second model (Model B) proposes that mental health symptoms associated with traumatic exposure affect the capacity to acquire the host language (see Figure 1). In this model, trauma exposure has an indirect relationship with host language acquisition, due to the direct relationship between trauma and mental health, and the subsequent relationship between mental health and language acquisition. The Model B is supported by neurobiological research that finds that traumatic exposure alters the neural pathways in the brain that are associated with cognitive domains and executive functioning (Etkin et al., 2013), with the largest effects on working and verbal memory, attention, learning and information processing (Bremner et al., 1993; Gilbertson et al., 2001; Polak et al., 2012; Scott et al., 2015; Shaw et al., 2002). These cognitive domains consequently play a role in second language acquisition. This proposition, however, has not been empirically tested. In addition, research in this area is predominantly conducted with veterans and the serving military, and hardly any studies have examined the impact of PTSD, depression or anxiety symptoms on executive functioning, and language acquisition in refugees. The limited evidence shows that traumatized refugees presenting with more severe PTSD symptoms acquire the host language at a significantly slower rate (Söndergaard & Theorell,

2004). This indicates that PTSD symptoms related to automatic processing problems, impairment in executive memory (Kanagaratnam & Asbjørnsen, 2007) and cognitive difficulties (Söndergaard & Theorell, 2004) may explain the difficulties with acquisition of the host language.

To better understand the relationship between trauma, mental health symptoms and host language acquisition, this study examined which of the two above-mentioned models better explained the relationship between these variables. In particular, we firstly examined if host language acquisition mediates the relationship between traumatic exposure and mental health problems experienced by Bosnian refugees (Model A). Secondly, we examined if mental health symptoms mediate the relationship between exposure to traumatic events and the acquisition of the host language (Model B). Furthermore, because there is evidence to indicate that language acquisition is predicted by age (Flege, Yeni-Komshian, & Liu, 1999) and length of residence (Beiser & Hou, 2001) and that gender is a significant predictor of PTSD (Armour et al., 2011), we considered the potential confounding effects of these variables. Finally, we also tested if the models differed between Bosnian refugees resettled in two different countries.

The next section presents a brief description of the war- and resettlement related experiences of Bosnians refugees.

War and resettlement of Bosnian refugees

The last census conducted in Bosnia at the brink of the war (1991) indicated a population consisting of 4.4 million, of whom 43.5% were Bosniaks (or Bosnian Muslims), 31.2% Bosnian Serbs, 17.4% Bosnian Croats, 5.5% Yugoslavs and 2.4% represented other ethnic groups (World Refugee Statistics, 1997). During the Bosnian war (1992-1995) about 2.2 million Bosnians were uprooted and driven away from their homes, about 200,000 were wounded and more than 250,000 killed with

Bosniaks the main target (World Refugee Survey, 2004) (World Bank Group, 1998). Brutal crimes and war strategies led not only to mass forced displacement, but also reappearance of concentration camps, systematic rape and executions and mass destruction of cultural and religious sites and monuments (Power, 2002).

The escalating crisis led to a massive population movement and biggest refugee crisis experienced post-World War II.

Despite persecution and horrendous atrocities experienced by Bosnian refugees, the huge influx of refugees to Europe in the 1990s had a major impact on the admission processes and the provision of asylum. Instead of provision of humanitarian protection and permanent resettlement, Bosnian refugees that arrived in Austria were almost automatically provided with temporary protection visa, were housed in temporary accommodations, were denied the right to work, receive welfare benefits or reunite with family members outside of Austria (Bauer, 2008; Franz, 2005). As a result, these de-facto refugees found employment on the black market, enabling them to move out of crowded, temporary housing and eventually acquired working and residency permits (Krause & Liebig, 2011). Unfortunately, this process usually took years to achieve, exposing individuals and families to many years of stress associated with migratory process. Currently there are about 150’000 Bosnians living in Austria (Statistics Austria, 2011).

Bosnian refugees resettled in Australia usually arrived under government sponsored humanitarian programs. These refugees were identified by United Nations Higher Commission for Refugees (UNHCR) as the most vulnerable (UNHCR, 2011). In the 1990s, Bosnians were the largest group of refugees who received humanitarian sponsored visas and were permanently resettled in Australia (Jupp, 2002). As such, they immediately received permanent residency and unrestricted access to all services

afforded to Australian citizens including access to health services and welfare support, but also additional services including language training, housing and vocational support. In addition, refugees resettled permanently in Australia had an option to reunite with their immediate family members and bring them to live in Australia (DIAC, 2009). Currently there are about 25'000 Bosnians living in Australia, with majority resettled in Victoria and New South Wales (ABS, 2013).

This illustrates the differences in the resettlement experiences in the post-migratory environments that these two groups of refuges faced upon leaving their war-torn countries.

Method

Participants and procedure

Participants were eligible for inclusion in this study if they were at least 18 years old, were exposed to war events in Bosnia during 1992-1995 and resided in Australia or Austria during data collection (2012-2014). Options used to recruit participants included "snow-balling", online recruitment, advertising in local media (Bosnian newspapers, radio and television) and recruitment through social clubs and associations. Participants responded in an anonymous self-report survey via an online hosted website or a hard copy of the survey which was returned anonymously in a prepaid envelope. More than half of the participants (n=78, 57%) used a hardcopy version. There were no statistical differences between those who filled a hardcopy or an online version of the survey for any of the outcomes including levels of PTSD (χ^2= 31.54; p=.29) depressive (χ^2= 17.86; p=.53) or anxiety symptoms (χ^2= 12.26; p=.66).

All measures used in the study were translated from English into Bosnian by the first author, who is a native speaker of the language, and then back-translated by an independent bilingual academic, so as to allow for comparison between the two translations. Any discrepancies in translation were resolved by discussion and mutual

agreement between the first author and the bilingual academic. This study was reviewed and approved by the Monash University Human Research Ethics Committee certificate number CF09/32382009001758.

Measures

The questionnaire included a set of demographic questions (age, gender, education and marital status). Traumatic exposure was a cumulative measure assessed with a set of trauma history questions using yes/no answers assessing exposure to war-related (e.g., torture, concentration camp, killing) and other traumatic events (e.g., exposure to disasters, accidents and assaults) experienced during the participant's lifetime.

Posttraumatic Stress Diagnostic Scale

The Bosnian translation (Powell & Rosner, 2005) of the *Posttraumatic Stress Diagnostic Scale* (*PDS;* Part 3 only*)* (Foa et al., 1997) was used for the assessment of current PTSD symptomatology. This measure is based on the DSM-IV PTSD symptom criteria (APA, 2013) which included 17 items scored on a 4 point Likert scale (from 0 = not at all or only one time, to 3 = five or more times per week/almost always). The alpha coefficient for the current Bosnian version of the PDS was excellent ($\alpha = .97$).

Depression and Anxiety Scale

The *Depression Anxiety Stress Scale (DASS-21)* is a 21 item self-report inventory designed to provide measures of the three related negative affective states of depression, anxiety, and stress (Lovibond & Lovibond, 1995). In the current study, only the depression and anxiety subscales were used to assess the presence of symptoms over the past two weeks. Items are measured on a 4-point Likert scale (0 = did not apply to me at all, and 3 = applied to me very much/most of the time). Alpha

coefficients for the depression (α = .95) and anxiety (α = .92) subscales in the current sample were excellent.

Language acquisition

Language acquisition was assessed using a host language acquisition subscale from the *Language, Identity, Behavioral Acculturation* (LIB) scale (Birman et al., 2002). Ratings are made on a 4-point Likert scale ranging from not at all to very well, like a native-speaker. The language acquisition subscale consisted of nine items asking participants to rate their ability to speak and understand the host language. The alpha coefficient in the current study (α = .95) was excellent.

Statistical analyses

Descriptive and bivariate correlations were performed using SPSS version 22.0 (SPSS INC., 2013). Path analyses were performed in Mplus version 7.0.1 (Muthén & Muthén, 2010) testing direct and indirect effects. Gender and length of residence were identified as potential confounding covariates and were controlled in all analyses. Subgroup analyses were performed investigating the fit of the model based on the country of resettlement. We relied upon a variety of model fit indices including the chi-squared goodness of fit, comparative fit index (CFI) (Bentler, 1990), the root mean square error of approximation (RMSEA) (Steiger, 1990) and the standardized root mean square residual (SRMR) (Vandenberg & Lance, 2000). Interpretation of the model fit was based on appraising multiple fit indices (Hu & Bentler, 1998, 1999). If the CFI values were <.90 model was rejected. RMSEA values <.05 were considered a close approximate fit, values between .05 and .08 were considered reasonable and values =>.10 indicative of poor model fit. A SRMR value near .08 was considered to support the model well.

Results

Participant characteristics

The demographic characteristics of the sample are presented in Table 1. A total sample of 138 participants was recruited into the study with a mean age of 40.20 years (range between 18-80 years) with 55% being male. Group differences were indicated for age ($t(136)=2.93$, $p=.004$) and length of resettlement ($t(136)=-3.173$, $p=.002$). In particular, Australian Bosnians were older ($M=44.61(14.60)$ and reported shorted length of resettlement ($M=16.05(3.46)$ years) compared to Austrian Bosnians (age: $M=37.20(14.44)$, length of resettlement $M=18.76$ (5.69)).

Eighty two percent of the whole sample reported experiencing at least one traumatic event, while 70% reported experiencing three or more traumatic events in their life (M = 5.09, SD=4.03, range 0-16). The most common experiences reported by participants include experiencing separation from immediate family members ($n=72$, 42%), direct bombardment or sniper fire ($n=68$, 46%) or lack of food, shelter or medicine ($n=68$, 46%). There were no differences in traumatic exposure reported by men and women, but there were significant differences based on the country of resettlement with Australian Bosnians reporting more traumatic exposure M=6.68 (4.00), than Austrian Bosnians M=4.01 (3.70); t (136)= 4.02, $p<.001$.

Table 1
Socio-demographic Characteristics of Participants

		M/n (SD/%)
Age		40.20 (14.91)
Gender		
	Male	76 (55%)
	Female	62 (45%)
Country of residence		
	Australia	56 (41%)
	Austria	82 (59%)
Length of residence in host nation (in years)		17.66 (5.07)
Marital status		
	Married	81 (59%)
	Single	28 (20%)
	In a relationship	18 (13%)
	Other	11 (8%)
Education level		
	Tertiary or above	57 (41%)
	Advanced Diploma	28 (20%)
	High school or less	53 (38%)
Religion		
	Islam	108 (78%)
	Atheist	12 (9%)
	Catholic	5 (4%)
	Other/Not declared	13 (10%)
Ethnic background		
	Bosniak	110 (80%)
	Mixed ethnicity	5 (4%)
	Croatian Bosnian	2 (1%)
	Serbian Bosnian	1 (1%)
	Not declared	20 (15%)

Table 2

Exposure to Traumatic Events Reported by Bosnian Refugees

Traumatic event	*n*, (%)
Separation from immediate family	76 (55.1%)
Direct bombardment or sniper fire	69 (50.0%)
Lack of food, shelter, medicine	69 (50.0%)
Other stressful event happened to family	56 (40.6%)
Family member injured, killed or tortured	55 (39.9%)
Other stressful or upsetting event	52 (37.7%)
Life threatening accidents	41 (29.7%)
Witnessed other people being harmed, tortured or killed	39 (28.3%)
Serious physical attack or assault	34 (24.6%)
Witnessed family injury, killing or torture	15 (10.9%)
Fire, flood or natural disaster	14 (10.1%)
Torture	12 (8.7%)
Combat	10 (7.2%)
Concentration camp	9 (6.5%)
War-related serious injury	4 (2.9%)

Note: *N*= 138

Prevalence of Mental Health Outcomes

Table 3 presents the frequencies of self-reported PTSD, depression and anxiety symptoms. The mean score for posttraumatic stress was 8.58 (11.57), depressive symptoms 3.76 (5.13) and anxiety symptoms 3.41 (4.52) indicating relatively moderate symptoms of PTSD, depressive and anxiety symptoms. Utilizing the recommended cut-offs for severity scoring, results indicated that participants reported predominantly normal levels of PTSD (66%), depressive (70%) and anxiety (58%) symptoms. There were no significant differences reported by gender. However, there were significant differences in severity of anxiety and PTSD symptoms reported by country, with Bosnian refugees in Australia reported more anxiety and PTSD symptoms than Bosnian refugees in Austria.

Table 3

Severity of PTSD, Depressive and Anxiety Symptoms Across Bosnians in Australia and Austria

Symptoms	Total Sample *n*, %	Australian Bosnians *n*,%	Austrian Bosnians *n*,%	Group differences Fisher's exact
Depressive symptoms				8.33, *p*=.071
Normal	89 (70%)	29 (58%)	60 (77%)	
Mild	7 (6%)	2 (4%)	5 (6%)	
Moderate	16 (12%)	10 (20%)	6 (8%)	
Severe	7 (6%)	3 (6%)	4 (5%)	
Extremely severe	9 (7%)	6 (12%)	3 (4%)	
Anxiety symptoms				9.74, *p*=.039
Normal	80 (58%)	24 (48%)	56 (72%)	
Mild	12 (9%)	5 (10%)	7 (9%)	
Moderate	16 (12%)	9 (20%)	7 (9%)	
Severe	7(5%)	3 (1%)	4 (5%)	
Extremely severe	13 (9%)	9 (2%)	4 (5%)	
PTSD symptoms				14.89, *p*=.001
None/mild	83 (65.9%)	27 (53%)	56 (75%)	
Moderate	21 (16.7%)	7 (14%)	14 (19%)	
Moderate-severe	19 (15%)	14 (27%)	5 (7%)	
Severe	3 (2%)	3 (6%)	0 (0%)	

Note: Percentages do not always correspond to total N due to cases with missing data;

Association between language acquisition and mental health indices

Exposure to traumatic events was found to be positively associated with PTSD (.695), depressive (.600) and anxiety symptoms (.642) and negatively associated with host language acquisition (-.281). Furthermore, host language acquisition was found to be negatively associated with PTSD (-.411), depressive (-.296) and anxiety (-.359) symptoms.

Path model analyses

Separate mediation analyses tested two competing models about the roles of trauma, mental health and host language acquisition in refugees. Table 4 shows the goodness of fit indices for each of the competing models. Model A generated fit

indices indicative of a well-fitting model. Importantly the finding of a non-significant Chi-square test is a rare indicator of how well Model A represents the data. In comparison the fit indices generated by Model B fail to support this model as being an adequate representation of the data. Importantly with language acquisition as the outcome variable other than of PTSD (β=.659, p=.02), all other primary variables in the model were non-significant predictors of language acquisition; depression (p=.18), anxiety (p=.14), traumatic exposure (p=.64). The CFI, RMSEA and SRMR scores were all representative of a poor-fitting model. Furthermore Model A is a better predictor of mental health (PTSD, depressive and anxiety) scores than Model B as indicated by the higher levels of explanatory power (variance explained) detailed in Table 4. Therefore, we selected Model A (represented in Figure 2) as the best conceptualization of the relationships between trauma, host language acquisition and mental health in refugees. Furthermore, as shown in Figure 2, significant paths indicated that levels of host language acquisition mediated the relationship between exposure to traumatic events and PTSD and anxiety, but not depressive symptoms. Particularly, indirect effect of traumatic exposure via host language acquisition, were statistically significant and indicated that language acquisition at least partially accounted for the relationship between traumatic exposure and the severity of PTSD (β=.067, p=.028) and anxiety symptoms (β=.063, p=.026), but not depression (β=.048, p=.071).

We also considered the potential confound of age in the analyses and tested a moderated mediational model following the approach recommended by Hayes (2015). We observed that age did not moderate the mediation model we have tested and therefore we can conclude this is not an important confound to our analyses.

Table 4

Fit Indices for the Path Models of Relations Between Traumatic Exposure, PTSD, Depressive and Anxiety Symptom Severity and Host Language Acquisition

	Model fit				Variance explained		
	Chi-square (df), *p*	CFI	RSMEA	SRMR	Anxiety symptoms	Depressive symptoms	PTSD symptoms
Model A	1.283 (2), *p*=.526	1.00	.000	0.017	.449	.381	.556
Model B:	163.281 (9), *p*<.001	.556	.352	0.136	.405	.353	.474

Note: df = degrees of freedom; CFI = comparative fit index; RSMEA = root mean square error of approximation; SRMR =standardised root mean square residual;

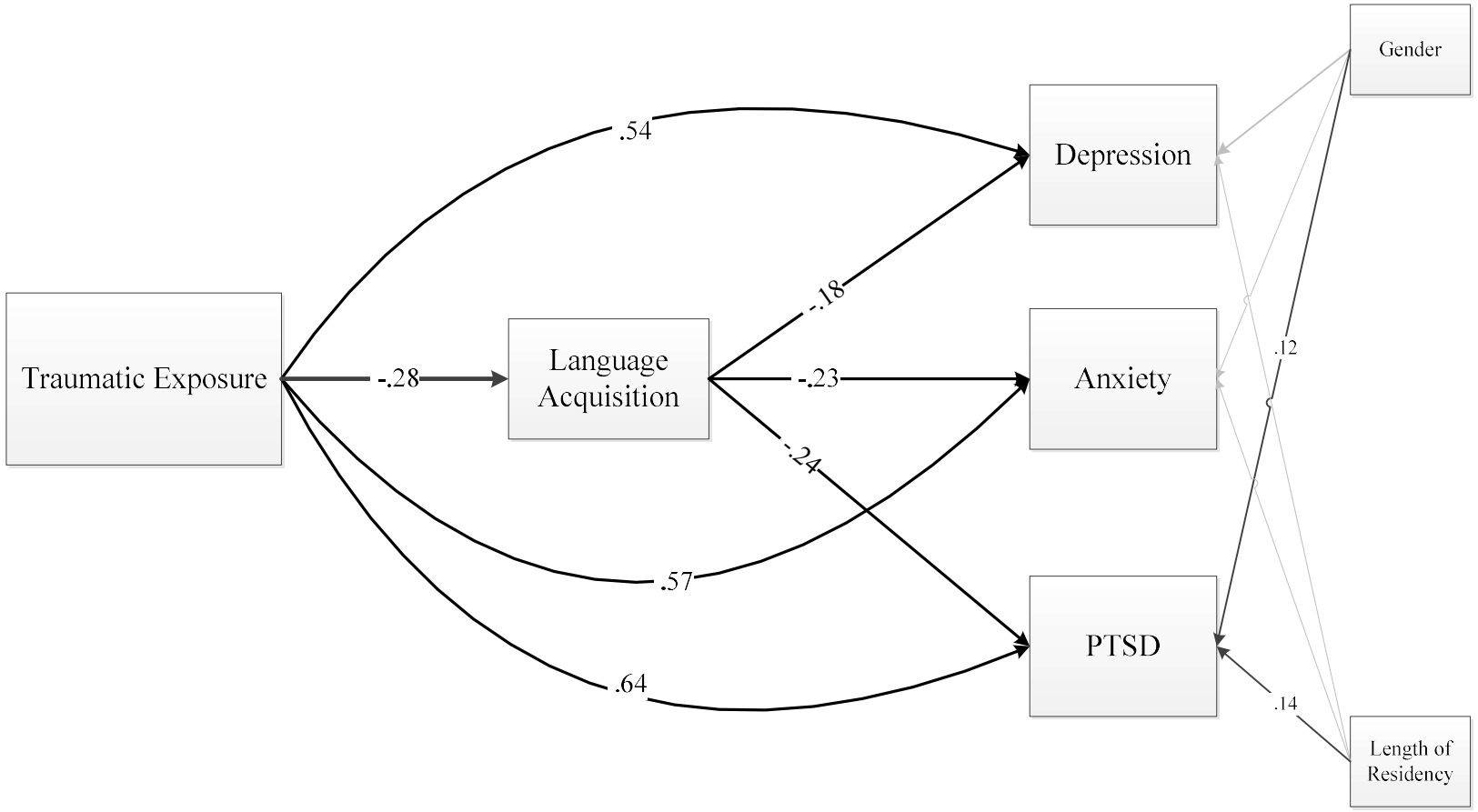


Figure 2 : Mediation Model A with the path relationship between trauma and mental health outcomes and mediated by host language acquisition. Significant parameters are in black with standardized beta weights. The model is controlled for by gender and length of residency. PTSD = Posttraumatic Stress Disorder.

Subgroup analyses

Subsequently we explored whether the path coefficients found in Model A differed between participants resettled in Australia and Austria. While it is not within the scope of this paper to report the full post-hoc analyses, the results indicated a robust model fit for both subgroups [Australia model fit: (X^2(2)=2.097, p=0.350, CFI=0.999, RSMEA=0.029, SRMR = 0.036, SS-BIC=1230.990) Austria model fit: (X^2(2)=0.438, p=0.804, CFI=1.00, RSMEA=0.00, SRMR = 0.012, SS-BIC=1741.871] with one significant difference in the pathways identified. Specifically, Wald tests (p=.013) indicated that the path coefficient between traumatic exposure and PTSD were stronger in Austria (β=.659, p<.001) than in Australia (β=.606, p<.001), therefore indicating that trauma history is a stronger predictor of PTSD in Austria than in Australia. However, with a β >0.5, both models still observe a large effect for traumatic exposure and PTSD.

Discussion

Bosnian refugees in this study reported high levels of traumatic exposure to war and other traumatic stressors. More than two decades after the war, these stressors were still associated with high severity of PTSD, depressive and anxiety symptoms. These findings are consistent with other studies conducted with refugee samples (Fazel et al., 2005; Silove et al., 1998) and Bosnian refugee samples conducted in other countries (Knipscheer & Kleber, 2006; Mollica et al., 2001; Momartin et al., 2003). Significantly higher levels of trauma experienced and reported by Australian Bosnians could be explained by their older age, which has been associated with more mental health symptoms in refugees (Bogic et al, 2012; Porter at al, 2005). Varying degrees of exposure found in Australian and Austrian Bosnians are consistent with prior research conducted with ex-Yugoslav refugees, including Bosnians resettled in European countries that identified

varying degrees of exposure and posttraumatic symptoms across samples resettled in different countries (Bogic et al., 2012). Different resettlement trajectories could explain this difference between the samples and higher severity of posttraumatic symptoms identified in Australian Bosnians. In particular, Australian Bosnians went through resettlement under the UNHCR scheme, which granted resettlement and residence to the most vulnerable and those who experienced particularly traumatic ordeals during the war (UNHCR, 2011).

Analysing the two different pathways proposed to underlie the relationship between traumatic exposure, mental health and host language acquisition, the results clearly supported Model A indicating that the relationship between traumatic exposure and mental health is mediated by host language acquisition. Where as in Model A all paths met criteria for significance, all primary variables in the Model B, with the exception of PTSD, were non-significant predictors of language acquisition. These findings suggest that the subtle difference of having mental health driving the capacity to acquire a new language, rather than having mental health diminishing one's capacity to acquire a new language is not supported by these results. It is important to remember that in the Model A the direct relationships between trauma and mental health are still very strong. Thus suggesting that difficulties with language acquisition are not the sole reason for mental health problems, but they are a mechanism that worsens these outcomes. On the other hand, in Model B, trauma did worsen language acquisition but the associated mental health problems were not observed to be a mechanism that further inhibited this skill acquisition, beyond the influence already observed for trauma.

This finding complements the already-established evidence base on the accumulative impact of post-migratory stressors (Beiser & Hou, 2001, 2006; Bogic et al., 2012; Schweitzer et al., 2011; Schweitzer et al., 2006; Steel et al., 1999) and language acquisition in particular (Kartal & Kiropoulos, 2016; Robertson et al., 2006; Söndergaard & Theorell, 2004) on mental health outcomes in refugees. However, while this finding was significant for posttraumatic stress and anxiety symptoms, it was only approaching significance for depressive symptoms, thus suggesting that the mediation effect of host language acquisition varies based on the psychopathology of interest. One explanation for these findings might be the duration of resettlement. Longitudinal studies conducted with refugees reported that depressive symptoms start to decrease after prolonged resettlement (i.e., longer than 10-12 years), which suggests that the early stages of resettlement are identified as highly stressful, until an adaptive time point is reached, when stress starts to decrease with increased length of stay in the host country (Fenta et al., 2004; Tran, Manalo, & Nguyen, 2007). These results are consistent with the length of resettlement (mean 17.66 years) of the current sample, indicating a diminishing impact of migratory stressor such as language acquisition in the later stages of resettlement.

Importantly, subgroup analyses for country of resettlement found support for the mediating role of host language acquisition in both Australian and Austrian Bosnian samples. While there were differences in the direct relationship from trauma to PTSD, the overall findings suggest Model A is robust across different cultural approaches to migration. Indeed, language acquisition difficulties form significant psychological and social barriers to the adaptation and integration of refugees, difficulties that are often intensified by the wider host

society. The process of segregation based on competence in the host language can lead to social exclusion and discrimination (Correa-Velez, Gifford, & Barnett, 2010; Sorgen, 2015), which have been associated with poor mental health outcomes (Aichberger et al., 2015; Ellis et al., 2008).

The importance of language acquisition and its effect on mental health and integration of refugees cannot be underestimated. Barriers to communication not only exacerbate the symptoms associated with pre-migratory traumas, but also limit adaptation and social integration (UNHCR, 2001), daily functioning (Beiser & Hou, 2001) participation in the employment market and job satisfaction (Birman et al., 2014; Chiswick, Lee, & Miller, 2004). Therefore, host language acquisition not only aggravates pre-existing psychopathology of refugees, but it inhibits adaptation to the new cultural landscape.

The impact of language acquisition difficulties on refugee mental health is also an important clinical issue. Inability to understand or communicate appropriately with mental health providers does not only impair the communication, but is also a barrier to access and utilization of services (Crosby, 2013). In Australia alone, linguistic barriers are associated with inaccurate diagnosis of mental illness, low hospitalization rates, longer hospitalization duration, and greater rates of involuntary admissions (Cross & Singh, 2012; Pirkis et al., 2001). Language also influences the effectiveness of treatment (Miller, Martell, Pazdirek, Caruth, & Lopez, 2005) as it shapes understanding and the expressions of distress and mental health symptomatology (Hollifield et al., 2002) and influences the establishment of rapport and trust (Miller et al., 2005). Assisting refugees in acquiring the host language would assist with adaptation to

migration and assist with recovery from mental health problems associated with pre-migratory traumatic exposure.

While language class provision may already be part of the resettlement policies for refugees, previous research indicates that only providing language training opportunities is not enough. Refugees experience access barriers due to limited social, gendered and cultural issues and potentially even lack of pre-migration education and literacy (Watkins, Razee, & Richters, 2012). Accessibility, availability and quality of education service provision (Watkins et al., 2012) also compound these problems. This is particularly an issue if refugees are resettled in rural areas, where student retention and restricted or lack of professional development for educators can be experienced by educators with regard to refugee education (Major, Wilkinson, Langat, & Santoro, 2013).

More can be done to address these barriers and enable refugees to access language services and successfully acquire host language skills. This may include creating culturally responsive education by offering different types of learning opportunities such as activity- or visually-based learning for illiterate students (Maher, 2006), training bi-lingual refugee members as educators (McKay, 2008) and providing home-based learning (Watkins et al., 2012). Finally, informing educators about the possible mental health issues that may be present in refugees is also important, given that exposure to pre-migratory traumatic events is strongly related to disturbed cognitive functioning and learning ability in individuals experiencing post-traumatic symptoms. Enabling and supporting refugees' adaptation to the host-country environment may best be achieved by implementing resettlement policies that provide multidisciplinary provision of

services such as access to social services, health, education, language and vocational training.

Limitations

There are several methodological limitations with this study. Firstly, the current study included a moderately small sample of refugees who were recruited via community associations, events and online forums. While this strategy enables data collection from a broader section of participants, the sample of refugees in this study may be more open to reporting their distress than the refugees who did not take part in the study. In addition, the small sample size limits the power of the analyses and comparisons between the two countries in particular. Hence, all conclusions from this study should be interpreted with caution. Secondly, we recruited participants from two countries, and while the refugees targeted may share similar cultural backgrounds, they may also differ in their pre- and post-migration experiences, as indicated by group differences identified in this study. Such differences may reflect recruitment bias, hence limiting the generalizability of these findings to the broader Bosnian refugee population and to the other refugees groups in other countries. Thirdly, the current study relied on self-report measures and retrospective reporting, which may present a risk of recall bias and with the accurate measurement of symptoms. Fourthly, prior psychiatric history and presence of mental health symptoms associated with other mental health disorder (i.e., not just PTSD, anxiety and depression) were not assessed in this study. Finally, the psychometric properties of some of the measures used in this study have not been validated in Bosnian refugee populations.

Future directions

Future research should employ a larger sample to replicate these results. Furthermore, longitudinal multi-ethnic and multi-national research is needed to clarify the relative causal contribution of each possible pathway and test whether the proposed model fits with other refugee groups and other cultures. Such research should start when refugees arrive in the host country and investigate if the provision of language classes assists in the wellbeing of refugees. Moreover, such studies should be conducted across different refugee groups and resettlement countries, as prior research has indicated that resettlement context impacts on how refugees acculturate into the host society (Berry, 1997). Attention should be given to subgroup differences, such as exposure to trauma, age, gender and length of resettlement, but also differences inherent in the origin culture. Despite the limitations, this study is the first to report on the effects of host language acquisition on the relationship between traumatic exposure and symptoms of PTSD, depression and anxiety among refugees.

Conclusion

Building on our understanding of the risk factors and challenges facing refugees, these findings indicate that more could be done to address the long-term effects of traumatic exposure in refugees and the associated mental health problems. Assisting refugees in the acquisition of the host language could benefit their adaptation to the new environment and lead to improvements in mental health. The findings of the current study draw attention to the proximal environmental settings crucial to recovery (Miller & Rasmussen, 2010). While migratory factors are increasingly the target of recovery programs offered to asylum seekers and refugees, health programs implemented in resettlement

societies need to offer and incorporate educational and language acquisition programs aimed at lessening the impact of post-migration stressors.

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9.8 Study 4: What is the relationship between traumatic exposure, acculturative stress, cultural orientation (host and ethnic) and mental health problems?

The results pertaining to the relationship between traumatic exposure, acculturative stress, cultural orientations and mental health outcomes are discussed in the paper presented in the next section.

9.9 Paper 4: Traumatic exposure, acculturative stress and cultural orientation: The influence on PTSD, depressive and anxiety symptoms among Bosnian refugees resettled in Australia and Austria

Kartal, D., Alkemade, N., Eisenbruch, M., & Kissane, D. (in submission). Traumatic exposure, acculturative stress and cultural orientation: The influence on PTSD, depressive and anxiety symptoms among Bosnian refugees resettled in Australia and Austria

Abstract

Objective: Acculturation studies conducted with refugees have predominantly concentrated on investigating the impact of acculturative stress on the mental health and have omitted to investigate the impact of cultural orientations towards the host and ethnic cultures. Furthermore, exposure to traumas is highly prevalent in refugees and strongly associated with mental health outcomes, but is rarely included in investigations of acculturative process of refugees.

Method: Using structural equation modelling, this study tested an integrated model of the relationship between traumatic exposure, acculturative stress, host and ethnic cultural orientations and posttraumatic stress disorder (PTSD), depressive and anxiety symptoms among 138 Bosnian refugees resettled in Australia and Austria.

Results: The path model showed an overall good fit and noteworthy amount of variance indicating that traumatic exposure is the strongest direct and indirect predictor of PTSD, depressive and anxiety symptoms. Furthermore, acculturative stress was identified as a significant risk factor influencing host cultural orientation, mediating the effect of traumatic exposure on all mental health outcomes. **Conclusion:** Acculturative stress and cultural and social stressors that are related to acculturation need to be addressed alongside provision of effective psychotherapy, especially since they are significant impediments to host cultural orientation and constructive engagement with mental health services in refugees.

Introduction

The impact of multiple and chronic exposures to conflict- and persecution-related trauma experiences and their adverse psychological effects on refugees and displaced persons are now widely documented in the literature (Porter and Haslam, 2005; Steel et al., 2009). Recently there is a growing interest in the literature surrounding the relationship between acculturation and the mental health of refugees. While it is widely acknowledged that conflict- and persecution-related experiences may lead to mental health problems such as posttraumatic stress disorder (PTSD) and depression (Ozer et al., 2008; Steel et al., 2009), migration and acculturative process can also be highly stressful and furthermore compromise the ,already vulnerable mental health of refugees (Porter and Haslam, 2005). Acculturation studies on refugee mental health have predominantly concentrated on investigating the impact of acculturative stress on the mental health of refugees identifying it as a significant risk factor for mental health problems (e.g., Knipscheer and Kleber, 2006; Bogic et al., 2012; Schweitzer et al., 2011). Studies investigating how acculturative orientation towards host and ethnic cultures impacts mental health are few in comparison, and those have predominantly concentrated on specific refugee groups resettled in the US (e.g., Lincoln et al., 2015; Birman et al., 2014; Ellis et al., 2010). However, lacking from the majority of these studies is an investigation into the simultaneous relationships between pre-migratory traumatic exposure and acculturative processes with mental health outcomes.

This study seeks to fill this gap by investigating the relationships between pre-migratory traumatic exposure, acculturative stress and cultural orientation with mental health in a sample of Bosnian refugees resettled in Austria and Australia. Specifically, it examines the effects of exposure to war-related traumatic experiences, acculturative

stress, and ethnic- and host-cultural orientations on the symptoms of PTSD, depression and anxiety.

Pre- and post-migratory stressors and mental health of refugees

Very often, refugees are exposed to a myriad of pre-migratory traumatic events that are based on deliberate and targeted persecution against their ethnic, cultural, religious or political beliefs and values. While there can be significant differences between such experiences among refugees, research evidence suggests that refugees are generally exposed to multiple, sometimes extreme traumas such as torture, rape and death of family members (Steel et al., 2002), which puts them at higher risk for developing serious mental health problems (Steel et al., 2009). Compared to the general population, refugees can be between five and ten times more likely to present with depression and PTSD symptoms (Fazel et al., 2005), especially if exposed to interpersonal and multiple traumas (Steel et al., 2009).

The pre-migratory traumatic experiences associated with war and conflicts are compounded when those inhabitants of the war-affected country need to resettle elsewhere. There are specific stressors and challenges associated with migration to a new country, including poverty, unstable working conditions and unemployment, social exclusion and perceived discrimination, host language difficulties and other similar stressors (Mölsä et al., 2014; Beiser and Hou, 2001; Teodorescu et al., 2012).

Post-migratory challenges are often related to *acculturation*, defined as the process of simultaneous participation with the new culture and maintenance of the ethnic culture and identity (Berry, 1997). Acculturation is seen as the result of *stress* and *conflict* arising out of contact and participation between the two cultures. Acculturative stress related to the demands and difficulties associated with and arising

out of the acculturative process is highlighted as underlying mechanisms of this process (Folkman et al., 1986; Berry, 1997). The degree of acculturative stress itself influences the ethnic-cultural orientation (i.e., the cultural maintenance and orientation towards the ethnic culture) and host-cultural orientation (i.e., learning and adoption of the host culture) (Berry, 2006). The consequences of the acculturation process are substantial and seen to influence psychological and sociocultural outcomes in migratory groups and individuals (Bhugra, 2004).

Despite the widely held presumption that immigrants should have worse mental health due to stress associated with the acculturative process, research often demonstrates that minorities have better mental health than the population of the dominant cultures. This phenomenon is commonly identified as the "immigrant paradox" (for discussion see: Rudmin, 2009; Schwartz et al., 2010). Still, the evidence underlying the effect of the ethnic and host cultural orientation on mental health is mixed. Systematic reviews and meta-analyses conducted with migrants showed that orientation towards the host culture, at the expense of the ethnic culture maintenance, had no relationship with depression (Koneru et al., 2007) or reduced the risk of depression (Gupta et al., 2013). Similarly, orientation towards the ethnic culture alone demonstrated no relationship with depression (Gupta et al., 2013). However, high identification with both cultures related to better psychological and socio-cultural adaptation and this relationship seemed stronger than when there was a preference for one culture only (ethnic or host) (Nguyen and Benet-Martínez, 2012).

Evidence of the effects of cultural orientation on mental health in refugee populations is very sparse and yields mixed results. Some research studies demonstrated a protective value of ethnic cultural orientation against psychological distress

(Knipscheer & Kleber, 2006), but not anxiety (Birman and Tran, 2008). Others identify host cultural orientation to be associated with higher levels of psychological distress (Cheung, 1995) and to be unrelated to anxiety (Birman and Tran, 2008). Host cultural orientation was also found to contribute to better life satisfaction and reduced psychological distress when mediated by occupational success, while ethnic cultural orientation had the same effect and was mediated by ethnic social support (Birman et al., 2014). Cultural competence in both ethnic and host cultures was associated with fewer depressive symptoms in one study (Oppedal and Idsoe, 2012), but not another (Birman and Tran, 2008). Weaker social integration with the host culture was also associated with higher levels of PTSD and depressive symptoms, while weaker integration into the ethnic community was associated with complex PTSD (Teodorescu et al., 2012).

Acculturative stress is presumed to influence cultural orientation and mental health, with cultural orientation also influencing mental health. Whilst the preceding review of the literature highlighted the discrepant findings regarding the role of orientation on mental health in migrants and refugees, the specific relationship between acculturative stress and mental health is more consistent. The stress experienced in response to these migratory challenges is regularly identified as a significant risk factor for mental health problems (Berry, 2006; Bogic et al., 2012) and specifically associated with higher levels of PTSD symptoms (Schweitzer et al., 2011; Knipscheer and Kleber, 2006; Jorden et al., 2009) depressive symptoms (Schweitzer et al., 2011; Fenta et al., 2004; Jorden et al., 2009) and anxiety symptoms (Schweitzer et al., 2006; Schweitzer et al., 2011). These relationships are often demonstrated even after accounting for the effect of pre-migratory traumatic exposure (Schweitzer et al., 2006) and are found to be

stronger among refugees who felt rejected by their host country (Bogic et al., 2012), indicating a significant effect of acculturation on mental health.

Discordant findings into the association between acculturation and mental health are often attributed to few different factors. The first relates to the variability of acculturation conceptualization and operationalization. While most researchers now agree on the bi-dimensional (i.e., two dimensions separately for ethnic and host orientation) as opposed to a uni-dimensional (i.e., one dimension ranging from ethnic to host orientation) conceptualisation of acculturation, operationalization of acculturation still varies and includes uni-dimensional, bi-dimensional and typographic (i.e., integration, assimilation, separation and marginalisation categories) assessments of acculturation (Nguyen and Benet - Martínez, 2007).

The second factor relates to the migrating context and specifically the cultural differences between ethnic and host culture that come into contact. If the host culture is not accepting and the social support from the original culture is unavailable, individuals experience a sense of rejection and alienation, with negative implications for their mental health (Bhugra, 2004). The impact of the migrating context, however, has not been researched much and the focus is still predominantly on the individual groups as the principal drivers of the acculturative process.

Finally, the acculturation research has been criticised for its lack of generalizability as most of the early empirical work was derived from early studies conducted with Asian and Hispanic cultures migrating to the United States (Rudmin, 2009). Therefore, the findings and the ethno-specific assessments of acculturation might not fully generalise to forcibly displaced populations, such as refugees who firstly, experience different push and pull factors (e.g., pre-migratory exposure to traumas);

secondly, come from different cultural backgrounds (e.g., African, Indo-European, Middle-Far Eastern); and thirdly, migrate to different host societies that have different cultural and political environments (e.g., Europe, Australia). Indeed, the limited research conducted to date indicates that refugees live in societies with restrictive policies, lack choice in their acculturative strategy, struggle with adaptation, and remain vulnerable to psychosocial stress (Phillimore, 2011).

Overall, the literature reviewed suggests that both ethnic and host cultural orientations and acculturative stress may influence the mental health of refugees. While several mediational models have been tested with migrants examining the impact of acculturation on mental health (e.g., Jasinskaja-Lahti and Liebkind, 2001; Birman and Taylor-Ritzler, 2007), none of these has considered the impact of acculturative stress and cultural orientation in the same model among refugees. Prior integrated models conducted with migrants (Park and Rubin, 2012; Ayers et al., 2009) demonstrated a mediating role of acculturation level in the relationship between acculturative stress and depression. However, both of these models tested the assumption that acculturative levels impact acculturative stress, and not the other way around. This assumption contradicts the acculturative theory (Folkman et al., 1986; Berry, 1997) which proposes that acculturative stress is one of the underlying mechanisms of the acculturation and is seen as the result of conflict arising out of contact and participation with the host culture during the acculturative process. Furthermore, both models utilised uni-dimensional operationalization of acculturation that have been criticised (Schwartz et al., 2010). To our knowledge, no model has investigated the impact of exposure to traumatic events and the process of coping with acculturation and acculturative stress. Therefore, these models yield a limited picture failing to consider possible transitional mechanisms

between pre-migratory traumatic exposure to post-migratory stressors and their impact on mental health.

The aim of the current study is to fill this void and investigate the relationship between traumatic exposure, acculturative stress, cultural orientation and their impact on mental health outcomes, in particular PTSD, depressive and anxiety symptoms. In particular, we will examine if, in a refugee sample, acculturative stress influences cultural orientation, and if ethnic and host cultural orientations mediate the relationship between traumatic exposure and mental health symptoms.

Method

Participants and procedure

Participants were eligible for inclusion in this study if they were older than 18 years of age, exposed to war events in Bosnia during 1992-1995 and resided in Australia or Austria during data collection. Options used to recruit participants included "snow-balling", online recruitment, advertising in local media (newspapers, Bosnian local radio and television), and recruitment through social clubs and associations. Data was collected via self-report surveys in Bosnian and English languages. This study was reviewed and approved by the Monash University Human Research Ethics Committee certificate number CF09/32382009001758.

Measures

The questionnaire included a set of demographic questions (age, gender, education and marital status). Traumatic exposure was a cumulative measure assessed with a set of trauma history questions using yes/no answers assessing exposure to war-related (e.g., torture, concentration camp, killing) and other traumatic events (e.g.,

exposure to disasters, accidents and assaults) experienced during the participant's lifetime.

Posttraumatic Stress Disorder

The Bosnian translation (Powell and Rosner, 2005) of the *Posttraumatic Stress Diagnostic Scale* (*PDS;* Part 3 only*)* (Foa et al., 1997) was used for the assessment of current PTSD symptomatology. This measure is based on the DSM-IV PTSD symptom criteria, which included 17 items scored on a four point Likert scale (from 0 = not at all or only one time, to 3 = five or more times per week/almost always). The alpha coefficient for the current Bosnian version of the PDS in this sample was excellent (α = .97).

Depressive and Anxiety Symptoms

The *Depression Anxiety Stress Scale (DASS-21)* is a 21 item self-report inventory designed to provide measures of the three related negative affective states of depression, anxiety, and stress (Lovibond and Lovibond, 1995). In the current study, only the depression and anxiety subscales were used to assess the presence of symptoms over the past two weeks. Items are measured on a four-point Likert scale (0 = did not apply to me at all, and 3 = applied to me very much/most of the time). Alpha coefficients for the depression (α = .95) and anxiety (α = .92) subscales in the current sample were excellent.

Acculturation orientation

Language, Identity, Behavioural Acculturation (LIB) (Birman et al., 2002) scale was used to assess acculturation orientation. The scale utilised three separate subscale scores for *Language, Identity* and *Behaviour* to derive two overall total scores of acculturation orientation: host cultural orientation (Australian or Austrian) and ethnic cultural orientation (Bosnian). Ratings were made on a four-point Likert scale ranging

from “not at all” to “very well, like native”. The *Language* subscale consists of 18 items asking participants to rate their ability to speak and understand host and native language. The *Identity* subscale consists of 14 statements measuring identification with ethnic and host cultures. The *Behaviour* subscale includes 22 items asking participants to rate the extent to which they engage in behaviours associated with each culture. The Cronbach’s coefficient for the host cultural orientation in this sample was .94 and ethnic cultural orientation was .92.

Acculturative stress

Demands of Immigration Scale (DIS) (Aroian et al., 1998) was used to measure acculturative stress experienced over the last six months. This scale includes multiple subscales relating to *Loss* (longing for people, places and things in the homeland), *Novelty* (unfamiliarity with the tasks of daily living), *Occupation* (difficulty finding acceptable work), *Language* accommodation (host language knowledge), *Discrimination* (perceived) and *Not feeling at home* (not feeling part of one’s surrounding or social structure). Items are rated along a six-point Likert scale (1 = not at all to 6 = very much). The Cronbach’s alpha for the total scale in this sample was excellent (α =.94).

Statistical analyses

Descriptive and bivariate correlations were performed using SPSS version 22.0 (SPSS, 2013). Path analyses were performed in Mplus version 7.0.1 (Muthén and Muthén, 2010) testing direct and indirect effects. To complete the analysis, we identified two latent variables and five observed variables. The observed variables were traumatic exposure, levels of acculturative stress, PTSD, depressive and anxiety symptoms. The latent variables were host cultural orientation and ethnic cultural

orientation. The latent variables were derived from Language, Identity and Behavioural subscales of LIB scale. Gender and length of residence were identified as potential confounding covariates and were controlled in all analyses.

We relied upon a variety of model fit indices to determine that the model defined adequately represented the data including the chi-squared goodness of fit, comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) (for discussion see: Hu and Bentler, 1998). CFI values of >.90 were regarded as favourable. RMSEA values =<.05 were considered a close approximate fit, values between .05 and .08 are considered reasonable and values =>.10 are indicative of poor model fit. Model results were estimated using robust maximum likelihood (MLR) estimation. MLR uses a sandwich estimator, which provides accurate standard errors, even in non-normally distributed data (Wu and Kwok, 2012).

Figure 1 outlines a path model that summarizes the hypothesised relationships defining acculturative stress and host and ethnic cultural orientations as mediators between traumatic exposure and the mental health outcomes (i.e. depression, anxiety and posttraumatic stress). Gender and length of residence were included as controlling variables on mental health outcomes to allow for gender differences in prevalence rates of PTSD and evidence suggesting that length of residence in the host culture predicts anxiety and depressive symptoms .

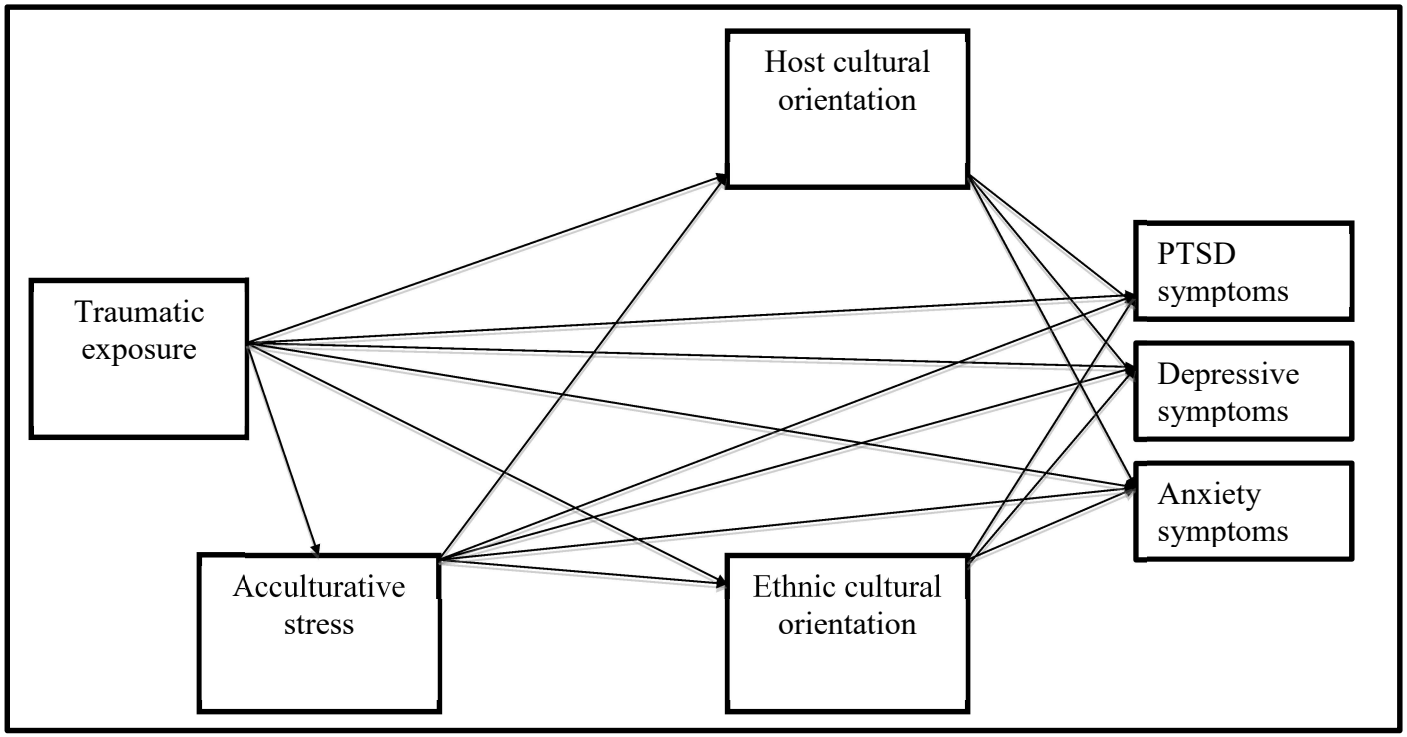

Figure 1: *Proposed Path Model A of the Relationships Between Traumatic Exposure, Acculturative Stress, Cultural Orientations and Mental Health Outcomes*

Results

Participants

One hundred and thirty eight participants were recruited into the study with mean age of 40.20 years (range between 18-80 years). The majority were male (n=76, 55%), married or in a relationship (n=99, 72%), had obtained an advanced diploma or tertiary education (n=85, 62%) and were employed in white collar or professional positions (n=57, 42%). More participants resided in Austria (n=82, 59%) then Australia (n=56, 41%), with average residence duration of 17.66 (5.07) years.

Eighty-two percent of the sample reported experiencing at least one traumatic event, while 70% reported experiencing three or more lifetime traumatic events. The most common war-related experiences reported by participants include experiencing separation from immediate family members (n=72, 42%), direct bombardment or sniper fire (n=68, 46%) or lack of food, shelter or medicine (n=68, 46%) (see Table 1).

Descriptive statistics

The majority of participants scored within the normal range category on PTSD, depressive and anxiety symptoms (Table 2). A minority of participants (10-15%) scored within the severe categories for all mental health indicators. It should be noted that these categories reflect participants' self-reported symptoms and do not serve as a diagnosis of disorder.

Table 3 presents the means, standard deviations and correlations among the variables of interest. There were significant correlations between traumatic exposure, acculturative stress, ethnic and host cultural orientation and mental health indicators. All correlations were in the expected direction.

Table 1
Exposure to Traumatic Events Reported by Participants

Traumatic event	*n*, (%)
Separation from immediate family	76 (55.1%)
Direct bombardment or sniper fire	69 (50.0%)
Lack of food, shelter, medicine	69 (50.0%)
Other stressful event happened to family	56 (40.6%)
Family member injured, killed or tortured	55 (39.9%)
Other stressful or upsetting event	52 (37.7%)
Life threatening accidents	41 (29.7%)
Witnessed other people being harmed, tortured or killed	39 (28.3%)
Serious physical attack or assault	34 (24.6%)
Witnessed family injury, killing or torture	15 (10.9%)
Fire, flood or natural disaster	14 (10.1%)
Torture	12 (8.7%)
Combat	10 (7.2%)
Concentration camp	9 (6.5%)
War-related serious injury	4 (2.9%)

Note: *N*= 138

Table 2
PTSD, Depressive and Anxiety Symptom Severity Scores

Symptoms		**n, %**
Depressive symptoms		
	Normal	89 (65%)
	Mild	7 (5%)
	Moderate	16 (12%)
	Severe	7 (5%)
	Extremely severe	9 (6%)
Anxiety symptoms		
	Normal	80 (58%)
	Mild	12 (9%)
	Moderate	16 (12%)
	Severe	7(5%)
	Extremely severe	13 (9%)
PTSD symptoms		
	None/mild	83 (60%)
	Moderate	21 (15%)
	Moderate-severe	19 (14%)
	Severe	3 (2%)

Note: N=138; Percentages do not always correspond to total N due to missing data

Table 3

Means, Standard Deviations, Range and Correlations Amongst the Variables of Interest

	M	**SD**	**Range**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Traumatic exposure	5.09	4.03	0-16	1	.378**	.119	-.179*	.695**	.600**	.642**
2. Acculturative stress	50.10	18.40	14-92		1	.325**	-.744**	.471**	.367**	.459**
3. Ethnic cultural orientation	88.72	12.80	46-108			1	-.383**	.208*	.099	.166
4. Host cultural orientation	79.81	18.00	28-112				1	-.358**	-.270**	-.314
5. PTSD symptoms	8.58	11.57	0-50					1	.722**	.795**
6. Depressive symptoms	3.76	5.13	0-21						1	.888**
7. Anxiety symptoms	3.41	4.52	0-21							1

Note: PTSD=posttraumatic stress disorder; *p<.05, **p<.01

Model estimation

Path model estimation was used to examine the relationships in the proposed model. The initial testing of the path model indicated a well-fitting Model A and good amount of variance predicting all mental health outcomes (Table 4). Specifically, significant direct relationship was identified between traumatic exposure and PTSD, depressive and anxiety symptoms. Furthermore, a significant indirect relationship was identified from traumatic exposure onto acculturative stress onto host- and ethnic-orientation. However, traumatic exposure did not predict host-cultural (p=.176) or ethnic cultural (p=.882) orientations, and acculturative stress did not predict PTSD (p=.301) depressive (p=.918) or anxiety symptoms (p=.183).

Therefore, under the rules of parsimony, which argues for simplicity, the model was respecified based on the findings from Model A. Model B, the respecified model, was the same as Model A with removal of the non-significant predictive relationships described above. Model B (see Figure 2) tested a direct impact of trauma onto mental health outcomes and onto acculturative stress, but not onto ethnic and host cultural orientation. Furthermore, Model B tested a relationship from acculturative stress to ethnic and host cultural orientation, but not onto mental health. Finally, Model B also tested a relationship between ethnic- and host cultural orientations and mental health outcomes. In this model, PTSD symptoms, anxiety symptoms and depressive symptoms were separate measures of mental health.

The modified Model B showed an overall good fit and amount of variance predicting all mental health outcomes (see Table 4). When using MLR estimator in Mplus the output can be analysed to complete an equivalent of a chi-square different

test (Muthén and Muthén, 2016). Running this analysis the difference between Model A and Model B is $\chi 2(5) = 6.98$, $p = .22$. These results all support that the performance of the Model B is not significantly different from the performance of Model A. Therefore under rules of parsimony Model B is selected as the preferred model.

As indicated in Figure 2, factor loadings of the indicators of their respective latent construct were all significant and ranged from .422 to .877. Model B revealed significant direct effects from traumatic exposure to PTSD symptoms (.628, $p<.001$), from traumatic exposure to depressive symptoms (.537, $p<.001$) and from traumatic exposure to anxiety symptoms (.568, $p<.001$). Significant indirect effects were also identified from traumatic exposure via acculturative stress, via host-cultural orientation to PTSD (.092, $p=.001$), to depressive symptoms (.091, $p=.015$) and to anxiety symptoms (.084, $p=.016$) (see bold lines in Figure 2). The path analysis showed a significant positive relationship between traumatic exposure and acculturative stress, which was furthermore negatively associated with host-cultural orientation and positively with ethnic-cultural orientation. Finally, host-cultural orientation was negatively associated with PTSD, depressive and anxiety symptoms, while the relationships with ethnic-cultural orientation were not significant.

Table 4

Fit indices for the Path Models of Relations Between Traumatic Exposure, Acculturative Stress, Acculturation Orientations, and PTSD, Depressive and Anxiety Symptom Severity

	Model A	Model B
Chi-square	74.143 (43), p=.002	81.233 (48), p=.002
CFI	.955	.952
RMSEA	.072	.071
SRMR	.059	.060
Variance explained (R^2)		
PTSD symptoms	.589	.600
Depressive symptoms	.397	.408
Anxiety symptoms	.462	.472

Note: df = degrees of freedom; CFI = comparative fit index; RSMEA = root mean square error of approximation; SRMR =standardised root mean square residual;

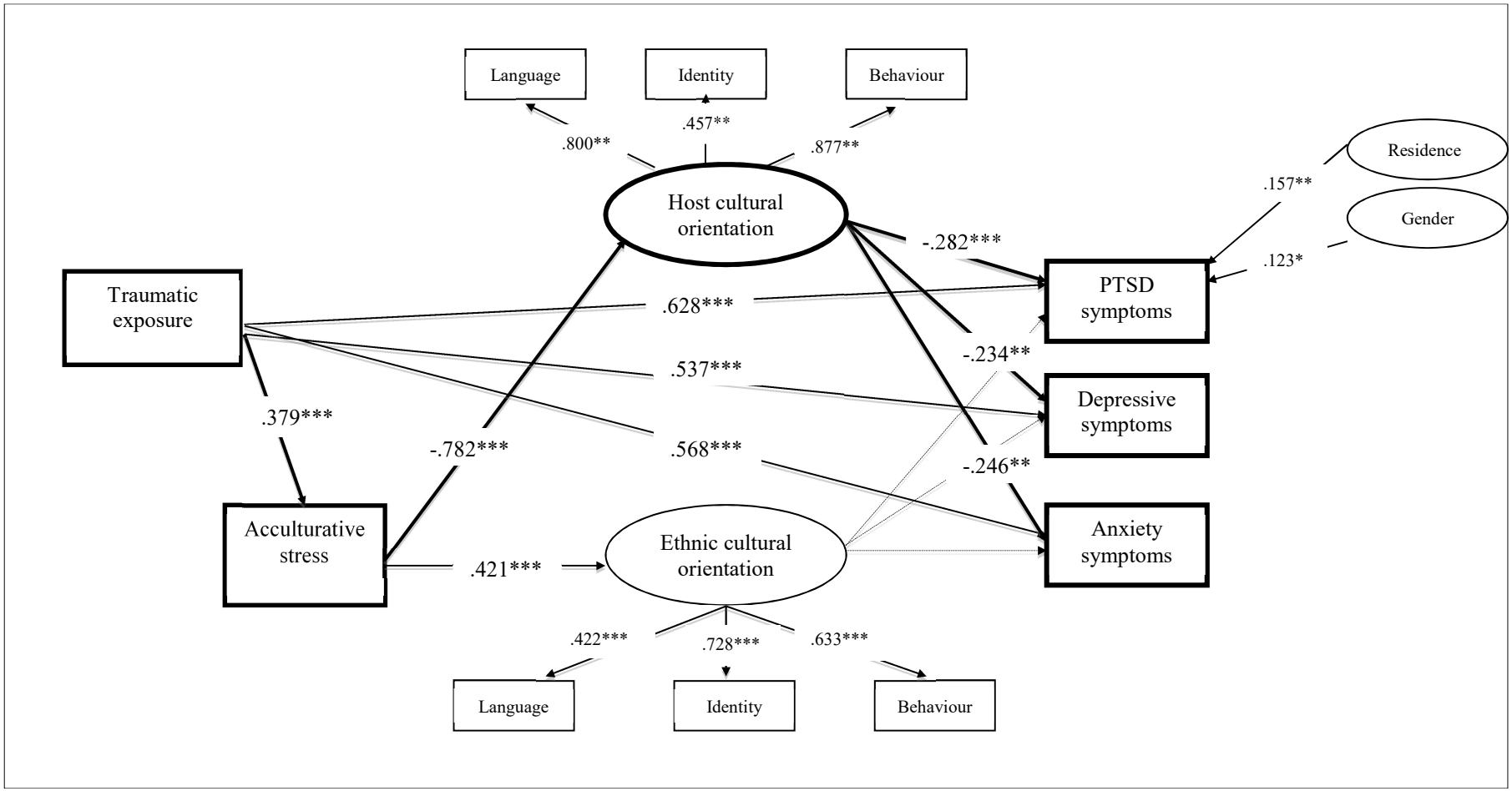

Figure 2: *Modified Model B with Standardized Regression Beta Coefficients*
Note: *p<.05, **p<.01, ***p<.001. The model is controlled for by gender and length of residency. PTSD = Posttraumatic Stress Disorder symptoms;

Discussion

The current study ran path analysis testing an integrated model of relationships between traumatic exposure, acculturative stress, cultural orientation and mental health outcomes in a sample of Bosnian refugees. The preferred model revealed a very good model fit and indicated that traumatic exposure was the strongest predictor of PTSD, depressive and anxiety symptoms. Bosnian refugees in this study reported high levels of exposure to war and other lifetime traumatic events that were directly associated with higher severity of PTSD, depressive and anxiety symptoms. These findings are consistent with other studies conducted with other refugee samples (Steel et al., 2009; Steel et al., 2002) and other Bosnian refugee samples (Mollica et al., 2001; Momartin et al., 2003; Knipscheer and Kleber, 2006).

Those refugees who experienced more events that are traumatic also reported more stress associated with acculturation in their host country. However, this experience of acculturative stress did not directly impact refugees' PTSD, depressive and anxiety symptoms as suggested in previous research (e.g., Knipscheer and Kleber, 2006; Schweitzer et al., 2006). One reason for this discrepancy in the findings reflects the fact that very few studies, prior to this, investigated direct versus indirect effects of acculturative stress on mental health. Hence, the results of the current model elucidate these relationships further, identifying that the relationship between acculturative stress and mental health of refugees is mediated by the cultural orientation of the individual, and in particular their host cultural orientation. Whilst the individual's orientation towards their own culture does not impact refugees' mental health, positive attitudes towards

the host culture lessened the impact of prior trauma exposure and acculturative stress on mental health. This indirect relationship of acculturative stress via host cultural orientation is consistent with the assumptions offered by acculturation theory suggesting that stress experienced during acculturation is an underlying mechanism directly responsible for acculturation attitudes and preferences for cultural participation in the host culture (Berry, 2006; Berry, 1997). Therefore, the importance of acculturative stress in the relationship with refugees mental health is not diminished, but instead underlined as a significant factor impacting the engagement with the host culture.

The current findings also suggest that, when faced with more stress associated with acculturation, refugees are more likely to reject their host culture, which is detrimental to their mental health. The difference in the findings between host and cultural orientations may be related to the possibility that ethnic cultural orientation is related to some aspects of psychological adaptation rather than psychological distress or mental illness. This has been suggested by Smith and Silva (2011), who found that in 184 studies analysed statistically in a meta-analysis, ethnic identity was twice as strongly related to positive personal attributes and preferences, such as self-esteem and wellbeing, than to measures of mental health such as depression and anxiety. This would suggest that ethnic cultural orientation is largely independent of mental health symptoms, especially those that may be precipitated by prior traumatic experiences, but nonetheless contributed to one's well-being.

Hence, this study advances prior research by helping to disentangle the direct and indirect associations of pre-migratory and post-migratory factors and their relationships with mental health among Bosnian refugees. Although prior

integrated models conducted with migrants groups generated important knowledge about the impact of acculturation and acculturative stress on mental health (Ayers et al., 2009; Park & Rubin, 2012) the current model tested with refugees further demonstrated that acculturative stress is the driving mechanism influencing host cultural orientation and indirectly affecting mental health. The results of this study therefore shed new light in this area of research and identify that traumatic exposure is still the strongest direct and indirect predictor of PTSD, depressive and anxiety symptoms in refugees, while cultural orientation is an outcome of acculturative stress, and not a direct predictor of mental health as concluded by earlier research.

Lastly, the importance of bi-dimensional conceptualisation and operationalization of acculturation is also highlighted with these results. Assessing acculturation by using separate indicators for host and ethnic cultural orientation, as recommended by experts (Ryder et al., 2000; Birman and Simon, 2013), can provide better understanding and refinement of the effects of each cultural orientation on different psychological and social outcomes.

As such, future research should promote models that investigate the acculturation and mental health of refugees by integrating both trauma-related and socio-cultural factors, and investigate acculturation using bi-dimensional assessment tools. Furthermore, research investigating the impact of acculturative stress on cultural orientation and mental health might chose to investigate individual acculturative stressors separately (e.g., perceived discrimination, host language acquisition, loss of traditions). This is particularly desirable because there is evidence (Kartal and Kiropoulos, 2016) to suggest that some domains of

acculturative stress may hinder the recovery from traumatic exposure while others may support it.

Clinical implications

The benefits of the positive acculturation process for the mental health of refugees can be multifold. The impact of acculturative stress on refugees can be lessened by providing refugees with long-term support aimed to improve economic, cultural and social acculturative stressors. The one way to facilitate this adaptation is to alleviate the migratory stressors associated with functioning in the host society. Previous research indicates that only providing access and training opportunities is not enough. Refugees experience access barriers due to limited social, language, gendered and cultural issues and potentially even lack of pre-migration education and literacy (Watkins et al., 2012). At the levels of service systems, barriers experienced by refugees may include service complexity, bureaucracy and significant gaps in the service (De Anstiss et al., 2009). Addressing those barriers can be achieved through provision of active, culturally appropriate support for the acquisition of the host language, participation in the employment market, access to education and health services. Educating refugees about the importance of host cultural orientation and its influence on mental health and functioning should be two-way, and based on intercultural exchange rather than cultural imposition (De Anstiss et al., 2009).

However, any such messages should not come at the expense of de-emphasising the importance of the ethnic cultural orientation, which may be highly important for refugees' social adjustment and general psychological well-being. Finally, any such service implementation should be evaluated on the acceptability and efficacy for refugee populations, as currently there is very little evaluative research conducted with refugee populations (De Anstiss et al., 2009).

Furthermore, addressing practical issues such as education, employment and social inclusion should be addressed alongside provision of effective psychotherapy targeting pre-existing psychopathological risk factors including exposure to traumatic events (Misra et al., 2006). This is particularly important considering that those factors remain the strongest predictors of mental health problems later in resettlement. Nonetheless, the contributing effect of acculturative stress and cultural and social stressors (e.g., language and cultural barriers) that are related to acculturation need to be considered as well, especially since they are significant impediments to constructive engagement with mental health services (Misra et al., 2006). Therefore, developing services and policies that aim to promote successful adaptation of refugees should be multidisciplinary, targeting psycho-socio-cultural stressors, as they can influence and promote better mental health of refugees.

Limitations

This study is one of the first to examine the relationships of pre-migratory traumatic exposure and post-migratory acculturation stress and orientation factors influencing mental health outcomes among Bosnian refugees. Nonetheless, this study included multiple limitations that need to be considered. First refers to the difficulties inherent in conducting research with refugees. The current study recruited participants via community associations, events and online forums. While this strategy enables data collection from a broader section of participants, the sample of refugees in this study is volunteering and may be more open to reporting their distress than the refugees who did not take part in the study. Secondly, the current study included a relatively small convenience sample of Bosnian refugees whose race and ethnic culture does not differ that much from

their host cultures (i.e., Austrian and Australian). Thus, the generalizability of these results to other refugee samples is limited and these findings should be assessed with other refugee populations that have more cultural distance between their own ethnic and their host culture. Thirdly, retrospective reporting and reliance on self-reporting may run a risk of not remembering or misrepresenting the events and non-accurate measurement of symptoms presenting a risk of recall bias. Fourthly, differences may exist between acculturation in Austria and Australia, which are not discernible here due to small sample sizes. . Finally, the psychometric properties of some of the measures used in this study have not been assessed in other Bosnian samples and, as such, may include a risk of implementing a measure that has not been fully developed or validated for use with Bosnian refugees.

Conclusion

The findings of this study shed light on the importance of examining all the factors that contribute to the acculturative process and mental health of refugees. Specifically, while most studies of the mental health of refuges have focussed on investigating how exposure to trauma or acculturative stress or cultural orientation influence mental health, this study attempted to identify a mechanism in which all factors function together to influence PTSD, depression and anxiety symptoms. Moreover, this study examined the mediating effect of acculturative stress and cultural orientation in the relationship between the exposure to trauma and mental health outcomes.

We found that prior traumatic exposure is the strongest predictor impacting on the mental health symptoms, with additional indirect effects of acculturative stress via host cultural orientation. Future studies need to verify the

generalisability of these findings with other refugee samples and dismantle the influence of acculturative stress by investigating the impact of individual acculturative stressors.

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10 CONSOLIDATED DISCUSSION

In the final chapter of this thesis, a summary of the overall findings of the four studies and associated individual papers will be presented and discussed with reference to prior empirical evidence and theoretical models discussed in the introduction. The research questions of each study were structured based on established evidence. Each study was aimed at testing each direct relationship between predictors and outcomes individually. The four studies build successively upon one another, leading to study 4, in which an integrated psychosocial model, based on theoretical approaches discussed in the introduction, is proposed and tested.

Specifically, the first two research questions of this thesis were concerned with the impact of traumatic exposure and acculturative stress on the severity of PTSD, depressive and anxiety symptoms among Bosnian refugees resettled in Australia and Austria. Study 1 addressed these two questions identifying group differences in the severity of mental health symptoms and in how acculturative stressors interacted with them. These results reported in the second paper (Kartal & Kiropoulos, 2016) suggested that acculturative stress associated with post-migratory experiences predicted severity of PTSD and anxiety symptoms, not depression, which were only predicted by exposure to traumatic events.

The third research question of this study concerned the relationship between traumatic exposure, cultural orientation and mental health. Study 2 addressed this question and identified that both Australian and Austrian Bosnians embraced their ethnic cultural orientation more than host cultural orientation. However, host cultural orientation, rather than merely ethnic orientation, was identified as a

significant predictor of mental health outcomes. Furthermore, path analyses demonstrated that host language in particular was a significant mediator of the relationship between traumatic exposure and PTSD and anxiety symptoms. These results form the basis of the paper three (Kartal, Alkemade, & Kiropoulos, in submission) included in the general results section.

The fourth research question of this thesis concerned the overall relationship of all of the above predictors, namely the impact of traumatic exposure, acculturative stress and cultural orientation and their relationship with PTSD, depressive and anxiety symptoms. Study 4 addressed this question by testing an integrated model of the above relationships using a structural equation modelling analysis. This exploration indicated that in addition to the direct impact of the traumatic exposure on the mental health outcomes, acculturative stress affected both ethnic and host cultural orientations, however, only host cultural orientation additionally affected the mental health outcomes. These results form the basis of paper four (Kartal, Alkemade, Eisenbruch, Kiropoulos, & Kissane, in submission) included in the general results section.

The synthesised findings from all four studies are then discussed in relation to the integrated theory- and data-driven psychosocial model presented in the introduction. Following suggestions for clinical and policy implications for working with refugees, limitations and future research directions in this area are discussed. This will demonstrate that in addition to the war and conflict related traumatic exposure, the wide range of experiences associated with forced migration and acculturation act to affect mental health of resettled refugees. Such commonly experienced stressors therefore require broad psychological and social multidisciplinary approaches to grasp their full impact on mental health.

10.1 Prevalence of PTSD, depressive and anxiety symptoms

Bosnian refugees in this study reported high levels of pathological symptoms related war-related traumatic exposure experienced 20 years ago. This is consistent with the generally established high risk of mental health problems associated with traumatic exposure found in refugees in general (Fazel et al., 2005; Steel et al., 2009) and long-term resettled refugees in particular (Bogic et al., 2015). The PTSD, depressive and anxiety symptoms persistence over time seen in this sample of refugees is also consistent with longitudinal research conducted with other refugee groups (Fenta et al., 2004; Lie, 2002; Mollica et al., 2001; Steel et al., 2002).

One reason for the high rates of pathological symptoms reported by Bosnian refugees may relate to the barriers that prevent refugees from accessing appropriate mental health treatment in their countries of resettlement. A multitude of factors related to the refugee community, service system and society, have been identified as significant barriers preventing access and utilisation of mental health services. These include low priority placed on mental health of refugees, high costs of services, lengthy waiting times, service complexity and gaps in the service, low cultural awareness and cultural competence (De Anstiss et al., 2009). Similarly, refuge-specific factors can act as barriers, including poor mental health and service knowledge, distrust of services, difficulties with the host language, lack of coping skills or social support, and cultural beliefs and stigma about mental health (Cross & Singh, 2012; Lustig et al., 2004). Prior research indicates that such barriers and lack of familiarity with mental health systems consequently lead to underutilisation or lack of effective encounters of mental health services (Crosby, 2013; Pirkis et al., 2001), with the risk that symptoms – and, doubtless,

morbidity – can become entrenched. More than that, they lead to chronicity and comorbidity of symptoms commonly experienced by refugees and migrants in resettlement (De Anstiss et al., 2009; Mollica et al., 2007). Given this, refugees become even more vulnerable to an array of psychosocial, economic, security and health issues flowing from exposure to traumatic events, forced migration and other acculturative factors associated with migration.

Particularly salient to the issue of service utilisation is the level of cultural competence, generally based on the knowledge of cultural beliefs, values and practices of minority groups and represents an understanding of how culture modifies illness perception, illness behaviour and acceptability of specific intervention (Bhui et al., 2007). Culture is frequently identified as the most important factor pervading the help-seeking pathway, from identification and diagnosis to help-seeking (Cauce et al., 2002). Subsequently, western treatment methods for mental health problems are a barrier to effective treatment because they are not acceptable or familiar to culturally and linguistically diverse communities, who have their own explanatory models of mental health and illness. The application of medical and western-developed psychopathology to non-western populations, in particular the emphasis on psycho-symptomatology, fail to capture the variety of culturally-shaped posttraumatic stress reactions presented among non-western cultures (Eisenbruch, 1991; Summerfield, 1999). Refugees can initially present with symptoms related to other posttraumatic symptoms, including prolonged grief, loss or readjustment difficulties (Berman, Girón, & Marroquín, 2006; Summerfield, 2003), anger (Hinton et al., 2009), somatic symptoms (Laban et al., 2004), cultural bereavement (Eisenbruch, 1991) and cognitive dysfunction related to traumatic brain injury and sequel of traumas

(Crosby, 2013). These presentations by refugees are infrequently linked to exposures to trauma. It is therefore apparent that mental health services offered to refugees need to demonstrate the capacity for cross-cultural assessments and awareness of cultural interpretations and idioms (Saha, Beach, & Cooper, 2008a). Engagement with refugees therefore requires not only an understanding of the traumatic history and trauma-related symptoms, but also requires an approach that is culturally appropriate and acceptable to refugees' cultural, religious and spiritual beliefs.

10.1.1 Group specific differences

Based on the literature, it was expected that Bosnians resettled in Australia and Austria would have similar presentations of traumatic exposure and pathological symptoms. It was remarkable to find significant differences in traumatic exposure and posttraumatic symptoms between Bosnians resettled in Australia and those resettled in Austria. These findings highlight the diversity of traumatic exposure found within the same refugee population, and are consistent with prior research identifying varying degrees of exposure and posttraumatic symptoms across samples of the same cultural background resettled in different countries (Bogic et al., 2012). One way to understand this difference between the samples may be by understanding the resettlement trajectories brought by differences in the immigration policies practised in each country, and which inevitably may have influenced the selection of refugees. In particular, Bosnian refugees resettled in Australia went through resettlement under the UNHCR scheme, which granted resettlement and residence to the most vulnerable and those who experienced particularly traumatic ordeals during the war (UNHCR, 2011). This is indicated by significant differences in types of traumatic events

experienced by the two samples and goes some way toward explaining the higher rates of mental health symptoms found in the Australian Bosnians.

10.2 Relationship between post-migratory stressors and mental health

Different resettlement trajectories seemed to also affect the mental health symptom profile in various ways. Moderate to high levels of acculturative stress reported by Bosnian refugees in this study were associated with more severe mental health problems beyond the influence of the war-related traumatic exposure. These findings correspondingly suggest that post-migratory stressors can exacerbate mental health problems associated with prior exposure to traumas confirming prior research conducted in this area (Bogic et al., 2015; Knipscheer & Kleber, 2006; Porter & Haslam, 2005; Schweitzer et al., 2006; Silove et al., 1998). It is evident that any investigation into refugee mental health must consider the impact of post-migratory stressors.

That said, in the current study the impact of the acculturative stressors on mental health differed between the two groups of refugees. This is a new finding in this area of research as this is the first study where integrated psychosocial relationships are considered among groups of the same cultural background resettled in different countries. The identified relationships and group differences suggest that the circumstances of host societies, as they impose different acculturative stressors offering different context and conditions for settlement of refugees, play an important role in the acculturation of refugees,

To further understand the group differences manifested in this study, it is essential to refer to the acculturation theory. The seminal work undertaken by Berry (1997) suggests that the host society, by imposing either encouraging or less desirable acculturative strategies, shape the acculturation process of the ethnic

communities and the individuals. The strategies consequently either encourage or oppose ethnic diversity and participation in the larger society, and can affect the psychological well-being of the ethnic communities. As described in the introduction, Austrian Bosnians generally experienced limited benefits and rights associated with their de-facto refugee status, while Bosnian refugees in Australia enjoyed permanent residency, language training, access to health services and income support. Such a supportive approach to resettlement implemented through its immigration policies in Australia attenuated the additional cumulative impact of acculturative stressors, helping refugees establish and secure their residence in the host country, enabling them to choose how to engage and practice their own culture and engage with the host culture. Hence, the stress experienced during the acculturation process, which may be different in different countries and resettlement contexts, may not only affect cultural orientation towards host and ethnic culture, but may also inadvertently impact the mental health of refugees.

10.3 Relationship between cultural orientations and mental health

Based on the acculturative theory, one may have expected to find that monocultural society such as Austria predisposed Bosnian refugees to embrace more of the ethnic cultural orientation, while multicultural Australian society would predispose refugees towards a stronger host cultural orientation. Evidently, this was not the case as Bosnian refugees in both countries embraced more ethnic cultural orientation than the host cultural orientation. Australian Bosnians resettled in Australia, however, embraced the Bosnian culture significantly more than those resettled in Austria, suggesting that acculturative strategies of the host society in Australia (i.e., multiculturalism) may have allowed Bosnians to engage more and maintain more of their ethnic culture.

It is noteworthy that the levels of host cultural orientation however, did not differ between Australian and Austrian Bosnians. Nevertheless, host cultural orientation was identified as a significant predictor of mental health symptoms, highlighting the risks associated with lower host cultural orientation in the relationship with mental health. These findings confirmed prior research suggesting that stronger host cultural orientation, often identified with integration or biculturalism, is associated with the more favourable psychosocial outcomes and lower rates of mental health symptoms in migrants (Birman & Taylor-Ritzler, 2007; Chen, Benet-Martínez, & Harris Bond, 2008; Nguyen & Benet-Martínez, 2012) and refugees (Birman et al., 2014; Oppedal & Idsoe, 2012).

The fact that the ethnic cultural orientation was not a predictor of mental health, however, puts this assumption into question. One way to understand the difference in the findings refers to the diversity of outcomes in literature assessed under the umbrella of psychological symptoms and mental health. In particular, for some mental health problems, such as PTSD, depression and anxiety, traumatic exposure is the critical factor, while ethnic cultural orientation may only play a meagre role. Indeed, ethnic identity has been linked twice as strongly to positive personal attributes and preferences, such as self-esteem and wellbeing, than to measures of mental health problems such as depression and anxiety (Smith & Silva, 2011). This would suggest that while ethnic cultural orientation contributes to one's well-being, it is largely independent of mental health symptoms, especially those that may be precipitated by traumatic experiences.

Different notions of the acculturative context may also account for inconsistent empirical findings. For example, the discrepancy may reflect the degree of difference or similarity between the host and ethnic cultures. Some

researchers have suggested that the distance between cultures influenced the degree of difficulty under which some cultural groups can integrate into the host society (Rudmin, 2003). For example, racial difference between ethnic and host cultures predisposes ethnic minorities to more acculturative stress and discrimination (Berry & Sabatier, 2010; Ellis et al., 2010a; Liebkind & Jasinskaja-Lahti, 2000), consequently preventing interaction with members of the host culture (Birman & Simon, 2013). Indeed, Bosnian refugees, being of white racial background, have been shown to experience less prejudice and perceived discrimination in the predominantly white environment of Australian community compared to some other racially-different refugee groups in Australia (Colic-Peisker, 2003). Hence, the interaction of specific migrating group characteristics with those of particular settings and context will influence the relationship of host and ethnic cultural orientation to the mental health.

The current study also demonstrated significant influence of the host language acquisition on the mental health of refugees. Investigation of the individual dimensions of the host cultural orientation (i.e., language, behavioural and identity preferences) established how language acquisition mediated the relationship between traumatic exposure and severity of symptoms and showed the direction of the relationship between traumatic exposure, mental health and language acquisition. In particular, it was established that, in contrast to the common knowledge, mental health symptoms did not impair the learning capacity and acquisition of a new language, but, rather, poorer language acquisition had an adverse effect on the mental health of refugees already weakened by the exposure to traumatic events. These findings suggest that inability to understand or communicate effectively in the host language does not only impair the integration

into the wider society (Beiser & Hou, 2001), but can be a significant barrier in accessing treatment (Cross & Singh, 2012) and engaging in psychotherapy (Misra et al., 2006). These findings therefore highlight specific risks associated with a failure to acquire the host language and the potential action of making chronic the mental health symptoms that are associated with exposure to pre-migratory traumas.

10.4 Relationship between pre- and post-migratory stressors, cultural orientation and mental health

The integrated model of the relationships between exposure to traumatic events, acculturative stress and cultural orientations and their effect on mental health of refugees, was investigated and reported in the final paper (Kartal, Alkemade, Eisenbruch & Kissane, in submission) presented in the results section of this thesis. As expected, traumatic exposure was identified as the strongest predictor of mental health outcomes. It was quite unexpected, however, that acculturative stress did not directly influence the mental health of refugees but, instead, it influenced the host and ethnic cultural orientation of refugees. Specifically, higher levels of traumatic exposure were associated with more acculturative stress, furthermore predisposing refugees to adopt a weaker host cultural orientation, which had negative consequences for their mental health.

These results advance earlier evidence offered in this area of research. In particular, this is the first study testing an integrated model among refugees. Prior integrated models tested with migrants (Ayers et al., 2009; Park & Rubin, 2012) demonstrated a mediating role of acculturation level in the relationship between acculturative stress and depression. However, these models tested the assumption that acculturative levels (i.e., cultural orientation) impact acculturative stress, and

not the other way around. This assumption contradicts the acculturative theory (Berry, 1997; Folkman et al., 1986) which proposes that stress is one of the underlying mechanisms of the acculturation that is seen as the result of conflict arising out of contact and participation with the host culture during the acculturative process. Furthermore, both studies utilised unidimensional operationalisation of acculturation that are highly criticised as limiting (Schwartz et al., 2010). Lastly, both models failed to assess the influence of personal characteristics (such as prior traumatic events), which influence the process of coping with acculturative stress (Berry, 2006c) and mental health outcomes (Porter & Haslam, 2005). The current study improved on these findings by integrating the trauma-focused, psychosocial and acculturation theory and research, developing and testing an integrated model that addresses all of these factors and relationships simultaneously. In this way, the current study made a breakthrough by testing the influence of traumatic exposure and acculturative stress on cultural orientation of refugees using bi-dimensional assessments of acculturation.

10.5 Towards an integrated trauma-focused, psychosocial and acculturative model

In the introduction section of this thesis, theoretical models aiming to explain mental health outcomes in refugees were discussed. The cumulative findings of this thesis confirm propositions that an integrated trauma-focused, psychosocial and acculturative model might be best placed to explain mental health outcomes in refugees. The integrated model utilised in this thesis incorporates the complexity of experiences associated with pre-migratory exposure to traumatic events (i.e., trauma-focused), peri-migratory exposure to

daily stressors or acculturative stress (i.e., psychosocial) and influence of post-migratory cultural orientations towards ethnic and host cultures and impact of acculturative strategies of the host societies (i.e., acculturation theory). Hence, the novelty of this model is the unifying approach to examining different influences on mental health of refugees across a migration journey.

The findings of the present thesis expand the current knowledge of refugee mental health in several aspects. Firstly, based on a structural equation modelling this study disentangled the direct and indirect associations of pre-, peri and post-migratory factors and mental health of refugees. Although previous studies conducted with migrant and refugee groups generated important knowledge about the impact of acculturation and acculturative stress on mental health (Ayers et al., 2009; Park & Rubin, 2012), they nevertheless yielded a limited picture. The cumulative results of this thesis therefore shed new light in this area of research and identify that even when acculturative factors are considered, traumatic exposure is still the strongest predictor of PTSD, depressive and anxiety symptoms in refugees. These conclusions confirm assumptions offered by the trauma-focused model and prior research conducted in this area (ACPMH, 2013; Ozer et al., 2008; Steel et al., 2009), confirming that traumatic experience itself is the crucial factor and has a direct effect on psychological distress of refugees.

Secondly, these findings contribute to the ongoing debate on whether post-migratory stressors or pre-migratory traumatic exposure, are more central to the presentations in refugees of mental health problems. Specifically, the results identify an important mechanism by which the post-migratory factors impact on mental health. Prior findings established that in addition to traumatic exposure, acculturative stress is a risk factor for mental health problems in refugees.

However, very few studies investigated direct versus indirect effects of acculturative stress. The results of the current model elucidate this relationship and suggest that acculturative stress affects mental health indirectly, via its relationship with host cultural orientation. This finding confirms the assumptions offered by acculturative theory suggesting that acculturative stress is an underlying mechanism directly responsible for influencing cultural participation in the host culture and maintenance of the ethnic culture (Berry, 1997, 2006c). Furthermore, these results are consistent with psychosocial ecological models (Miller & Rasco, 2004; Silove, 1999) suggesting that prior traumatic experiences are cumulated with current daily stressors, presenting an additional risk factor for mental illness in already vulnerable refugees, preventing recovery in otherwise safe and supportive environments. Therefore, the importance of acculturative stress in the relationship with refugees' mental health is not diminished, but instead underlined as a significant mediator between the pre-and post- migratory experiences and contexts.

Thirdly, the findings of this study elucidate the indirect role cultural orientation has in the relationship with refugees' mental health. Whilst the results confirmed the importance of cultural orientation, they did not emphasise ethnic cultural orientation as an important predictor of mental health symptoms. As such, these findings demonstrate the importance of assessing acculturation with bi-linear assessment tools, which provide separate indicators for host and ethnic cultural orientation. Separating patterns of findings for the ethnic and host cultural orientation has been recommended by experts (Birman & Simon, 2013; Ryder et al., 2000) because it can provide better understanding and refinements of the effects of each cultural orientation on different psychological and social

outcomes. Furthermore, this separation of cultural orientations assists in explaining if being acculturated to both cultures is better than just being acculturated to one or the other culture; findings which may not be possible to elucidate using limiting uni-dimensional or typographical assessments of acculturation.

Finally, the theory-driven analyses conducted in this study demonstrate the utility of interconnecting the trauma-focused, psychosocial and acculturative model paradigms when investigating mental health outcomes of refugees. Previous research generally treated trauma-related stressors separately to the acculturation-related sources of mental health risks. This study explicitly investigated how these factors are related by investigating the consecutive chain of exposure during the course of forced migration. By omitting the factor of traumatic exposure previous investigations of acculturation and mental illness, missed to account for the importance of personal characteristics of individuals, and ran the risk of misrepresenting the importance of other predictors in their relationships with mental health. On the other hand, omitting to consider the social and migratory factors, previous trauma-focused research missed to account for important mediating factors, which significantly increase the explanatory power of the model. This offers an opportunity for interventions to improve not only everyday functioning and assist the individual with recovery from the traumatic experiences, but also assist in supporting refugees' acculturation into their resettling societies. Hence, the integrated model presented in this study offers a new and more comprehensive assessment of the complex patterns of relationships between exposures to pre-, peri and post-migratory stressors and their cumulative effects on mental health in refugees.

10.6 Clinical and policy implications

The prevalence of long-term mental health symptoms, high levels of acculturative stress experienced, and stronger cultural orientation towards the ethnic culture identified in this sample indicates the seriousness of the consequences of traumatic experiences and stressful acculturation process. The findings indicate that more could be done to address the long-term effects of traumatic exposure and migratory stress in assisting refugees' adaptation to the new environment in the long-term.

Firstly, refugees may require more targeted mental health assistance to overcome the mental health problems associated with exposure to pre-migratory war- and conflict-related traumas. Multiple psychological treatments targeting PTSD, depressive and anxiety symptoms among refugees have demonstrated efficacy (Lambert & Alhassoon, 2015) and are recommended by treatment guidelines (ACPMH, 2013). These include trauma-focussed cognitive behavioural therapy, prolonged exposure, narrative exposure therapy and interpersonal therapy to name a few. However, such therapies are not commonly utilised or offered to refugees in need and instead refugees commonly receive other psychosocial treatments, which have less demonstrable evidence (Tol et al., 2011). Furthermore, as discussed in more detail in paper four in this thesis, effective psychological treatments are often inaccessible or unfamiliar to refugees (Pirkis et al., 2001) as refugees face myriad of access barriers due to limited social, language, gendered and cultural issues and potentially even lack of pre-migration education and literacy (Watkins et al., 2012). Therefore, effective psychological treatments need to be available and accessible to refugees in resettlement, enabling them to be utilised to address mental health symptoms associated with

pre-migratory traumatic exposure and post-migratory stressors (e.g., discrimination).

Importantly also such health services need to be culturally responsive, conveying appropriate and familiar options to the refugees. This would require not only understanding of the traumatic exposure and associated symptoms, but also a multidisciplinary approach that is culturally appropriate and acceptable. Hence, culturally responsive service should incorporate knowledge about trauma-related presentations, value cultural diversity, demonstrate capacity for cultural assessment (Saha, Beach, & Cooper, 2008b) and should be offered in the community settings in the native language or via interpreters in order to improve the access, utilisation and overall effectiveness of such service.

Secondly, refugees suffering from mental health problems may not be able to deal successfully with acculturative stressors and the demands of migration. Inability to adapt and function in the new society, inability to communicate or miscommunication, discrimination or limited employment opportunities, not only exacerbate the symptoms associated with pre-migratory traumas, but also limit adaptation and social integration (UNHCR, 2001), daily functioning (Beiser & Hou, 2001) and participation in the employment market and job satisfaction (Birman et al., 2014; Chiswick et al., 2004). Associated poverty and unemployment furthermore lead to social marginalisation and dependence on government or humanitarian aid (Miller & Rasmussen, 2016).

Therefore, refugees should be provided with active socio-cultural support assisting adaptation and integration in the wider community. Resettlement policies could provide access to education, especially those necessary for re-qualification, language classes, supportive housing and employment seeking

services, alongside access to other services already incorporated into resettlement policies. Consequently, improving resettlement conditions by providing educational and employment opportunities, and supplemental vocational seeking service, can reduce stress and dependence on government aid among refugees, but also assist with adaption to the host society and inadvertently support mental health.

Thirdly, refugees may not understand the importance and benefits of adaptive participation in the host culture. This should also be explained and promoted to refugees through health education that highlight the benefits for psychological, social and economic wellbeing of the individual, family and their communities. However, any such messages should not stress or pressure assimilation or cultural imposition (De Anstiss et al., 2009), but should be based on intercultural exchange emphasising the maintenance and value of the ethnic culture. Furthermore, this message should be reinforced with policies and assistance that support and promote cultural diversity and enable ethnic communities to establish ethnic, religious and/or spiritual associations and organisations.

Finally, any mental health, social and education services supporting refugees need to be multidisciplinary, aimed at targeting multifaceted factors simultaneously. Hence, policies that aim to promote successful adaptation of refugees should implement psycho-socio-cultural programmes that target the multitude of stressors simultaneously. Ultimately, these policies should aim to assist in the process of migration and adjustment to the new society by reaching beyond the recovery goals and more towards investing and empowering these

highly adaptive and resilient individuals and community groups to become new and better functioning members of the societies.

10.7 Methodological limitations

Despite identified strengths of this thesis, some methodological limitations need to be acknowledged, including inherent difficulties with research concerning refugees (Jacobsen & Landau, 2003).

Firstly, the retrospective reporting of data used in this study may have impacted the reliability of the results. Retrospective reporting and reliance on self-reporting may run a risk of not remembering or misrepresenting the events and non-accurate measurement of symptoms (Kessler et al., 2000) presenting a risk of recall bias (Southwick et al., 1997). Limitations of retrospective data collection furthermore does not permit assessments of truly causal relationships, and while particular data analyses utilised in this thesis eliminated some of these restrictions, the results should be interpreted with caution.

Secondly, the representativeness and generalisability of the results may have been impacted with moderately small convenience sample that volunteered to participate in this study, hence being more open to reporting their distress than the refugees who did not take part in the study. While attempts were made to make the sample as diverse as possible with use of versatile recruitment options and means, it may be possible that the current study attracted refugees with more symptoms of PTSD, depression or anxiety. Furthermore, we recruited Bosnian refugees from two countries, and while the refugees targeted may share similar cultural backgrounds, they may also differ in their pre- and post-migration experiences, as indicated by group differences identified in this study. Such differences may reflect recruitment bias, hence limiting the representativeness and

generalisability of these findings to the broader Bosnian refugee population and to the other refugee groups in other countries. Furthermore, cross-sectional design employed in this thesis using no other comparison group (such as another refugee, migrant or general population sample) is another limitation. Nevertheless, the strength of this study was the cultural exploration of mental health problems in cross-national sample of Bosnian refugees, which to our knowledge has not been conducted before.

Thirdly, assessment measures used in this study have been developed using the Western psychiatric approach to mental health problems, hence potentially resulting in under- or over-representation of mental health symptoms. Although prior research, conducted with other refugee groups and Bosnian refugees in particular, has utilised these assessment tools demonstrating their cultural validity, presentation of other trauma-related symptoms were not assessed, hence limiting the findings to PTSD, depressive and anxiety symptomatology. Furthermore, adapted scales were developed for use with different refugee and migrant populations, hence limiting their appropriateness and cultural validity for Bosnian refugees.

Finally, this thesis did not assess for pre-existing (i.e., prior to war) psychiatric history of mental health problems or other predictors of mental health problems (e.g., domestic violence, organic causes). Therefore, it is possible that some refugees included in this study may have experienced PTSD, depression and anxiety symptoms prior to resettlement, or their current symptomatology may be associated with other not war- or migration-related traumas and stressors.

10.8 Future directions

Several future research suggestions arise from the findings of this thesis.

Firstly, there is a need to eliminate the limitations of retrospective reporting by conducting larger prospective and/or longitudinal studies. Such research would enable investigation of different risk factors and their influence on mental health determining their influence and any significant changes over time. This is particularly salient considering that length of resettlement is an important indicator of adjustment and acculturation. Hence, it would be interesting to identify the relationships between risk factors and mental health in the early stages of resettlement and map their trajectories over time, paying particular attention to the changes in the host and ethnic cultural orientations. These findings would have important implications for government policies and provision of support services for refugees and asylum seekers in Australia and internationally.

Secondly, future research should aim to replicate these findings using larger sample of refugees from different cultural backgrounds resettled in different countries. Refugees in this study included only Bosnian refugees. Although the sample diversity indicated that they have experienced diverse war and migration related experiences, Bosnian refugees are not that much visibly or culturally dissimilar to the average Australian and Austrian population. Indeed, Colic-Peisker (2005) argued that the mainstream perception of Bosnians in Australia as white Europeans and their own self-identification with white race, not only positively impacted their ethnic identity reconstruction, but also influenced practical aspects of their resettlement including reducing prejudice in everyday life, increase chances of employment and social inclusion and networking. Hence, the findings of the current thesis should be replicated with other refugee populations that are racially different and have more cultural distance between their own ethnic and their host culture. These findings would have a significant

implication for the Australian (and international) immigration and refugee policy, which rely on ethnic and racial profile informing political concerns about social cohesion (Colic-Peisker, 2005).

Thirdly, future research should aim to improve and further the assessment tools used in research with refugee populations. The mental health assessment tools should be more tailored for use with specific refugee populations. This can be done by assessing different cultural interpretations of trauma-related symptoms and their incorporation into research and assessment alongside other Western derived mental health problems such as PTSD, depression and anxiety. The acculturation assessment tools also need to be improved and validated for assessment of different cultural backgrounds and varied acculturative contexts of the host societies. Such scales should importantly assess acculturation using bi-linear measures, ensuring assessments of both host and ethnic orientations equally and separately. The acculturative stress tools require further investigation and validation across refugee groups. Specifically, as discussed in paper two, investigating acculturative stress as a collective index of stressors may be problematic because not all stressors may be equally important. Language difficulties, perceived discrimination, lower socio-economic status and unstable working conditions may all have different impact on acculturation and mental health at different time-points in resettlement. Hence, future research needs to investigate these stressors separately as possible underlying mechanisms linking pre-migratory and post-migratory mental health of refugees, using large and diverse refugee sample and utilising longitudinal research designs.

Finally, the identified group-specific differences indicate that the effects of post-migratory stressors on mental health can be modified by contextual factors

such as acculturation strategies of the host society, immigration and resettlement policies and opportunities reflecting the economic and social contexts of the resettling countries. The impact of the host societies in investigations of acculturation cannot be dismissed and should be brought further to the front of the investigation into mental health and explored simultaneously with the factors that differentiate between different ethnic acculturation strategies. Differences between refugee groups, including ethnic, religious and cultural values and beliefs, may also change the above conclusions. Future studies should explore these factors simultaneously in a large sample of refugees from diverse cultural background and resettled in different host nations.

10.9 Conclusion

The integrated theoretical approach of this thesis enabled a more comprehensive assessment of complex, contextual and sequential pre- and post-migratory factors affecting mental health of refugees. The results demonstrated that the complexity of traumas such as war and genocide experienced by Bosnian refugees has a long-lasting influence on the psychological health of individuals. The importance of these findings becomes even more evident when other migratory factors are considered. As refugees are faced with multiple stressors associated with acculturation to their country of resettlement, prior traumatic experiences continue to have a significant role in their adjustment to the new culture and society. The cumulative experience of prior traumatic exposure, together with everyday demands and stress associated with acculturation, evidently influence refugees' ability to effectively negotiate culturally appropriate behaviours in their host country, acquire the host language necessary to function and develop a sense of belonging and identification with the host culture. The

consequently accumulative effects of traumatic exposure, acculturative stressors and inability to acculturate to the host culture effectively, collectively and negatively influence refugees' mental health.

In addition to the strong evidence indicating that war and forced migration predispose refugees to mental health problems, this thesis demonstrated that migration and resettlement to a county with different culture, language and customs present additional challenges to adjustment of refugees. Notwithstanding the fact that refugees are inherently highly resilient as they are traumatised, the groups of refugees resettling in countries around the world still require a significant amount of assistance in order to overcome the obstacles of beginning a new life. An integrated trauma-focused, psychosocial and acculturative approach in the research arena is necessary to advance the research and knowledge in this field. Furthermore, health promotion researchers, health professionals and policy makers need to go beyond the individualistic trauma-focused approach and offer other active assistance to refugees to promote not only recovery from prior traumas, but also support integration, resettlement and cultural adaptation. This should include multidisciplinary and interconnected provision of services including psychological, social, vocational and cultural that are culturally appropriate and accessible to refugees.

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12 APPENDICES

Appendix A – Explanatory statement
Appendix B - Ethics Certificate
Appendix C - Survey
Appendix D - Recruitment flyer

MONASH University

Appendix A - Explanatory Statement

Title: Influence of psychosocial factors on the mental health of Bosnian refugees in Australia and Austria

Objective of this study

My name is Dzenana Kartal and I am conducting a research project towards a PhD with Dr Litza Kiropoulos a Lecturer and Research Fellow in the School of Psychology, Psychiatry and Psychological Medicine and Dr Susan Burney, a Senior Lecturer in the School of Psychology, Psychiatry and Psychological Medicine at Monash University. This means that I will be writing a thesis, which is the equivalent of a 300-page book. I am conducting this research to find out more about mental health and re-settlement experiences of young Bosnians in Australia and Austria.

What does the research involve?

You are eligible to participate in this study if:
You are between 18 – 35 years old
You are currently living in Austria or Australia
You were born in Bosnia
You have experienced war (1992 – 1995) in Bosnia
You have left Bosnia because of the war

If you are interested in participating in this study, you will be asked to contribute an hour of your time to fill in an online survey.

Payment

Once you submit your completed questionnaire you will receive a $10 iTunes gift voucher as a token of our appreciation. Once we receive your completed questionnaire we will send you an email providing you with the gift certificate number.

Confidentiality and Voluntary Participation

Your participation in this study is completely voluntary and confidential. This means that you are under no obligation to participate and your responses will not be known or disclosed to any person outside the research team. Storage of the data collected will adhere to the University regulations and will be kept on University premises in a locked filing cabinet for 5 years. A group report of the study may be submitted for publication in scientific journals, but individual participants will not be identifiable in such a report. By taking part in this study we wish to compare young Bosnian refugees living in Australia and Austria. We are interested in group results and not your individual results alone.

Can I withdraw from the research?

Even when you do consent to participate, you may withdraw at any time prior to submitting your responses.

Handling of data

The information collected will only be available to researchers of this study. Your personal email address will be kept separate to your responses on the questionnaire. All answers will be kept in a locked cabinet for 5 years in the School of Psychology and Psychiatry , Monash University. All information will be destroyed after this period. By taking part in this study we wish to compare young Bosnian refugees living in Australia and Austria. We are interested in group results and not your individual results alone.

Risks anticipated from participation

The questions in this study are designed to examine your re-settlement experiences and mental health after the Bosnian war. Some questions also directly inquire about your war experiences. Some people can feel distressed about reminders of their experiences. Even though such instances are not anticipated we have included information about what to do if these questions have created discomfort or distress for you. In addition, this information pack also provides information about how to access psychological assistance in the area where you live. You can also contact the researchers listed on this explanatory statement directly for further assistance with obtaining a referral to appropriate supports services.
Below you will find a list of support services available in Australia and Austria.

Benefits of your participation

It is hoped that the group results from this study will inform organisations and policy makers about what sort of factors influence the effective re-settlement of young refugees and also help us design and inform the most effective interventions aimed at young refugees.

If you would like to be informed of the aggregate research finding, please contact Dzenana Kartal via email Dzenana.Kartal@med.monash.edu.au or phone 0411 723 121.

If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator:	If you have a complaint concerning the manner in which this research <insert your project number here> is being conducted, please contact:
Dr Litza Kiropoulos School of Psychology and Psychiatry Monash Medical Centre [redacted]	In Australia: Executive Officer, Human Research Ethics Monash University Human Research Ethics Committee (MUHREC) [redacted] Research Office Monash University VIC 3800 [redacted]

	In Austria: Mrs Mirha Redzic [redacted]

SUPPORT SERVICES

AUSTRALIA

Speak to your doctor

Call Lifeline 13 11 14 (24 Hours telephone counselling service)

Call Suicide Helpline 1300 651 251 (24 hour crisis service)

For the cost of a local call, the beyondblue info line 1300 22 46 36 can provide you with access to information and referral to relevant services. A number of resources in English and Bosnian are also available for immediate download from the beyondblue website www.beyondblue.org.au

Contact Australian Psychological Society to find a psychologist in your area www.psychology.org.au

You can visit or call your local Community Health Centre that might be able to provide you with free Counselling Services. These may be found by phoning your local council listed in the index of the White Pages of the telephone directory

If you do not speak English you can call government operated Translating Services on 13 14 50 who can call the above mentioned services for you and help you make an appointment all for a cost of a local phone call

AUSTRIA

Speak to your doctor
BOEP Help-line operated by trained and experienced psychologist providing counselling, information and referrals to psychologists (private and bulkbilling). Their phone number is [redacted]

Intercultural Centre for Counselling and Psychotherapy in Austria who offer counselling to eligible clients. Their phone number is [redacted]

Society for Victims of Organised Violence and Human Rights Violations - OMEGA Health Care Centre - who offer medical, counselling, support and referrals to other agencies. Their number is [redacted]

Suicide & Crisis Helpline: 142
Helpline providing 24/7 phone and online counselling

www.telefonseelsorge.at for information about assistance available in any region of Austria

www.boep.au Australian Psychological Society equivalent organization in Austria that also provides telephone assistance on their Helpline 01/ 504 80 00

www.psyonline.at Online service providing online assistance, information and referrals for all types of mental health problems

Kriseninterventionszentrum Wien (Centre for Crisis Intervention -
[redacted]
www.kriseninterventionszentrum.at

Beratungszentrum für psychische und soziale Fragen (Centre for psychological and social assistance)
Granatengasse 4/1. Stock
[redacted]

Krisenintervention (Crisis intervention Centre)
[redacted]

Krisenintervention (Crisis Intervention Centre)
Gailenbachweg
[redacted]

EMERGENCY NUMBERS
Polizei 133 – (Police)
Rettung 144 – (Ambulance)

PRIVATE PRACTITIONERS

IN AUSTRIA (names and contact details are available publicly from the Austrian Psychologists registration board)

Mag. Christina BRIZIC-STÖGER
[redacted]
Privat: [redacted]
Handy: 0699 / 12 12 86 57

Mag. Aleksandra GERÖ
Email: [redacted]
Praxis: Gregor-Mendel-Straße 37, A-1180 Wien,
Tel.: [redacted]

Mag. Sanela PIRALIC SPITZL
Praxis: Alserstraße [redacted]
Handy: 0699 / 127 30 829

IN AUSTRALIA

Dr. Sophie Bibrowska
PhD PARIS
[redacted]

Ms. Gina Cidoni
BA MELB GradDipBehSc(HlthCare) LATROBE
[redacted]

Ms Tamara Hrabric-Krajcar
BPsych(equiv) ZAGREB
Anglicare Preston, [redacted]
Tel: [redacted]
[redacted]
Email: [redacted]

Ms. Ljiljana Ivicic
BSocSc(Psych) RMIT(2003)
GradDipPsych DEAKIN(2006)
[redacted]
Tel: [redacted]
Fax:
Email: [redacted]

Ms. Vedrana Kopecki
BA(Hons) USA(2004)
University of Ballarat
Mt. Helen Campus
Ballarat VIC
Email: [redacted]

Appendix B - Ethics Certificate

MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

Date:	**29 January 2010**
Project Number:	**CF09/3238 - 2009001758**
Project Title:	**Influence of psychosocial factors on the mental health of Bosnian youth in Australia and Austria**
Chief Investigator:	**Dr Litza Kiropoulos**
Approved:	**From: 29 January 2010 To: 29 January 2015**

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, and a copy forwarded to MUHREC before any data collection can occur at the specified organisation. **Failure to provide permission letters to MUHREC before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research**.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

[redacted]

Professor Ben Canny
Chair, MUHREC

cc: Dr Susan Burney, Mrs Dzenana Kartal

[redacted]

Appendix C - Copy of the survey questions

Demographic assessment

Age_____
Age at arrival to Australia/Austria _____
What year did you arrive to Australia/Austria?
Gender

a. Male
b. Female

Where were your born?_____
What is your religion?_____
What is your ethnic background?_____
Who are you currently living with?

c. Parents
d. Spouse/Partner
e. Alone
f. Other_____

What is your marital /family status

g. Single
h. Married
i. In relationship
j. Other_____

Where do you currently live?

k. Rent
l. Own a home
m. Share
n. Housing commission
o. Other_____

What is your highest level of education achieved?

a. Ph.D., M.D or equivalent
b. Completed/started tertiary education
c. TAFE course
d. Completed year 12 or equivalent
e. Secondary School
f. Other, specify: _____

What is your current employment?

Occupation title:_____

a. Professional *(i.e. physician, lawyer, psychologist, social worker, nurse, accountant, architect, engineer, teacher, pharmacist)*
b. White-collar *(i.e. clerk, secretary, salesperson, bookkeeper, middle manager)*
c. Blue-collar
   (i.e. technician, labourer, mechanic, painter)
d. Not currently working *(unemployed, student, homemaker)*
e. Unemployed *(receiving disability or social security pension)*

What is your parent's level of education (choose the parent with higher education)

a. Ph.D., M.D or equivalent
b. Completed/started tertiary education
c. TAFE course
d. Completed year 12 or equivalent
e. Secondary School
f. Other, specify: _____

What is your parents' current occupation(choose the parent with higher occupation)?

Occupation title:_____

a. Professional *(i.e. physician, lawyer, psychologist, social worker, nurse, accountant, architect, engineer, teacher, pharmacist)*
b. White-collar *(i.e. clerk, secretary, salesperson, bookkeeper, middle manager)*
c. Blue-collar
   (i.e. technician, labourer, mechanic, painter)
d. Not currently working *(unemployed, student, homemaker)*
e. Unemployed *(receiving disability or social security pension)*

WAR EXPERIENCES: How long were you in Bosnia during the war? _____Months

During the war how many of the following separate, war associated events would you say you have experienced?

Type of event	Yes/No	How often?	How long?
Were you in concentration camp			
Were you tortured			
Did you witness someone in your family being harmed			
Were you separated from your family			
Did you witness people being killed			
Were you injured			
Were you in combat			
Were you working as a medical officer/doctor/nurse			
Were you in hiding			
Have you experienced lack of food/shelter/medicine			
Where you exposed to bombardment, sniper fire or aggressor's attacks			
Did you lose your home and your possessions			
Other, please state			

RESETTLEMENT EXPERIENCES

VISA – NOW

1. What visa/residency status have you got now?

_____

2. How many yeas after you came to Australia/Austria did you acquire this status?

_____

3. What citizenship do you have now?_____

VISA – BEFORE

4. I was granted temporary protection visa? Yes/No
5. I was granted asylum? Yes/No
6. I was granted refugee/humanitarian visa? Yes/No
7. I was granted other type of visa. Please specify?_____

WHICH OF THE FOLLOWING HAVE BEEN INCLUDED IN YOUR RESETTLEMENT PROGRAM [*PLEASE ANSWER THE FOLLOWING QUESTIONS REFLECTING BACK ON THE INITIAL TIME WHEN YOU CAME TO AUSTRALIA/AUSTRIA AND FOR THE TIME PERIOD OF THE FIRST FIVE YEARS (YES OR NO QUESTIONS)]*

English/German language classes

a. Provided for free
b. You paid for them yourself
c. Other, please specify_____

Appropriate housing:

d. Private housing for you and your family (e.g. in a house, apartment)
e. Community setting housing for you and your family (e.g. housing commission)
f. Detention centre (forced detention)
g. If yes: For how long? Where you separated form your immediate family?
h. Collective centre (unforced detention)
i. If yes: For how long? Where you separated form your family?
j. Other, please specify where and for how long?_____

Access to employment market

k. Received immediate access to employment market
l. Received restricted access to employment market
m. Had no access to legal employment market

Access to health services

n. I had full access to health services (e.g. GP, hospital cover etc.)
o. I had access to mental health services (e.g. counselling, psychologist etc.)
p. I had access to specialist services (e.g. dentist, allied health practitioners)
q. Other, please explain_____

Have you been a refugee in any other country before you came to Australia/Austria?

r. Yes/No
s. If yes please specify the country and for how long?_____

DEMANDS OF IMMIGRATION SCALE

BELOW ARE A SERIES OF STATEMENTS EXPRESSING THE DIFFICULTIES CONFRONTED BY IMMIGRANTS/REFUGEES. EVALUATE EACH STATEMENT AS IT APPLIES TO YOUR RECENT (WITHIN THE LAST THREE MONTHS) PERSONAL EXPERIENCE AND CIRCLE THE ANSWER THAT BEST DESCRIBES HOE UPSET OR DISTRESSED YOU ARE ABOUT THE EXPERIENCE, DESCRIBED IN THE STATEMENT.

TO WHAT EXTEND DOES THIS UPSET OR DISTRESS YOU: 1 (NOT AT ALL) – 6 (VERY MUCH)

1.	Australians/Austrians have hard time understanding my accent	1 2 3 4 5 6
2.	When I think of my past life, I feel emotional and sentimental	1 2 3 4 5 6
3.	Even though I live here, it does not feel like my country	1 2 3 4 5 6
4.	I need advice from people who are more experienced then me to know how to live here	1 2 3 4 5 6
5.	I am disadvantaged in getting a good job	1 2 3 4 5 6
6.	My work status is lower than it used to be	1 2 3 4 5 6
7.	I am treated as a second class citizen	1 2 3 4 5 6
8.	I have difficulties doing ordinary things because of language barrier	1 2 3 4 5 6
9.	Australians/Austrians don't think I really belong in their country	1 2 3 4 5 6
10.	I have less career opportunities than Australians/Austrians	1 2 3 4 5 6
11.	Talking in English takes a lot of effort	1 2 3 4 5 6
12.	Australians treat me as an outsider	1 2 3 4 5 6
13.	I must least how certain tasks are handle, such as renting an apartment	1 2 3 4 5 6
14.	I do not feel that this is my true home	1 2 3 4 5 6
15.	I have to depend on other people to show or teach me how things are done here	1 2 3 4 5 6
16.	I do not feel at home	1 2 3 4 5 6
17.	I feel sad when I think of special places back home	1 2 3 4 5 6
18.	I cannot compete with Australians for work in my field	1 2 3 4 5 6
19.	People with foreign accents/names are treated with less respect	1 2 3 4 5 6
20.	The work credentials I had in my original country are not accepted	1 2 3 4 5 6
21.	I am always facing new situations and circumstances	1 2 3 4 5 6
22.	When I think of my original country I get teary	1 2 3 4 5 6

LANGUAGE, IDENTITY AND BEHAVIOURAL ACCULTURATION SCALE (LIB)

FOR THE FOLLOWING STATEMENT PLEASE MARK ONE OF THE FOUR POSSIBLE ANSWERS:
1 (NOT AT ALL) – 4 (VERY WELL, LIKE A NATIVE)

1. How would you rate your ability to speak English/German:
    a. At school/work
    b. With Australian/Austrian friends
    c. With strangers
    d. Overall

2. How well do you understand English/German?
    a. On TV or at a the movies
    b. In newspapers or in magazines
    c. In songs
    d. overall

3. How would you rate your ability to speak Bosnian?
    a. With family
    b. With Bosnian friends
    c. On the phone
    d. With strangers
    e. Overall

4. How well do you understand Bosnian?
    a. On TV or at the movies
    b. In newspapers or in magazines
    c. In songs
    d. overall

How would you describe your cultural/ethnic identity?_____

IN THE FOLLOWING QUESTIONS WE WOULD LIKE TO KNOW THE EXTEND TO WHICH YOU CONSIDER YOURSELF BOSNIAN, AUSTRALIAN/AUSTRIAN?

To what extend are the following statements true of you 1 (Not at all) – 4 (Very much)

1. I think of myself as being Australian/Austrian
2. I feel good about being Australian/Austrian
3. Being Australian/Austrian plays an important part in my life
4. I feel that I am part of Australian/Austrian culture
5. If someone criticises Australians/Austrians I feel they are criticising me
6. I have strong sense of being Australian/Austrian
7. I am proud of being Australian/Austrian
8. I think of myself as being Bosnian
9. I feel good about being Bosnian
10. Being Bosnian plays an important part in my life
11. I feel that I am part of Bosnian culture
12. If someone criticises Bosnians I feel they are criticising me
13. I have strong sense of being Bosnian
14. I am proud of being Bosnian

To what extend are the following statements true about the things that you do?

1 (Not at all) 4 (very much)

1. How much do you speak English/German:
   a. At home
   b. With your neighbours
   c. With friends

2. How much do you :
   a. Read Australian/Austrian books, newspapers or magazines
   b. Eat at Australian/Austrian restaurants
   c. Watch Australian/Austrian movies on DVD or in movie theatres
   d. Eat Australian/Austrian food
   e. Attend Australian/Austrian concerts, exhibitions
   f. Buy groceries in Australian/Austrian grocery stores
   g. Go to English/German speaking doctors
   h. Socialise with Australian/Austrian friends

3. How much do you speak Bosnian?
   a. At home
   b. With neighbours
   c. With friends

4. How much do you
   a. Read Bosnian books, newspapers, or magazines
   b. Eat at Bosnian restaurants
   c. Watch Bosnians movies on DVD
   d. Eat Bosnian food
   e. Attend Bosnian concerts, exhibitions etc
   f. Shop at Bosnian grocery stores
   g. Go to Bosnians speaking doctors
   h. Socialise with Bosnians friends

ETHNIC PEER CONTACT AND NATIONAL PEER CONTACT

HERE ARE SOME QUESTIONS ABOUT YOUR FRIENDS AND PEOPLE YOU KNOW. INDICATE THE ANSWER THAT APPLIES BEST:

How many close Bosnian, Australian/Austrian and other friends do you have?

	None	Only one	A few	Some	Many
Close Bosnian Friends					
Close Australian/Austrian friends					
Close other friends					

How often do you spend free time during school/work with…

	Almost never	Seldom	Some-times	Often	Almost always
Bosnians					
Australians/Austrians					
Others					

How often do you spend free time with…

	Almost never	Seldom	Someti mes	Often	Almost always
Bosnians					
Australians/Austrians					
Others					

How often do you play sports with…

	Almost never	Seldom	Some-times	Often	Almost always
Bosnians					
Australians/Austrians					
Others					

How often do you participate in…

	Never	Almost never	A few times a year	A few times a month	Weekly
Traditional Bosnian activities or customs?					
Australian/Austrian activities or customs?					

PSS SR

THESE QUESTIONS LOOK AT HOW EXPERIENCES OF WAR EVENTS AFFECT YOU NOW. PLEASE ANSWER THE FOLLOWING QUESTIONS ACCORDING TO WHAT HAS HAPPENED *DURING THE PAST MONTH* USING THE 0-3 SCALE BELOW. DO NOT SPEND TOO MUCH TIME ON ANY STATEMENT.

0 = NOT AT ALL OR ONLY ONE TIME

1 = ONCE PER WEEK OR LESS/A LITTLE BIT/ONCE IN A WHILE

2 = 2 TO 4 TIMES PER WEEK/SOMEWHAT/HALF THE TIME

3 = 5 OR MORE TIMES PER WEEK/VERY MUCH/ALMOST ALWAYS

23.	Have you had upsetting thoughts or images about the event that came into your head when you didn't want them to?	0	1	2	3
24.	Have you been having bad dreams or nightmares about the event?	0	1	2	3
25.	Have you had the experience of reliving the event, acting or feeling as if it were happening again?	0	1	2	3
26.	Have you been very EMOTIONALLY upset when you were reminded of the event (includes becoming scared, angry, sad, guilty, etc.)?	0	1	2	3
27.	Have you been experiencing PHYSICAL reactions when you were reminded of the event (eg. break out in a sweat, heart beats fast)?	0	1	2	3
28.	Have you been trying not to think about, talk about or have feelings associated with the event?	0	1	2	3
29.	Have you been trying to avoid activities, people or places that you associate with the event?	0	1	2	3
30.	Are there any important parts about the event that you still cannot remember?	0	1	2	3
31.	Have you found that you are much less interested or participate much less often in important activities?	0	1	2	3
32.	Have you felt distant or cut off from others around?	0	1	2	3
33.	Have you felt emotionally numb (eg. feel sad but cant cry, unable to have loving feelings)?	0	1	2	3
34.	Have you felt that your future plans or hopes will not come true (eg. will have no career, marriage, children, or long life)?	0	1	2	3
35.	Have you been having problems falling or staying asleep?	0	1	2	3
36.	Have you been irritable or having fits of anger?	0	1	2	3
37.	Have you been having trouble concentrating (eg. drifting in and out of conversations lose track of storey on TV, forgetting what you read, etc.)?	0	1	2	3
38.	Have you been overly alert (eg. checking to see who is around you, uncomfortable with your back to a door, etc.)?	0	1	2	3
39.	Have you been jumpy or easily startled (eg. when someone walks up behind you)?	0	1	2	3

How long have you experienced the problems that you have reported above?

a. Less than 1 month

b. 1 to 3 months

c. More than 3 months

How long after the event did these problems begin?

a. In the first 6 months

b. After 6 months or later

Have these problems interfered with any of the following areas of your life *during the past month*? Please rate (circle) for each event…

12.1.1.1.1.1.1 *Life Area*	Not applicable	Not at all	A little bit / sometimes	Definitely / often	Markedly / very often	Very severely / continuously
Work	na	1	2	3	4	5
Household chores and duties	na	1	2	3	4	5
Relationships with friends	na	1	2	3	4	5
Fun and leisure activities	na	1	2	3	4	5
Schoolwork	na	1	2	3	4	5
Relationships with family	na	1	2	3	4	5
Sex life	na	1	2	3	4	5
General satisfaction with life	na	1	2	3	4	5
Overall level of functioning in all areas of your life	na	1	2	3	4	5

POSTRAUMATIC GROWTH INVENTORY

PLEASE INDICATE FOR EACH OF THE STATEMENTS BELOW THE DEGREE TO WHICH YOU HAVE EXPERIENCED THIS CHANGE AS A RESULT OF YOUR WAR EXPERIENCES.

	Not at all	Very Small degree	Small	Moderate degree	Great	Very Great degree
1. My priorities about what is important in life.	0	1	2	3	4	5
2. An appreciation for the value of my own life.	0	1	2	3	4	5
3. I developed new interests.	0	1	2	3	4	5
4. A feeling of self-reliance.	0	1	2	3	4	5
5. A better understanding of spiritual matters.	0	1	2	3	4	5
6. Knowing that I can count on people in times of trouble.	0	1	2	3	4	5
7. I established a new path for my life.	0	1	2	3	4	5
8. A sense of closeness with others.	0	1	2	3	4	5
9. A willingness to express my emotions.	0	1	2	3	4	5
10. Knowing I can handle difficulties.	0	1	2	3	4	5
11. I'm able to do better things with my life.	0	1	2	3	4	5
12. Being able to accept the way the way things work out.	0	1	2	3	4	5
13. Appreciating each day.	0	1	2	3	4	5
14. New opportunities are available which wouldn't have been otherwise.	0	1	2	3	4	5
15. Having compassion for others.	0	1	2	3	4	5
16. Putting effort into my relationships.	0	1	2	3	4	5
17. I'm more likely to try to change things which need changing.	0	1	2	3	4	5
18. I have a stronger religious faith.	0	1	2	3	4	5
19. I discovered that I'm a stronger than what I thought I was.	0	1	2	3	4	5
20. I learned a great deal about how wonderful people are.	0	1	2	3	4	5
21. I accept needing others.	0	1	2	3	4	5

DEPRESSION ANXIETY STRESS SCALE (DASS)

THESE QUESTIONS LOOK AT YOUR GENERAL LEVELS OF DEPRESSION, ANXIETY AND STRESS. PLEASE READ EACH STATEMENT AND CIRCLE A NUMBER 0, 1, 2 OR 3 WHICH INDICATES HOW MUCH THE STATEMENT APPLIED TO YOU *OVER THE PAST WEEK*. THERE ARE NO RIGHT OR WRONG ANSWERS. DO NOT SPEND TOO MUCH TIME ON ANY STATEMENT.

0 = Did not apply to me at all

1 = APPLIED TO ME TO SOME DEGREE, OR SOME OF THE TIME

2 = APPLIED TO ME TO A CONSIDERABLE DEGREE, OR A GOOD PART OF TIME

3 = APPLIED TO ME VERY MUCH, OR MOST OF THE TIME

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg., in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg., sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

MONASH University

Appendix D – Recruitment flyer

Call for participants for a study exploring

Influence of Psychosocial factors on the mental health of Bosnian youth in Australia and

Austria

Researchers: Dr Litza Kiropoulos, Prof. Louise Newman, Dr Susan Burney and
Mrs. Dzenana Kartal

We are conducting a study to explore how did refugees from Bosnia resettle in Australia and Austria. If you volunteer to participate, you will be asked to fill in an online questionnaire asking about your experience during resettlement, your attitudes towards acculturation and its influence on your mental health.
The survey will take up to one hour to complete and can be accessed on the following website (link to be included here).
Your participation in this study is completely voluntary meaning that that your initial agreement to participate does not stop you from discontinuing participation at any time. In addition, this study is completely confidential meaning that your personal details will not be accessible to any other party except the researchers.
Your participation in this study will also be rewarded with a 10$ voucher for iTunes Music store where you can download some music onto your mobile or your computer library.
If you have any further questions or if you would like to take this opportunity to participate in this study, please contact the researcher below:

Dženana Kartal [redacted]