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The psychosocial consequences of the 1992-5 war in  
Bosnia & Herzegovina.

Stephen Powell

A Context Statement submitted to Middlesex University in partial fulfilment of  
the requirements for the degree of PhD by Public Works  
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<sup>1</sup>Now Prof. Dr. Rosner

## Abstract

### *a) The research carried out*

Eight different samples of citizens of Bosnia and Herzegovina were assessed in 1998 and 1999, two to four years after the end of the 1992-5 war, covering a wide range of variables including traumatic and stressful experiences and various measures of psychosocial adaptation including PTSD.

### *b) Main results and conclusion*

The results were published in nine papers which are described in this Context Statement, and which are also included as Appendices. Taken together, the specific (and sometimes tragic) features of the conflict in B&H, and some strengths of the research design, enabled the papers to make a significant contribution to three key psychological themes.

The first theme was PTSD concept and measurement. The psychometric performance of measures of PTSD in B&H were found to be similar to other published results, suggesting that the construct is as valid for the B&H population as for the comparison populations on which the instrument was developed. The case is also made for dropping Criterion A from the DSM PTSD diagnosis altogether, on the grounds of overwhelming practical and conceptual problems with assessing it using populations with multiple stressors.

The second theme was epidemiology and aetiology of PTSD and other symptom groups. Quite apart from PTSD, the war had a very significant impact on general mental health across the population. Current PTSD prevalences in the non-treatment samples ranged from 11% amongst returned refugees to 36% amongst internally displaced persons (IDPs) in camps, which are in line with the literature. Beyond PTSD, impact was concentrated in particularly high levels of somatisation, paranoid ideation, and aggression. PTSD prevalences amongst returned refugees are clearly lower than those of their peers who stayed in host countries, and much lower than all known reports in refugee samples abroad. Analysis of persons in treatment suggests that those who seek treatment for PTSD (as opposed to other medical problems) do have high levels of PTSD symptoms specifically, but not necessarily because they experienced a larger number of traumatic events.

The third theme looked beyond psychopathology. Findings suggest that the concept of post-traumatic growth can be validly extended to this population, but levels were considerably lower than reported in most other studies on other kinds of traumatic event. Finally PTSD and the PTSD diagnosis are discussed in a broader social context and it is concluded that while the war had many different kinds of consequences beyond the purely clinical, this should not divert attention from the fact that individual, clinically-relevant suffering was prevalent in the population at levels warranting urgent attention from public health care.

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# Chapter 1

## Context Statement: Introduction

### 1.1 Abbreviations

For those abbreviations which refer to questionnaires, the corresponding questionnaires are covered in more detail in section 1.5.8.

**B&H** Bosnia & Herzegovina

**BDI** Beck Depression Inventory (Beck, 1978)

**CISS** Coping Inventory for Stressful Situations (Endler & Parker, 1990)

**CWE** Checklist of War-related Events (addition to part of PDS, see below, used only in the present research as reported in Paper 1)

**DESNOS** Disorders of Extreme Stress Not Otherwise Specified

**DSM, (DSM-III-R, DSM-IV, DSM-V)** Diagnostic and Statistical Manual of the American Psychiatric Association, versions II-R, IV and V (American Psychiatric Association, 1994)

**ICD, ICD-10** The ICD-10 Classification of Mental and Behavioural Disorders, in particular the Diagnostic Criteria for Research (World Health Organization, 1993)

**IES** Impact of Event Scale (Horowitz, Wilner & Alvarez, 1979)

**PDS** Post-traumatic Diagnostic Scale (Foa, Riggs, Dancu & Rothbaum, 1993; Foa, Cashman, Jaycox & Perry, 1997)

**PTDS** An earlier version of the PDS (see above)

**PTG** Post-Traumatic Growth

**PTGI** Post-Traumatic Growth Inventory (Tedeschi & Calhoun, 1996)

**SCL, SCL-90** Symptom CheckList (Derogatis & Lazarus, 1994; Derogatis, Rickels & Rock, 1976)

**PTGI+** Modified Post-Traumatic Growth Inventory (modification of PTGI, see above, for this research as reported in Paper 9)

## 1.2 Structure

The work consists of this “Context Statement” together with nine previously published papers on the psychosocial consequences of the 1992-5 war in Bosnia & Herzegovina (B&H), which are provided as an Appendix<sup>1</sup>.

*It will be argued that first the specific (and sometimes tragic) features of the conflict in B&H, see 1.3, and second some strengths of the research design, see 1.5, together enabled the papers described here to make a significant contribution to a number of key psychological themes, as covered in Chapters 2-4.*

The next section of this chapter will describe the war circumstances which formed a background to the research project, in particular pointing out which features are particularly relevant to psychology. The following section gives a brief theoretical introduction to positive and negative reactions to traumatic events. Section 1.5 then describes the research methods, and the final section in this first chapter addresses ethical concerns.

Chapters 2-4 then present the findings from the three main research foci:

- Post-Traumatic Stress Disorder (PTSD): measurement and concept
- PTSD: epidemiology in different contexts
- PTSD: Post-Traumatic Growth and the longer term.

Each chapter begins by placing the papers to be covered in the context of the themes of the chapter. The bulk of each chapter then discusses the themes and findings in more detail. This discussion takes place primarily in the light of newer literature, as the literature up to the respective dates of publication has already been covered in the submitted papers. To avoid repetition, a summary at the end of each chapter has been forgone in favour of a consolidated summary in the final chapter, in which the contributions of each work to these themes - in the

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<sup>1</sup>Under the PhD regulations for which it was submitted, the aim of this Statement is to demonstrate that the published works presented in the Appendix taken together are equivalent in quality and significance to a traditional Ph.D. thesis. As the majority of the papers have already been reviewed by peers, there is less need to demonstrate that the individual papers are adequately designed, have considered the relevant literature, employ appropriate statistical methodology, and so forth. Instead, the main task of this statement is to demonstrate that, taken as a whole, these papers are greater than the sum of their parts. That is, they can be considered together as something approaching a single work, with an overarching significance within and beyond psychology.

light of the special features of the research context and the key strengths of the research project - are summarised. This summary is rounded-off by a look at future work.

*The papers themselves are reproduced in the Appendix on page 77.*

## **1.3 The historical and research context**

This section will try to explain why key features of the research context - B&H immediately after the war - enabled the research to reach some new insights on the three research foci. Some background information about the war in B&H will also be given.

### **1.3.1 Key features of the historical and research context**

Below I will argue that the following overlapping groups of factors were particularly salient from a clinical and social psychological perspective:

1. The large proportion of the population which suffered in the violence<sup>2</sup>
2. The extent of the loss of life
3. The nature and extent of displacement
4. In particular, the extent of the exposure to (potentially) traumatic events
5. The variety of other serious challenges to survival during and after the war
6. The profound changes in the (ethno-)political environment.

The following subsection will explain these points in a little more detail.

### **1.3.2 The geopolitical context**

It is not the place of this essay to judge the merits of different theories about why the break-up of former Yugoslavia was so violent, or why that violence was so pervasive and ethnically charged. Some (both in the Balkans and beyond) have tried to explain this violence as the inevitable consequence of a historically, or even genetically, murderous Balkan psyche. The British Prime Minister John Major spoke of “ancient hatreds”<sup>3</sup> ; it has been said (Simmons, 2000) that President Clinton was persuaded of this point of view after having read the book “Balkan Ghosts” (Kaplan, 2005) and that this led to a temporary reduction in his personal level of engagement to stop the war. These purely essentialist explanations need to be complemented

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<sup>2</sup>It should not be forgotten that a considerable number were also involved as perpetrators, whether as citizens, paramilitary or as members of the armed forces, either in self-defence or in the carrying out of atrocities.

<sup>3</sup>“Warring Factions Strike Bosnia Deal,” The Times (London), 28 August 1992

by the kinds of geopolitical factors expounded in the book “The Balkans” (Glenny, 2001). These geopolitical factors might need a little more explanation: the war began in Slovenia and Croatia in 1991 and in B&H in 1992, against a backdrop of secession in the late 1980s, when states and blocks variously described as Socialist or Communist, had been breaking up across Eastern Europe. Most historians (Silber & Little, 1996; Rogel, 1998; Magaš, 1993; Brown, 2010; Woodward, 1995; Turton, 1997) see the breakup of Yugoslavia as being driven by a combination of economic, structural and national or ethnic forces; but it is the national or ethnic factors to which the level and nature of violence is most frequently attributed. The structural and economic collapse unlocked an underlying unresolved geo-ethnic potential for conflict. For hundreds of years the Balkans had been the point of contact of three major empires: the Ottoman, the Russian and the Austro-Hungarian. The front lines in the various wars between them had moved back and forth across the area of former Yugoslavia. Different ethno-religious groups intermingled under the hegemony of one or other empire, living for the majority of the time in peace with one another. Nationalist movements came and went (giving rise, for example, to such acts as the assassination of Arch-Duke Franz Ferdinand, which precipitated the start of the First World War) but had difficulty establishing the kind of nation states, in the sense of sustainable geographically contiguous areas under the domination of a single ethnicity, which had come to characterise Western Europe. The rise of Communism, or Titoism, in Yugoslavia led to the establishment of a powerful state. This state succeeded in escaping the domination of both the Eastern and Western blocks, while continuing to preserve inter-ethnic mingling, (particularly remarkable in Bosnia & Herzegovina) under a national ideology which suppressed rather than solved potential conflict between the constituent ethnic groups. As the structure provided by the supposedly supra-national State faded away at the end of the 1980s it revealed an unusually rich mix of ethnic groups, especially in Bosnia & Herzegovina. Is such a mix, without the overarching domination of one of them, inherently unstable? While ethnically homogeneous regions tend to have higher levels of trust (Delhey & Newton, 2005), the majority of the populations of the region took mixed settlement as a normal fact of life and had in the past often been indifferent to the calls of vocal nationalist minorities who wanted to change it. The problem seems to be that this intermingling of ethnic groups proved an irritation for such nationalistic minorities. Once inter-ethnic violence had been begun, it then led to more widespread conflict in which the intermingled patterns of ethnic settlement exacerbated the involvement of whole swathes of the population, not only as victims but also as perpetrators.; everyone was on the front line. Being identified as a potential target by members of another ethnicity and the consequent need to seek safety amongst one’s “own” group led to inter-group dynamics and perception becoming rapidly polarised. There was no easy geopolitical solution, because the population had been settled in complex patterns. Minorities were settled in majority areas which were in turn enclaves in a larger population, and so on. Against this background, both explicit and implicit campaigns of “ethnic cleansing” took place in parallel with more or less voluntary movements to de-homogenise settlement patterns.

To summarise, while the extent of inter-ethnic violence in former Yugoslavia has been explained

in terms of ancient ethnic hatreds with a deep cultural or even genetic basis, there are also other plausible explanations. These claim that the deeply intermingled patterns of ethnic settlement which were prevalent may have been unstable, and that ethnically polarising, widespread violence started to spiral when the state structures which had been maintaining these settlement patterns dropped away. This intermingling may be unstable not necessarily because it is initially unpopular with the majority, but because it provides leverage for nationalistic agitators in times of tension.

### **1.3.3 Ethnic violence**

The war was characterised by intense levels of ethnic violence, and individual perpetrators (ICTY, 2010, 2001), although not the successor States themselves, (Justice, 2007), have been found guilty of the crime of genocide at the International Court in the Hague.

Severe atrocities were committed during the conflict, as part of efforts to liquidate and/or expel members of the opposing ethnic group. The largest such atrocity, amongst countless other more or less ethnically motivated acts of murder, happened in Srebrenica, when several thousand Muslim men were taken away and killed by the Army of the Republika Srpska and Serb militias. This atrocity was judged to have been an act of genocide by the International Court of Justice (Justice, 2007). In a large number of cases the fate of those who were lost has never been confirmed (ICRC, 2007; Tokača, 2007). About half of those missing in B&H are men presumed killed in Srebrenica (ICRC, 2007).

### **1.3.4 Extent of loss**

Many people lost loved ones during the 1992-5 war in Bosnia and Herzegovina (B&H). Around 100 000 people were killed or reported missing, out of a pre-war population of over 4 million (although previous estimates were as high as 250 000, recent more exhaustive research by the Research and Documentation Centre has established a nearly complete list of 97 207 persons – civilian and military – killed or missing; Tokača, 2007).<sup>4</sup>

### **1.3.5 Displacement and refuge**

These events meant that hundreds of thousands of people left or were forced out of their homes, and many sought refuge in other countries, both in the other successor states of former

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<sup>4</sup>As of July 2007, there now exists a more or less complete documentary list of every person killed in the Bosnian War of 1992-95 (Tokaca, 2007). For each individual, this includes their name, biographical details, circumstances of their death, photographs, media reports, data from cemeteries and morgues and family records, all electronically linked and cross-referred. This book, also known as the Bosnian Book of the Dead, lists 97207 individuals, civilian and military, Muslim and Christian, adult and child, killed during this three-and-a-half-year conflict. One very significant error perpetrated in Paper 6a is in repeating this early number of around 200 000 which was considered at least in the Federation to be a best guess at the time.

Yugoslavia, primarily Croatia and Serbia, as well as outside it. Over a million returned to their homes, especially in the years 1998-2002, of which just under half were from abroad and the rest were internally displaced persons (UNHCR, 2004). At the time of the research, around 10 000 (USCR, 2001)<sup>5</sup> were still living in displaced persons camps.



Figure 1.1: Map of post-Dayton Bosnia & Herzegovina showing the two Entities: the Federation (blue) and the Republika Srpska (pink).

Source: [http://en.wikipedia.org/wiki/File:Map\\_Bih\\_entities.png](http://en.wikipedia.org/wiki/File:Map_Bih_entities.png)

The Dayton Peace Agreement which formally ended the war formalised the division of the country into two Entities: the Federation of Bosnia and Herzegovina, namely that part of Bosnia and Herzegovina which at the end of the war had a predominantly Muslim and Catholic population (usually referred to as Bosniaks and Croats/Croats) respectively, and the Republika Srpska, in which the population by the end of the war was overwhelmingly Serbian Orthodox (usually referred to as Serbians/or Serbs) (Akhavan, 1996).

The capital, Sarajevo, now part of the Federation, was essentially under siege for most of the war. Most people were without running water or fuel for long periods of time and most areas were subject to the more or less constant threat of shelling and sniper fire. The main part of the city was (and still is) primarily Bosniak with a small Croatian minority, a smaller Serbian minority as well as other minorities. The respondents in samples S, M and P, see table 1.3 are all from Sarajevo. There is also a smaller, geographically and administratively separate settlement nearby, known now officially as Eastern Sarajevo but also sometimes known as Serbian Sarajevo which is nearly all Serbian. The other city involved in this research, Banja Luka, is the capital of the Republika Srpska and is largely Serbian. It was less directly affected by open fighting, but nearly all the previously numerous Croatian and Bosniak minorities were either forced to leave or killed. In addition, all 16 mosques were destroyed (BBC, 2009) and thousands of Serbians, predominantly from Croatia, took refuge in and around the city. Sample BS is formed of respondents who were in Banja Luka during and after the war.

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<sup>5</sup>At the time of writing (2010) the number remains at around 7 500 (UNHCR, 2010) .

### **1.3.6 Traumatic events**

As described in papers 1 and 2, the majority of citizens of B&H were exposed to a range of traumatic events, from being shot at or witnessing the loss of loved ones to, for a minority, extremes of physical and psychological torture.

### **1.3.7 Other stressors**

Quite apart from the loss of family members and exposure to traumatic events, virtually all in B&H were negatively affected by the war in a number of ways: from loss of property and investments to interruption of education and career, mediated by a deadlock in national politics (Carballo et al., 2004). These kinds of factors may have contributed to higher levels of mental health problems in the general population, with raised levels of PTSD and depression.

### **1.3.8 The situation since 1995**

Since the Dayton peace treaty which stopped the war at the end of 1995, the situation in the country has been remarkably free of explicit violence. The country has, however, been in a permanent state of constitutional crisis ever since, because the different national groups have incompatible ideas of how B&H should develop. While the economy recovered from almost zero to just tolerable levels by the time of this research, unemployment was at that time (and is still) very high and economic prospects uncertain (CIA, 2010). The political stalemate means that reforms proceed very slowly and many live in a state of frustration or resignation.

## **1.4 Positive and negative reactions to traumatic events: PTSD and PTG**

### **1.4.1 Post-traumatic stress disorder**

Post-traumatic stress disorder (see Tables 1 and 2 below) is a collection or syndrome of unpleasant and often chronic symptoms which sometimes appear in people who have been exposed to one or more very stressful events. Robert Spitzer, who played a major part into introducing PTSD into DSM-III, says of the diagnosis in “Saving PTSD from itself” (Spitzer, First & Wakefield, 2007, p. 233), that “no other DSM diagnosis, with the exception of Dissociative Identity Disorder (a related disorder), has generated so much controversy in the field as to the boundaries of the disorder, diagnostic criteria, central assumptions, clinical utility, and prevalence in various populations.”

Arguments about PTSD in DSM-V have been protracted and at times bitter. At the time of writing the criteria have still not been finalised. In the following sections, a number of key

disagreements will be addressed and in the Findings chapters, the contribution of the published works to these debates will be discussed.

1. The patient must have been exposed to a stressful event or situation (either short or long lasting) of exceptionally threatening or catastrophic nature which would likely cause pervasive distress in almost anyone.
2. There must be persistent remembering or reliving of the stressor in intrusive flashbacks, vivid memories or recurring dreams, or in experiencing distress when exposed to circumstances resembling or associated with the stressor.
3. The patient must exhibit an actual or preferred avoidance of circumstances resembling or associated with the stressor.
4. Either of the following must be present:-

- Inability to recall either partially or completely some important aspect of the period of exposure to the stressor,
- OR
- Persistent symptoms of increased psychological sensitivity and arousal shown by any two of the following:
  - Difficulty falling or staying asleep
  - Irritability or outbursts of anger
  - Difficulty concentrating
  - Hypervigilance
  - Exaggerated startle response

Criteria 2, 3 and 4 must all arise within 6 months of the period of stress. The diagnostic guidelines show that the disorder should only be diagnosed after six months if the symptoms are typical and do not constitute one of the other psychiatric diagnoses such as phobic conditions, other anxiety disorders, depression etc. Reaction to extreme stress unspecified  
If not all of the criteria are met the diagnosis of "reaction to extreme stress, unspecified" may be a more appropriate label. However the criterion of the presence of the extreme stressor must be fulfilled

Table 1.1: ICD10 Criteria for Post-Traumatic Stress Disorder F 43.1.  
(World Health Organization, 1993, Amended June 2008)

A. The person has been exposed to a traumatic event in which both of the following have been present:

- (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
- (2) the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behavior.

B. The traumatic event is persistently reexperienced in one (or more) of the following ways:

- (1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
- (2) recurrent distressing dreams of the event. Note: In children, there may be frightening dreams without recognizable content.
- (3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated). Note: In young children, trauma-specific reenactment may occur.
- (4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
- (5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

- (1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
- (2) efforts to avoid activities, places, or people that arouse recollections of the trauma
- (3) inability to recall an important aspect of the trauma
- (4) markedly diminished interest or participation in significant activities
- (5) feeling of detachment or estrangement from others
- (6) restricted range of affect (e.g., unable to have loving feelings)
- (7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

- (1) difficulty falling or staying asleep
- (2) irritability or outbursts of anger
- (3) difficulty concentrating
- (4) hypervigilance
- (5) exaggerated startle response

E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than one month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

- Specify if: Acute: if duration of symptoms is less than 3 months Chronic: if duration of symptoms is 3 months or more
- Specify if: With Delayed Onset: if onset of symptoms is at least 6 months after the stressor

Table 1.2: 309.81 DSM-IV Criteria for Post-Traumatic Stress Disorder  
(American Psychiatric Association, 1994)

### 1.4.2 The problem of symptom overlap

Perhaps the most effective criticism of DSM-IV PTSD criteria is that the symptoms described in sections B, C and D are not sufficiently specific (Spitzer, First & Wakefield, 2007). Many of the symptoms are seen, for example, in depression patients without traumatic events. In fact, “a combination of symptoms of major depression and specific phobia fully constitutes the requisite criteria for diagnosing PTSD” (Rosen, Spitzer & McHugh, 2008, no page numbers) - at least in the sense of the symptom blocks B, C and D.

This overlap is not just a practical problem but also a conceptual one. Horowitz’s explication of PTSD as expressed in the IES (Horowitz et al., 1979) was quite clear; very unpleasant re-experiencing of the event leads to a tendency to avoid related situations and stimuli which mean that these are not confronted and hence the problem continues. The DSM-IV and ICD-10 criteria nevertheless include hyper-vigilance and/or exaggerated startle response alongside intrusion and avoidance in their diagnostic algorithms. It has never been settled whether hyper-vigilance and/or exaggerated startle response are essential parts of the syndrome rather than concomitants which are often but not necessarily associated either with the cause or the consequences. This has led many to suggest returning PTSD to clearer conceptual roots, in particular to re-emphasise some unique and distinguishing aspects of PTSD: “the criteria sets should, wherever possible, not include items that are part of the diagnostic criteria for other mood and anxiety disorders. Thus, irritability, insomnia, difficulty concentrating, and markedly diminished interest would be eliminated from the PTSD criteria” (Spitzer, First & Wakefield, 2007, p. 237). The suggested definition of PTSD put forward by Brewin and others is persuasive because of its simplicity: *re-experiencing in the present, in the form of intrusive multi-sensory images accompanied by marked fear or horror, an event now perceived as having severely threatened a person’s physical or psychological well-being* (Brewin, Lanius, Novac, Schnyder & Galea, 2009, p. 369).

### 1.4.3 Diagnostic inflation because of softening of Criterion A?

Specifying what characteristics an event needs to have in order to be eligible as a trigger for PTSD has always been problematic. The DSM-III-R provided a conceptual definition of severe trauma as being triggered by “an event that is outside the range of normal human experience and that would be markedly distressing to almost anyone”, which was roundly criticised as it is not clear for two reasons. The first is that an event such as a car accident qualifies as being “outside the range of normal human experience”, and the second is that, following this definition, somebody could not develop a PTSD subsequent to an event which was not extremely distressing to others. In response the DSM-IV deleted this characterisation. Instead, the DSM-IV explicitly defined the types of events that qualify for a PTSD- trauma as follows: “The person experienced, witnessed or was confronted with an event or events that involved actual or threatened death or serious injury or a threat to the physical integrity of self or

others” (American Psychiatric Association, 1994). There has been hefty criticism that PTSD then became too widely diagnosed because of an allegedly increasing practice of diagnosing PTSD when clients presented PTSD-like symptoms following, for example, a business loss or even when no obviously traumatic event had occurred (Bodkin, Pope, Detke & Hudson, 2007; Scott & Stradling, 1994). However Brewin et. al (2009) conclude that these examples are somewhat anecdotal:

The data we have reviewed in this article are consistent in demonstrating that, with the exception of some cases arising from stress of prolonged duration, the full PTSD syndrome hardly ever occurs in the absence of an event that could reasonably be described as traumatic: in other words, Criterion A simply describes the usual context of PTSD without contributing itself to diagnostic precision.(Brewin et al., 2009, p. 369)

The authors also point out that retaining Criterion A also makes it more difficult to investigate empirically which events lead to a diagnosis, as this question is already pre-empted by the Criterion A definition.

#### 1.4.4 Prevalence of PTSD

There is an extraordinary variation in prevalences reported for war-affected populations, even within studies on similar groups: within studies on US Vietnam veterans, within studies on the general population and within studies on civilian witnesses of war including Bosnian respondents. For Paper 1, studies of PTSD prevalence rates 1988-1993 were surveyed using DSM criteria explicitly, and the dearth of studies conducted in non-Western countries was noted. A more recent and comprehensive overview (Johnson & Thompson, 2008) also finds widely differing prevalences with, for example, prevalences for US Vietnam veterans varying from 2% in the CDC Vietnam experience Study in 1988 to over 70%. PTSD rates amongst refugees in the country of refuge are reported as being very high; six of twelve studies reported by Johnson & Thompson (2008) give a rate higher than 50%. A prevalence of 67% is reported for Bosnian refugees in the USA (Craig, Sossou, Schnak & Essex, 2008). In a longitudinal assessment of PTSD in Bosnian refugees in the Chicago area, Weine and his colleagues (1998) found that nearly 75% of their sample suffered diagnosable levels of PTSD at an initial assessment. One study (Begic & McDonald, 2006)<sup>6</sup> compared B&H residents with B&H refugees in the USA and found, perhaps surprisingly, that levels of PTSD but not depression or general symptoms were higher amongst the refugees. However there is always the possibility that symptom levels, especially for PTSD, may be high because receiving a diagnosis can improve the right of the refugee to remain in the host country.

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<sup>6</sup>This study suffers from the fact that the residents were only a convenience sample.

### 1.4.5 Prevalence in treatment-seeking groups

Another set of questions to be addressed with this work was connected to the provision of psychosocial support to the civilian population in Bosnia and Herzegovina for Post-Traumatic Stress Disorder and related problems. Programmes in training and capacity building in psychosocial support were being provided by the research team and others and so it was important to know the profile of PTSD and related problems in treatment-seeking and not-treatment-seeking populations, as well as patterns of service utilisation.

There is little information from the literature on the subject of treatment-seeking after a traumatic event. One meta-analysis (Gavrilovic, Schutzwahl, Fazel & Priebe, 2005, p. 595), which cites Paper 4, concludes that the “most important factors associated with treatment-seeking appear to be a higher level of psychopathology, the type and level of the traumatic event, and socio-demographic characteristics, in particular female gender”.

### 1.4.6 Aetiology and risk factors

The literature on risk factors (Johnson & Thompson, 2008) reveals a number of quite well-established results. There is good evidence of a dose–response relationship between cumulative war trauma and torture on one hand and development and maintenance of PTSD on the other, as well as a fairly well-established set of odds ratios for different types of traumatic event. There is also some evidence that female gender and more advanced age are risk factors in development of PTSD. Some refugee variables may exacerbate symptoms of PTSD and contribute to their maintenance.

#### 1.4.6.1 War and terror as risk contexts

The events of September 11 2001 and the subsequent “war on terror” reawakened interest in the relationship between terror and PTSD and the methodological challenges involved in investigating it (North & Pfefferbaum, 2002). This has given rise to a new body of literature (which was not available at the time the present papers were written) especially in the US, though it links to a substantial earlier body of research from Israel (Gidron, 2002). Although comparative findings from one prospective study (Shalev & Freedman, 2005) suggest that PTSD following acts of terror is worse than following other traumatic events, post-terror PTSD does seem to recede at the same rate as PTSD after other kinds of event.

This interest has also led to questions about Post-Traumatic *Growth* following terrorism (Hobfoll et al., 2007), especially in the US. One study cites Paper 7 as evidence of the possibility of positive consequences (Morland, Butler & Leskin, 2008) after terrorism,.See Chapter 4.

### 1.4.6.2 Genetics and neurophysiology

Many newer papers on the aetiology of PTSD increasingly attribute an important role to genetic<sup>7</sup> (Koenen, 2007) and neurophysiological (Karl & Werner, 2010) determinants and correlates.

### 1.4.6.3 Cognition

Again, recent studies on aetiology increasingly stress the role of cognition. The controversy about Eye-Movement Desensitisation and Reprocessing, or EMDR (Seidler & Wagner, 2006), is now considered by its proponents to be an intervention which influences information processing, has also not abated (Schubert & Lee, 2009).

### 1.4.6.4 The role of coping, positive changes and post-traumatic growth

These will be dealt with later in Chapter 4.

## 1.4.7 Post-traumatic growth and other positive outcomes after stressful events

In the aftermath of traumatic experiences some survivors report positive long-term changes in themselves, which have been recently discussed in the light of the concept "Post-Traumatic Growth". Post-Traumatic Growth (PTG) is a concept with long roots,<sup>8</sup> but one which attracted a new wave of interest in the early 1990s. There are just 45 references on Google Scholar<sup>9</sup> with "post-traumatic" and "growth" in the title published before 2000, but nearly 300 published in 2000 and onwards. Tedeschi and Calhoun defined PTG as "...a significant beneficial change in cognitive and emotional life [following a traumatic event] that may have behavioural implications as well" (Tedeschi, Park & Calhoun, 1998, p. 3). These authors also emphasise the potential of the PTG concept to help facilitate recovery of trauma through psychotherapy (Calhoun & Tedeschi, 1999).

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<sup>7</sup>But even after controlling for exposure factors which might be genetically conditioned (risk-seeking behaviour), genetic factors explain about 30% of the variance associated with PTSD (Amstadter, Nugent & Koenen, 2009). Recent work is beginning to explain which genes might be responsible for that connection and how they might operate.

<sup>8</sup>An important milestone was set by (Antonovsky, 1996) with the "salutogenic approach". However the strength of this approach was to present a continuum between disease and health, whereas post-traumatic growth is explicitly conceptualised as orthogonal to this dimensions.

<sup>9</sup>As of August 2010

## 1.5 The research project and methods

### 1.5.1 Background to the research project and papers

The papers selected for this PhD all arise from research conducted by the author from 1997-2002 while working for a programme of support to the Department of Psychology, University of Sarajevo. This research was primarily<sup>10</sup> funded by a grant (VW II/ 73301) from the Volkswagen-Stiftung, initiated by Prof. Willi Butollo and supported by Prof. Rita Rosner at the Ludwig-Maximilians-University Munich. This research has resulted in a set of papers which provides one of the most comprehensive analyses of the psychological consequences of war in a civilian population. The papers presented here represent all the published analyses from this largest project, although other related research projects were carried out as part of the same program, the results of which have been published or presented elsewhere (Powell, Butollo & Hagl, 2009; Gavranidou & Rosner, 2003; Roper & Gavranidou, 2003; Gavranidou, Čehić, Powell & Pašić, 2000; Powell & Pašić, 2002; Powell, Pašić & Butollo, 2002; Powell, 2003). See section 5.3.

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<sup>10</sup>the DAAD and GTZ also funded this research directly or indirectly; see Acknowledgements

## 1.5.2 Overview of the research phases, samples and how the papers relate to them

<i>Sample code letters</i>		S	M	P	SR	SD	BS	BD	BP	SP
<i>Year of survey</i>		1998			1999					2001
<i>Place of survey</i>		Sarajevo					Banja Luka		Prijedor	Sarajevo
<i>Subjects</i>		Non-displaced	Medical	Psychological	Returnees	Displaced	Households	Displaced	Camps	Students
<i>Instruments</i>		<i>Sample sizes for each instrument</i>								
IES	Impact of Event Scale	96	95	113	62	75	100	100	100	
BDI	Beck Depression Inventory	98	98	114	64	76	100	100	100	
SCL	Symptom CheckList	97	98	114	104	97	100	100	100	
PDS	Post-traumatic Diagnostic Scale	97	94	114	103	97	100	100	100	
CWE	Checklist of War-related eEvents	97	94	114	103	97	100	100	100	
CISS	Coping Inventory for Stressful Situations	97	94	114	64	72				
AIR	Additional Information from former Refugees: flight , displacement, identification with home country, experiences abroad, etc.				103					
PTGI	Post-Traumatic Growth iInventory				64	72				
PTGI+	Modified Post-Traumatic Growth Inventory									69

Table 1.3: Overview of the research phases and samples and the instruments which were applied

The first 3-4 lines of table 1.3 show the code names for each sample, when and where they were carried out and with which subjects. The next lines show in each column which instruments were used with the corresponding samples; the numbers are the sample sizes. Finally, table 1.4 shows for each paper which analyses were carried out and with which samples.

Essentially there were eight samples of approximately 100 persons per sample, plus student

sample-gathering data on PTG and traumatic events only. There was also one follow-up sample, not covered here; see 5.3.

Sociodemographic data were collected and reported for all the samples, and were also used to cross-tabulate means and other data. These basic analyses are not mentioned above.

For reasons of economy, in 1999 the full package of questionnaires including the BDI and IES were only administered to a random selection of participants in the two Sarajevo sub-samples. All other participants in 1999 only answered a smaller package of questionnaires, including the PDS.

Some additional questionnaires are not mentioned in the table as the results are not covered in this work.

Sample code letters		S	M	P	SR	SD	BS	BD	BP	SP
Year of survey		1998			1999					2001
Place of survey		Sarajevo					Banja Luka		Prijedor	Sarajevo
Subjects		Non-displaced	Medical	Psychological	Returnees	Displaced	Households	Displaced	Camps	Students
Papers	Main questions	Samples and analyses included in each paper								
1 (Rosner, Powell & Butollo, 2003)	PTSD construct	PDS & CWE only: means and intercorrelation								
2 (Powell, Rosner & Butollo, 2000a)	Prevalence of stressors and PTSD, other symptoms, aetiology, flight	Means of SCL, PDS, CWE for comparison			Means for IES, SCL, PDS, CWE					
3 (Powell & Rosner, 2005)	PTSD construct, structure, symptom overlap	PDS reliability and validity; IES and SCL only for validity; item means but no scale means								
4 (Rosner & Powell, 2009)	DSM vs. ICD, criterion A, diagnostic inflation	PDS analysed according to DSM vs. ICD								
5 (Rosner, Powell & Butollo, 2002)	Treatment-seeking, PTSD prevalence	Logistic regression of treatment status on CWE, PDS, CISS								
6 (Powell, 2006) <sup>11</sup>	PTSD construct, cultural and situational validity, treatment-seeking									
7 (Powell, Rosner, Butollo, Tedeschi & Calhoun, 2003)	PTG structure and levels				Means and factor structure of PTGI; relationship with CWE					
8 (Rosner & Powell, 2006)	PTG correlates, connection with pathology				PTGI in relation to CISS, BDI, SCL, CWE, refugee status					
9 (Rosner & Powell, 2007a)	PTG validity									Means & validity of PTGI

Table 1.4: Overview of the research phases, samples, questions and how the papers relate to them

### 1.5.3 Summary of papers

The contribution of the various authors to each paper is explained in an Appendix.

**Paper 1:** Rosner, R., Powell, S., & Butollo, W. (2003). Post-Traumatic Stress Disorder three years after the Siege of Sarajevo. *Journal of Clinical Psychology*, 59(1), 41-55. Lifetime prevalence of traumatic events, the current prevalence of Post-Traumatic Stress Disorder (PTSD), and PTSD risk factors.

**Paper 2:** Powell, S., Rosner, R., & Butollo, W. (2000). Flight Paths: Report to the Office of the (German) Federal Government Commissioner for the Return of Refugees, Reintegration and Related Reconstruction in Bosnia and Herzegovina. Sarajevo: GTZ-Büro. (Published in English, German and Bosnian). Retrieved from <http://psih.org/flightpaths.pdf>. It was also published in German as (Powell, Rosner & Butollo, 2000b) and in Bosnian as (Powell, Rosner & Butollo, 2000c).

**Paper 3:** Powell, S., & Rosner, R. (2005). The Bosnian version of the international self-report measure of Post-Traumatic Stress Disorder, the Post-Traumatic Stress Diagnostic Scale, is reliable and valid in a variety of different adult samples affected by war. *BMC Psychiatry*, 5(1), 11. doi:10.1186/1471-244X-5-11

**Paper 4:** Rosner, R., & Powell, S. (2009). Does ICD10 Overestimate the Prevalences of PTSD? *Trauma & Gewalt*, (3:2). This paper was originally published as (Rosner & Powell, 2007b) and was then translated by the journal in a later edition.

**Paper 5:** Rosner, R., Powell, S., Butollo, W., & Psychologie, K. (2002). Why do people in Bosnia & Herzegovina go into treatment? The role of Post-Traumatic Stress Disorder in psychotherapy service utilisation. *European Psychotherapy*, 3, 117-129.

**Paper 6a:** Powell, S. (2002). The Psychosocial Approach. In Powell & Duraković-Belko (eds.): Sarajevo 2000: The Psychosocial Consequences of War, Results of Empirical Research from the Territory of Former Yugoslavia. Sarajevo: UNICEF. This essay was part of the introduction to an edited book. The book was later published online in 2006 as part of Volume 1 of the *International Journal of Human Sciences*.

**Paper 7:** Powell, S., Rosner, R., Butollo, W., Tedeschi, R. G., & Calhoun, L. G. (2003). Post-Traumatic Growth after war: a study with former refugees and displaced people in Sarajevo. *Journal of Clinical psychology*, 59(1), 71-83.

**Paper 8:** Rosner, R., & Powell, S. (2006). Post-traumatic growth in times of war. In R. G. Tedeschi & L. G. Calhoun (Eds.), *Handbook of Post-Traumatic Growth*. Mahwah: Lawrence Erlbaum Associates. This paper deals with the same data as Paper 7 but conducts additional analyses.

**Paper 9:** Rosner, R., & Powell, S. (2007). How real is Post-Traumatic Growth after surviving traumatic war events? In proceedings of Psihologija i Društvo ("Psychology and Society") (pp. 9-15). Novi Sad, Serbia: University of Novi Sad.

#### 1.5.4 General inclusion criteria for all samples except SP

All the people included in all samples except SP are adults between 16 and 65 years of age who were resident in Yugoslavia before the war and who were capable (at least with some assistance) of filling in the questionnaires. The persons participating in the research were civilians, in the sense that they were recruited from the general population (and from that which was receiving medical and psychological treatment, in the case of samples M and P). However those approached were not excluded if they had been directly involved in combat so these "civilian" samples also include persons who had been actively involved in hostilities.

All the samples except SP were stratified to ensure an approximately equal number of men and women and an approximately equal number in each age group: 16-30, 30-45 and 45-65. This stratification corresponds to the approximate age and sex structure of the pre-war Yugoslavian population<sup>12</sup>.

#### 1.5.5 Sample SP

Sample SP was a convenience sample of more or less all the psychology students in one year attending a lecture at Sarajevo University. Most of them had been exposed to a variety of traumatic and stressful events during the war, which had ended six years before the study.

#### 1.5.6 Specific Samples

##### 1.5.6.1 The 1998 samples

**Aims** The aims of these surveys were as follows:

- Epidemiology of PTSD and other psychopathology, and comparison with international literature: conditional probabilities as a function of type of traumatic event.
- Comparison between adults receiving medical help, psychological counselling help and a control sample.
- Comparison between samples with regard to help-seeking behaviour and access to help.

#### Samples

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<sup>12</sup>since no census exists for post-war B&H

**S) Sarajevo city: Sarajevo "Stayers": Spent less than a year outside Sarajevo 1991-5.** This sample was drawn via place of residence in the town. First, streets were selected at random from a street map, and then a random walk was specified along each street to select residential buildings (houses or blocks of flats). From each building, a household was selected at random and a household member fitting specified criteria was invited to interview. So this was essentially a multi-level cluster sample (Pedhazur & Schmelkin, 1991, p. 235) which was also stratified using a quota procedure.

The conditions in Bosnia and Herzegovina at the time were not very amenable to conducting systematic household surveys (samples S, SR, SD, BS and BD). Especially in the case of sample S, although a street map of Sarajevo was available, the street names had often been changed more than once and residents were often themselves not sure of them. There was a large proportion of displaced persons living in temporary accommodation, so it was not always easy to decide who was living where, and how permanently.

**M) Sarajevo city: Sarajevo "Stayers" in medical treatment** Spent less than a year outside Sarajevo 1991-5. These were all persons in medical treatment: cooperating medical staff invited all the patients they saw, from a certain date and time onwards, to take part in the survey and continued to do so until the age/sex quotas they had been given were fulfilled. So the sample can be termed a stratified quota sample.

**P) Sarajevo city: Sarajevo "Stayers" in psychological treatment** Spent less than a year outside Sarajevo 1991-5. Sample was collected as with sample M; persons in any kind of psychological or counselling treatment addressed through cooperating psychologists and para-psychologists.

#### **1.5.6.2 The 1999 samples**

These were surveys of former refugees, internally displaced persons (IDPs) and "Stayers", i.e. people who were not displaced, in Sarajevo and Banja Luka, conducted in 1999.

**Aims** The aims were as follows:

- To assess experienced war events, flight history, and current accommodation and psychosocial symptomatology amongst adults.
- To assess the circumstances of refuge and return amongst returnees.
- To assess the differential effects of flight, refuge and displacement.

The survey included three samples of adult stayers, internally displaced persons and returning refugees in both Entities, and used new questionnaires to assess current accommodation status

and intentions, experience of flight refuge and return, and degree of identification with the surroundings after return.

## **Samples**

**SD) N=140 Sarajevo city: Displaced and Former Displaced.** As with sample S, this sample was semi-randomised via place of residence in the town. However the sample was drawn in a way which better approximated a simple random sample; local government offices in randomly selected areas assisted with the process of selecting random persons who fit the inclusion criteria from lists of residents. In detail, this meant that each of the four Municipalities in the city of Sarajevo were approached, and agreed to cooperate: Novo Sarajevo, Stari Grad, Novi Grad and Centar. From each Municipality, four *Mjesne Zajednice* (Local Councils) were chosen at random. Each Mjesna Zajednica provided a list of all those registered with them who could meet the inclusion criteria for either of the two sub-samples (see below). From these lists, possible respondents were chosen at random. The interviewers (advanced students of psychology, working in pairs) then visited these people at their registered place of residence. People not in fact resident at that address, absent for longer than two weeks, not fitting the inclusion criteria (see below) or declining to be interviewed were struck from the list.

Inclusion criteria, in addition to the global criteria specified above, were: persons who spent more than a year outside the city where they were now living (in this case, Sarajevo) from 1991-5, but spent less than a year outside former Yugoslavia. So this sample includes people who were displaced during the war but who may have returned as long as four or five years ago.

**SR) N=140 Sarajevo city: Returned refugees** The persons in this sample were gathered in the same way as above from municipal lists of persons who spent more than a year outside the city where they were now living (in this case, Sarajevo) from 1991-5, and also spent more than a year from 1991-5 outside former Yugoslavia.

**BD) Banja Luka Internally displaced Persons** These respondents spent more than a year outside Banja Luka from 1991-5 but spent less than a year outside former Yugoslavia. Procedure as above.

**BS) Banja Luka Stayers** These were persons who spent less than a year outside Banja Luka from 1991 to 5. They were semi-randomised via place of residence in the town, as above.

**SP) Prijedor and Banja Luka Displaced Persons in Collective Centres.** Persons who spent more than a year outside the area from 1991 to 5 but spent less than a year outside

former Yugoslavia. The respondents were randomly chosen from the list of residents at the following centres:

- Kozarac
- Celpak factory (Prijeedor)
- Kozaruša
- Ljubija
- Trnopolje

This is the only sample which fully meets the criteria for a stratified random sample, as the selection of age group and sex was carried out from a pre-existing list.

### **1.5.6.3 Definitions of "former refugee" etc.**

The terms "returnee", "refugee" etc are used differently in the literature in different contexts. One of the most accepted distinctions is between "refugee" and "internally displaced person" (UNHCR, 2007). Both of these terms refer to those who have been forced or obliged to leave their homes, e.g. as a result of war or persecution. The distinction is then made between refugees, who have crossed an internationally recognised state border, and the internally displaced, who have not. The present survey broadly follows this distinction. However in the case of former Yugoslavia it is not clear which "internationally recognised state border" is to be considered, as the constituent republics of former Yugoslavia were only recognised internationally during the war. The decision was made to include someone who was displaced inside former Yugoslavia as internally displaced rather than as a refugee. Of course, all distinctions of this kind are somewhat arbitrary; in any case the detailed information assessed in this survey on movements during the war allow more detailed analyses beyond these rough distinctions.

The present sample of "returnees from outside former Yugoslavia" are all refugees who have now returned to B&H. It should not be forgotten that they are only in one sense "returnees"; many former refugees in B&H, while having returned to their country, are still not able or willing to return to their pre-war accommodation. Those people can in fact be considered to now be internally displaced.

One Sarajevo sample of internally displaced persons also includes some who had been internally displaced by the war but who may now have returned to their pre-war accommodation. In other words, someone with a long history of displacement during the war is included in the same sample as someone who is still displaced, rather than in a sample with those who retained their place of residence during this time.

## 1.5.7 Procedures

Although all applied measures are questionnaires, not all subjects proved literate enough to complete them on their own. Therefore in some cases the interviewers had to read some of the questions to them and sometimes to reread or reformulate the questions. Thus the administration deviated slightly from the standard procedures.

In each survey, when the potential respondent said they were interested in cooperating with the survey, they were then informed in more detail of the aims and conditions of participation, given guarantees of confidentiality and asked to sign a consent form. The questionnaires and interviews were then administered, a process which could take anything from 40 minutes to 2 or even 3 hours. The respondents were paid for their cooperation.

## 1.5.8 About the instruments

### 1.5.8.1 General procedure for adapting instruments with original in other languages

The translation and adaptation of the instruments proved to be a much greater challenge than originally anticipated. The biggest question was into which language the translations were to be made.

The Serbo-Croatian language had been used as a nearly universal standard until the beginning of the war, and this was the language which the junior lecturers who were helping with translation had learned at school. During and since the war, the (re-)establishment of linguistic standards began in Belgrade and Zagreb for Serbian and Croatian respectively, and these standards were adopted officially by the Serbian and Croatian communities in B&H. Also, but more slowly, a third standard was developed or revived from within B&H which is referred to as “Bosnian” and is mentioned in the Constitution of the Federation of B&H<sup>13</sup>, though the same language is usually referred to as “Bosniak” in both Croatia and Serbia. These three languages are very similar and mutually intelligible with very little difficulty even in their standard forms. Additionally, the various forms of these languages actually spoken in most areas of the country were even more similar to one another. Had the translations been carried out a few years later it would have been normal practice, and probably required by various authorities, to make three different versions. In practice, most people in Sarajevo referred at the time to all variants of Serbian, Croatian, Bosnian and indeed Serbo-Croatian as “our language” (naš jezik) rather than “Bosnian”.

So although a decision was made to make a translation into Bosnian, the translators were not always one hundred percent sure which was the correct Bosnian form for a given word, phrase or declination.

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<sup>13</sup><http://www.ohr.int/ohr-dept/legal/oth-legist/doc/fbih-constitution.doc>

In no case was the team able to identify existing published adaptations into any of these three languages or even into Serbo-Croatian of any of the instruments in question, although in many cases there were several unofficial, unpublished versions in existence. For this reason, in most cases fresh translations were prepared.

The adaptation procedure itself was less problematic: the procedures suggested by Vijver and Hambleton for the translations of psychological assessment measures were applied (Vijver & Hambleton, 1996). That is, an alternating procedure of translations and back-translations were performed until no significant differences could be detected. In a second step the resulting pilot versions were field-tested to further check the appropriateness of the wording to the Bosnian language and the cultural context. The resulting modifications were then back-translated again.

The instruments were actually adapted once more for use in the Republika Srpska for samples BD, BS and BP; they were printed in the Cyrillic alphabet and a minimum number of words were adapted. However these adaptations have never been published.

In the following paragraphs the instruments will be briefly described.

#### **1.5.8.2 Demographic Questionnaire**

This instrument was constructed by the research team, and in addition to socio-demographic questions such as household composition and income, also served as a check to the process of sample definition (age, gender etc.).

#### **1.5.8.3 IES Impact of Event Scale**

The Impact of Event Scale (Horowitz et al., 1979) is a questionnaire which assesses the frequency of intrusion and avoidance phenomena as a consequence of experiencing a particular event. The IES consists of 15 items each to be answered on a four-point scale, assessing the frequency of the occurrence of stress reactions in the preceding week (0 = not at all; 1 = occasionally; 3 = sometimes; 5 = frequently). This means that total scores for the IES range between 0 and 75, with higher scores indicating more frequent intrusion and avoidance reactions. The IES has been applied in nearly every kind of traumatisation (for an overview, see Joseph, 2000) and has been translated into many languages. The version used in the present study was almost identical to one which has been used in other studies in the region during and after the war and which has since been subject to a validation study (Mooren, 2001) and found to have satisfactory factor structure and reliability. Details are in Papers 2 and 3.

#### **1.5.8.4 BDI Beck Depression Inventory**

Beck Depression Inventory (BDI: Beck, 1978) is probably the best-documented self-report method of measuring the intensity of depression in the world (Naughton & Wiklund, 1993; Endler, Macrodimitris & Kocovski, 2000) . It has a detailed handbook (Beck, Rush, Shaw &

Emery, 1979). By 1998 more than 2000 studies had been published using the BDI, giving a very solid base from which to judge its validity, which is usually held to be good (Richter, Werner, Heerlein, Kraus & Sauer, 1998). The current revised version from 1978 of the original 1961 version consists of 21 items whose scores vary between zero and three (Beck, 1978). Zero indicates that the symptom is not present whereas three indicates the most extreme level of symptoms. Clients are instructed to report on how they felt in the preceding seven days. Details are in Paper 8.

#### **1.5.8.5 SCL-R Symptom CheckList**

The Symptom CheckList (Derogatis et al., 1976; Derogatis, 1977) is a 90 item self-report questionnaire for measuring subjective psychological and somatic stress in the preceding seven days. The original (Derogatis et al., 1976) and subsequent validation studies (Derogatis & Lazarus, 1994) have shown good convergent and divergent validity. Like the IES, the SCL-90-R is used widely internationally and has been used in a large number of research projects in a very wide variety of applications. The SCL-90-R consists of nine scales and three global indices, of which the GSI (Global Severity Index) is the most widely used. The checklist has been used in many different languages, (Holi, Sammallahti & Aalberg, 1998; Fortin, Coutu-Wakulczyk & Engelsmann, 1989; Spitzer et al., 1998; Abdallah, 1997; Olsen, Mortensen & Bech, 2004) though no single study covering the SCL in international contexts is available. Although the SCL was certainly translated and used with Bosnian populations (Hasanović & Herenda, 2008; Weine & Vojvoda, 1998), other adaptations of the SCL were not available to the research team, so a translation was made from scratch. Details are in Papers 2 and 8.

#### **1.5.8.6 PDS aka PTDS**

The longest and most problematic instrument was a translation of the PSS-SR or PTSD Symptom Scale (Foa et al., 1993) updated as the PDS or Post-Traumatic Diagnostic Scale (Foa et al., 1997). This instrument allows a preliminary diagnosis of PTSD as well as an estimation of symptom severity. It consists of four parts corresponding to the PTSD diagnosis. See Table 1.2. Part 1 presents a list of possibly traumatic events (A1 criterion of DSM-IV). In part 2 the time of occurrence of the “most upsetting” event, together with the respondent’s assessment of whether the event was life-threatening and whether it was accompanied by feelings of helplessness and intense fear, are all evaluated (A2-criterion). Part 3 asks about symptoms of re-experiencing (5 items, criterion B), avoidance (7 items, criterion C), and arousal (5 items, criterion D). Part 4 explores the duration of the disturbance (criterion E) and the consequences of the symptomatology for important areas of functioning (criterion F). Since the original PTDS was designed for a civilian population in times of peace, the research team replaced Part 1 with a superset of that list, including events specific to the war in Bosnia and Herzegovina 1992-95. This list was also referred to as “the Checklist of War-Related Experiences” (CWE). (The Checklist also included other significant life events, relevant to life in post-war Bosnia &

Herzegovina, but not relevant to these papers and not discussed here.) The construction of the list followed Cohen's recommendation: "Specific events included in a life events measure should be clearly worded, indicative of a discrete occurrence, representative of the domain of life experiences relevant to the population studied, and not be, themselves, manifestations of psychological or physical problems." (Cohen, 1988, p. 12). Details are in Papers 1 and 3.

#### **1.5.8.7 CISS Coping Inventory for Stressful Situations**

The Coping Inventory of Stressful Situations (CISS; Endler & Parker, 1990) is a self-report paper and pencil measure of coping, and consisted originally of 48 items: 16 items which assess task-oriented coping, 16 items which assess avoidance-oriented coping and 16 items which assess emotion-oriented coping. Kälin and Semmer, in their German version of the instrument (Kälin, 2003), divided the content of item 28 ("Wish that I could change what had happened or how I felt") into two new items. Since it seemed to the research team to represent a meaningful improvement, this modification was adopted and so the Bosnian version also contains 49 items. Details are in Paper 8.

#### **1.5.8.8 SOZU (Fragebogen Zur Sozialen Unterstuetzung; Fydrich Sommer Mentzel & Hoell, 1987)**

This questionnaire was translated from the German original (Fydrich, Geyer, Hessel, Sommer & Brähler, 1999). There is a long version with 54 items and a short version with 22 items; reference scores were established in a study on a representative sample of the German population. 14 items were selected for the research as being most relevant to the population in question. Details are in Paper 2.

#### **1.5.8.9 Additional instruments on flight and refuge**

The following instruments were also specially constructed by the team on the basis of qualitative interviews with members of the displaced and returnee population in Sarajevo in order to gather additional information on flight and refuge. Details are in Paper 2.

- AIR (Additional Information from former Refugees from outside Former Yugoslavia)
- CAS (Current Accommodation Status and intentions)
- FPI (Flight Paths Inventory)
- QII (Questionnaire on Integration and Identification)

#### **1.5.8.10 PTGI Post-Traumatic Growth Inventory**

The Post-Traumatic Growth Inventory (Tedeschi & Calhoun, 1996) is one of the leading instruments for assessing positive changes after a traumatic event. Following a literature review Tedeschi and Calhoun identified three main areas of Post-Traumatic Growth: changes in self perception, relationships with others and philosophy of life). The instrument itself consists of 21 items on five scales. Each item describes a possible change, and the instruction is to indicate how much each occurred “in your life as a result of your crisis”. Details, including some adaptations made for the Bosnian research by the research team, are described in Paper 7.

#### **1.5.8.11 PTGI+ Modified Post-Traumatic Growth Inventory**

This instrument is an expansion of the PTGI. The motivation and additions are discussed in Paper 9.

## **1.6 Ethical issues**

Giving extensive questionnaires on war events to a civilian population after a very recent war is an endeavour which gives rise to ethical concerns, in particular for the well-being of the respondents as well as for the interviewers.

Based on experience conducting similar research during the war in B&H and also in other countries after traumatic events, the research team considered that while the research was likely to be a source of stress for at least some of the respondents, it was also equally likely to provide a welcome chance to reflect on difficult life events, such that the net effect on the respondents was likely to be, at worst, neutral. Alongside this, the insights which would hopefully be produced by the research were seen as likely to bring positive benefits for mental health professionals and academics in the country and beyond.

Approval for the research was secured from the Departments of Psychology in Munich, Sarajevo and Banja Luka. The Departments in Sarajevo and Banja Luka approved the inclusion of final-year students as interviewers. The team agreed to take particular care to a) avoid any chance of serious negative reactions amongst any of the respondents; b) look after the emotional welfare of the young researchers; and c) make sure to share the results of the research with local and regional audiences.

In detail, the following provisions were taken.

The interviewers explained to the participants before the start of the interview the aim of the interview, what would happen and how long it was likely to last. Interviewers explained that the data was given anonymously; addresses and names were recorded but kept separately from the filled-in questionnaires.

They were also told that they did not have to participate and that they could break off at any time with no negative consequences. Interviewers took pains to explain that this was a research project and that they were not in a position to give any kind of material or financial help. This point was particularly important because at the time many citizens were used to the idea of humanitarian agencies offering this kind of help to victims of the war. Interviewers also explained that it was possible that the respondents might feel sad or upset during or after the interview and that this kind of reaction was normal. The respondents were given a telephone number to contact if they felt they wanted further or help or support after the interview, and/or if they had any general questions about the research program.

The respondents were given a token payment for agreeing to be interviewed. The above information was also given to them in written form, and those respondents agreeing to take part signed a consent form.

The interviewers were instructed not to commence the interview if they had any fears about their own safety and/or if they assessed the potential respondent to be suffering from any kind of psychotic disorder or acute crisis. The research team reminded the interviewers that it was likely that some or many of the respondents had suffered significantly stressful events during the war years, such as rape and torture and the systematic killing of loved ones. In training, the students practised scenarios in which the respondent had suffered particularly harrowing experiences, with the aim of allowing the respondent to make this kind of disclosure if and only if they felt safe in doing so.

The student interviewers were all trained by experienced graduate psychologists who accompanied them on their initial visits. All interviews were conducted in pairs, partly for security reasons but also so the students had an opportunity to give each other supportive feedback on their work, and to facilitate on-the-spot peer supervision where required. In fact the majority of respondents made good use of what they saw as an opportunity to recount their experiences to a neutral but supportive listener; and in turn the interviewers made good use of the regular group and individual supervision sessions which were offered.

In a small percentage of cases, the respondents did call the central response number after the interview. In one or two cases the interviewers were asked to return for a further conversation, which they did. The respondents were again given the contact details of additional, more formal counselling services but there is no information to show that any of the respondents did in fact make use of these.

The research results were not only published and presented internationally but were also reported and presented locally. In particular, the first results were shared at a well-attended symposium on the psychosocial consequences of war, which was organised by the research team in Sarajevo in 2000.

## Chapter 2

# Findings on PTSD: concept and measurement

### 2.1 The construct of PTSD

As foreign psychologists, the research team were amongst those "importing" hurriedly adapted Western European or American clinical questionnaires into the country. An urgent concern both for research and treatment was the question of whether these instruments were reliable and valid in post-war Bosnia and Herzegovina. Could they be applied with only moderate adaptation, or would the concepts underlying them fail to make sense to these populations? In particular, what sense would the concept of PTSD, formed above all from the clinical experience in the USA with Vietnam veterans on hand and civilians affected mostly by isolated traumatic events such as traffic accidents on the other, make in the context of a civilian population after a long war? Because most casualties due to conflict (Gleditsch, Wallensteen, Eriksson, Sollenberg & Strand, 2002) and natural disasters (Dilley, 2005, pp. 113-118) take place in non-Western countries, studies from such countries are particularly welcome. It is even possible that "disaster subcultures" may exist amongst populations with a long history of natural disasters and wars (Wenger & Weller, 1973). Something of the kind might apply to the area of former Yugoslavia, as a country with a very long history of war, including civil war, and ethnic cleansing on its territory.

Paper 3 takes one step towards answering these questions by asking how a standard instrument for assessing PTSD performs psychometrically in the context of civilians post-war. The results will be discussed in the first subsection below. Papers 3 and 4 will also be presented as a contribution to the recent discussion about what the criteria for PTSD in DSM-V should be by showing evidence from this important but under-researched context of a post-war civilian population.

## 2.2 Structure and reliability in B&H context

The primary aim of Paper 3 was to assess the internal consistency and discriminant and convergent validity of the Bosnian version of a self-report measure of PTSD, the Post-traumatic stress Diagnostic Scale (PDS). See section 1.5.8.6. The PDS yields both a PTSD diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders-4th edition (DSM-IV) and a measure of symptom severity. This instrument is essentially just a structured checklist of the DSM criteria, although with a much-extended checklist of possible traumatic events.

The psychometric properties of the instrument were assessed using Cronbach's alpha and principal components analysis, and its construct validity was assessed via Spearman correlation coefficients with the other instruments.

The PDS and its subscales demonstrated high internal consistency. The principal components revealed by an exploratory analysis are broadly consistent with the DSM-IV subscales except that they reproduce some previously reported difficulties with the "numbing" items from the avoidance subscale. The construct validity of the PTDS was supported by appropriate correlations with other relevant measures of trauma related psychopathology.

It was concluded that the Bosnian version of the PDS is a time-economic and psychometrically sound measure for screening and assessing current PTSD. Of course in general the degree of psychometric parity between the adapted instrument and the original is not a good measure of cultural validity, because if there is a *gap* in performance this could be due to either cultural invalidity of the constructs or problems in measurement of those constructs, such as errors in translation. However in this case, happily, the translated instrument performs very like the original, suggesting both that the construct is as valid for the B&H population as for the comparison populations on which the instrument was developed, *and* that the measurement was translated and implemented at least as successfully as in the reference publications. These are quite strong results and may serve to increase the generalisability of the PTSD construct to these contexts, with a number of reservations to be addressed below.

## 2.3 DSM vs ICD

As mentioned in the Introduction, Spitzer et al. (2007, p. 234) note the substantial differences between DSM-IV and ICD-10 diagnoses. See table 1.1. Prevalences when using ICD can be twice as high as with DSM (Andrews, Slade, & Peters, 1999; Andrews, Henderson, & Hall, 2001; Somasundaram & Sivayokan, 1994), and concordances are low at around 35% for DSM-II-R and ICD-10 Andrews, Slade, & Peters (1999), as discussed in Paper 4<sup>1</sup>.

The primary goal of Paper 4 was to compare what difference using these two alternative sets of criteria made to PTSD diagnoses in the first three samples: S, M and P in Sarajevo. The

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<sup>1</sup>Although the method used there to calculate concordance may give conservative results.

Post-traumatic Diagnostic Scale (PDS) including the checklist of War-Related Experiences were administered to 311 people. The prevalences for DSM in the residents' sample were in fact under half those for ICD, which is similar to the shortfall reported by Andrews et al. The concordance between ICD-10 and DSM-IV was low at 53% but not as poor as the 35% reported by Andrews et al. The 53% was arrived at using the same method as Andrews et al; when using a more standard definition of concordance, (i.e. agreement on negative as well as positive cases) the concordance is a respectable 75%. As discussed in Paper 4, these differences are due on one hand to lower symptom thresholds in ICD-10, but on the other hand (and more importantly) because the ICD-10 is much more liberal about what kind of events are admissible as triggers of traumatic events, and does not require that the symptoms disturb everyday functioning.

Unfortunately, the resources available for the study made it impossible to go beyond this finding to ask which diagnosis is more *accurate* by comparing with an external criterion like clinician diagnosis. However, it was possible to investigate which criteria differentiate better between treatment conditions and gender; in both cases, DSM-IV differentiated better than ICD-10 criteria. The better differentiation between treatment conditions is direct evidence that DSM-IV is more accurate than ICD; the fact that the ratio of women to men with PTSD was higher for DSM than ICD can also count as evidence for the better accuracy of the former if we assume that PTSD is indeed much higher amongst women, which is likely though not inevitable, given the results of other studies (Gavranidou & Rosner, 2003).

## 2.4 Problem of symptom overlap

Study 3 addressed the problem of symptom overlap which was mentioned in the introduction. In the results for that paper, hyper-arousal/numbing was the strongest component of a principal components analysis. The total for this component is a little lower than for the intrusion items and is not so strongly associated with IES (which includes only intrusions and avoidance) but is instead more strongly associated with SCL and BDI than the other scales. This would reinforce the argument that it is hyper-arousal and numbing which are responsible for the overlap with other symptom groups. However, the correlations as reported in Paper 3 between the three PTSD symptom clusters and depression and general symptomatology are not as high as reported elsewhere in the literature, being everywhere lower than 0.6. This might suggest that the diagnostic overlap is not such a problem in this sample. On the other hand the correlations with IES intrusion and avoidance are also not much higher, suggesting that at least some of the instruments themselves are not very reliable. Yet the reliability scores in terms of Cronbach's alpha for the scales are at least as good as those published for other versions of the instrument.

Overall the results would suggest that for this population symptom overlap is somewhat less of a problem than in other studies; hyper-arousal and numbing are a major cause of what overlap there is, and yet hyper-arousal and numbing are a big part of how PTSD presents in this population.

## 2.5 Diagnostic inflation

With respect to the threat of diagnostic inflation outlined in the introduction, the data analysed in Paper 4 show that dropping Criterion A increases PTSD prevalence from 19 to 25%, i.e. for every three people who have a full DSM PTSD, there is another who has comparable symptoms but did not report having experienced a traumatic event which would fulfil Criterion A. This is in spite of the fact that the majority of respondents had in fact experienced a wide range of potentially traumatic events from which they could nominate one for Criterion A. It is possible that this range of events actually made a PTSD diagnosis less likely, as discussed below. Indeed the comments the respondents gave to an open-ended question during the process give some support to this.

The above considerations have led some to suggest removing Criterion A altogether (Brewin et al., 2009), arguing that if the essence of PTSD is as a *final common pathway* (Andreasen, 2004), with multiple entry points, we can afford to be agnostic about the cause. In their suggestion, the other criteria would nevertheless retain references to an event or events now perceived as having triggered the symptoms. There are substantial practical advantages of this for war experiences, as discussed below.

In spite of these controversies, it seems that the APA will make relatively minimal changes (American Psychiatric Association, 2010); as of August 2010, the criteria not only retain Criterion A but retain a combination of *twenty* different symptoms in Criteria B, C and D.

## 2.6 The problem of Criterion A and multiple trauma

Considerable experience was gathered during this research of going through the DSM criteria with over 800 persons in a post-war context, many of them with multiple potentially traumatic events, a process which very many of them found extremely difficult. Some of those specific difficulties are listed here. Each difficulty not only makes answering the questions harder for the respondent but can also potentially affect the diagnosis.

1. Subjective assessment of A1: The criterion has a subjective aspect in that in some circumstances the respondent has to judge whether they or someone else experienced a severe threat to life, a criterion which is almost certainly made stricter with increasing habituation to war events.
2. Subjective assessment of A2: In the same way a subject's readiness to report the fulfilment of the A2 criterion, which specifies feelings of fear or helplessness, may also vary in unpredictable ways with increasing exposure to war events. This happens for a variety of reasons, from increasing resilience to developing PTSD to increasing numbing due to having developed it.

3. Selecting the “worst” event: This leads to a set of even more serious problems. Reflection on these cases of civilians exposed to major war events over a long period of time reveals some problems with the procedures for diagnosing PTSD, which to a lesser extent also apply to all cases of PTSD, as follows:

- Firstly it is subjectively often very difficult to specify which of many events was the *worst* event. For many reasons, respondents may choose an event such as loss of a loved one, which is not necessarily the biggest trigger for re-experiencing, hyper-arousal or avoidance. There is really no reason why the subjectively “worst” event should be the same event which is most likely to be associated with a PTSD diagnosis (i.e. the one which gives rise to the greatest number of symptoms and problems with daily functioning). Problems like this lower the sensitivity of this part of this diagnosis.
- A second and related problem concerns the subjective ontology of what constitutes an event. The respondents often replied spontaneously that the worst event was "the whole war and everything about it", which put them and their interviewers into undesirable philosophical quandaries about what counts as "an event". One given individual might be able to name a whole range of different “events” which subsume and/or overlap with one another (*the whole war, being trapped in a part of the town for many months, the day when enemy forces entered the street, the execution of a neighbour on the evening of that day etc...*) all of which might bring back similarly overlapping sets of memories. This problem was compounded in the present research because of the exhaustive list of potential traumatic events, which in many cases covered essentially the same event from different aspects, e.g. *witnessing someone being killed* and *losing a loved one*.
- Third, it should be noted that some items on the PTSD symptom list such as "attempting not to think about it" are necessarily related to some kind of event or circumstance or cluster of events or circumstances while some, such as "less interest in activities", are not. Respondents with just a single traumatic event are presumably expected nevertheless to implicitly attribute all of the symptoms from this second group to that one event. But for respondents with multiple events it is much less clear how to relate symptoms from the second group to a particular event.
- The fourth, related problem is the difficulty of linking events to symptoms. The implicit hypothesis that all PTSD symptoms which an individual has either *can* or *should* each be always related to one particular individual event, either theoretically or subjectively for the survivor, broke down for those respondents in Papers 1-8 who had experienced several traumatic events.

The above problems are a major hindrance in assessing PTSD with persons who have experienced a wide range of potentially traumatic events, and in particular with those who have been

exposed to them over a long period of time where the long-term exposure itself may seem more traumatic than any individual event<sup>2</sup>.

So what is to be done? Abolishing Criterion A would alleviate many of the above problems. But the formulation suggested by Brewin et al. (2009) for a PTSD without Criterion A still describes the symptoms as related to one particular event, leaving it unclear how or whether the diagnosis can even be applied to a class of persons who are in fact particularly likely to be suffering from it, namely those with multiple events. After removing Criterion A, the problems above could be quite easily fixed by using formulations which refer to “one or more events” rather than “the event”.<sup>3</sup>

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<sup>2</sup>The DESNOS syndrome has been proposed to cover the case of multiple and sequential traumatisation, and indeed it has been reported that respondents from B&H score highly on DESNOS scales but at sub-syndromal levels (Weine et al., 1998); unfortunately DESNOS was not measured in the present studies.

<sup>3</sup>This solution would, however, open up the question of what to do if a respondent presents with two or more quite distinct and different sets of symptoms which they can associate clearly with correspondingly different traumatic events. Might it be possible that such a person could get a full PTSD diagnosis on the basis of two subjectively separate, just sub-syndromal, sets of symptoms, and if so would this really represent a false positive?

## Chapter 3

# Findings on PTSD and other symptom groups: epidemiology and aetiology in different contexts

### 3.1 Background

As academic psychologists, the research team was very conscious that there was a dearth of published data from war-affected countries and on civilian psychosocial responses to war. The primary questions they set themselves were very simple: given that PTSD and related concepts seem to apply to this particular population and can be measured appropriately, as suggested in the previous chapter, do civilians exposed to war, ethnic violence, siege, and other stressful and traumatic events over a long period of time develop serious levels of PTSD and other potential disorders? And if so what are the most important risk factors? Do these problems differ in different groups, including the displaced, those returning from abroad and those in treatment?

As samples S, SD, SR, BS, BD and BR approximate to stratified random sampling of civilians, Papers 1, 3 and 4 which report the results were able to give some answers to these questions, as shall be discussed below.

### 3.2 Findings and recent developments

#### 3.2.1 Prevalence of PTSD

In paper 1, PTSD prevalence was 18.6% of individuals in the residents sample, 32.7% of those in medical treatment, and 38.6% of those in psychological treatment. The PTSD prevalences for samples SR, SD, BS, BR and BD were never published in peer-reviewed journals. However they were reported in Paper 5. See below. The prevalences for returned refugees in Paper 5 are dramatically lower than all known reports for current PTSD prevalence in refugee samples

abroad in host countries. The scores of returnees are clearly below those of their peers who stayed. Of course it is possible that there is a selection effect in the sense that some refugees with high levels of PTSD may have successfully applied for leave to stay longer or to stay permanently in the host countries. It is also possible that the return process might somehow have led to a reduction in PTSD, though this was not the case in a study which followed repatriates from Germany (Lersner, Elbert & Neuner, 2008). Alternatively, and more plausibly, this result may indicate that *selection effects such as reporting the results for treatment groups and/or various kinds of response bias have led to substantial overestimation of current PTSD in refugee samples abroad.*

On the other hand, those still in IDP camps report very high levels of current stressors, PTSD and symptoms.

Table 3.1 presents a synopsis of the prevalence symptoms for the different samples; these data have not previously been published except as a graphic with no numbers in Paper 2.

Place	Sample	Code	Current PTSD
Sarajevo	Non-displaced	S	18.6
Sarajevo	Medical	M	32.7
Sarajevo	Psychological	P	38.6
Sarajevo	Returnees	SR	10.7
Sarajevo	Displaced	SD	19.6
Banja Luka	Displaced	BS	30.0
Banja Luka	Households	BD	10.0
Prijedor	Camps	BC	36.0

Table 3.1: Prevalences of PTSD according to DSM-IV criteria in different populations.

### 3.2.2 Prevalence of traumatic and stressful events

The submitted papers assessed both war-time and post-war stress. Paper 1 reports that each individual survived an average of over 20 traumatic events. Each of the samples has its own profile of traumatic events and other stressors. Sarajevo returnees had about as much exposure to the war and war events as the two Republika Srpska displaced persons samples. The returnees and displaced persons spent a great deal of time in temporary accommodation and collective centres. The respondents in collective centres seemed to be exposed to a particularly high level of current stress. The Banja Luka stayers seemed to be somewhat better off, while it appears that overall the Sarajevo samples had generally experienced more traumatic events and other stressors than the samples from in and around Banja Luka.

### 3.2.3 Other symptom groups

To focus too strongly on PTSD is to beg the question of the psychosocial consequences of war. The “Flight Paths” paper is again the richest source of information, as it includes overall results

for SCL-90-R for all the samples apart from SP.

As shown in Figure 3.1, the scores for nearly all the SCL scales for nearly all the samples are closer to German clinic populations (GC) than a German population reference sample (GN). By far the most striking result is the fact that the “paranoid ideation”, “somatisation” and “aggression” subscales are *very nearly as high for all groups as the German clinical population*. The other scale which is nearly as low as the German population sample is phobic anxiety.

The few comparable studies using SCL with war-affected B&H samples find similar high scores for somatisation (Rohleder, Joksimovic, Wolf & Kirschbaum, 2004; Klarić, Klarić, Stevanovic, Grković & Jonovska, 2007; Bransteter, 2006), whereas paranoid ideation is high in one clinical study of refugees (Rohleder et al., 2004) and one population study in Herzegovina (Klarić et al., 2007), but not in one population study of refugees (Bransteter, 2006).

Of course without a pre-war reference sample from B&H for the SCL it is impossible to be sure whether these high scores are due to the war, the pre-war society, the culture, genetic factors, or any combination or interaction of these or other factors. However one study (Klarić et al., 2007) does indeed suggest that the war is likely to be responsible for these extreme scores. This study reports scores for the Brief Symptom Index (BSI; short versions of the SCL scales) for a sample heavily exposed to traumatic war events in West Mostar, and a sample who were less heavily exposed, in West Herzegovina; the results for the former are nearly twice as high as for the latter. It is certainly striking that the different war-affected B&H samples - people with different backgrounds assessed in different towns by different teams - have such a similar profile, with *overall* levels differing between samples more or less as could be expected: German clinic populations > B&H samples in Paper 2, and West Mostar > Western Herzegovina > German general population, with the Paper 2 and West Mostar scores being quite similar. There are severely raised levels of somatisation and paranoid ideation, as well as both phobic and general anxiety, compared to the other non-clinical samples.

So the Klarić et al. study overall supports the validity of the high SCL scores in the submitted papers and supports the suggestion that the severity is at least partly due to the war. It would also imply that even the persons in sample SR, who spent several years abroad as refugees were nevertheless more affected by the war than the B&H citizens from Western Herzegovina.

### **3.2.4 Prevalence in treatment-seeking groups**

Paper 4 attempts to estimate the connection between the current prevalence of Post-Traumatic Stress Disorder (PTSD) and psychotherapy service utilisation. The 212 people in study groups S and P were assessed with the Post-traumatic Diagnostic Scale (PDS), the Coping Inventory of Stressful Situations (CISS) and an extensive demographic questionnaire. In a linear regression, having less task-oriented coping styles and being in employment make a highly significant contribution to predicting membership of the psychological treatment sample, whereas the number of traumatic events does not; these are results for which there is no definitive interpretation.

0.97	1.24	1.00	0.85	1.00	1.05	0.87	0.97	0.98	1.10	0.67	1.13	0.35	Somatisation
1.20	1.24	1.21	0.86	1.05	1.12	0.90	1.00	1.04	1.07	0.60	1.48	0.47	Obsessive-comp.
1.07	1.17	0.99	0.91	0.93	1.10	0.86	1.43	1.03	0.84	0.55	1.42	0.41	Social_phobia
0.81	1.17	1.05	0.74	0.84	0.89	0.70	1.12	0.88	0.88	0.41	1.64	0.40	Depression
0.96	1.16	1.02	0.88	0.99	1.06	0.82	1.09	0.97	1.16	0.64	1.50	0.29	Anxiety
0.87	0.94	0.86	0.76	0.72	0.81	0.72	0.80	0.80	0.86	0.45	1.00	0.31	Aggression
0.67	0.71	0.49	0.52	0.62	0.65	0.51	0.76	0.61	0.75	0.46	1.17	0.14	Phobic_Anxiety
1.05	1.20	0.95	1.04	0.89	1.08	0.91	1.39	1.02	1.24	0.78	1.12	0.35	Paranoid_Ideation
0.43	0.62	0.57	0.43	0.40	0.39	0.38	0.63	0.47	0.49	0.29	1.29	0.33	Psychoticism
0.89	1.05	0.91	0.78	0.83	0.91	0.74	1.02	0.87	0.93	0.54	1.31	0.34	mean
SS98 Sarajevo stayers random sample 1988	SM98 sarajevo stayers medical treatment	SP98 sarajevo stayers psychological treatment	Sarajevo returnees from outside Former Yugoslavia	Sarajevo displaced or former displaced	Banja Luka displaced or former displaced	Banja Luka stayers	Banja Luka displaced in camps	Paper 2 mean	West Mostar	West Herzegovina	German Clinical	German Normal	

Figure 3.1: Mean scores on subscales of the SCL-90 in different populations.

Darker colours indicate higher scores. New table providing numerical values to correspond to the graphical display in Paper 2, p. 24.. Sample abbreviations are as in table 1.3, with the addition of German clinic populations (GC), a German population reference sample (GN) and Klarić et al. (2007): WM (West Mostar, heavily affected by war) and WH (Western Herzegovina, less affected by war). All the data are means for the Brief Symptom Index (BSI) short versions of the SCL scales, except for the two German reference samples which are means for the full SCL scales. Graphic produced with the package “gplots” for R (Warnes, 2010) .

Paper 4 itself only compares the residential sample with the sample of persons in psychological treatment. However the “flightpaths” paper (Paper 2), which also includes those in medical treatment, had high scores on the SCL-90 which were somewhat higher on every scale than those in psychological treatment. The level of PTSD was a little lower. The medical sample had experienced more traumatic events than the psychological and control samples, which did not differ significantly. The sample in *psychological* treatment and the control sample, perhaps surprisingly, do not differ significantly on general symptoms, though the groups differ much more strongly, and in the expected direction (psychological treatment > medical treatment > control) in prevalence of PTSD diagnosis. This makes sense in the Sarajevo context, where due to the way in which psychological support was being offered and the way that support was funded, people were seeking psychological treatment for PTSD rather than anything else. It is *also an argument for the specificity of PTSD*.

### 3.2.5 Aetiology and risk factors

Overall the results from the submitted studies concur with the findings on aetiology and risk factors mentioned in the introduction. Papers 1 and 2 report conditional probabilities of developing PTSD according to type of worst event which are similar to those reported by Johnson & Thompson (2008). Analyses reported in Papers 1 and 2 show that the most psychologically debilitating event groups are groups of war events which the respondent themselves personally suffered or witnessed, together with difficult present-day personal and social circumstances. Having experienced an extremely high total number of traumatic events greatly increases the chances of developing PTSD; this means that both differential risk factors and a cumulative dose-response relationship are confirmed. The displaced people in collective centres have the highest proportion of PTSD amongst the samples interviewed in 1999, which taken together with the information that their exposure to traumatic events was not correspondingly higher, would be another indication that particularly difficult social circumstances can contribute significantly to the maintenance of PTSD.

The submitted studies did not employ any way of addressing *biological or neurological factors*. Items on *cognitions* were included in the questionnaires but these are yet to be analysed.

### 3.2.6 Flight

The next set of questions was set in motion by the burning policy debate in Germany and other Western European countries in the years after the war about how long refugees from former Yugoslavia should be allowed to stay, and about the ethics and pragmatics of programmes to return them (Walsh, 1999). The German Federal authorities were looking to psychologists to help answer these questions. Paper 2, "Flight Paths", was commissioned by a German federal agency as part of this process. The research questions agreed upon with the agency were as follows:

- How do people experience refuge in a foreign country and how do they experience their return?
- Do the experiences of those returning from Germany, which took over half of all refugees who left former Yugoslavia during the war from 1991 to 1995, differ from those returning from other host countries?
- Do their experiences differ from those of internally displaced persons or those who stayed in B&H?
- How do these different groups of people identify with the country and town where they are living now?
- Who would like to move away?
- What kind of stressful events have the different groups experienced and what are the psychological consequences in 1999?

### **3.2.6.1 Flight paths**

The returnees spent a considerable amount of time (on average, over 18 months before their flight) in war zones. Some of them also spent a little time outside Bosnia & Herzegovina, but in the other countries of former Yugoslavia. The average returnee to Sarajevo changed town - often involving a change of country - just under three times before "returning" to Sarajevo. About 70% of the returnees came from Germany. About three quarters of the Sarajevo and Banja Luka displaced persons left their home as a direct result of the war. Nearly all the displaced persons in centres did so. This suggests that a proportion of the returnees may have had better resources and were able to exercise at least a little control over the decision to leave. One fifth of the Sarajevo "displaced or former displaced" persons were at the time of the research back in their pre-war homes, in contrast to about 70% of the returnees.

### **3.2.6.2 Refuge, Return and reintegration issues**

As expected, there were far more people returning from Germany because of a deadline or expulsion. 46% of respondents said that they received enough help during the process of return. Significantly more returnees from Germany mention the host country authorities as having helped them with the return. They also seemed to receive more help from organisations in Bosnia & Herzegovina, including the German Advisory Centres. Attitudes towards refuge and return were not as discouraging as some have expected. Nearly all the respondents found the host country better than expected; nearly three quarters of those who wish leave Bosnia & Herzegovina would like to return to their "own" host country. And yet most are glad that they returned; most people identify and feel happy with where they live. The majority do not want to move to another country, though nearly half of the former refugees would like to. One

article (Lersner et al., 2008) cites Paper 2 on reasons for wanting to return to B&H such as discrimination in the host country.

Not surprisingly the displaced persons in centres did on average want to live in another area inside their country.

People who left the host country involuntarily are less happy in the "home" country and are most interested in living in another country outside B&H.

In general Germany seemed to be a popular country with the refugees. Whereas only about 20% of the respondents who stayed longest in a host country apart from Germany would like to leave Bosnia & Herzegovina - a similar proportion to the other samples - over half the returnees from Germany would like to leave. As expected, significantly more returnees from Germany than from other countries reported having received financial help. However the returnees from Germany also received far more threats of eviction or deportation.

Unsurprisingly, there is a disturbing amount of dissatisfaction amongst the displaced persons in collective centres. However, this is also true amongst the returnees who did not return voluntarily, confirming one of the fears of the agency to which Paper 2 was directed. It remains to be seen whether this dissatisfaction will persist or disappear with time.

# Chapter 4

## Findings on consequences beyond PTSD

### 4.1 Background

In addition to PTSD, many other factors may be involved in psychosocial responses to war. This chapter looks at how the final four papers contribute to answering three sets of questions, as follows:

1. Positive outcomes: As the case studies at the start of Paper 8 emphasise, individuals' experience of war events and PTSD are always embedded in much broader life perspectives; in particular, individuals when reflecting on the war also commonly refer to positive changes. These three papers (7, 8 and 9) present work on this theme: Post-Traumatic Growth after war.
2. Maintenance and long-term trajectories: From a longer term perspective, how do PTSD and other factors (symptomatology, behavioural, cognitive and social psychological changes) interact to determine future developments? None of the papers were written directly to answer this question, but several of them hint at some answers.
3. Cultural and situational validity of the PTSD concept from a public health perspective: At the meso and macro levels, what does a focus on PTSD mean for service provision and public health? Paper 6a (Powell, 2006) is a short introductory essay to a book co-edited by the present author from a conference organised in Sarajevo in 2000 on just this theme. The essay attempts to place PTSD in this wider perspective.

## 4.2 Post-Traumatic Growth and other positive outcomes after stressful events

### 4.2.1 Interest in Paper 7

Paper 7 investigated whether Post-Traumatic Growth could also be found amongst people who had been exposed to particularly severe traumata over a period of several years during the 1991-95 war in the area of former Yugoslavia. Included in Paper 7 were samples SD and SR. The main instrument was a new Bosnian translation of the Post-Traumatic Growth Inventory. This article has received a lot of attention, with 99 citations on Google Scholar as of August 2010, including 20 from the year 2010 alone. But in essence it was a very simple article which attempted only to replicate the factor structure of the instrument, as well as reporting the means and looking at the relationship between age, traumatic events and growth. The extent of interest in the article seems to rest on the fact that it investigates whether the envelope of human experience in which Post-Traumatic Growth can be found extends so far as to include civilian survivors of war. The original Tedeschi & Calhoun work was open to criticism because it was based on empirical work with American college students. So, Paper 7 is specifically welcomed (Almedom, 2005, p. 261), also (Solomon & Laufer, 2005) because it extends PTG to an additional real-life context. Tedeschi and Calhoun themselves (Calhoun & Tedeschi, 2004) cite Paper 7 in support of the generalisability of the construct. Other authors merely cite Paper 7 without particular comment, as evidence of the range of contexts in which PTG may appear (Bossick, 2008; Zhai, Liu, Wu & Jiang, 2010).

### 4.2.2 Overall level of PTG

The overall means for the scale given in Paper 7 were considerably lower than those reported in most other studies on other kinds of trauma. Younger people reported considerably more growth than older people, a result which is both plausible (as younger people are more likely overall to report changes in themselves) and in line with other studies (Linely & Joseph, 2004, p. 16). On the other hand, it was pointed out (Weiss & Berger, 2008, p. 98) that there was no overall difference between genders; in most other studies women reported more growth.

Some studies citing Paper 7 (Shakespeare-Finch & Copping, 2006; Delahanty & Herberman, 1997) seem to overplay the levels of PTG reported there, such that one study even cites the respondents as having “high levels” of PTSD (Rieck, Shakespeare-Finch, Morris & Newbery, 2007, p. 88) even though the scores were actually comparatively low. Another study cites Paper 7 as evidence that humans can “function normatively in war-like environments” (Doty, 2010, p. 146) (it doesn’t; the PTGI says almost nothing about functioning but only about self-perceived personality change). Only a few of the studies reporting levels from Paper 7 accurately reflect that they are quite low (Vázquez, Pérez-Sales, Hervás & Vázquez, 2008); one article (Bossick, 2008, p. 57) concludes that the Paper 7 scores are the lowest published to date.

### 4.2.3 Factor structure of PTG

Paper 7 reports some differences in the factor structure as compared with the original instrument. Essentially the original five factor solution could not be clearly identified, but a three-factor solution which made some sense in terms of the *original* conceptualisation of Post-Traumatic Growth (Tedeschi & Calhoun, 1996) was identified. While others have found the same three-factor solution (Berger & Weiss, 2006), others have questioned it. Linley, Andrews and Joseph (2007) tested the three-factor solution in Paper 7 against the original five-factor solution using confirmatory factor analysis with different data, and found in favour of a five-factor solution. A similar study (Taku, Cann, Calhoun & Tedeschi, 2008) reviews various solutions, including that found in Paper 7, and again finds on new data that the five-factor solution is a little better than the three-factor solution. However, as pointed out elsewhere with reference to Paper 7 (McBride, Schroevers & Ranchor, 2009, p. 1199), there need not be a single right answer about the factor structure, which might well differ between contexts and cultures, a point which is not often enough taken into account in these discussions. Indeed, a study with Kosovar Albanians after the war in Kosovo which explicitly used the approach taken in Paper 7 as “a model” (Arenliu & Landsmann, 2010, p. 67) found almost the same three-factor solution. However the mean scores were higher than in Paper 7, which Arenliu and Landsman speculate may be due to the fact that although the war experiences were broadly speaking very similar in the two countries, B&H suffered greater destruction at the macro level.

Problems reported with Item 1 “My priorities in life have changed” of the PTGI (p. 78) were replicated in one study (Kilic, 2010) with Turkish respondents, and the problems reported in Paper 7 (p. 76) with the item formulations (some of which explicitly mention changes and some of which do not) were picked up in a review of measures of Post-Traumatic Growth (Park & Lechner, 2006).

### 4.2.4 Coping and other correlates of PTG

This link between PTG and coping (as well as depression and general symptoms) was addressed in Paper 8, which is a chapter in the “Handbook of Post-Traumatic Growth” (Calhoun & Tedeschi, 2006), edited by the two main architects of the concept. Unfortunately this connection has not been well analysed in the literature to date. One exception is a German study (Maercker & Langner, 2001) in which PTG was found to correlate with both emotion- and problem-oriented coping.

Paper 8 reports that, as hypothesised, the constructs represented by the CISS coping subscales and the PTGI subscales are strongly related. In particular, the PTGI total score correlates strongly with the CISS total score as well as with the CISS subscales. In particular, most of the shared variance seems to be due to the PTGI subscale “relating to others”. One likely explanation might be that both coping and PTG overall scores are highly confounded with cumulative numbers of traumatic events, or perhaps symptom scores. However when the influ-

ence of traumatic event totals and/or symptom scores on these correlations is partialled out, the resulting partial correlations are not, overall, very different from the raw correlations<sup>1</sup>.

#### 4.2.5 Connection with pathology and events

Most studies find that there is no overall connection between PTG and psychopathology (Zoellner & Maercker, 2006; Linely & Joseph, 2004). In line with this conclusion, in Paper 8 there are no significant correlations between the total score for growth on one hand and depression, general symptoms and PTSD symptoms on the other, as measured by the BDI, the GSI and the PTDS respectively. However it is very striking that the interpretation becomes more complicated when one looks at the individual subscales of the PTGI; while the scale "changes in self" shows low negative correlations, the scale "relating to others" shows moderate positive correlations which are contrary to hypothesis. This is the only PTGI subscale to be related to the cumulative total of traumatic war events. These findings were commented on by Hobfoll et al. (2007), who pointed out that these divergent results would suggest not using an overall score for the PTGI .

Paper 7 points out (p. 73) that there might be an inverted-U relationship between event severity and growth, according to which medium-level severity is likely to be associated with the highest growth, possibly also explaining the low scores in the population exposed to extreme stress. This discussion was taken up again by Laufer & Solomon (2006, p. 442).

#### 4.2.6 Validity

The validity of the PTG concept is still under discussion. The following criticisms have been brought to bear, not only in the scientific literature but also sometimes by colleagues from B&H, on the PTGI as it stands, and in particular in the context of the PTGI results for B&H.

1. Are the changes described by the PTGI substantial in relation to any negative changes which are not assessed by the PTGI, or are they perhaps dwarfed by them?
2. Are any such positive changes really perceived as uniformly positive by those experiencing them? (The PTGI is exposed to this criticism because while most of the items are explicitly expressed in a subjectively positive way, a minority are not, such as "I developed new interests".)
3. It is not clear whether existing operationalisations of the construct are sufficiently comprehensive. Do they really cover enough of the content of perceived growth in a wide variety of post-traumatic contexts?

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<sup>1</sup>No such correlation analysis was ever published, so an analysis was carried out for this Context Statement

The study described in Paper 9 was designed by the author specifically to address these issues, and employed a modification of the Post-Traumatic Growth Inventory as detailed in that paper. The results are as follows:

1. The results confirm that positive changes are indeed seen as substantial when compared to negative changes.
2. The changes listed in the PTGI are indeed uniformly experienced as positive.
3. The PTGI is also confirmed as being a relatively comprehensive catalogue of post-traumatic changes for the B&H context, although some new aspects perhaps typical for civilians after war are revealed, in particular changes related to discovering the value of true friendship.

Taken together these results can be portrayed as confirming that PTG, as operationalised by the PTGI, is something which was familiar to students in Sarajevo (as well as to the adult respondents in the previous studies), was indeed experienced by them as positive, and adequately but not completely exhausted the positive changes they experienced in themselves.

However this confirmation of the *subjective* validity of PTG does not defend it against further criticisms of its *intersubjective* validity, which have been brought by a number of authors. How much of PTG as measured by the PTGI in self-report consists of “positive illusions” (Taylor, 1983) which are not objective in the sense that an external observer would not concur with them, and/or which are not intersubjectively positive because they do not represent meaningful adaptation to the traumatic event or the changed circumstances after it (Maercker & Zoellner, 2004)? And indeed, correlations between PTG ratings by self and others are weak (Park & Lechner, 2006).

This self-report approach is contrasted by Zoellner & Maercker (2006) with the related construct of wisdom (Baltes & Staudinger, 1993), which is not presumed to be linked per se with increased well-being or mental health, but which is assessed through ratings by others.

In earlier work, Maercker (1998) had found that both reappraisal and palliation, i.e. positive illusions, were not correlated with one another but were correlated with PTG (changed philosophy of life), suggesting that both objectively positive adaptation and non-adaptive illusions might be separate components of what is perceived subjectively as positive growth. These positive illusions can also be seen as a normal or frequent reaction to traumatic events. Zoellner and Maercker go further to postulate a “Janus headed” theory of PTG (Maercker & Zoellner, 2004) to take into account both of these dimensions. This would expose the alleged orthogonality between PTG and adaptation, as reported in Papers 7, 8 and 9, as an artifact, due to the combination of adaptive and maladaptive components.

## 4.3 Maintenance and long-term trajectories

### 4.3.1 Concerns

Any society with a significant sub-population who have been traumatised will be particularly concerned, not just about the individual consequences in the long-term, but also in the long-term public health and social consequences. In the case of B&H the present studies indicate that not a subset but the majority of the population were exposed to traumatic events over a long period of time, meaning that these concerns are very real in the country. The extent of exposure, especially to interpersonal trauma, raises the additional fear that social consequences might be compounded, or increase non-linearly, when so many individuals are affected. An additional disturbing hypothesis is that transgenerational transmission of trauma might have been playing and might continue to play a role in continuing conflict in the Balkans (Klain & Danieli, 1998).

On the other hand, in longitudinal studies, PTG is generally associated with increased adaptation. There is an overview in (Maercker & Zoellner, 2004).

The present studies were cross-sectional, so more definitive answers to these longitudinal questions can only come when the analysis of the 10-year follow-up study is completed. See section 6.5.

### 4.3.2 Remission and delayed onset

Indeed, there is powerful and disturbing evidence that for many sufferers, PTSD does not just go away, neither for civilians (Perkonig et al., 2005) nor for members of the military (Solomon & Mikulincer, 2006). Yehuda et al. (2009) report on a ten-year follow-up of community-living Holocaust survivors, which shows not only quite a slow reduction in symptoms but also highlights the potential for delayed-onset PTSD (Andrews, Brewin, Philpott & Stewart, 2007) in civilians, even decades after an event.

### 4.3.3 General symptoms

With respect to the subscales of the clinical symptom instrument used, the SCL-90-R, symptom levels are in some cases nearly as high as a reference sample of German in-patients, as reported above. These high levels of general symptomatology are certainly connected to disturbance in everyday functioning and are likely to play an important role in maintaining general poor adaptation (Johnson & Thompson, 2008).

#### **4.3.4 Alcohol and drug abuse**

Potential maintenance mechanisms in B&H are likely to include abuse of alcohol and drugs (prescription and over-the-counter drugs as well as narcotics) together with daily hassles and lack of social support. The effect of heavy alcohol use might simply express the continuation of problem drinking, with its long-term implications for a shorter life span, or an accentuation of drinking under intense war-related stress and its persistent health costs in the post-war era. It may also represent a self-medication response to the PTSD effects of severe trauma, even in those without a prior record of alcohol use (Fontana & Rosenheck, 1998; Elder & Clipp, 1989).

On the other hand, consumption of alcohol immediately prior to a traumatic event may decrease the odds of developing PTSD (Maes, Delmeire, Mylle & Altamura, 2001).

Possible alcohol abuse was assessed in the 1998 and 1999 studies but has not yet been analysed.

#### **4.3.5 Grief and Disorders of Extreme Stress Not Otherwise Specified (DESNOS)**

In some recent work, complicated grief has been identified as a more salient predictor of mental health after trauma than PTSD itself; in one sequential regression, 31% of the variance in poor general mental health was accounted for by complicated grief, whereas PTSD symptomatology only accounted for 6% of the variance (Craig et al., 2008). Morina et al. (2009) suggest that many cases of Post-Traumatic Growth (PTG) would be missed by an exclusive focus on PTSD among bereaved war survivors. It is highly plausible that complicated grief is prevalent in the present samples. Momartin et al. investigated prolonged grief among 126 Bosnian refugees in Australia and concluded that 31% of them scored above the specified threshold for prolonged grief (Momartin, Silove, Manicavasagar & Steel, 2004). The findings suggested that symptoms of prolonged grief and PTSD are distinct; see also (Morina, Rudari, Bleichhardt & Prigerson, 2009). Indeed, in another study by the present author (Powell et al., 2009) with another set of respondents from B&H, high levels of complicated grief were found - however the women in this study had all lost their husbands due to the war. Complicated grief was not recorded in the research presented here, but it was recorded in the 10-year follow-up. See 6.5.

The proposed syndrome DESNOS or Disorders of Extreme Stress Not Otherwise Specified (Roth, Newman, Pelcovitz, Kolk & Mandel, 1997) is also purported to be highly prevalent in war contexts, and may play a role in maintenance of poor adaptation (Morina & Ford, 2008). As it has also reported that respondents from B&H score highly on DESNOS scales (Weine et al., 1998), further investigation of DESNOS as a possible maintenance factor is warranted.

### **4.3.6 Interpersonal and cultural factors**

The diagnosis of PTSD does not explicitly accommodate the aspect of whether or not events were directly attributable to malign human intention, although much of the material upon which the syndrome was primarily conceived did include this element (Vietnam veterans, rape victims and to a lesser extent survivors of motor vehicle accidents). It has been argued by many authors (Weine, 2006, p. 121, presents key arguments) that “Stress” is a concept which first clouds issues of responsibility and guilt, and second individualises a phenomenon which is primarily social. This aspect has not been well enough researched, as it certainly plays an important role for the citizens of B&H.

McDonald, Bhasin & Mollica (2005) put study 7 in the context of genocide, as an example of extreme interpersonal victimisation which is bound to have different consequences from other traumatic events, as well as for the possibility of positive outcomes.

A related feature of this population which is very much a taboo theme (not only in the PTSD literature, but also specifically in research on the consequences of the wars in former Yugoslavia) is that not only are a large proportion victims of violence but an overlapping and not insubstantial proportion must also have been perpetrators, whether willingly or unwillingly, maliciously or in self-defence. Re-experiencing events in which one was oneself a perpetrator is not excluded by DSM Criterion A (death or danger to other persons) but this possibility is rarely explicitly mentioned. This factor and the feelings of guilt and anger associated with it are likely to play a role in maintenance, especially as there is little public opportunity to air such difficult subjects. It may be relevant that there has been a high rate of suicide amongst soldiers: 1 260 between 2005 and 2007 (Panjeta, 2007).

#### **4.3.6.1 Shared identity**

The attempt of another group to destroy one’s group identity may increase one’s identification with that group; a qualitative study (Johnson, Thompson & Downs, 2009) suggests that those who became victims on the basis of their cultural identity may paradoxically also experience that identity as a protective factor. This may be particularly relevant to the experiences of the citizens of B&H, and it may be a factor which unfortunately serves to increase or maintain polarisation in B&H society.

#### **4.3.6.2 Meso and macro levels**

There have been many attempts to apply individual clinical phenomena at higher levels, such as Eisenbruch’s (1991) notion of “cultural bereavement” .

Even the concept of PTG has been extended to include families and systems, both in descriptive and normative senses (Berger & Weiss, 2009) : “... a strength-based perspective of family functioning in general and in the aftermath of trauma in particular” (Berger & Weiss, p. 63).

Maintenance of post-war (mal-)adaptation is also likely to be mediated by these meso and macro levels, whether or not some or all of the higher-level phenomena can be properly understood as generalisations from individual-level concepts.

#### **4.3.6.3 Ethno-political frustration**

One final idea linking traumatic events and maintenance of poor adaptation is that of “ethno-political frustration”, a concept developed during related but separate research carried out by the present author (Powell & Pašić, 2002; Powell et al., 2002). This is intended as a construct which may overlap with PTSD, but where the emphasis is on perseveration and rumination, not necessarily on traumatic events but on features of the seemingly unending political and social stalemate in B&H, and one’s own relationship to it. The majority of front-page headlines in B&H even at the time of writing (2010) still deal more or less directly with this stalemate and these themes are topics of daily conversation. They are then hypothesised as being associated with feelings of frustration, aggression or hopelessness, and begin to intrude into consciousness in a way reminiscent of memories of traumatic events. Results of questionnaire surveys with students broadly confirm the hypotheses.

The interviewees in the 10-year follow-up study (Section 6.5) reported that they found many residents still watching day-time television programs dealing with this stalemate and expressing more or less continuous frustration about the relevant topics; perhaps enough to maintain the levels of arousal and frustration experienced by the Vietnam veterans who were at the core of the modern conception of PTSD. The findings in Paper 3 that hyper-arousal was the main component in the principal component analysis of PTSD might lend some credence to this idea.

A related theme was explored by Mooren et al (Mooren, 2001) with their investigations of “devastated trust” and the disruption of coherent world view, as well as assumptions of benevolence in the B&H population.

## **4.4 Cultural and situational validity of the PTSD concept from a public health perspective**

Paper 6a discusses the medicalised approach to understanding (and offering treatment for) responses to the war and post-war context, and contrasts it with other approaches. The edited volume of which the essay forms part is available in various different forms, including as full text on the internet (Powell & Durakovic-Belko, 2006) , so it is difficult to track the various references to and citations of it. It seems that this essay itself has few citations, though it has been used in support of a plea for a wider view (not only a medical one) of post-war consequences, and as part of the criticism of the way psychosocial interventions disappeared almost overnight in the late 1990s (Locke, 2008).

This discussion has been positioned last of all in order to illuminate what might otherwise be a drier and more ideological debate with some of the ideas from the discussions above on the place of PTSD in longer-term development.

Criticism of the medicalised approach, within which questionnaire surveys of symptoms such as the present research could well be placed, is well summed-up by Summerfield (1999): “for the vast majority of survivors, PTSD is a pseudocondition, a reframing of the understandable suffering of war as a technical problem to which short-term technical solutions like counselling are applicable. These concepts aggrandize Western experts who define the condition from afar and bring the cure” (Summerfield, 1999, p. 1449). Silove & Summerfield add that “‘trauma’ may now have displaced hunger as the first thing the Western general public thinks about when a war or other emergency is in the news” (Silove & Summerfield, 2005, no page number), replacing more urgent issues like restoring employment. Taking this argument further, the authors concluded that “the immediate therapy for acute stress is social” (Silove & Summerfield, no page number); they argue that aid should support integrated community-based mental health programmes that focus on social need (Silove & Summerfield, no page number).

By the time organisations like UNICEF began their programs in earnest in the countries of former Yugoslavia, many of these criticisms had already at least nominally been taken on board, and an approach was introduced which was termed “psychosocial”. As Stubbs points out (2004), the term “psychosocial” (Agger & Mimica, 1996; Agger, Vuk & Mimica, 1995) was linked particularly with UNICEF and programs for children, and associated with the Norwegian psychologists Dyregrov and Stuvland. These approaches were something of a hybrid between individual, medical/psychiatric and purely community-based approaches.

The question to be asked here is to what extent the research program, by using the concept of PTSD in the special context of a civilian population substantially exposed to the effects of a war, is propagating a “pseudocondition” which distracts from the real problems facing the communities.

Papers 1-5 show that first, at least for a proportion of the population, PTSD symptoms can be quite well distinguished from other symptoms, and they represent a significant problem for daily life (as evidenced by the answers to Criterion F, which is a necessary part of the PTSD diagnosis). Paper 2 also shows that the level of other symptoms is very high. And Papers 7-9 show that there are at least some other ways of looking at post-war adaptation, apart from in terms of suffering. Indeed, if the PTSD model is to be taken as one basis for planning interventions, then there is no reason why practitioners should not consider the possibility of using PTG in individual or even community-based approaches (Almedom, 2005). In fact Paper 7 has been cited (Kent & Davis, 2010, p. 432) in the context of capacity-building approaches for adult resilience, particularly in post-9/11 USA.

In other words, the attempt to understand post-war adaptation from the *individual* perspective, which was, broadly speaking, the approach taken in this research, quickly comes to the conclusion that there are real phenomena at this level, and that individual psychological suffering

makes up a big part of these phenomena. This does not preclude the possibility that, had the attempt been made to understand post-war adaptation as an *interpersonal, community* and *inter-community* phenomenon, such an attempt might not also have unearthed evidence of just as real phenomena. In the twenty-first century the philosophical question of which approach is more correct should probably not warrant too much attention. However this philosophical question also has a much more practical sister: is an approach addressed to individual suffering, such as psychotherapy or counselling, likely to be more or less cost-effective than an approach addressed to supra-individual phenomena such as work in the form of “testimony” to tell the story of what really happened (Weine, 2006; Weine & Laub, 1995), or work to ensure that the aggressors are seen to be punished? The beginnings of answers to this more practical question might also cast some light on the philosophical question which preceded it.

Unfortunately, nothing approaching a body of empirical evidence is available in former Yugoslavia. At the time of writing (2010) neither individual psychotherapy or any alternative intervention is widely available, so the question is likely to remain moot.

# Chapter 5

## Limitations

### 5.1 Appropriateness of methods

There are some potential biases which might affect the validity of the data presented, which will be mentioned briefly here.

Outcome may affect memory even of “objective” events, and PTSD may create an attributional bias (Breslau, Chilcoat, Kessler & Davis, 1999).

Although the background to the research was explained in detail by the interviewers, respondents may nevertheless have tended to give a certain kind of answer in the conscious or unconscious attempt to increase the likelihood that they would receive (material) compensation.

The effects of mono-method bias is likely to be present, as all questionnaires were administered at the same time to the same interviewer. As a result, correlations are liable to inflation (Spector, 2006). There was also only a small number of interviewers and it is likely that there is a statistically relevant interviewer effect.

The various problems which recording Criterion A brings to the diagnosis of PTSD have already been well covered in 2.6.

Some of the instruments used were not well-adapted to the very young respondents (aged from 18 into their early twenties); they are not likely to have pre-war stressors, and the variable *education level* does not apply well to them .

Literacy and familiarity with questionnaires were problematic even in the cities. However the student interviewers took up to three hours to complete the questionnaires in interview form where necessary. On the other hand, this will have led to interview exhaustion especially with the very long trauma checklist.

It is likely that there is significant under-reporting of rape and torture which were quite widespread at various times and places, but which respondents may not have been ready to disclose to the interviewers.

The refusal rate was calculated in Paper 2 (p. 39) at around 50% and only very basic non-responder analyses were carried out.

The definitions of the samples of Internally Displaced people and Returnees conflicts slightly with “official” criteria, as discussed in section 1.5.6.3.

Perhaps most importantly, the research relied almost exclusively on questionnaires. Although some open questions were asked and recorded, the results have never been published. At least an initial qualitative study on post-war adaptation could have been carried out before the research was begun, similar to the way the additional work on PTG began. See (Rosner & Powell, 2007a).

## **5.2 Statistical issues**

### **5.2.1 Measurement level**

Assumptions about measurement level and (multivariate) normality were only briefly touched on in the published analyses.

### **5.2.2 Generalisability and merging of datasets**

The eight very different samples were simply merged into one database without any kind of weighting. Although many analyses provide separate data for each subset, in other cases the whole dataset is used. However without further work, this combined dataset cannot be considered to be a sample of anything so there is, in principle, no population to which the results could be generalised.

### **5.2.3 Quality of sampling procedure**

As mentioned in the Introduction, all the samples except M, P and SP are approximations to multi-level cluster samples (Pedhazur & Schmelkin, 1991, p. 235). All except SP are also stratified using a quota procedure<sup>1</sup>. In the case of SP, M and P, a sampling frame could in principle have been drawn up with some additional effort, although the actual entry of each case into the dataset was not drawn from any such lists and so was subject to stronger biases in these three samples (for example, in the case of M and P, those more actively seeking treatment were more likely than other patients to be included). In the case of samples S, BS and BD, the procedure for selecting cases was somewhat biased in favour of persons living in areas with fewer streets, persons in households in streets with fewer houses, persons in households in houses with fewer households, persons in smaller households, persons more likely to be at home

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<sup>1</sup>It is debatable whether these are really quotas, as the population in each stratum was known at least approximately.

at certain hours of the day, and persons with lower reluctance to being interviewed. With these limitations, the samples can be considered to be some meaningful approximation to probability samples.

Technically it is not in any case possible, even at the time of writing (2010) to talk about any “sample” of persons in B&H, as no census either for the country or for towns or municipalities has been done since 1991, and as a result the current population is not known.

## **5.3 Additional relevant materials not covered here**

It is well known that publication bias (i.e. the failure to publish results which are not statistically significant, or which are otherwise deemed not to be interesting) (Easterbrook, Gopalan, Berlin & Matthews, 1991) is a potential threat to the growth and validity of scientific knowledge. Publication bias has also affected the present research, so this Context Paper provides a good opportunity to redress the balance. In this section some additional materials will be reviewed which were not covered because they were not published.

### **5.3.1 Instruments not reported**

A mass of data was collected in these studies using instruments not reported anywhere, as follows:

- FDK: Questionnaire on Dysfunctional Cognitions (Kuch et al., 2002)
- E: Rating of emotional processing (Rosner, Powell, Butollo, 1999, unpublished)
- PTSD-Module from SCID-II for DSM-IV (First, Gibbon, Spitzer, Williams & Benjamin, 1997). Translation courtesy of Prof. M. Basoglu
- Semi-structured interview on Post-Traumatic Growth (Müller & Powell 1999, unpublished)

### **5.3.2 Related publications**

The papers presented here represent all the published analyses from the largest research project conducted by the research team. Other related research projects were carried out as part of the same program whose results have been published or presented elsewhere.

- Dialogical therapy with family members of missing persons (Powell et al., 2009)
- Gender and PTSD (Gavranidou & Rosner, 2003)
- Capacity building in counselling for PTSD (Roper & Gavranidou, 2003)

- Analysis of effects of a PTSD counselling program for children (Gavranidou et al., 2000)
- Research on ethnic identity and ethno-political frustration. See Section 4.3.6.3 (Pašić, Powell & Butollo, 2001; Powell & Pašić, 2002; Powell et al., 2002)

### **5.3.3 Additional analyses presented at scientific conferences**

Some additional analyses from this and related studies were reported at various conferences (Powell, Rosner & Butollo, 1999, 2001; Rosner & Powell, 1999; Rosner, Powell & Butollo, 1999, 2000). Most are merely similar presentations of the same data, but others are more sophisticated attempts to link specific types of traumatic events with specific types of symptoms, and to improve prediction of PTSD by weighting particular stressors according to mean-assessed subjective suffering (Powell et al., 1999).

### **5.3.4 Sample not included**

Another piece of fieldwork was carried out - a follow-up in 1999 of sample S from 1998 - but not covered here as the data have not been published.

### **5.3.5 Other products**

The cooperative project itself between the LMU and the Universities of Sarajevo and Banja Luka, funded primarily by the Volkswagen Stiftung and the Deutscher Akademischer Austauschdienst (DAAD), was also extended to other Universities in the region. It bore a number of fruits apart from the research papers covered here. Amongst the more tangible results are a jointly written textbook (Biro & Butollo, 2003) on clinical psychology, and the book (Powell & Durakovic-Belko, 2002) which are both still in use at some of the Departments of Psychology in the region.

## Chapter 6

# Conclusion of the findings: the value and impact of the research

### 6.1 The potential of the research project in the research context to make a contribution to the main themes.

In the Introduction it was argued that *taken together the specific (and sometimes tragic) features of the conflict in B&H, see 1.3, and some strengths of the research design, see 1.5, enabled the papers described here to make a significant contribution to three key psychological themes, as covered in Chapters 2-4.*

The literature published at the time left many gaps about the likely psychological consequences (extent and nature of adverse development, as well as likely risk factors) in a relatively extreme context (percentage of population affected, extent of exposure to traumatic events, extreme nature of those events). The research project offered the opportunity to gather basic information to fill these gaps, hopefully to the immediate and medium-term benefit of those affected, as well as to extend what is known about adaptation to such contexts.

The research used more or less standardised questionnaires across a very wide range of populations, wider than any other comparable research carried out in a post-war population outside Western Europe and North America, together with additional questionnaires for specific purposes with specific sub-populations, enabling the research to cover additional areas like flight and return and their relationship to psychological adjustment. In particular, issues such as Post-Traumatic Growth and coping were covered, which were directed less at epidemiology as such, and more at the meaning the war had for the citizens, and how they dealt with it.

In most cases the samples were good approximations to representative samples for each population. Standard instruments with substantial data already published for the originals and other language versions were used, with small adaptations for the local context (but not so much that comparability with other studies was lost). The questionnaires were administered, mostly in the respondents' own homes, by trained psychology students who were able to help bridge

some inevitable gaps in world-view and language between the questionnaire concepts and the understanding of the respondents.

## **6.2 Chapter 2: PTSD concept and measurement**

Paper 3 reports that there was little difference between the psychometric performance of measures of PTSD in B&H compared to other published results, suggesting both that the construct is as valid for the B&H population as for the comparison populations on which the instrument was developed, *and* that the measurement was implemented at least as successfully as in the reference publications. These are quite strong results and may serve to increase the generalisability of the PTSD construct to these contexts.

Paper 4 confirms findings that the ICD-10 criteria for PTSD are met almost twice as often as the DSM-IV criteria, due to a combination of factors. The DSM-IV criteria also differentiated better between treatment and non-treatment samples. For this population, overlap between PTSD and other symptoms is somewhat less of a problem than in other studies; hyper-arousal and numbing are a major cause of what overlap there is, and yet hyper-arousal and numbing are a big part of how PTSD presents in this population.

The studies also cast a new light on the current debate about changing or dropping Criterion A from the PTSD diagnosis, in particular in the forthcoming DSM-V. In section 2.6 the case is made for dropping the criterion altogether, on the grounds of overwhelming practical and conceptual problems with its assessment in populations with multiple stressors. While dropping Criterion A would have led to a significant increase in PTSD diagnoses in this population, it is likely that this increase would be due to correctly identifying cases which had been rejected due to problems with Criterion A, rather than false positives getting a diagnosis because they had specific symptoms which were not in fact due to a traumatic event at all.

## **6.3 Chapter 3: PTSD and other symptom groups: epidemiology and aetiology in different contexts**

The study shows that quite apart from PTSD, the war had a very significant impact on general mental health across the population. Current PTSD prevalences in the non-treatment samples ranged from 11% amongst returned refugees to 36% amongst IDPs in camps, statistics which are in line with the literature. Beyond PTSD, impact was concentrated in particularly high levels of somatisation, anxiety and paranoid ideation. It is suggested that the latter may in turn play a part in the maintenance of poor adaptation, both on an individual level and, conceivably, on meso and macro levels.

The data on flight, refuge and their connection to traumatic events and psychological adjustment are almost unique in the literature. Unfortunately they have not received very wide

exposure, perhaps because they were not published in peer-reviewed journals. Results show that psychological adjustment amongst returned refugees is clearly better than those of their peers who stayed and much better than all known reports in refugee samples abroad, at least in terms of PTSD prevalence. Nearly half the former refugees, and a majority of those who were forced to leave the host country, would like to return abroad. On the other hand, persons who were displaced internally and are still living in camps report very high levels of current stressors, PTSD and symptoms.

Analyses of risk factors broadly confirm other results from the literature; accumulations of stressful events, as well as having experienced subjectively worse events, make PTSD diagnoses more likely.

In the analysis of who seeks treatment, a high number of traumatic events as such does not contribute to treatment seeking. PTSD as a syndrome, rather than levels of other symptoms, is specifically associated with seeking psychological rather than medical help, at least amongst men. This suggests that, amongst men, PTSD is subjectively identifiable and motivates them to seek appropriate treatment. Despite this, these men have developed more PTSD than the residents sample, even when they experienced a lower number of traumatic events. Those in medical treatment have high levels of general symptoms, especially somatisation, and especially in women.

## 6.4 Chapter 4: Beyond PTSD

An interpretable factor solution was found for the translation into Bosnian of the Post-Traumatic Growth Inventory (PTGI), which suggests that Post-Traumatic Growth is a valid construct for this population. The studies also reproduce the result that Post-Traumatic Growth is more or less orthogonal to other dimensions of adaptation. Paper 9 confirms that the domains of Post-Traumatic Growth listed in the PTGI are valid for this population, although *learning the value of true friendship* was identified as a new domain of particular significance for it. It also confirms that this growth represents developments which are, to the respondents, not only subjectively positive but also subjectively significant in magnitude compared to negative changes. However, a three- rather than five-component solution for the PTGI items was found (Paper 7). This result has been quite frequently discussed in the literature and might represent a solution specific to the context of civilians post-war. The fact that some B&H respondents did report positive outcomes after war in the form of Post-Traumatic Growth (Papers 7, 8 and 9) has been widely cited as evidence of the broad generalisability of the concept of PTG. However the overall levels of this growth are low compared to other studies from around the world.

The final section of Chapter 4 discusses arguments that war and post-war circumstances were not only a massive challenge for the majority of individuals to adapt to, but presented challenges of comparable magnitude to communities and society. All of these consequences, individual and systemic, can be presumed to play intertwined roles in maintaining or alleviating one another as

time goes on. Socio-economic factors such as unemployment are likely to play an important role alongside social-psychological and interpersonal factors such as guilt, vengeance and frustration, both at individual and systemic levels. Nevertheless, the clinical psychological contribution to intervention planning has to be to ensure that the evidence of individual suffering presented in Papers 1-5 is not forgotten. Quite apart from the social dimensions, the war has led to a significant level of individual suffering amongst a large minority of the population in which PTSD plays an important role. Unfortunately, from the perspective of 2010, the argument between social, psychosocial or psychiatric/clinical psychological interventions seems irrelevant in B&H because none of them are readily available (or are likely to become so) to any significant extent.

## **6.5 Future work**

During 2010, Prof. Rosner at the LMU and the present author initiated a 10-year follow-up to the research described here. It was contracted by the LMU to proMENTE social research in Sarajevo. It will enable analysis of the impact of war, flight, refuge and return in the longer term.

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# Appendix A

## The published works

- A.1 Paper 1: Rosner, R., Powell, S. & Butollo, W. (2003).  
Post-traumatic Stress Disorder three years after the  
Siege of Sarajevo. *Journal of Clinical Psychology*

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# Posttraumatic Stress Disorder Three Years After the Siege of Sarajevo



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The goals of this study were to estimate the lifetime prevalence of traumatic events, the current prevalence of Posttraumatic Stress Disorder (PTSD), and the connection between the kinds of traumatic events experienced and the probability of developing PTSD in three study samples in Sarajevo, Bosnia-Herzegovina, three years after the end of the war. A total of 311 people surviving the siege of Sarajevo were assessed with the Checklist for War Related Experiences (CWE) and an adapted version of the Posttraumatic Diagnostic Scale (PDS). The study groups consisted of a randomly selected residents sample ( $n = 98$ ), a group of individuals in psychological treatment ( $n = 114$ ), and a group in medical treatment ( $n = 99$ ). Each individual survived an average of 24 traumatic events. According to the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV; American Psychiatric Association, 1994) criteria, 18.6% of individuals in the residents sample, 32.7% of those in medical treatment, and 38.6% of those in psychological treatment developed PTSD. © 2003 Wiley Periodicals, Inc. *J Clin Psychol* 59: 41–55, 2003.

Keywords: posttraumatic stress disorder; war; traumatic experiences; civilians

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Since the beginning of psychiatry, there has been discussion about the psychopathological consequences of war. And while no one doubts that many people suffer intensively during and after war, the question of how and to what extent exposure to war increases or decreases long-term psychopathology in civilians is still open to debate. While older studies suggest a decrease in psychopathology (Odegard, 1954) during a war, newer studies indicate that psychological distress and specific disorders such as depression, anxiety, and dissociative and somatization disorders as well as substance abuse and posttraumatic stress disorder (PTSD) increase during and shortly after a war (e.g., Kulka et al., 1990; Solomon, 1995; Somasundaram & Sivayokan, 1994). However, it must be emphasized that regardless of cultural origin, the majority of those surviving traumatic events usually do not develop a long-lasting psychiatric disorder (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Marsella, Friedman, Gerrity, & Scurfield, 1996).

Of all possible disorders, the diagnosis of PTSD and its predecessors, the "gross stress reaction" or the "war neurosis," or its acute manifestation, the "combat stress reaction," have always been most closely connected to war and its psychological consequences (Scott, 1990). Although some argue that other diagnostic categories such as Complex PTSD, somatization, and/or depression may be more appropriate disorders to study in the aftermath of a war, and especially so in transcultural studies, most of the empirical literature on the psychological consequences of war focus on PTSD, which therefore best allows comparison between studies (for a discussion, see Hudnall Stamm & Friedman, 2000, and the introduction of this special series). Yet, most of the empirical literature on PTSD as a consequence of war is based on military personnel, and specifically on soldiers and veterans of mostly U.S. American or Israeli background and particularly on those who either apply for or are referred to some kind of treatment. These special sample characteristics limit the generalizability of the findings since the sociodemographic characteristics of military personnel are not representative of the wider society. Military personnel participating in a war consist largely of young adult males who have passed some kind of selection procedure before entering military service.

Studies based on representative samples of civilians during and shortly after a war are rare, a fact which is particularly problematic when one considers that international estimates conclude that the number of affected civilians in relation to military personnel has been increasing in recent wars (International Federation of Red Cross and Red Crescent Societies, 1993; Zwi, 1991). Yet, this is not surprising when one considers the often difficult social, economical, and political situation after a war. Among war-afflicted civilians, a fairly heterogeneous group, most knowledge is based on those who find refuge in a "rich" country with a functioning health care system (Silove, 1999). Those staying in the war region or those who are displaced internally are much less frequently the focus of research. Nevertheless, knowledge about the expression of psychological distress in those civilians staying in the war-afflicted region is needed to enable adequate help for all social groups affected by war. As the breadth of the topic is enormous, this article focuses specifically on the exposure to traumatic events in a very specific theater of war—namely, the siege situation in Sarajevo, the expression of PTSD in selected samples surviving this situation, and the relative contribution of specific events to the development of PTSD.

#### Prevalence of Traumatic Events in Different Populations Affected by War

Many studies on veterans assume that participation in war is a prototypical event in the sense of the DSM-IV stressor criteria. Therefore, a number of studies do not

report the prevalences of traumatic events while others report graduations of war exposure. Another way to approach this problem was chosen in the survey by Somasundaram and Sivayokan (1994), who described and assessed every single event. After 8 years of war in Sri Lanka, 93% of respondents of a representative sample of civilians reported being subject to at least one direct traumatic stressor, 40% had experienced between five and nine traumatic stressors, and 8% reported more than ten events.

A study from Croatia (Arcel, Folnegović-Smalc, Tocilj-Šimunković, Kozarić-Kovačić, & Ljubotina, 1998) based on the data of 1,926 refugees and displaced persons living in camps in Croatia reported traumatic experiences in 60.6%. Refugees from Bosnia had experienced an average of 14.8 severe traumatic events, and internally displaced persons from Croatia an average of 8 traumatic events. Other studies based also on refugees from Bosnia to Croatia reported an average of 2.1 traumatic events (Marušić et al., 1995). Across studies, it is reported that men generally encounter more traumatic events than women (Kessler et al., 1995).

### *Prevalence of PTSD in War-Affected Civilians*

Comparisons of the results on the prevalence of PTSD are hampered not only by different diagnostic criteria, methodological differences, social and war-related differences, and differences in the amount of time passed since the occurrence of the traumatic event but also by a varying focus on either lifetime or current rates of PTSD. The prevalence varies considerably: In a nonpatient sample of consecutively arriving Vietnamese refugees undergoing routine mandatory health screening upon entering the United States, only 3.5% of subjects suffering from PTSD was reported (Hinton et al., 1993) whereas in another study a prevalence of 86% was reported in randomly selected Cambodian refugees resettled in the United States (Bernstein Carlson & Rosser-Hogan, 1991). Generally, the reported PTSD prevalences and ranges seem to be higher in referred or treatment samples than in nontreatment samples, and lower prevalences are usually reported for random or unselected samples (O'Brien & Hughes, 1991; The Iowa Persian Gulf Study Group, 1997), though there seem to be exceptions (Brom, Kleber, & Witzum, 1991). However, within-study comparisons between treatment and no-treatment groups in the aftermath of a war are very rare, and because the evidence for treatment and nontreatment prevalences come from separate studies which are often not comparable culturally, socially, and methodologically, the conclusion that individuals in treatment are psychologically more distressed than individuals not in treatment is not based on sound empirical foundations. In fact, one could speculate that most civilians are psychologically distressed, but only those with a better socioeconomic status are able to seek treatment.

Several studies estimated the PTSD rates in the aftermath of the war in the former Yugoslavia: A Croatian study (Marušić et al., 1995) assessed 73 refugees and displaced persons in refugee camps in Zagreb with two scales. They found a rate of 38.4% PTSD according to the Mississippi Scale and 37% according to the Watson's Scale. Among 20 Bosnian refugees in the United States, 65% suffered from PTSD (Weine et al., 1995). Arcel et al. (1998) assessed 402 refugees and displaced persons living in camps in Croatia, of whom 25% met the criteria for PTSD. The aforementioned survey in Sri Lanka reported a PTSD-prevalence of 27.5% (Somasundaram, & Sivayokan, 1994). These studies also broadly confirm the result from representative studies (Kessler et al., 1995) that women develop PTSD approximately twice as often as men when the number of traumatic experiences is controlled.

*Traumatic Events and Their Connection with PTSD Diagnosis*

It is known from studies on nonwar stressors that certain traumatic events are more likely to give rise to PTSD than others. In general, sexual violence is assessed as being the most noxious kind of event. In studies based on representative samples, the conditional probability of PTSD developing after rape is estimated to be between 50 and 65% (Kessler et al., 1995, Perkonigg & Wittchen, 1999). Participation in battle was assessed as the type of event second most likely (38.8%) to precede a PTSD prevalence (Kessler et al., 1995).

Specific traumatic events in war have to date only been investigated among soldiers. In a study on monozygotic twins, those who had participated in battle in Southeast Asia (Goldberg, True, Eisen, & Henderson, 1990) had a PTSD prevalence nine times higher than their twins who had not been in battle. Other approaches investigated the effects of specific events by additionally assessing the psychological meaning of the events. Thus, Fontana, Rosenheck, and Brett (1992) categorized events according to the roles which the veterans played in them. The combination of event type and role explained more variance than either the event type or the role alone. However, the amount of explained variance was not very high.

#### Goals

The goals of this study were (a) to estimate for men and women the lifetime prevalence of traumatic events among adults in Sarajevo, Bosnia-Herzegovina; (b) to allow a comparison with other published studies on treatment and nontreatment samples, we assessed a randomly selected nontreatment sample of adults, a sample of persons in medical treatment, and a sample of persons seeking psychological treatment; (c) to estimate for men and women as well as for the different samples the current prevalence of PTSD; and (d) to estimate for men and women the connection between having experienced different kinds of traumatic events and PTSD.

#### Method

##### *Samples*

The following data were collected between February and June 1998 in Sarajevo, Bosnia-Herzegovina. The samples were stratified by gender and age, as it was assumed that these variables are correlates of PTSD. Data from 1990 were used for the stratification because at the time of the study a detailed demographic description of the population after the war was not available. Other potential correlates such as pre-war socioeconomic status were considered to be no longer relevant and were therefore not assessed, with the exception of the number of years of schooling. All participants volunteered and gave fully informed consent.

This study is based on three treatment and nontreatment groups. In total, 311 persons participated in the study. Inclusion criteria for all three study samples were (a) age between 16 and 65 years, (b) living in Sarajevo between February and June 1998, (c) living in Canton Sarajevo during the war (between April 1, 1992 and December 31, 1995), (d) not suffering from a psychotic disorder or an acute crisis, and (e) literate enough to answer the questionnaires with help. Additional criteria were defined for the respective samples. The sample in psychological treatment consisted of 114 patients participating in some kind of psychotherapy or psychiatric treatment, or psychological or psychosocial consultation with at least one session in the last three months. The 99 patients in the medical

subsample had to have at least three consultations with a specialist physician (not a dentist or a general practitioner) during the last three months. The patients in psychological or medical treatment were approached directly through the staff of 15 psychological or medical treatment centers selected to be broadly representative of psychological and medical treatment in Sarajevo. Each participating psychotherapist or counselor was allocated a quota based on the stratification. For the psychological sample, seven interviewers approached each new client presenting after the start of the study until their quota was filled. The patients in the medical sample were approached in a similar way by eight interviewers who also worked in hospitals and medical clinics. In this case, the respondents were not their own clients, but rather the patients of their medical colleagues. These doctors worked in a wide spectrum of medical disciplines.

The residents sample consisted of 98 noninstitutionalized subjects. To approach these individuals, a map of Sarajevo was divided into 1-km squares. Two streets from each square were chosen at random. Each pair of interviewers was then given the names of two streets with instructions to find, if possible, eight subjects from these two streets. The interviewers started at the first apartment in the first building and asked the occupants questions to ascertain their eligibility according to the general inclusion criteria, the sample-specific criteria, and the quotas. Having found suitable participants in one apartment, the interviewers proceeded to the next apartment, interviewing people in a maximum of two apartments per building. They then left that building and moved to the next one in the street. Each pair had a quota for each cell in the stratification table to fill.

From the households approached, there was no reply in 24%. From the households where the door opened, in 50% access was refused. Of the people in the households where entry was gained, 83% were eligible in terms of the inclusion criteria (i.e., were in Sarajevo during the war). Of these people who were eligible for interview, 35% decided not to be interviewed or began but did not complete the interview. As it is not known how many people were living in the households where access was refused, a responder rate was estimated by multiplying the percentage of households not refusing access (50%) by the percentage of people eligible for interview in those households who then finished an interview (65%), giving a rate of 32%.

Table 1 provides a description of the demographics for the three samples. Religion as a descriptor is included rather than ethnicity since religious confession gives a less ambiguous estimation of "ethnicity" in postwar Sarajevo than a direct question about ethnic affiliation. Education was measured as a categorical variable with three levels (completing basic, secondary, or higher education), which also is recoded into approximate number of years of completed education (8, 11.5, and 15 years, respectively).

### *Interviewers*

The interviewers for the medical and psychological treatment samples were described previously. For the residents sample, eight pairs of final-year and third-year students at the Department of Psychology at Sarajevo University served as interviewers. All interviewers were trained in the use of the questionnaires. Two pilot studies were performed to insure the appropriate use of the assessment. During the studies, constant supervision for all interviewers was provided.

### *Mode of Administration*

Although all applied measures are questionnaires, not all subjects proved literate enough to complete them on their own. In some cases, therefore, the interviewers had to read, reread, or reformulate some questions for the participants.

Table 1  
*Demographic Description*

	<i>N</i>	
Age		
16–30	107	Mean = 22.50, <i>SD</i> = 3.97
31–45	98	Mean = 38.02, <i>SD</i> = 4.38
46–65	106	Mean = 53.99, <i>SD</i> = 6.23
Sample		
Residents	98	
Medical	99	
Psychological	114	
Sex		
Female	162	52.1%
Male	149	47.9%
Income		Mean = 351 KM (“convertible Marks”), <i>SD</i> = 324.28 KM
Education		In years: Mean = 12.27, <i>SD</i> = 2.65
Low	13.8%	
Medium	56.6%	
High	29.6%	

### *Assessment of PTSD*

As the cultural validity of the translations is a central issue for all articles in this special series, it is addressed in the editor’s note at the beginning of this issue.

For the assessment of current PTSD symptomatology, the Posttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997; German version by Steil & Ehlers, 2000) was applied. The PDS consists of four parts. The original Part 1 has 12 items and asks for possible traumatic events. In Part 2, the time of occurrence of the “most upsetting” event, whether the event was life threatening to the persons themselves or to others (A1 criterion of DSM-IV), and whether it was accompanied by feelings of helplessness and intense fear are evaluated (A2 criterion). Part 3 asks about the symptoms of reexperiencing (five items; Criterion B), avoidance (three items, Criterion C), numbing (four items, Criterion C), and arousal (five items, Criterion D). Part 4 explores the duration of the disturbance (Criterion E) and the consequences of the symptomatology for important areas of functioning (Criterion F). Since the original PDS was designed for a civilian population in times of peace, we replaced Part 1 with a checklist specific to the war situation in Sarajevo (Checklist of War Related Experiences, CWE; Powell, Rosner, Krüssmann, & Butollo, 1998). In an effort to focus memory recall, we increased the list of events in Part 1 to 72 items. The new items were based on the items used in a study on children and adolescents (C.M. Layne, personal communication, November, 1997) and adapted for adults, on the original items in the PDS, or on our own qualitative interviews performed before we started this study. Some of the items reflect experiences specific to the siege situation in Sarajevo, such as the following item “During the war, did you stay in a cellar longer than 3 weeks without a break?” While the first 56 questions describe traumatic and stressful experiences during the war, the last 16 questions deal with other traumatic experiences before or after the war. The additional information allows an estimation if the symptomatology is based on a war event or an event apart from the war. The

amount of trauma exposure apart from the war permits a comparison with the results of studies carried out in other countries not affected by war. Some other modifications made to the instrument will not be discussed in this article. Of the 72 events in the checklist, a subset of 59 was defined as traumatic. These were grouped into the ten categories listed in Table 2. The other 14 "merely stressful" events (e.g., "Was your home seriously damaged during the war?") were included to enable other analyses to be made, which however will not be dealt with further in the present article.

The PDS has been shown in previous research to be reliable and valid (Cronbach's  $\alpha$  for the total symptom score = .92; Alpha coefficients were .78 for reexperiencing, .84 for avoidance, and .84 for scales; Test-retest reliability of the overall severity score after three weeks = .83; Foa et al., 1997). The results based on American samples suggest that the self-report version underestimates PTSD prevalence compared to interview measures (Foa, Riggs, Dancu, & Rothbaum, 1993). To obtain a Bosnian version, we applied a cyclical procedure of translations, back-translations, and field testing as recommended for the translations of psychological assessment measures (VanDeVijver & Hambleton, 1996). Cronbach's  $\alpha$ s for the Bosnian version correspond well with the American version (reexperiencing = .85, avoidance = .82, arousal = .80, total symptom score = .91).

### *Data Analysis*

Chi-square analyses were used to test the lifetime prevalences of categories of traumatic events and the differences in the current prevalence of PTSD by sample and sex. Spearman rank correlations were calculated to estimate the relations between the categories of traumatic events and PTSD symptoms.

### *Additional Information About the War Situation in Sarajevo Between 1992 and 1995*

Generally, it can be assumed that each theater of war is characterized by a specific pattern of traumatizing events embedded in a specific cultural situation. Outlining the number and type of events experienced allows a description of the war environment for the population. Sarajevo was besieged between 1992 and 1995 by Bosnian Serb forces which occupied the surrounding hills, shooting and shelling down at the city from their higher positions. For most of the war, it was virtually impossible for civilians to leave the city. The center of the city was less affected than the periphery by direct combat, but was highly exposed to sniper and shellfire. Many civilians took refuge in cellars, some remaining for weeks without returning to the surface. Other citizens were forced to leave the part of the town where they had been living to take refuge elsewhere in the town. Some food was provided by the United Nation and other organizations, but securing food often was very dangerous as this involved exposure to enemy fire while waiting at or reaching collection points. The situation with water supplies was similar. Most of the time, there was no electricity and no heating of any kind. Nevertheless, the majority of the population tried to continue with as close an approximation to normal life as was possible under the circumstances and continued to report for work and school. The city was ethnically mixed before the war, with Bosnjaks constituting the largest group (International Federation of Red Cross and Red Crescent Societies, 1998). However, by 1998, the population was overwhelmingly Bosnjak and the sample composition (see Table 1) is comparable to the numbers reported for the city of Sarajevo.

## Results

Although there were minor deviations from the stratification quotas, this did not lead to any significant differences for age or gender between the samples.

### *Lifetime Prevalence of Traumatic Events*

As previously mentioned, we assessed possible traumatic events in a much more detailed form than usual to avoid recall failures. The mean total number of traumatic events was 21.60 ( $SD = 9.68$ , range = 4–51 events). In accordance with the literature, men experienced rather more events than women ( $M = 23.00$ ,  $SD = 9.74$  vs.  $M = 20.31$ ,  $SD = 9.47$ , respectively),  $t = -2.470$ ,  $p < 0.05$ , though the difference is not very large. The difference in total number of events between the samples was shown in an ANOVA test to be not significant (residents sample:  $M = 20.37$ ,  $SD = 8.91$ ; medical treatment sample:  $M = 23.07$ ,  $SD = 10.49$ ; psychological treatment sample:  $M = 21.39$ ,  $SD = 9.49$ ), between subjects  $df = 2$ , within subjects  $df = 308$ ;  $F = 1.99$ ,  $p = .138$ . Table 2 displays the number of traumatic events according to category of traumatic event, broken down by sample and sex. The percentages in this table are the prevalences of the occurrence of at least one event from each category of traumatic event.

As expected, all participants experienced at least one traumatic event, although two people did not consider the events they had to be traumatic and therefore did not answer the rest of the questionnaire.

### *Current Prevalence of PTSD*

After answering each item in the list of events, participants were asked to select which was the worst event for them, following the logic of the DSM-IV diagnosis. PTSD prevalences were calculated by combining information assessed in the PDS as specified in DSM-IV. In particular, all events (including the “merely stressful” events) were treated as valid events for the A1-criterion according to DSM-IV, providing the direct questions to Criterion A1 were positively answered. This is because it can be assumed for this population that as long as the A1 criterion was fulfilled, even “merely stressful” events named as worst occurred in direct proximity to another event which would in fact fulfill the A1 criterion. For example, if someone named the loss of their home as the worst event (which does not on its own fulfill the A1 criterion), but reported that at this time they or someone else was injured or that they believed that their life or someone else’s life was in danger (fulfills the A1 criterion), it is reasonable to assume that this loss of home took place accompanied by other events which do indeed fulfill the A1 criterion.

A total of 18.6% of the persons in the residents sample, 32.7% of the people in medical treatment, and 38.6% of the people in psychological treatment fulfilled the DSM-IV criteria for PTSD. Thus, the PTSD rates in the treatment samples are nearly twice that in the nontreatment sample, yielding in a chi-square test for overall differences between the samples a significant result,  $\chi^2 = 10.28$ ,  $df = 2$ ,  $p = 0.006$ . In accordance with the international literature, women (38.8%) show a higher risk for developing PTSD than men (21.5%). The chi-square test for gender was significant,  $\chi^2 = 10.88$ ,  $df = 1$ ,  $p = .001$ .

### *Connection Between Categories of Traumatic Events and PTSD Diagnosis*

The relative noxiousness of different categories of traumatic events is usually calculated in the literature via conditional probabilities with which specific events lead to PTSD

Table 2  
*Lifetime Prevalence of Categories of Traumatic Events as Percentages and as Numbers of Persons (in brackets) by Sample and Sex*

	Sample			Sex				
	Residents (N = 98)	Medical Treatment (N = 99)	Psychiatric Treatment (N = 114)	$\chi^2$ - (df = 2)	Female (N = 162)	Male (N = 149)	$\chi^2$ (df = 1)	Total (N = 311)
Injury to self during the war	12.2% (12)	14.1% (14)	7.9% (9)	2.32	5.6% (9)	17.4% (26)	11.16**	11.4% (35)
Sexual violence to self during the war	1.0% (1)	0% (0)	0.9% (1)	.96	1.2% (2)	0% (0)	1.85	.6% (2)
Torture to self during the war	3.1% (3)	14.1% (14)	12.3% (14)	7.57*	8% (13)	12.1% (18)	1.43	10.0% (31)
Other threat to self during the war	100% (98)	98% (97)	100% (114)	4.31	98.8% (160)	100% (149)	1.85	99.4% (309)
Witnessing violence to a loved one during the war	59.2% (58)	74.7% (74)	66.7% (76)	5.39	59.3% (96)	75.2% (112)	8.87**	66.9% (208)
Witnessing violence to someone else (not a loved one) during the war	83.7% (82)	87.9% (87)	83.3% (95)	1.02	79.6% (129)	90.6% (135)	7.29**	84.9% (264)
Member of nuclear family killed during the war	17.3% (17)	21.2% (21)	22.8% (26)	.10	21.6% (35)	19.5% (29)	.22	20.6% (64)
Loved one (not member of nuclear family) killed during the war	84.7% (83)	82.8% (82)	86.0% (98)	.40	83.3% (135)	85.9% (128)	.39	84.6% (263)
Threat, violence, injury to loved one during the war	95.9% (94)	98.0% (97)	94.7% (108)	1.52	96.3% (156)	96.0% (143)	.02	96.1% (299)
Traumatic event before or after the war	60.2% (59)	68.7% (68)	65.8% (75)	1.61	67.3% (109)	62.4% (93)	.81	65.0% (202)

\*Association is significant at the 0.05 level (two-tailed). \*\*Association is significant at the 0.01 level (two-tailed).

(e.g., Kessler et al., 1995). In the present study, these conditional probabilities are not reported because in the case of multiple traumatization we assume that so many different kinds of past events are affecting the respondents that it is no longer relevant merely to ask them which of all the events they experienced was the worst. As Kessler et al. stated, the more relevant probabilities are “a complex function of differences in the distribution of the joint occurrences of multiple traumas and the likelihood that some types of trauma are generally more distressing than others” (p. 1052). Therefore, to find measures of type of stress experienced, we turned to the set of variables representing the total number of experienced events in each of the categories of traumatic events. As those variables are not normally distributed, all correlations in Tables 3 and 4 were conducted using Spearman’s  $\rho$ . Additionally, a measure of the total number of all traumatic events experienced in all categories was established by summing the  $z$ -transformed scores on each of the aforementioned event category variables. For a measure of trauma outcome, we chose the total score on the PDS symptom scales rather than PTSD diagnosis since an interval-scaled criterion is more suitable for the assessment of strength of association than a binary variable (see Table 3).

However, the relative sizes of these correlations cannot be directly interpreted as expressing their relative importance since the scores for each category are highly correlated with one another and with the total number of traumatic events. Therefore, the intercorrelations are printed (for the whole sample) in Table 4.

### Discussion and Conclusions

According to our results, every person in Sarajevo experienced more than one traumatic event. This is more than in any of the studies discussed in the first section. Due to more than three years of siege in a small area, where there was no possibility to escape life-threatening danger, each person remaining in town was exposed to a multitude of events. However, the extremely high average number of 24 events has to be interpreted with care because the extensive checklist might lead to more remembered events than a single open interview question as used in other interviews. On the other hand, the risk of experiencing

Table 3

*Spearman Rank Correlations Between the Categories of Traumatic Events and PTSD Symptoms for Men and Women*

	Women	Men	Whole Sample
Total number of traumatic events	.282**	.413**	.323**
Injury to self during the war	.094	.187*	.112
Sexual violence to self during the war	-.089	.	-.044
Torture to self during the war	.074	.238**	.150**
Other threat to self during the war	.188*	.318**	.242**
Witnessing violence to a loved one during the war	.185*	.248**	.183**
Witnessing violence to someone else (not a loved one) during the war	.051	.343**	.152**
Member of nuclear family killed during the war	.168*	.223**	.206**
Loved one (not member of nuclear family) killed during the war	.161*	.103	.139*
Threat, violence, injury to loved one during the war	.126	.123	.145*
Traumatic event before or after the war	.123	.269**	.202**

\*Association is significant at the 0.05 level (two-tailed). \*\*Association is significant at the 0.01 level (two-tailed).

. Cannot be computed because no man reported sexual violence.

Table 4  
Spearman Rank Correlations Between the Categories of Traumatic Events

	1	2	3	4	5	6	7	8	9
1. Injury to self during the war	.232**								
2. Sexual violence to self during the war	-.029	.118*							
3. Torture to self during the war	.084	-.027	.410**						
4. Other threat to self during the war	.095	.108	.221**	.619**					
5. Witnessing violence to a loved one during the war	.264**	.054	.262**	.432**					
6. Witnessing violence to someone else (not a loved one) during the war	.278**	-.003	.354**	.392**	.617**				
7. Member of nuclear family killed during the war	.055	.056	.112*	.050	.131*	.076			
8. Loved one (not member of nuclear family) killed during the war	.117*	.014	.151**	.213**	.335**	.310**	.151**		
9. Threat, violence, injury to loved one during the war	.030	.021	.155**	.248**	.188**	.152**	.159**	.293**	
10. Traumatic event before or after the war	.167**	.012	.172**	.284**	.305**	.278**	.053	.209**	.213**

\*Association is significant at the 0.05 level (two-tailed). \*\*Association is significant at the 0.01 level (two-tailed).

a traumatic event apart from the war is 60.2% in the residents sample, a number which is very similar to lifetime risks reported in the United States (about 61%; Kessler et al. 1995), thus indicating that despite a differing cultural context and a different applied methodology the exposure apart from war is similar.

Considering the special war situation in Sarajevo, it is not surprising that compared to other studies there was a smaller difference in the number of traumatic events experienced by women as opposed to men. The significant difference is largely due to men experiencing more injury to self and to witnessing more violence than women. All significant differences suggest that men were probably more exposed to outside events and participation in combat.

Interestingly, the numbers for traumatic experiences before and after the war are quite similar for men and women, thus implying a probable difference to other studies performed in the United States or Western Europe. In terms of the different samples, only torture proved to be overrepresented in the two treatment samples as compared to the randomly chosen sample of residents, which suggests special psychological and medical effects of torture. The low numbers for sexual violence are surprising. This might be due to an underreporting of sexual violence, especially in the residents sample because the interviewers were students unknown to the interviewed person. Yet, the numbers in the psychological treatment sample are not higher, and in this sample, the interviewers were usually well known to their clients. Thus, the low numbers are probably real and reflect the special war situation in Sarajevo.

Due at least in part to the high number of experienced traumatic events, almost one fifth of the population not in treatment suffers from PTSD. As this sample consists of only 98 persons and the rate of nonresponders was rather high, this estimate has to be interpreted cautiously. When compared with the very few studies accomplished with civilians in postwar societies (e.g., Somasundaram, & Sivayokan, 1994), however, this probably represents one of the better estimates achieved. The percentage of individuals suffering from PTSD almost doubles for the two treatment samples. Although it is certainly plausible that treatment samples are more affected by PTSD than randomly selected samples, a cynical observer also could easily have assumed quite the contrary—namely, that the distribution of PTSD was similar whether in treatment or not, but that persons in treatment simply had more money, were better educated, or differed in other treatment-relevant correlates of posttrauma symptomatology. The stratification for gender and age preempts the objection that treatment samples tend to consist of older individuals with a higher percentage of females than in random samples, factors which would lead to the expectation of higher base prevalences of reported illness and psychological symptoms. Thus, our result is remarkable and made possible by the rather unusual design of this study, which allows a direct comparison between treatment and nontreatment samples. However, it is noteworthy how many of those in medical treatment also have PTSD. A proportion of those in medical treatment are certainly receiving help for injury due to traumatic war events.

Estimations of remissions based on data from other studies (Kessler et al., 1995) suggest that of those suffering from PTSD three years after the traumatic event only 20% are likely to improve psychologically. As these estimates are based on a U.S. American sample, one can assume that the proportion of those improving under the difficult life conditions of the postwar society studied is smaller. In summary, the necessity of treatment for PTSD will exist for a long time in this society.

Interestingly, the prevalences in the residents sample are quite similar to those found in the two other representative civilian nontreatment samples under war conditions. A study from Sri Lanka after nine years of civil war reported 27.5% PTSD (Somasundaram,

& Sivayokan, 1994), and a study with displaced persons in Croatia reported 25% (Arcel et al., 1998), despite the fact that there are differences between the studies in methodology (interviews in Sri Lanka and different questionnaires in Croatia) and differences in the kind of experiences since the end of the war. Many of the displaced persons in Croatia lost their homes, and only a few will be able to return to their homes while most of those staying in Sarajevo are still living in the same surroundings. Contrary to this are the results of another study which reports that 85% of a representative sample of women surviving Srebrenica suffered from PTSD (Bell, Bergeret, & Oruc, 2002). In comparison with our samples, there are three important differences: Srebrenica is generally regarded to have been the worst massacre of the recent war, the sample consists only of women, and the women in this sample are still currently displaced and many still live in temporary homes and collective centers.

In terms of the connection between events and PTSD symptomatology (dose–response relationship), the overall correlation is around 0.32 (see Table 3), which is higher than many correlations reported in the literature (Rubonis, & Bickman, 1991). However, in this mixed sample of people both receiving and not receiving treatment, this correlation is much stronger for men than for women.

In terms of the more exploratory question on the connection between certain types of events and PTSD, the results are difficult to interpret due to the co-occurrence of events. For example, with men, “witnessing violence to a loved one” and “witnessing violence to others” both correlated highly with PTSD symptoms. However, both measures are correlated with each other and with several other categories of traumatic events; i.e., these categories of events occurred very often together—possibly in this case related to military activity. Yet in our view, more complex analyses such as linear regression do not yield better answers when, as here, the problem is in the data—the severe accumulation of trauma experienced by the people interviewed in this study.

In general, the correlations between the event categories and the symptoms seem to be as expected according to the literature. The differences between the categories are not very pronounced, presumably due to the aforementioned intercorrelations of the events. One exception is presented by “member of nuclear family killed during the war.” This kind of event is not particularly highly correlated with the other events, which is plausible given the nature of the event and the war situation. Nevertheless, it is significantly correlated with PTSD symptoms for both men and women.

In summary, the decision to focus on PTSD alone may seem an unnecessary restriction, leading to an incorrect underestimation of the psychopathological consequences of war and to a neglect of possible culturally specific reactions to traumatic experiences such as, for example, somatization. Furthermore, our results need to be validated by other and more extensive studies about the civil population after a war. Yet, the contribution of our study is unique in three aspects: (a) The residents sample was gathered through a random procedure and therefore allows a better estimation than convenience sampling, (b) the direct comparison between treatment and nontreatment samples in a postwar society allows a more precise estimation of PTSD under the conditions of a largely dysfunctional health care system, and (c) the extensive checklist enables a better comparison on the relative noxiousness of event types.

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# Flight Paths

**Returnees from outside former Yugoslavia, Internally displaced Persons and "Stayers" in Sarajevo and Banja Luka, 1999.**

**A survey of experienced war events, flight history, and current accommodation and psychosocial adjustment amongst adults**

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**Report to the Office of the Federal Government Commissioner for the Return of Refugees, Reintegration and related Reconstruction in Bosnia and Herzegovina, Hans Koschnick.**

**On behalf of: Deutsche Gesellschaft für Technische Zusammenarbeit - **gtz** GmbH**

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# 1 Executive Summary

## 1.1 Introduction

- ❑ How do people experience refuge in a foreign country and how do they experience their return?
- ❑ Do the experiences of those returning from Germany, which took over half of all refugees who left former Yugoslavia during the war 1991-5, differ from those in returning from other host countries?
- ❑ Do their experiences differ from those of internally displaced persons or those who stayed in Bosnia-Herzegovina ("BiH")?
- ❑ How do these different groups of people identify with the country and town where they are living now?
- ❑ Who would like to move away?
- ❑ What kind of stressful events have the different groups experienced and what are the psychological consequences in 1999?

This report attempts to answer these questions.

Special features of this survey:

- ❑ The survey included samples of adults in both Entities who:
  - a) remained in their original town of residence. These people will be referred to in the following text as "stayers".
  - b) were displaced inside former Yugoslavia. These people will be referred to in the following text as "displaced"
  - c) have now returned from outside former Yugoslavia. These people will be referred to in the following text as "returnees"
- ❑ Each sample is broadly representative of its intended population
- ❑ A comprehensive checklist of war, flight and refuge events and stressors was employed
- ❑ Clinical psychological symptoms were assessed
- ❑ New questionnaires were used to assess current accommodation status and degree of identification with the surroundings.

## 1.2 Samples<sup>i</sup>

All the people included are adults between 16 and 65 who were resident before the war in what was then Yugoslavia. They now live in BiH, in Sarajevo or Banja Luka.

The samples interviewed were as follows:

- ❑ 97 returnees<sup>ii</sup> from host countries outside former Yugoslavia, now living in Sarajevo. Sample randomly selected from lists held at the Local Councils in Sarajevo. These are people who took refuge in countries outside Former Yugoslavia for more than 12 months, 1991-5. So the sample is representative for returnees from outside former Yugoslavia who were registered with the Local Councils in Sarajevo in the summer of 1999.
- ❑ 104 displaced<sup>iii</sup> (or former displaced) adults in Sarajevo. Sample randomly selected from lists held at the Local Councils in Sarajevo. These are people who did not leave former Yugoslavia for more than 12 months 1991-5. They did however live outside Sarajevo for more than 12 months 1991-5. So they include internally displaced persons from the area of both Entities and a few from the rest of former Yugoslavia. They also include a small number of "former displaced" persons who lived in Sarajevo *before* the war, were displaced during the war and have now returned to their former homes. So the sample is representative for people displaced (or formerly displaced) inside former Yugoslavia who were registered with the Local Councils in Sarajevo in the summer of 1999.
- ❑ 100 displaced persons now living in Banja Luka. So they were displaced during the war and now live in Banja Luka. They did not leave former Yugoslavia for more than 12 months from 1991 to 1995. This sample was reached by randomly selecting apartments in Banja Luka and asking one person in each apartment if they fit the criteria.
- ❑ 100 Banja Luka "stayers". These people did not leave Banja Luka for more than 12 months 1991-5. They were reached in the same way as the sample above.
- ❑ 100 displaced persons living in collective centres near Prijedor and Banja Luka (referred to in the tables and graphics as "Prijedor: displaced in collective centres". The sample was reached by selecting people at random from the lists of people in each centre.

In addition, each sample was stratified to ensure an approximately equal number of men and women and an approximately equal number in each age group, 16-30, 30-45 and 45-65. This stratification ensures also that the each sample and the overall sample approximate the age and sex structure of the pre-war Yugoslavian population.

## **1.3 Main results**

### **Flight history**

- ❑ The returnees spent a considerable amount of time (on average, over 18 months before their flight) in the war zones. Some of them also spent a little time outside Bosnia-Herzegovina but in the other countries of former Yugoslavia.
- ❑ The average returnee to Sarajevo changed town - often involving a change of country - just under three times before "returning" to Sarajevo.
- ❑ About 70% of the returnees came from Germany.
- ❑ About 3/4 of the Sarajevo and Banja Luka displaced persons left their home as a direct result of the war. Nearly all the displaced persons in centres did so.
- ❑ A quarter of the returnees to Sarajevo did not live in their current municipality before the war.
- ❑ One fifth of the Sarajevo "displaced or former displaced" are now back in their pre-war homes, in contrast to about 70% of the returnees.

### **Return issues**

- ❑ As expected, there were far more people returning from Germany because of a deadline or expulsion.
- ❑ 46% of respondents said that they received enough help, all in all.
- ❑ Significantly more returnees from Germany mention the host country authorities as having helped them with the return. They also seemed to receive more help from organisations in Bosnia-Herzegovina, including the German Advisory Centres.
- ❑ Attitudes towards refuge and return were not as discouraging as some have expected. Nearly all the respondents found the host country better than expected, and yet most are glad that they returned.
- ❑ In general Germany seemed to be a popular country with the refugees.
- ❑ As expected, significantly more returnees from Germany than from other countries reported having received financial help. However the returnees from Germany also received far more threats of eviction or deportation.
- ❑ Only about one in five respondents reported being criticised by others for having left Bosnia-Herzegovina.
- ❑ The returnees from Germany seem to have psychosocially less optimal scores on many variables than returnees from other countries.

### **Traumatic and stressful events**

- ❑ Sarajevo returnees had about as much exposure to the war and war events as the two Republika Srpska displaced persons samples.
- ❑ The returnees and displaced persons spent a great deal of time in temporary accommodation and collective centres.
- ❑ Not surprisingly all the respondents experienced appalling personal losses.
- ❑ The respondents in collective centres seem to be exposed to a particularly high level of current stress.
- ❑ Each of the samples has its own profile of traumatic events and other stressors. The Banja Luka stayers seem to be somewhat better off. It also seems that the Sarajevo samples had experienced in general more traumatic events and other stressors.

## Psychological status

- ❑ A preliminary analysis suggests that the most psychologically debilitating event groups are groups of war events which the respondent themselves personally suffered or witnessed, together with difficult present-day personal and social circumstances.
- ❑ With respect to the subscales of the clinical symptom instrument used, the SCL-90-R: symptom levels are significantly raised in relation the reference sample of German people without special psychological problems, but are not - thankfully - as high as would be expected in in-patient populations.
- ❑ There is a peak on the subscale named "paranoid ideation" which has to do with suspiciousness and feelings of being isolated.
- ❑ When one compares with the German inpatient sample, in these BiH samples the more passive symptom types such as anxiety and depression are less elevated than the subscales aggression, paranoid ideation, and somatisation.
- ❑ The proportion of people with PTSD (Post-traumatic stress disorder) shows a much greater difference between the samples than the overall symptom level.
- ❑ The samples exposed to most war stress have, not surprisingly, more PTSD. However the displaced people in collective centres have the highest proportion of PTSD amongst the samples interviewed this year, which could indicate that particularly difficult social circumstances can contribute significantly to the maintenance of PTSD.

## Integration and Identification in BiH

- ❑ In general the results were positive; most people identify and feel happy with where they live; the majority do not want to move to another country. However the displaced persons in centres did on average want to live in another area inside their country.
- ❑ People who left the host country involuntarily are less happy in the "home" country.
- ❑ Nearly half the returnees would like to live in another country. And whereas only about 20% of the respondents who stayed longest in a host country apart from Germany would like to leave Bosnia-Herzegovina - a similar proportion to the other samples - over half the returnees from Germany would like to leave.
- ❑ Those returnees who would prefer to live in another country than BiH are those who did not leave the host country voluntarily.
- ❑ The returnees' experience of their host country seems to have been favourable; nearly 3/4 of those who wish leave Bosnia-Herzegovina would like to return to their "own" host country.
- ❑ There is a disturbing amount of dissatisfaction amongst, not surprisingly, the displaced persons in collective centres but also amongst the returnees who did not return voluntarily.

## Current Accommodation Status

- ❑ A large proportion of returnees own or have permanent occupancy rights over their current accommodation, i.e. the place where they are living now - second only to the Banja Luka stayers.
- ❑ A large proportion of the displaced persons, especially those in Banja Luka and less so for those in collective centres, have rights to other accommodation elsewhere. A large proportion of these people would like to exchange or sell those accommodation rights, which is an indicator that they are not very interested in returning to that accommodation.

## 1.4 Instruments used

- Demographic information including a new short interview on "flight paths", i.e. history of flight and refuge
- PSS<sup>iv</sup>: checklist of traumatic and stressful events and associated symptoms, in order to reach a PTSD diagnosis
- Psychosomatic symptom checklist Symptom Checklist- 90-revised (SCL-90-R<sup>v</sup>)
- SOZU: Fragebogen zur Sozialen Unterstützung (Questionnaire on Social Support)<sup>vi</sup>

- AIR: Additional Information from Refugees (new questionnaire)
- CAS: Current Accommodation Status (new questionnaire)
- QII: Questionnaire on Integration and Identification (new questionnaire)

### **1.5 Directions for further research**

It should be emphasised that this analysis is only a preliminary report. Further scientific results focussing on the psychological aspects will be published in due course.

The special analysis of the returnees made in later sections provides some important first results with a sample just covering returnees to Sarajevo. It would be worthwhile to extend this work to include samples returning to other parts of Bosnia.

## 2 Results: Demographic information for each sample

### 2.1.1 Demographic details for each sample.

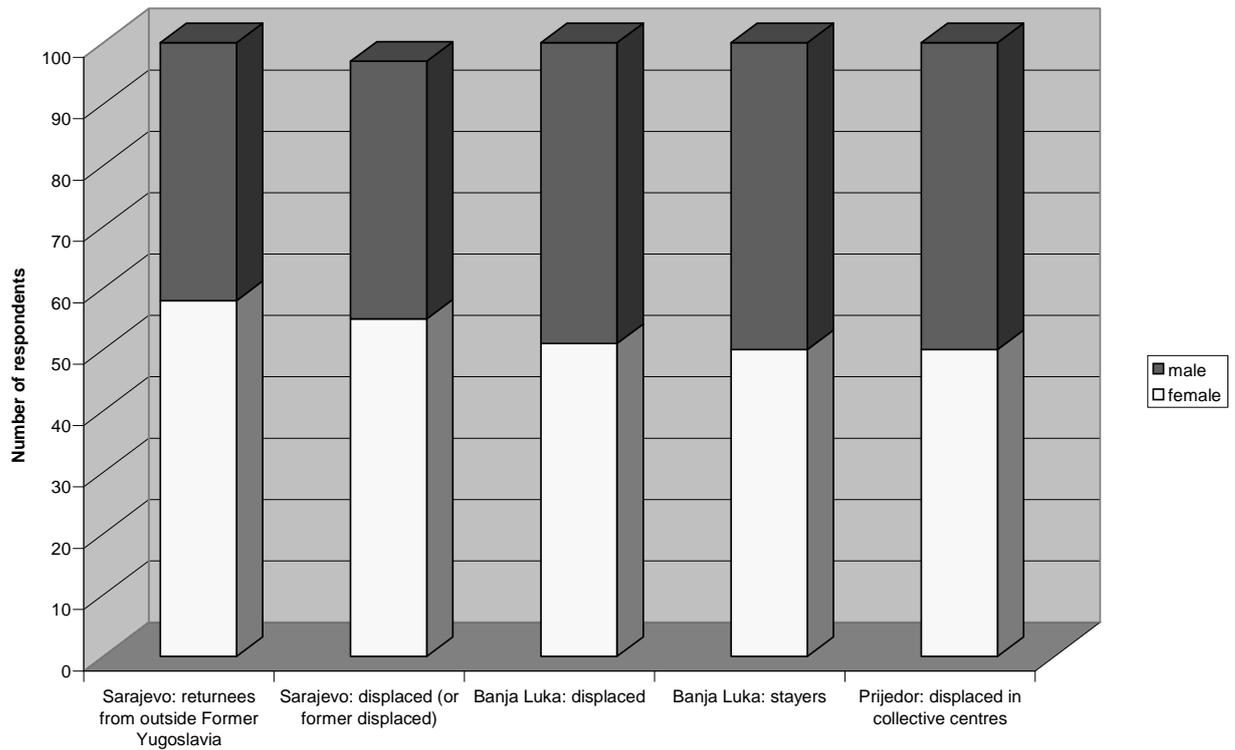
		Sarajevo: returnees from outside Former Yugoslavia. 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
sex	female	58	55	51	50	50	264
	male	46	42	49	50	50	237
<b>Total sample size</b>	<b>Total</b>	<b>104</b>	<b>97</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>501</b>
Household income per person <sup>vii</sup>	Mean KM/month	125	119	87	104	25	92
Age	Mean years	36,9	36,9	37,5	37,6	39,5	38,1
Highest education	8 years (NSS)	11%	27%	16%	8%	47%	22%
	12 years (SSS)	75%	64%	62%	68%	51%	64%
	>16 years (VSS)	15%	8%	22%	24%	2%	14%
Religion	Other	12%	6%	1%	5%		5%
	Islam	83%	85%				34%
	Catholicism	2%	5%		5%	2%	3%
	Orthodox	4%	4%	99%	90%	98%	59%
Family status	single, separated, divorced, widow / widower	33%	43%	41%	40%	57%	43%
	married, remarried	64%	53%	49%	57%	42%	53%
	in long-term relationship (but not married)	3%	4%	10%	3%	1%	4%
Number of children <sup>viii</sup>	Mean	1,89	1,68	1,22	1,16	1,21	1,38

The average age and the sex breakdown of the samples are of necessity almost identical due to the definition of the samples (see appendix).

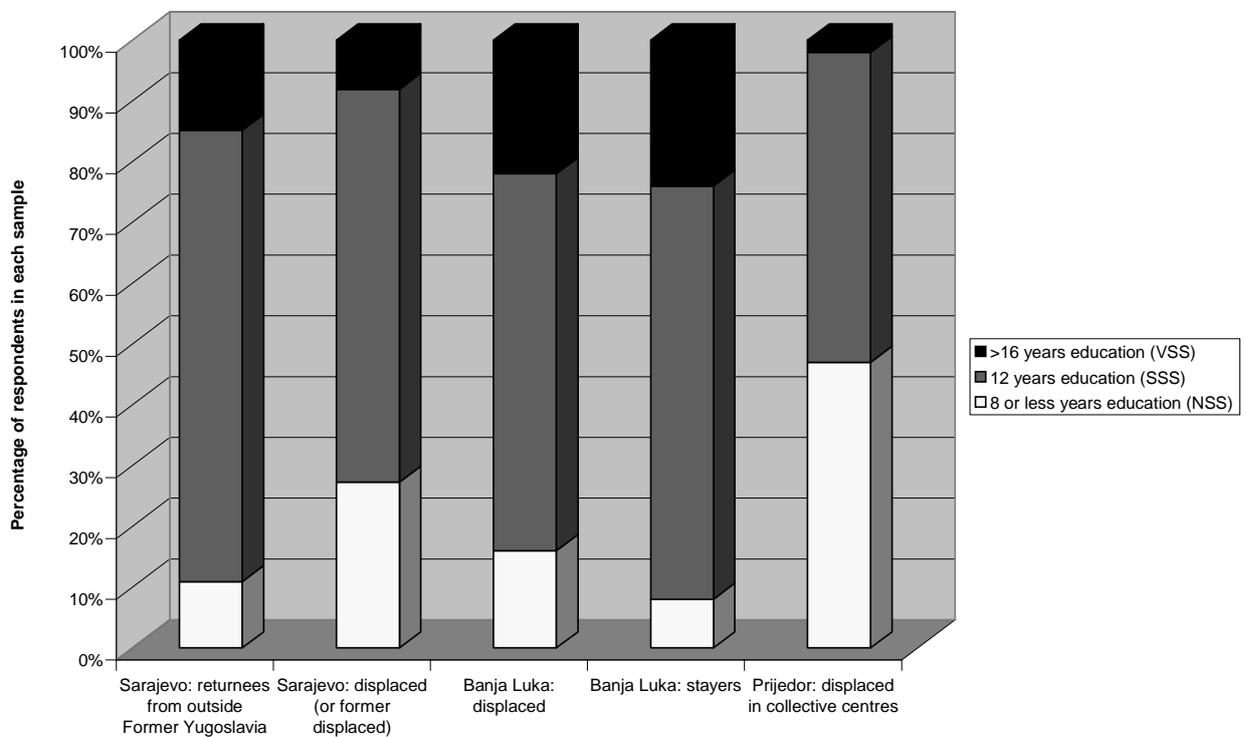
As would be expected, the mean income in the collective centres is much lower than in the other samples.

Family status: the highest proportion of married respondents was found amongst returnees. Marriage is usually considered a protective factor against the effects of psychosocial stress.

**2.1.2 Sex breakdown in each sample**

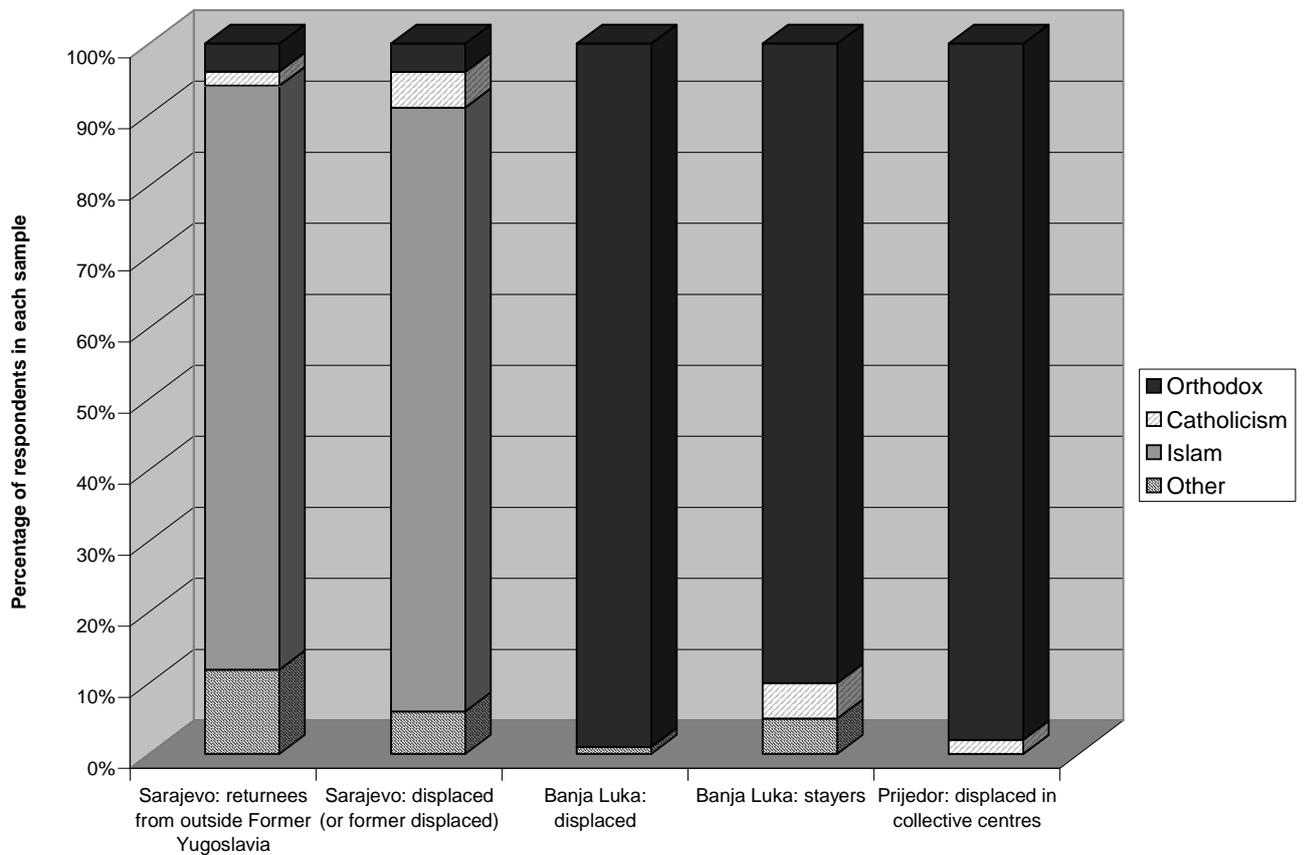


**2.1.3 Percentage of each sample with low, medium and high education (measured in number of years of education)**



Those in the collective centres are much more likely to have less education. One possible explanation is that those with more education are less likely to end up in collective centres or, once there, are more likely to leave. The average level of education is lower amongst Sarajevo returnees than Banja Luka stayers. Possibly the more highly educated refugees stayed in the host country.

**2.1.4 Religion by sample**



The religious make-up<sup>ix</sup> of each sample was as expected given the areas covered. There were few Catholic respondents. Up to 10% of each sample give their religion as "Other"; of those giving additional information, most were atheists and some were Jewish.

### 3 Results: Flight history since 1991 for each sample

The following information is based on a new "flight paths" interview as well as questions from the demographic questionnaire.

The aim was to look behind the simple terminology of "displaced" and "returnee" and ask about the complexity of the journeys undertaken. For example, is the picture of the "returnee" who leaves Bosnia at the start of the war for Germany and comes back after it is over really accurate?

#### 3.1.1 Displacement factors by sample (multiple answers possible)

	Sarajevo: returnees from outside Former Yugoslavia. 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
Living in same house as 1990	69%	21%	0%	89%	0%	36%
Living in same municipality as 1990	73%	23%	0%	98%	0%	39%
Left former home as direct result of war (i.e. unsafe situation or the house was destroyed or someone forced respondent to leave)	65%	80%	73%	0%	92%	77%

One fifth of the Sarajevo "displaced or former displaced" are now back in their pre-war homes, in contrast to about 70% of the returnees. A quarter of the returnees to Sarajevo did not live in their current municipality before the war.

About 3/4 of the Sarajevo and Banja Luka displaced persons left their home as a direct result of the war. Nearly all the displaced persons in centres did so.

#### 3.1.2 National and international movement by sample (multiple answers possible)

	Sarajevo: returnees from outside Former Yugoslavia . 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
length of time in war zone (mean number of years)	1,61	2,96	2,65	0,96	1,92	2,01
length of time outside former Yugoslavia (mean number of years)	4,13	0,00	0,00	0,00	0,00	1,10
length of time in former Yugoslavia outside BiH(&RS) (mean number of years)	0,20	1,04	0,31	0,00	0,08	0,28
Number of times respondent moved to new town (mean number of changes)	2,87	2,34	2,03	0,00	1,90	1,83

Conclusions: the returnees did indeed spend a considerable amount of time (on average, over 18 months before their flight) in the war zones. Some of them also spent a little time outside Bosnia-Herzegovina but in the other countries of former Yugoslavia. Between 1991 and 1999 they spent an average of four years outside former Yugoslavia. And some of the displaced persons in the Sarajevo sample also spent time in the rest of former Yugoslavia.

The average returnee to Sarajevo changed town - often involving a change of country - just under three times before "returning" to Sarajevo; the displaced persons in Sarajevo changed town about twice on average before coming to Sarajevo.

## 4 Results: Return issues: Returnees from outside Former Yugoslavia

### 4.1 Introduction

This section *focuses exclusively on just one sample, the returnees to Sarajevo from outside former Yugoslavia*. It attempts to answer questions about residence status abroad, preparation for return, etc. It is based on a new questionnaire AIR: Additional information from returnees from outside former Yugoslavia. These questions were of course only given to those in the sample of returnees.

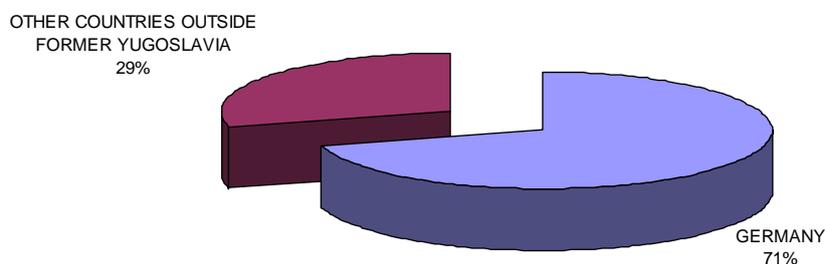
Most European countries accepting refugees from Bosnia gave them status of "temporary protection" rather than political asylum. This was a relatively new and pragmatic solution, also intended to give a signal that remaining in place was the preferred option. By 1997 however, the majority of EU countries had in fact made more or less permanent status available to those who wanted to stay - with the exceptions of Germany and Switzerland; Germany is important because it took about half of all the refugees. As a consequence, most refugees in Germany had to reckon with a deadline by which they had to return. So one could expect that less of these returns would be purely voluntary.

A focus of this section and section 9 is to examine whether there are difference between returnees from Germany and those from other countries<sup>x</sup>.

### 4.2 Host country: frequencies

The respondents were asked in which country outside former Yugoslavia they spent the most time. This graphic shows the results.

#### 4.2.1 Host country Germany vs. others

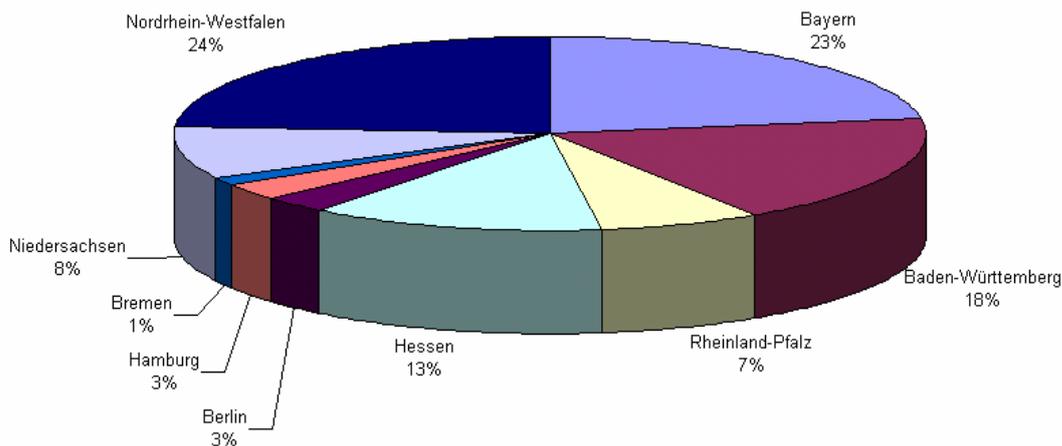


#### 4.2.2 Breakdown of the host countries in detail:

GERMANY	73
SWITZERLAND	4
TURKEY	2
AUSTRIA	4
NORWAY	1
SWEDEN	3
ITALY	3
UNITED KINGDOM	3
CZECH REPUBLIC	1
NETHERLANDS	2
FRANCE	3
USA	4
NO INFORMATION	1
TOTAL	104

About 70% of the returnees came from Germany. Only the four from the USA came from outside Europe. This proportion of returnees coming from Germany compared to other countries outside former Yugoslavia corresponds quite accurately to the corresponding proportion (85%) of return from Germany to the whole of Bosnia-Herzegovina up to the end of 1998 as reported by UNHCR<sup>xi</sup>.

#### 4.2.3 Host Bundesland (German Federal State): frequencies



The respondents who spent most time in Germany were also asked to name the Bundesland in which they spent the most time.

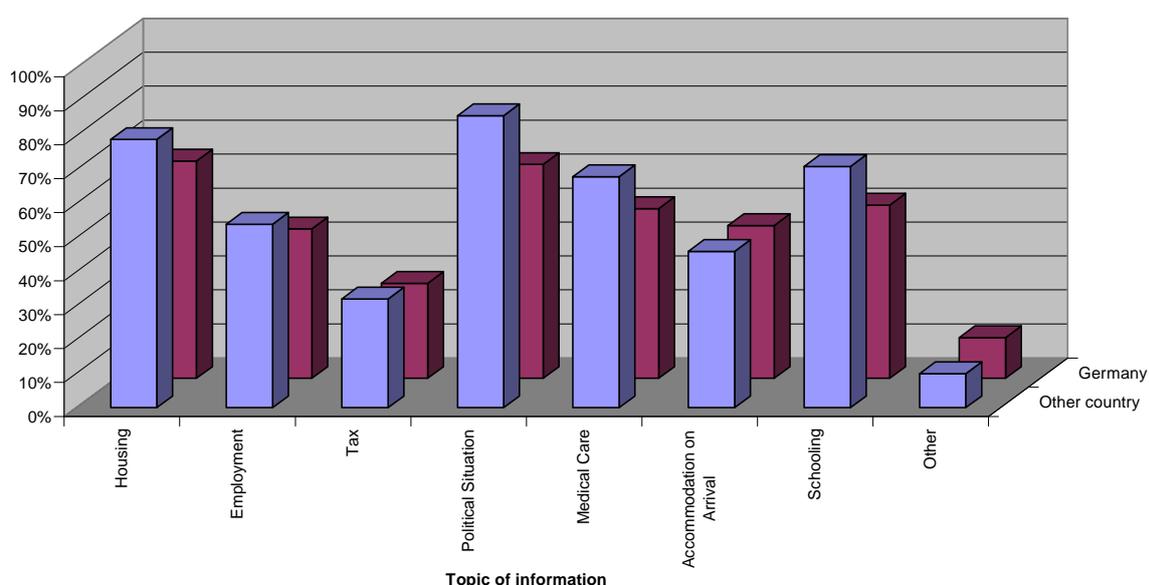
### 4.3 Topics of information before return

The rest of the questions in the AIR questionnaire were about the return and preparation for it. Each of these groups of questions allow for multiple affirmation, i.e. the respondents can answer yes to more than one section.

#### 4.3.1 Percentage of respondents having information on various topics before their return (multiple answers possible).

		Housing	Employment	Tax	Political Situation	Medical Care	Benefits on Arrival	Schooling	Other	Mean total number of topics
Highest education	8 years (NSS)	55%	36%	27%	64%	73%	36%	55%	22%	3,64
	12 years (SSS)	69%	47%	25%	69%	51%	45%	53%	11%	3,64
	>16 years (VSS)	79%	57%	50%	79%	64%	57%	79%	8%	4,71
Sex	female	64%	36%	25%	63%	49%	41%	54%	9%	3,38
	male	73%	60%	33%	78%	62%	51%	60%	15%	4,29
Age group	16-29	77%	43%	23%	58%	50%	35%	55%	14%	3,48
	30-44	67%	46%	27%	73%	48%	42%	56%	12%	3,69
	45-65	59%	55%	41%	77%	77%	68%	59%	6%	4,41
Country of refuge	Other country (30 persons)	79%	54%	32%	86%	68%	46%	71%	10%	4,43
	Germany (73 persons)	64%	44%	28%	63%	50%	45%	51%	12%	3,53
Table Total		68%	47%	29%	69%	55%	46%	56%	11%	3,78

#### 4.3.2 Percentage of respondents having information on various topics before their return: by country of refuge (multiple answers possible)



On average about half the respondents said that they had information on each topic of information.

All of the mean differences in total number of areas of information are in the expected directions (for example, that people with less education had less information) but none of the differences are very strong. With this relatively small sample none of them are statistically significant.

Returnees from Germany had somewhat less information about conditions in Bosnia before their return.

### 4.4 Sources of information before return

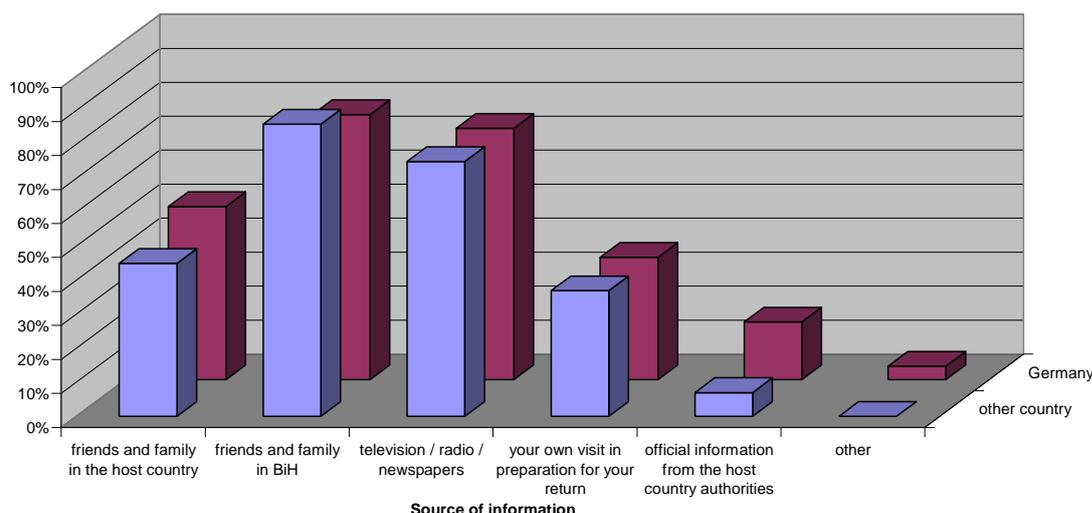
The respondents were also asked which information sources the respondents they saw as having been most useful.

#### 4.4.1 Percentage of respondents naming various sources of information about return as important (multiple answers possible)

		friends and family in the host country	friends and family in BiH	television / radio / newspapers	your own visit in preparation for your return	official information from the host country authorities	other
Highest education	8 years (NSS)	27%	82%	64%	27%	9%	0%
	12 years (SSS)	51%	82%	77%	38%	15%	4%
	>16 years (VSS)	57%	73%	79%	38%	14%	0%
Sex	female	46%	82%	71%	29%	18%	0%
	male	53%	78%	78%	45%	9%	6%
Age group	16-29	55%	77%	68%	45%	13%	0%
	30-44	50%	81%	79%	35%	15%	5%
	45-65	41%	83%	73%	27%	14%	0%
Country of refuge	Other country (30 persons)	45%	86%	75%	37%	7%	0%
	Germany (73 persons)	51%	78%	74%	36%	17%	4%
Table Total		50%	80%	74%	36%	14%	3%

It should be remembered that the category "your own visit in preparation for your return", mentioned by about 40% of the sample, could only apply to the approximately 50% of these who did in fact make such a visit (see below). So in fact about 80% of those making a visit mentioned this visit as a source of information. This table reveals that the people with less than eight years of formal education named markedly fewer sources of information as important. Overall, friends and family in the host country and BiH, together with the media, were much more important than official information sources.

#### 4.4.2 Percentage of respondents naming various sources of information about return as important, by host country (multiple answers possible)



Returnees from Germany named similar sources of information which were important to them as the other returnees; and significantly more of them said that the host-country authorities were an important information source.

## 4.5 Reasons for return

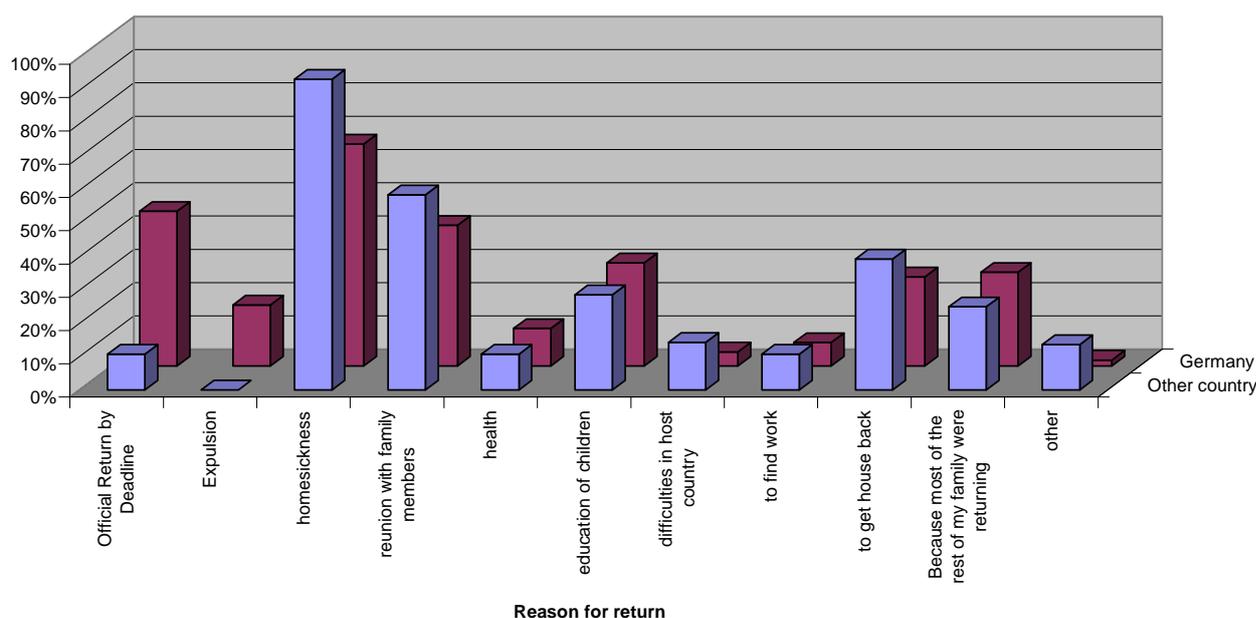
### 4.5.1 Percentage of respondents naming each reason for return (multiple answers possible)

		official return by deadline	expulsion	homesickness	reunion with family members	health	education of children	difficulties in host country	to find work	to get house back	Because most of the rest of my family were returning	other
Highest education	8 years (NSS)	36%	18%	64%	55%	9%	27%	9%	9%	27%	36%	0%
	12 years (SSS)	41%	14%	74%	47%	11%	30%	4%	8%	30%	30%	5%
	>16 years (VSS)	8%	8%	87%	46%	15%	38%	23%	8%	38%	8%	9%
Sex	female	38%	14%	76%	47%	16%	38%	11%	11%	30%	27%	4%
	male	35%	12%	73%	47%	5%	21%	2%	5%	30%	28%	6%
Age group	16-29	29%	13%	71%	48%	10%	13%	3%	6%	29%	29%	4%
	30-44	52%	17%	69%	47%	15%	35%	11%	11%	30%	24%	3%
	45-65	14%	5%	91%	45%	5%	45%	5%	5%	32%	32%	11%
Country of refuge	Other country (30 persons)	11%	0%	93%	59%	11%	29%	14%	11%	39%	25%	14%
	Germany (73 persons)	46%	18%	67%	42%	11%	31%	4%	7%	27%	28%	2%
Table Total		36%	13%	75%	47%	11%	30%	7%	8%	30%	27%	5%

Note the much larger proportion of less educated and younger respondents giving return by deadline and expulsion as a reason for return. Perhaps in consequence, they name personal motives such as "homesickness" less often.

In general, personal reasons such as homesickness and reuniting with family and friends were given as the most frequent reasons for return.

### 4.5.2 Percentage of respondents naming each reason for return, by host country (multiple answers possible)



As expected, there were far more people returning from Germany because of a deadline or expulsion.

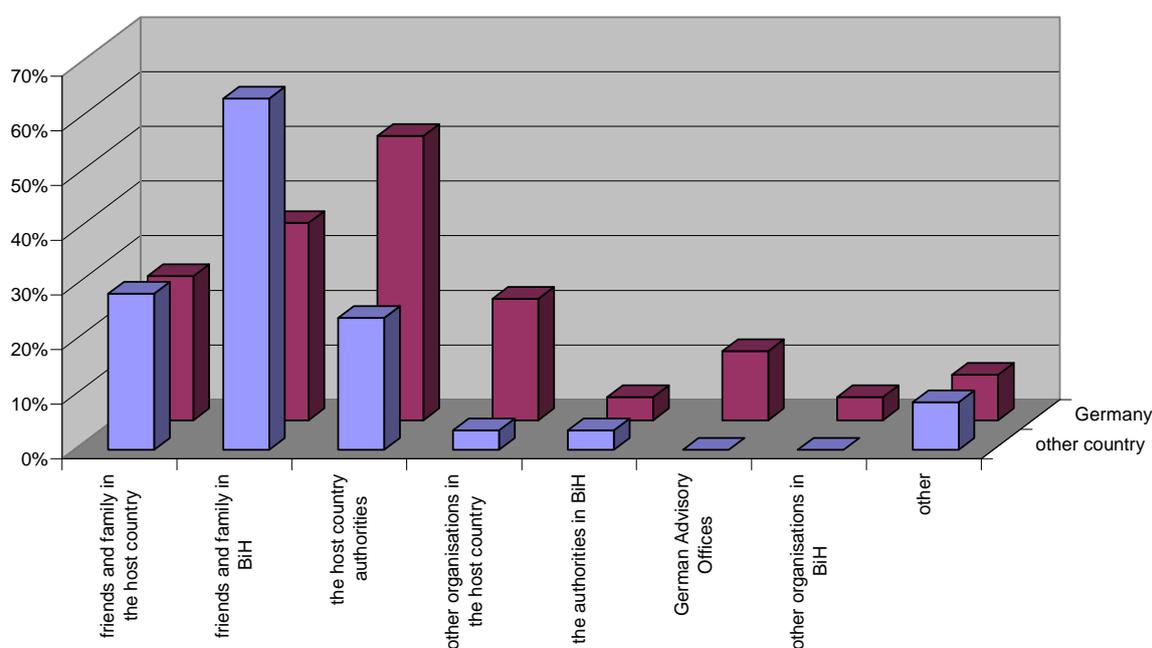
## 4.6 Sources of help with return

### 4.6.1 Percentage of respondents naming each source of help with return as important

		Friends and family in the host country	Friends and family in BiH	Host country authorities	Other organisations in the host country	Authorities in BiH	German Advisory Office	Other organisations in BiH	Other	Received enough help, all in all
Highest education	8 years (NSS)	27%	36%	55%	18%	0%	9%	0%	0%	27%
	12 years (SSS)	29%	47%	48%	19%	4%	11%	4%	10%	46%
	>16 years (VSS)	14%	36%	14%	7%	7%	0%	0%	8%	57%
Sex	female	25%	41%	49%	18%	5%	15%	4%	9%	48%
	male	30%	48%	38%	16%	2%	2%	2%	8%	43%
Age group	16-29	26%	58%	48%	23%	3%	10%	0%	4%	47%
	30-44	21%	40%	43%	17%	6%	9%	6%	10%	45%
	45-65	41%	32%	41%	9%	0%	9%	0%	11%	48%
Country of refuge	Other country (30 persons)	29%	64%	24%	4%	4%	0%	0%	9%	52%
	Germany (73 persons)	26%	36%	52%	22%	4%	13%	4%	8%	44%
Table Total		27%	44%	44%	17%	4%	9%	3%	8%	46%

46% of respondents said that they received enough help, all in all.

### 4.6.2 Percentage of respondents naming each source of help with return as important, by host country



Interestingly, significantly more returnees from Germany mention the host country authorities as having helped them with the return. They also seemed to receive more help from organisations in Bosnia-Herzegovina, including of course the German Advisory Centres.

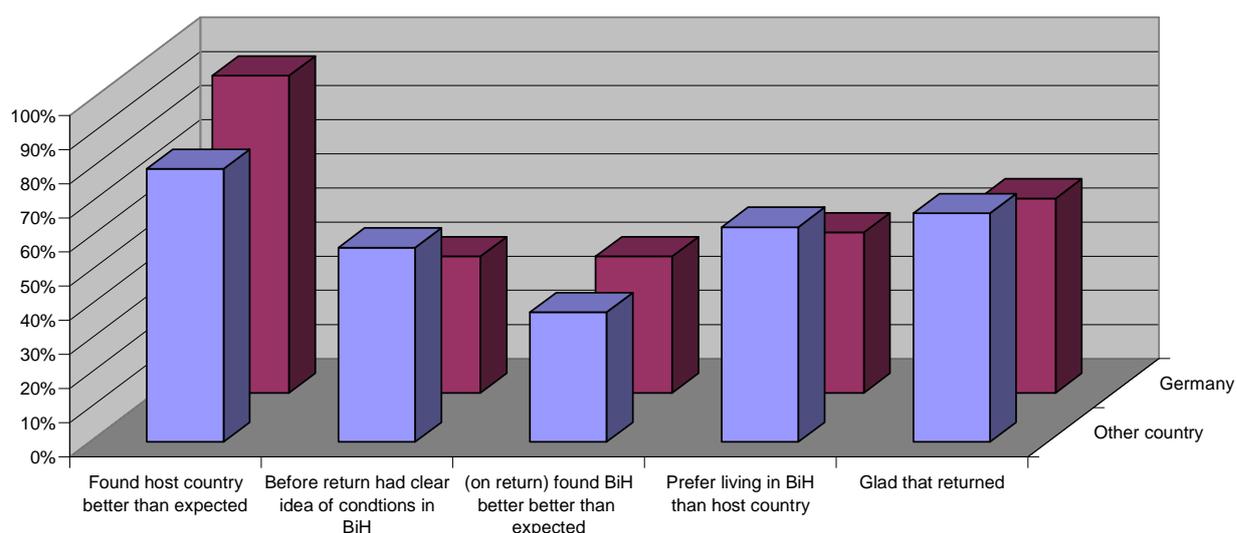
## 4.7 Attitudes to host and home country

### 4.7.1 Percentage of respondents replying yes to questions about host and home country

		Found host country better than expected	Before return had clear idea of conditions in BiH	(on return) found BiH better than expected	Preferred living in host country to BiH	Glad that returned
Highest education	8 years (NSS)	91%	45%	45%	55%	55%
	12 years (SSS)	92%	43%	36%	45%	58%
	>16 years (VSS)	73%	53%	47%	80%	73%
Sex	female	88%	36%	37%	53%	57%
	male	91%	56%	42%	49%	64%
Age group	16-29	83%	42%	45%	45%	65%
	30-44	94%	37%	31%	45%	52%
	45-65	87%	65%	48%	74%	70%
Country of refuge	Other country (30 persons)	80%	57%	38%	63%	67%
	Germany (73 persons)	93%	40%	40%	47%	57%
Table Total		89%	45%	39%	51%	60%

This table gives a picture of refuge and return which is perhaps not as discouraging as some have expected. Nearly all the respondents found the host country better than expected, and yet most are glad that they returned.

### 4.7.2 Percentage of respondents replying yes to questions about host and home country, by host country



In general Germany seemed to be a popular country with the refugees.

**4.7.3 Other information**

		went to host country because of war	visited BiH before return	received official threats of eviction or deportation	registered return officially	received a financial incentive to return	criticism from others in BiH for having left
Highest education	8 years (NSS)	82%	45%	55%	91%	64%	18%
	12 years (SSS)	89%	52%	48%	97%	57%	23%
	>16 years (VSS)	80%	47%	20%	80%	33%	7%
Sex	female	88%	47%	47%	95%	61%	19%
	male	87%	53%	42%	93%	47%	20%
Age group	16-29	81%	65%	52%	87%	53%	23%
	30-44	90%	47%	51%	98%	61%	21%
	45-65	91%	35%	22%	95%	43%	13%
Country of refuge	Other country (30 persons)	83%	43%	13%	83%	27%	13%
	Germany (73 persons)	89%	52%	58%	99%	67%	22%
Table Total		87%	50%	45%	94%	55%	20%

As expected, significantly more returnees from Germany than from other countries reported having received financial help. These figures could be underestimates as it is possible that the respondents would be cautious reporting money received. However the returnees from Germany also received far more threats of eviction or deportation. Only about one in five respondents reported suffering criticism from others for having left Bosnia-Herzegovina.

## 5 Results: Traumatic and stressful events experienced, by sample

### 5.1 Event groups: war and flight events

What kinds of stressful and traumatic events and situations were experienced by returnees, displaced people and "stayers"?

The new checklist employed in this survey (the first section of the modified PSS) of about 130 different traumatic and stressful events during and after the war provides extensive information on important factors. The individual items and the responses to them are given in an appendix. For the purpose of gaining an overview over these 130 items, they are grouped here into the following event clusters. (The significance of those in *italic* font is explained in the next section).

	Sarajevo: returnees from outside Former Yugoslavia. 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
<b>War events: self</b>						
<i>Total traumatic events in war zone: events which happen to the individual during the war such as being shot at, being wounded, being in a cellar for over three weeks, etc. Witnessing violence to others is also included. (number of events)</i>	8,98	12,76	12,28	7,47	10,04	10,68
<i>stressors: expulsion and flight (number of events)</i>	1,63	3,07	3,27	0,02	3,02	1,97
<i>other war-related stressors (material loss, ill health, displacement) (number of events)</i>	4,18	4,88	5,17	0,95	4,27	3,68
length of time in war zone (years)	1,61	2,96	2,65	0,96	1,92	2,01
stressors: months in concentration camp	4,36	7,27	0,16	0,00	0,37	0,68

One of the most important results here is that the Sarajevo returnees had about as much exposure to the war and war events as the two Republika Srpska displaced persons samples.

<b>Displacement, flight, refuge</b>						
stressors: months in collective centre	22,36	18,00	0,92	0,00	40,30	14,93
stressors: months in temporary accommodation	39,44	55,53	27,40	0,00	8,72	21,97
stressors: days with no accommodation at all	3,38	4,40	23,49	0,00	13,86	11,10
stress: refuge abroad (number of events)	1,18	0,83	0,02	0,00	0,01	0,31

The returnees and displaced persons spent a great deal of time in temporary accommodation and collective centres<sup>xii</sup>.

	Sarajevo: returnees from outside Former Yugoslavia. 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
<b>Loved ones</b>						
losses of loved ones (number of people)	2,51	2,79	2,78	1,52	2,26	2,36
violence, threat and injury to loved ones (number of events)	5,29	5,75	5,74	4,00	3,76	4,78
total length of separations from family members. The total length of separation from each family member. (months)	67,28	45,94	30,13	18,77	25,48	37,14
total length of no information about family members (months)	23,29	23,39	12,14	8,33	17,40	16,32

Not surprisingly all the respondents experienced appalling losses.

<b>Unemployment and current stress</b>						
stressors: unemployment since 1991 (number of months, plus number of months no-one in family was employed).	68,57	74,96	57,66	26,10	60,05	56,07
current stressors: family members separated or missing (number of people)	1,89	1,85	2,03	1,15	1,71	1,73
<i>current stressors: accommodation, health, unemployment etc (number of stressors)</i>	3,68	4,61	6,50	2,15	7,37	4,29

The respondents in collective centres seem to be exposed to a particularly high level of current stress.

The overall result is that each of the samples have their own profile of traumatic events and other stressors. The Banja Luka stayers seem to be somewhat better off. It also seems that the Sarajevo samples had experienced in general more traumatic events and other stressors. One should not forget here that the samples did not exclude ex-soldiers.

## **5.2 Event groups having a significant correlation with current symptoms**

More or less all of these events and event groups are correlated with current psychological distress; the more the respondents have experienced these events, the worse they feel. These symptoms were measured with the SCL-90-R<sup>xiii</sup>; this records psychologically relevant symptoms such as headaches, anxiety, or hearing voices which are not there.

However the mere presence of a correlation between the occurrence of certain events and the presence of current symptoms does not mean there is a causal connection. For instance, it is possible that some groups of events have a high correlation with symptoms just because they occurred together with other events which themselves have a genuine causal connection with symptoms.

So a regression analysis was used to try to determine the *unique* connection of each of these event groups on symptoms, independently of the influence of the other groups. The event groups shown in this analysis to have the strongest unique influence on psychological status are printed in *italics* in the table above.

In this case it seems that the most psychologically debilitating event groups are groups of war events which the respondent themselves personally suffered or witnessed, together with difficult present-day personal and social circumstances.

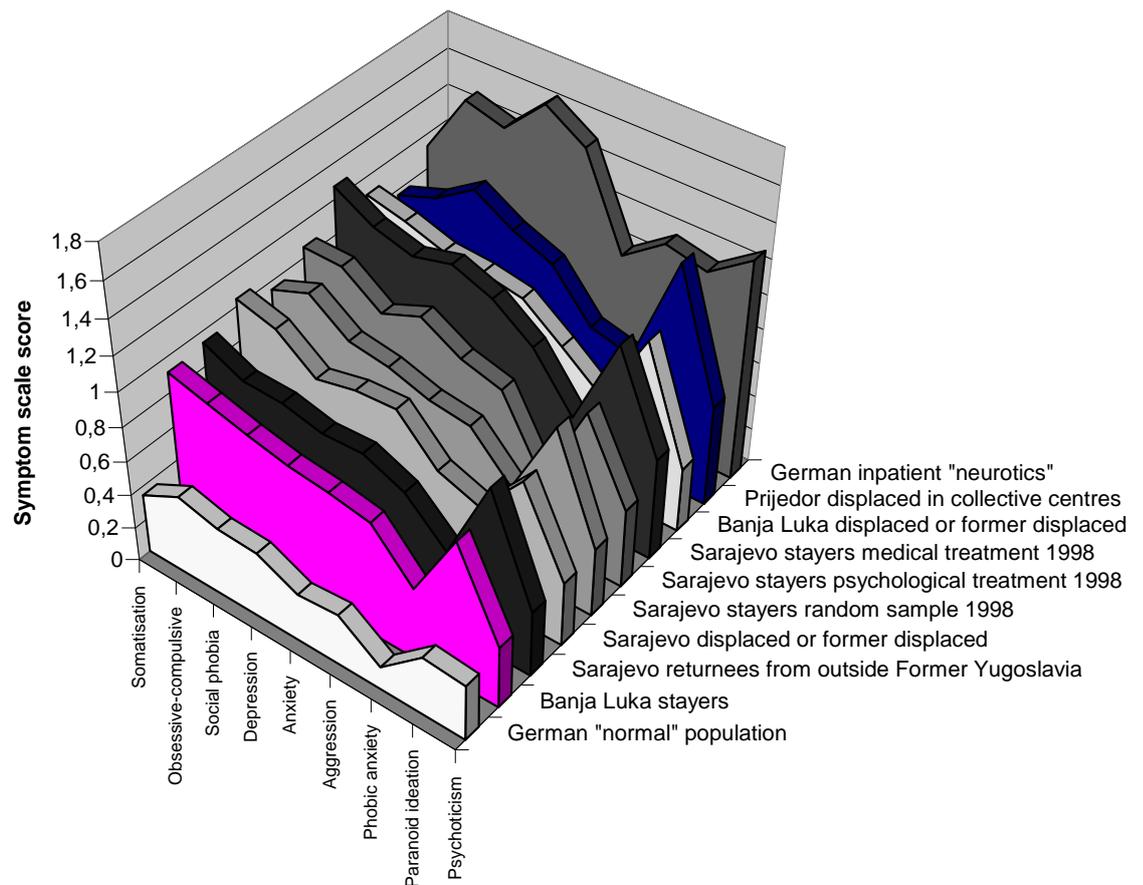
However this is only a preliminary analysis; much more work needs to be done, for instance to isolate as many as possible of the factors which predict particular psychological problems.

## 6 Results: Psychological status

The information in this section is intended to assist the identification of psychological needs and target groups for psychosocial intervention for each of the samples questioned.<sup>xiv</sup>

Psychological adjustment is important not just because it is an indication of the pain, optimism etc experienced by the citizens of Bosnia-Herzegovina but also because it has a major influence on the reconstruction of the country. For example depression is a major obstacle because it disables progress. Even the most talented or resourceful people achieve very little for themselves or others if they are depressed or hopeless.

### 6.1.1 Level of symptoms for each of nine types of symptom, by sample including comparison with: a German "normal" population, German inpatient psychiatric patients, and three samples of Sarajevo stayers from 1998



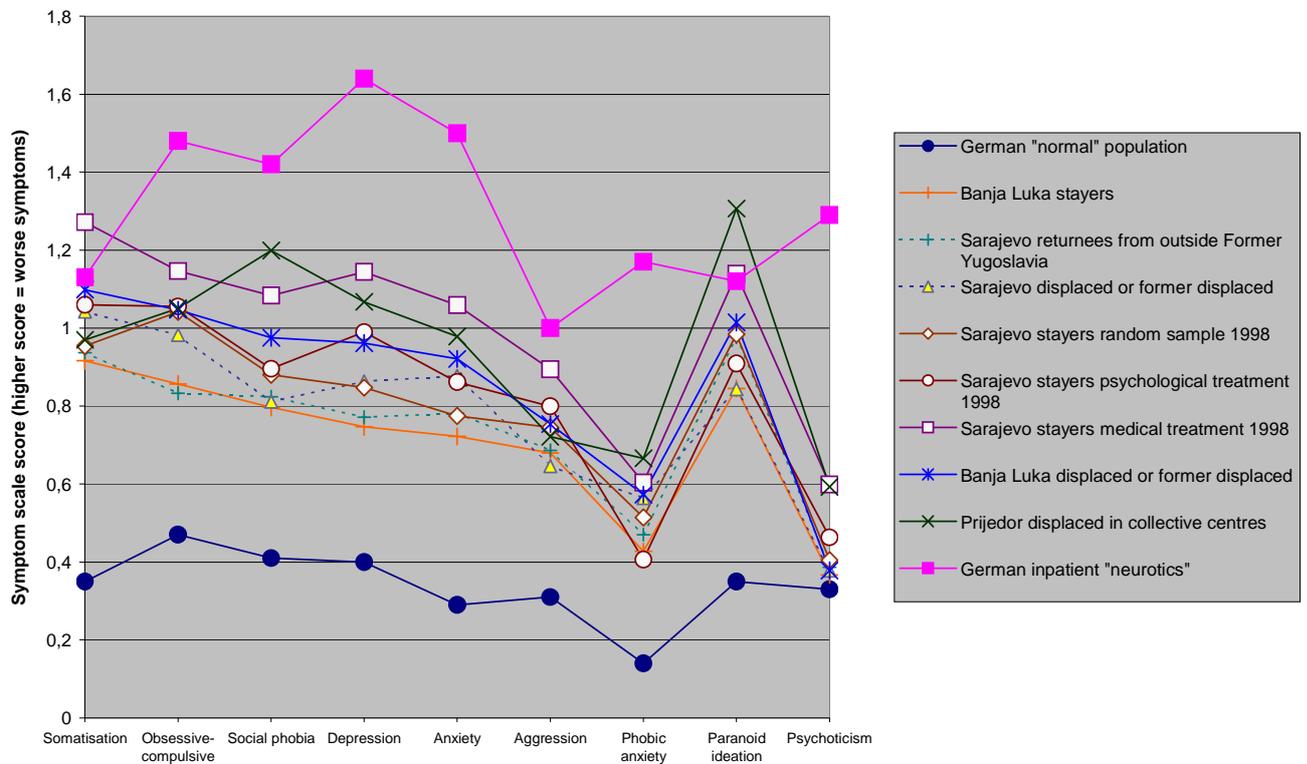
This diagram shows the scores on subscales<sup>xv</sup> of the clinical instrument used, the SCL-90-R. A higher score means more symptoms. It is not however yet completely clear if the elevated level of symptoms in comparison with the German normal sample is due solely to war and post-war stress or to what extent cultural differences are being reflected.

Three additional comparison samples have been added from research carried out by our Institute in Sarajevo in 1998: people in medical and psychological treatment and a random sample from the town.

In general it is clear that symptom levels are significantly raised in relation to the reference sample of German people without special psychological problems, but are not - thankfully - as high as would be expected in inpatient populations.<sup>xvi</sup>

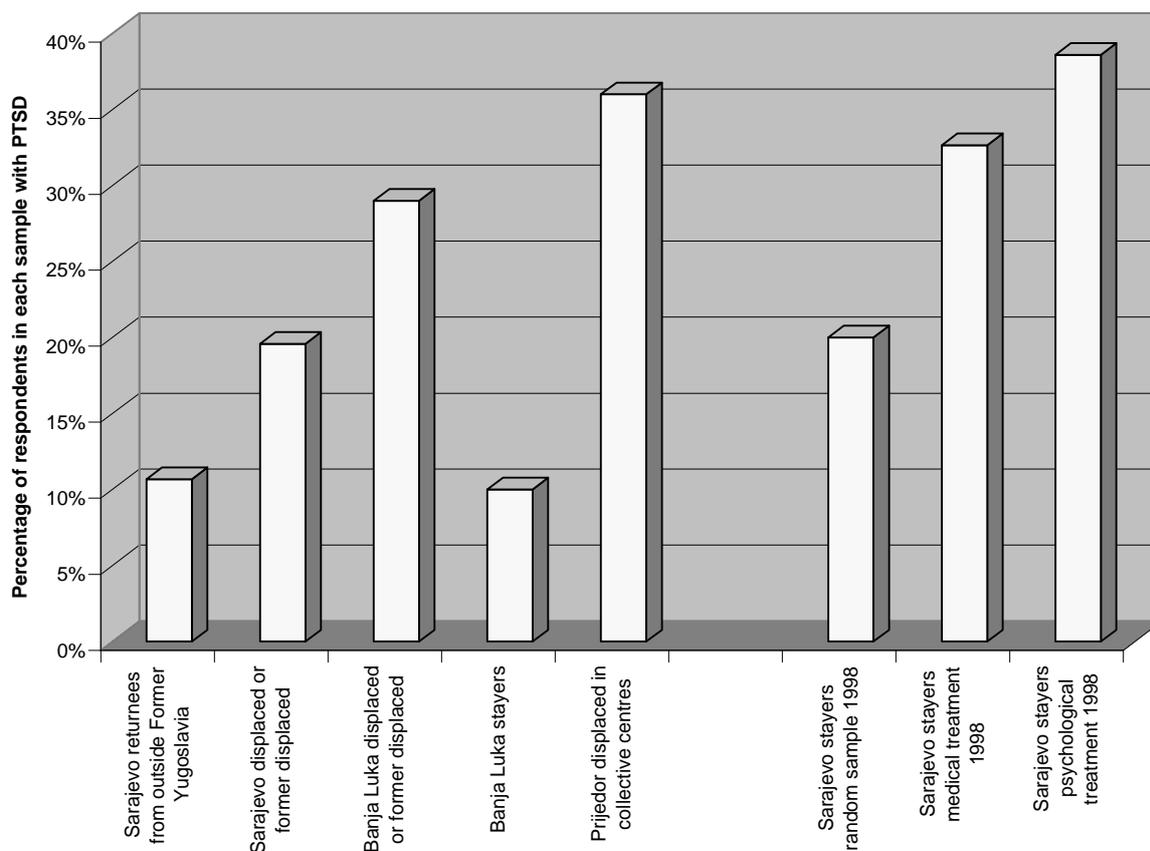
As expected, the Banja Luka stayers are the least symptomatic. The people with most symptoms are the Prijedor and Banja Luka displaced persons in camps. In Sarajevo, the returnees are slightly less symptomatic than the displaced persons who are about as well adjusted as the stayers were in 1998.

**6.1.2 General symptom profile of the different samples: second view**



This second chart shows the same information in a different way; here it is easier to compare the shapes of the profiles to the German reference samples. Very marked is the particular profile in all the post-war Bosnia-Herzegovina samples; There is a peak on the subscale named "paranoid ideation" which has to do with suspiciousness and feelings of being isolated. When one compares with the German inpatient sample, in this Bosnian sample the more passive symptom types such as anxiety and depression are less elevated than the subscales aggression, paranoid ideation, and somatisation.

**6.1.3 Percentage of respondents with the diagnosis "Posttraumatic stress disorder", by sample**

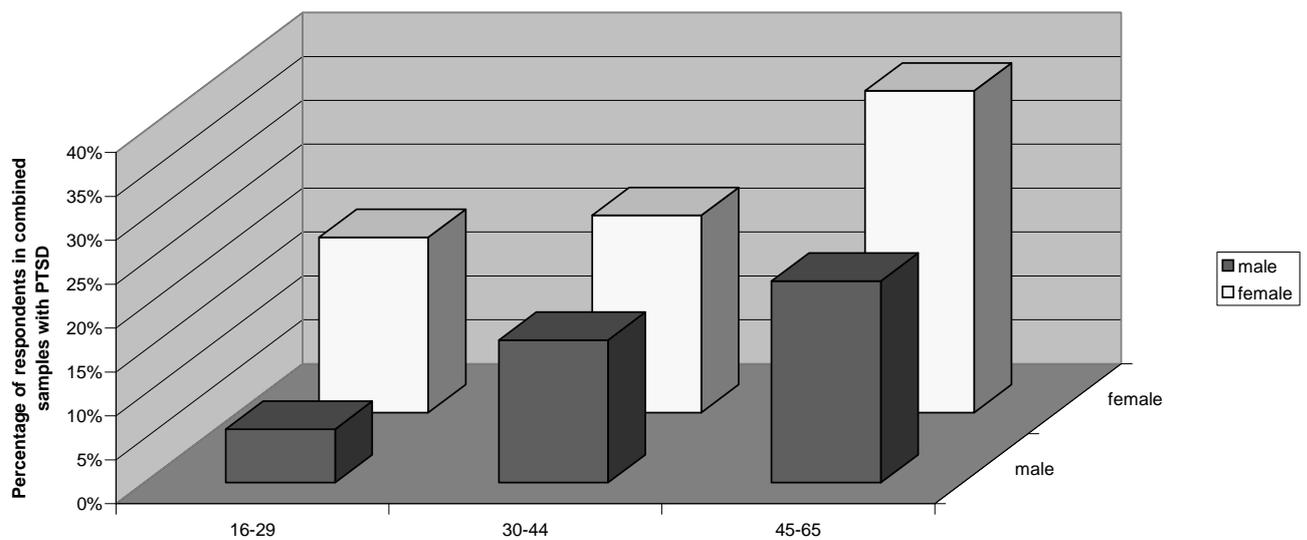


Not just general psychological symptoms but also, in particular, Posttraumatic stress disorder (PTSD)<sup>xvii</sup> is particularly relevant with people who have been through a war. People with PTSD have problems with hyperarousal (sleeplessness, restlessness), re-experiencing the events (nightmares, flashbacks) and avoidance (trying not to think about the events; emotional numbing). PTSD is a serious disorder which can extremely unpleasant for those affected and significantly affects their daily functioning at work and in the family. The fact that between 10% and 35% of the non-treatment samples have PTSD is a very worrying statistic. The proportion of people with PTSD shows a much greater difference between the samples than the overall symptom level discussed in the last section.

As in the last section, three semi-random samples of Sarajevo stayers from 1998 have been included for purposes of comparison.

The samples exposed to most war stress (see last section) have, not surprisingly, more PTSD. However the displaced people in collective centres have the highest proportion of PTSD amongst the 1999 samples, which could indicate that particularly difficult social circumstances can contribute significantly to the maintenance of PTSD.

**6.1.4 Percentage of respondents having Posttraumatic Stress Disorder, by age & sex**



The incidence of PTSD is higher in older people, and amongst women. This broadly agrees with results from the world literature on PTSD, although further research is needed to control for differential exposure to traumatic events.

The results for overall psychological symptoms as measured by the SCL-90-R are very similar.

## 7 Results: Integration & Identification

The aim of this section is to analyse the respondents' life perspectives, satisfaction, and feeling "at home" or not where they are now living. It is based on a new questionnaire QII. The respondents could answer "I agree", "don't know" or "I don't agree" to the following statements. The scoring was: -1 = I don't agree; 0= I don't know and 1= I agree. So a mean of 1 would mean that everybody in the sample agreed with that statement; a mean of -1 would signify that everybody in the sample disagreed with that statement.

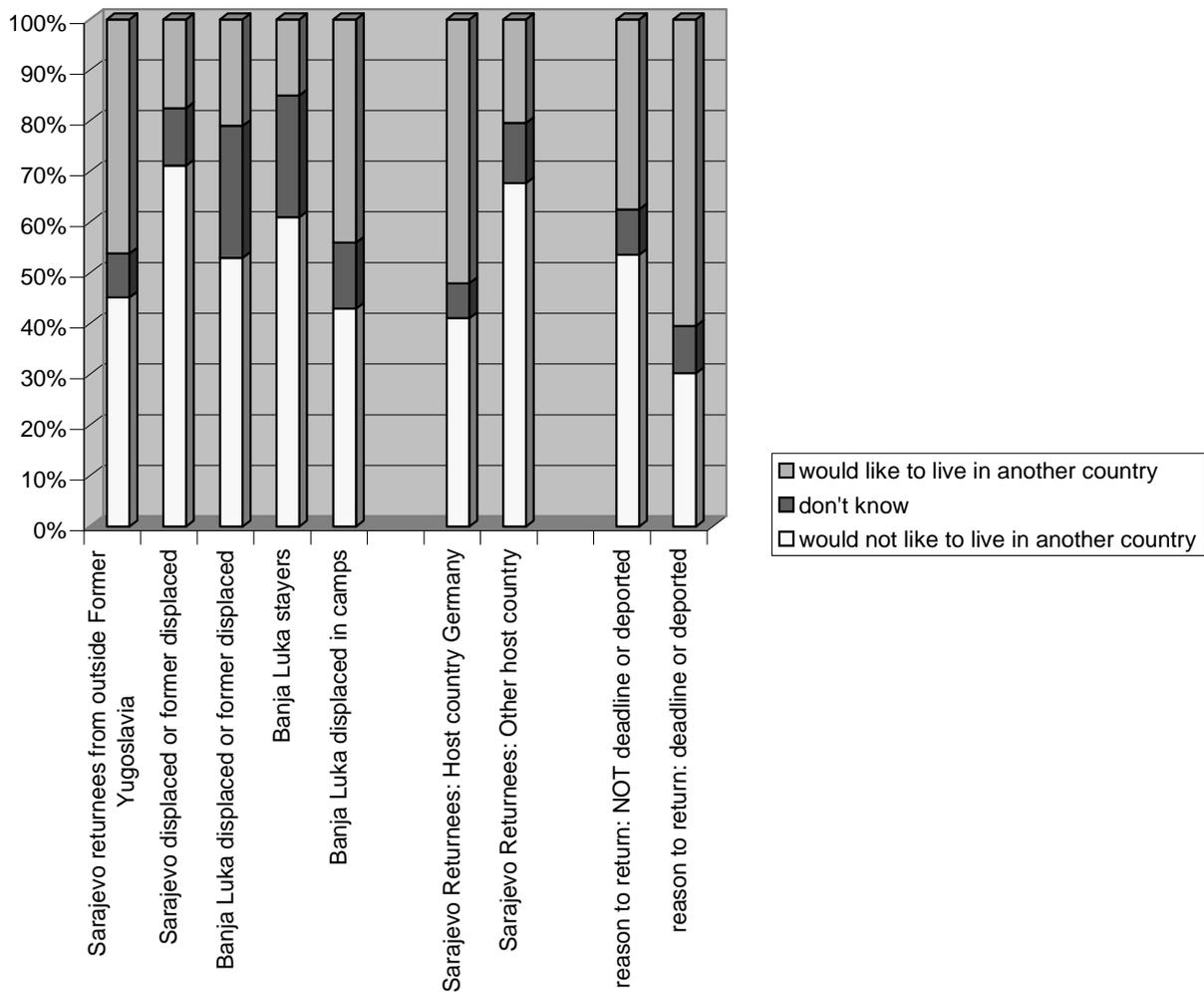
### 7.1.1 Questionnaire on integration and identification: all results.

Table contains mean score: -1 = I don't agree 0= I don't know 1= I agree	Sarajevo: returnees from outside Former Yugoslavia. 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Mean	Special analysis of returnees: Reason for leaving host country	
							NOT deadline or deported (56 persons)	deadline or deported (43 persons)
I feel at home where I live now	0,59	-0,07	-0,30	0,85	-0,83	0,05	0,70	0,47
I feel that this is my country	0,82	0,84	0,82	0,92	-0,02	0,67	0,88	0,74
I feel that this is my town	0,76	0,65	0,32	0,93	-0,49	0,44	0,88	0,60
Most of the people here are basically the same as me	0,23	0,56	0,28	0,21	0,23	0,30	0,25	0,23
I get on well with the people who live here	0,75	0,91	0,85	0,84	0,59	0,79	0,82	0,67
I am happy living in this area	0,36	0,48	0,32	0,59	-0,42	0,27	0,57	0,09
I think I/we can have a good future here	-0,01	0,30	0,19	0,46	-0,19	0,15	0,14	-0,21
I feel I can contribute to this society	0,40	0,56	0,74	0,69	0,35	0,55	0,56	0,19
I am happy with my/our work situation	-0,48	-0,48	-0,43	-0,03	-0,79	-0,44	-0,37	-0,67
I am happy with my/our financial situation	-0,50	-0,67	-0,75	-0,65	-0,92	-0,70	-0,40	-0,67
I would like to live in another country	0,01	-0,54	-0,32	-0,46	0,01	-0,26	-0,16	0,30
I would prefer to live in another area of this country	-0,80	-0,45	-0,70	-0,92	0,27	-0,52	-0,84	-0,77

So in general the results were positive; most people identify and feel happy with where they live; the majority do not want to move to another country. However the displaced persons in centres did on average want to live in another area inside their country.

For this table a special analysis just of the returnees was carried out (two right-hand columns) to see if it made a difference whether the returnees returned voluntarily, i.e. whether or not they said (in answer to the questionnaire AIR) that they returned due to an official deadline (or were deported). In fact most of these differences are indeed significant in the expected direction that these people are less happy in the "home" country.

**7.1.2 Percentage wishing /not wishing to live in another country, by sample**

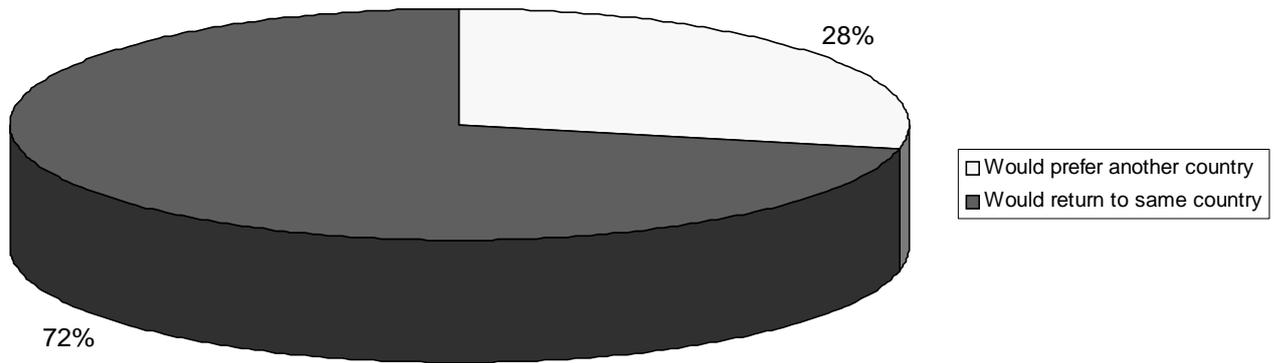


This graphic analyses the data in the previous table more closely. Nearly half the returnees would like to live in another country. The next pair of bars in the chart further analyse just the sample of returnees into those who stayed longest in Germany and those who stayed elsewhere. Whereas only about 20% of the respondents who stayed longest in a host country apart from Germany would like to leave Bosnia-Herzegovina - a similar proportion to the other samples - over half the returnees from Germany would like to leave. This is an important result. On the one hand, it would seem to indicate that these returnees had positive experiences in Germany. On the other hand, it could be a cause of social tension if a significant portion of the citizens of Bosnia-Herzegovina would rather live elsewhere. The final pair of bars suggest a possible reason for this difference: it analyses this returnees sample again, but this time into those who left voluntarily and those who said that they left because of an official deadline or because they were deported (nearly all of whom were from Germany, as can be seen in the table below). It is clear that those who would prefer to live in another country are those who did not leave the host country voluntarily.

**7.1.3 Numbers leaving host country voluntarily / involuntarily, by host country**

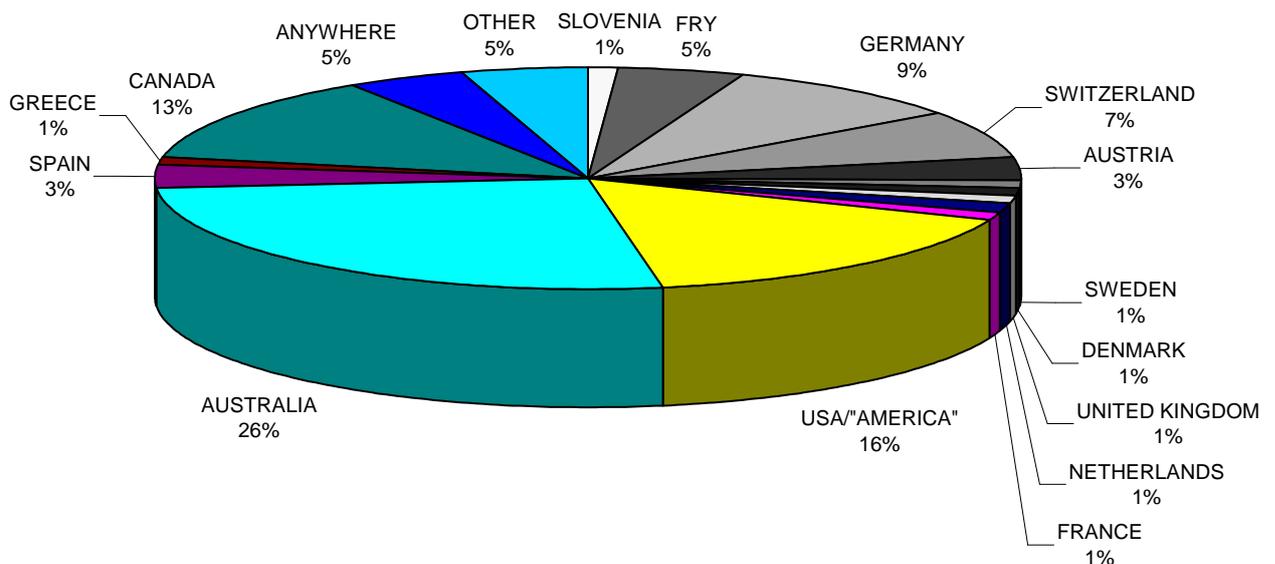
		Special analysis of returnees: Reason for leaving host country		Total
		NOT deadline or deported	deadline or deported	
Country of refuge	Other country (28 persons)	25	3	28
	Germany (71 persons)	31	40	71
Total		56	43	99 <sup>xviii</sup>

**7.1.4 Country preferences of returnees who would like to live in another country**



The returnees' experience of their host country seems to have been favourable; nearly 3/4 of those who wish leave Bosnia-Herzegovina would like to return to their host country. This data has not been analysed further into returnees from Germany/other countries because the numbers of returnees not from Germany who want to leave Bosnia-Herzegovina is too small.

**7.1.5 Country preferences of non-returnees who would like to live in another country**



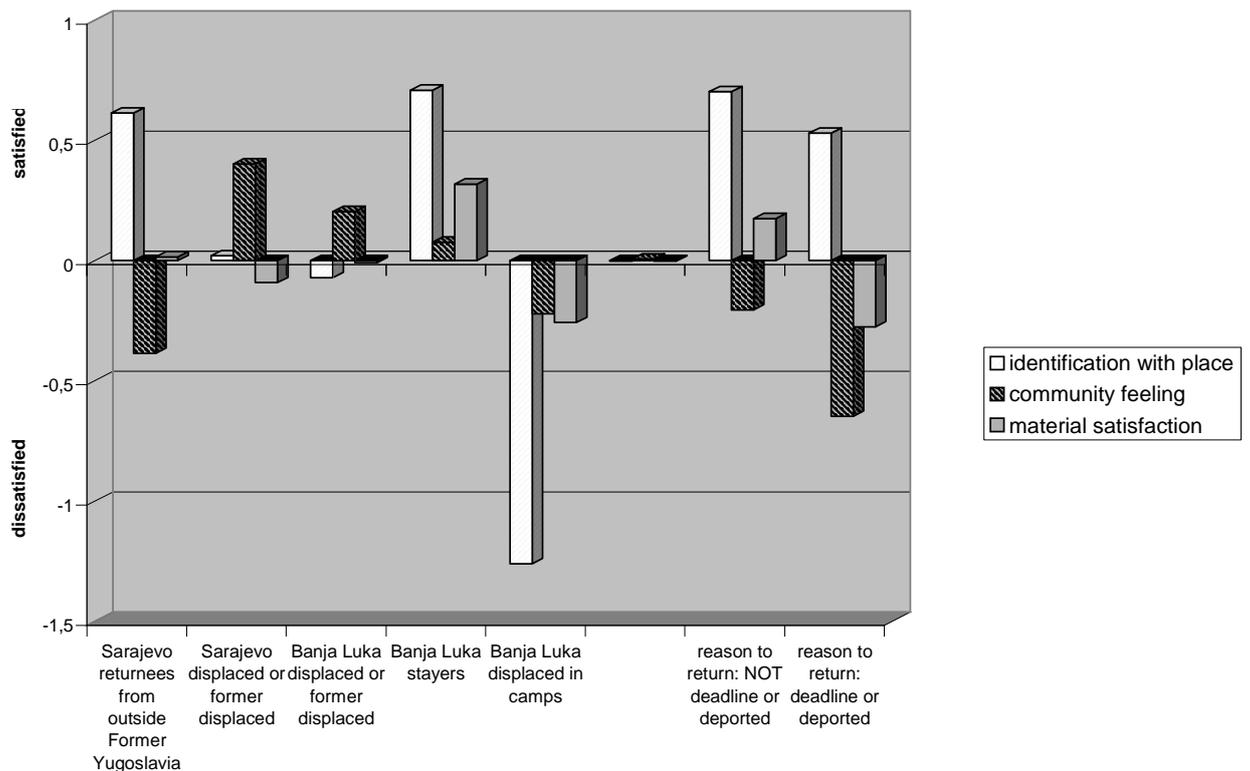
This graphic includes information from all the other samples, i.e. from those who are not in fact returnees. As such it possibly represents more wishful thinking than any well thought out plans or intentions.

**7.1.6 Questionnaire on integration and identification: factors**

Table contains mean score: -1 = I don't agree 0= I don't know 1= I agree	Sarajevo: returnees from outside Former Yugo- slavia. 104 persons.	Sarajevo: displaced (or former dis- placed). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Special analysis of returnees: Reason for leaving: return by deadline or deportation	
						no	yes
identification with place	0,61	0,02	-0,07	0,71	-1,26	0,67	0,03
community feeling	-0,39	0,4	0,2	0,08	-0,22	-0,4	-0,47
material satisfaction	0,02	-0,09	-0,01	0,32	-0,26	-0,02	-0,14

The items listed in table 7.1.1 were then grouped into three factors which are relatively independent of one another. For instance the factor "material satisfaction" contains the two items "I am happy with my/our financial situation" and "I am happy with my/our work situation". This facilitates comparison between the samples on different aspects of identification and integration.

**7.1.7 Questionnaire on integration and identification: main factors by sample**



This graphic reveals a disturbing amount of dissatisfaction amongst, not surprisingly, the displaced persons in collective centres but also amongst the returnees who did not return voluntarily.

**7.1.8 Scale for social support: overall score**

	Sarajevo: returnees from outside Former Yugoslavia. 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
Overall score (higher scores means more perceived support)	43,76	47,52	47,11	47,83	40,19	45,25

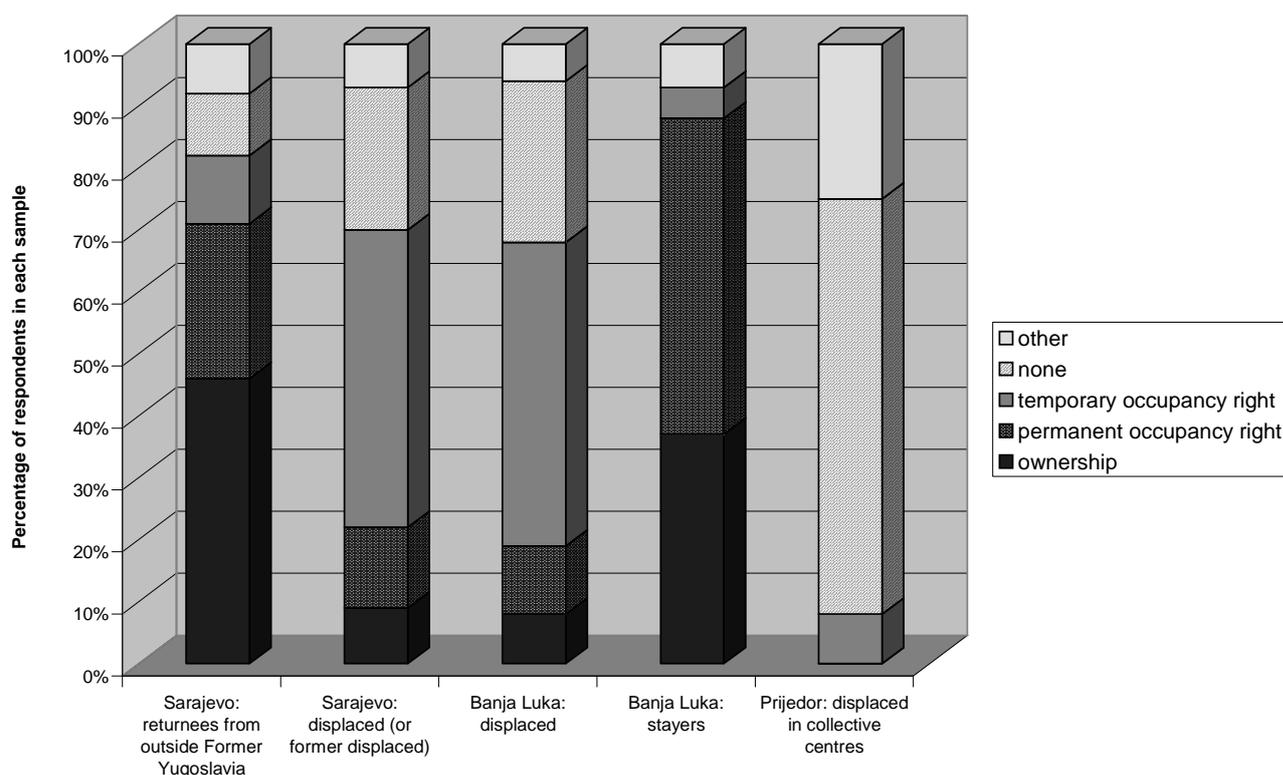
This table shows the results of a questionnaire used to assess the level of support which the respondents believe they receive from their family, friends and community. There were no significant differences between the groups.

## 8 Results: Current accommodation: status, wishes.

This section analyses results from a new questionnaire CAS: Current accommodation status and intentions (see below) and gives information on opinions on exchange of property etc.

### 8.1.1 Rights over current accommodation held by respondents or their families

	Sarajevo: returnees from outside Former Yugoslavia . 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
ownership	46%	9%	8%	37%	0%	20%
permanent occupancy right	25%	13%	11%	51%	0%	20%
temporary occupancy right	11%	48%	49%	5%	8%	24%
none	10%	23%	26%	0%	67%	25%
other	8%	7%	6%	7%	25%	11%



It is striking that a large proportion of returnees own or have permanent occupancy rights over their current accommodation, i.e. the place where they are living now – a proportion second only to that amongst the Banja Luka stayers. Perhaps this is because those refugees who own their own accommodation in their “homeland” are more likely to return.

**8.1.2 Current accommodation status (Percentage of respondents assenting to each statement)**

	Sarajevo: returnees from outside Former Yugoslavia 104 persons.	Sarajevo: displaced (or former displaced). 97 persons.	Banja Luka: displaced. 100 persons.	Banja Luka: stayers. 100 persons.	Prijedor: displaced in collective centres. 100 persons.	Group mean
Are you sharing someone else's accommodation?	27%	69%	71%	13%	28%	41%
Are you sharing your accommodation with someone else?	12%	8%	12%	9%	13%	11%
Do you (or a family member who you live with) <i>own</i> accommodation somewhere else but cannot live there now?	26%	65%	74%	3%	72%	48%
Do you (or a family member who you live with) <i>have a right to</i> accommodation somewhere else but cannot live there now?	13%	28%	49%	2%	36%	26%
Would you like to exchange your accommodation or your right to it?	18%	41%	75%	6%	48%	37%
Would you like to sell your accommodation or your right to it?	13%	30%	75%	2%	39%	32%
Have you tried to sell or exchange your accommodation or your right to it?	6%	11%	34%	0%	11%	12%
Would you be prepared to share your accommodation with family members or close friends who needed it?	54%	69%	86%	77%	82%	73%
Would you be prepared to share your accommodation with other people who needed it?	29%	32%	66%	49%	69%	49%

A large proportion of the displaced persons, especially those in Banja Luka and less so for those in collective centres, have rights to other accommodation elsewhere. A large proportion of these people would like to exchange or sell those accommodation rights, which is an indicator that they are not very interested in returning to that accommodation.

## **9 Results: Differences between returnees from Germany and other Host Countries**

Statistical tests were made to find significant differences (on all relevant variables included in this survey) between returnees from Germany and those from other host countries.

Because this analysis involves multiple simultaneous comparisons, only highly significant differences<sup>xix</sup> are reported here:

- Demographic data: returnees from Germany have less income per person
- Traumatic events and stressors: returnees from Germany have more traumatic events in the event group "expulsion and flight"
- Traumatic events and stressors: Single item: "Did the host country authorities threaten to force you to return": returnees from Germany have more "yes" answers
- Questionnaire on Integration and Identification: returnees from Germany have lower scores on the factor "material satisfaction"
- Questionnaire on Integration and Identification: single items: returnees from Germany have less agreement with the statements:

QII.3 I feel that this is my town

QII.7 I think I/we can have a good future here

QII.8 I feel I can contribute to this society

QII.9 I am happy with my/our work situation

The returnees from Germany seem to have psychosocially less optimal scores on many variables than returnees from other countries. With a larger sample, more significant differences would certainly become visible.

## **10 Results: Effect of length of time spent abroad**

Statistical tests were made on the sample of returnees to find significant correlations between the length of time spent outside former Yugoslavia and all other relevant variables included in this survey.

No highly significant differences<sup>xx</sup> were found with this small sample, although one variable came extremely close: AIR.G8: Now that you have returned, do other people where you live now criticise you, for having left your country? - Returnees who had been longer abroad answered this question more often with yes.

## 11 Thanks and dedication

Our sincere thanks are due to the many people who were involved in this survey:

Above all to the approximately 600 citizens of BiH who took the time to answer our lengthy and sometimes distressing list of questions and to share their experiences and opinions with us.

This report is dedicated to them.

### **Sincere thanks is due to:**

The students in Sarajevo who contacted the respondents, gave the questionnaires, carried out the interviews and entered the data in Sarajevo:

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Ernst Hustädt GTZ-Advisor  
Bernd Rowek GTZ-Advisor

## 12 Appendix: Background

This preliminary data is extracted from a larger project conducted by our Institute in 1998 and 1999. The portion reported here was conducted in co-operation with the Office of the Federal Government Commissioner for the Return of Refugees, Reintegration and related Reconstruction in Bosnia and Herzegovina, Hans Koschnick in Sarajevo and the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ GmbH), which provided half of the funding. Additional questions of special interest to that Office were included in the questionnaire package. A co-operation program between our Institute and the Department of Psychology at the University of Sarajevo also provided support, funded by the Volkswagen-Stiftung, Hanover, Germany.



Clinical responsibility for the project rests with the Institute for Psychology, Department of Clinical Psychology and Psychotherapy, LMU (University of Munich), Prof. Dr. Willi Butollo.

The Psychology Department of the University of Banja Luka was also involved in part of the planning of this project and in carrying out the research in three of the samples.

## **13 Appendix: Samples**

Each sample included approximately 100 people

### **13.1 Sarajevo samples**

Each of the four Municipalities in the city of Sarajevo were approached and agreed to co-operate: Novo Sarajevo, Stari Grad, Novi Grad and Centar. From each Municipality, four Mjesne Zajednice (Local Councils) were chosen at random. Each Mjesna Zajednica provided a list of all those registered with them who could meet the inclusion criteria for either of the two subsamples (see below). From these lists, possible respondents were chosen at random. The interviewers (advanced students of psychology, working in pairs) then visited these people at their registered place of residence. People not in fact resident at that address, absent for longer than two weeks, not fitting the inclusion criteria (see below) or declining to be interviewed were struck from the list. Those interested in co-operating with the survey were then informed of the aims and conditions of participation, given guarantees of confidentiality and asked to sign a consent form. The questionnaires and interviews were then administered, a process which could take anything from 40 minutes to 2 or 3 hours. The respondents were paid for their co-operation. The resulting two samples were:

- ◆ Sarajevo city: Displaced and former displaced Persons: Spent more than a year outside Sarajevo 1991-5 but spent LESS than a year outside former Yugoslavia.
- ◆ Sarajevo city: Returnees from outside Former Yugoslavia: Spent more than a year outside former Yugoslavia.

### **13.2 Banja Luka samples**

- Banja Luka Internally displaced Persons: Spent more than a year outside Banja Luka 1991-5 but spent LESS than a year outside former Yugoslavia. Semi-randomised via place of residence in the town: a map of the city was divided into squares. Streets were randomly chosen from each square and assigned at random to the interviewers. The interviewers - again, pairs of advanced psychology students - then selected apartments in each street according to a fixed selection algorithm. They approached one person from each apartment for interview.
- Banja Luka: stayers. Spent LESS than a year outside Banja Luka 1991-5. Semi-randomised via place of residence in the town, as above.
- Prijedor and Banja Luka Displaced Persons in Collective Centres. Spent more than a year outside Banja Luka 1991-5 but spent LESS than a year outside former Yugoslavia. The respondents were randomly chosen from the list of residents at the following centres:
  - Kozarac
  - Celpak factory (Prijedor)
  - Kozarus'a
  - Ljubija
  - Trnopolje

### **13.3 Comparison samples: Sarajevo 1998**

Three more samples interviewed for our project in 1998 are also included for comparison. Some but not all of the questionnaires used in 1999 were also administered in 1998.

Sarajevo city: Sarajevo "Stayers": Spent less than a year outside Sarajevo 1991-5. Semi-randomised via place of residence in the town, as above for Banja Luka.

Sarajevo city: Sarajevo "Stayers" in medical treatment: Spent less than a year outside Sarajevo 1991-5. In medical treatment. Approached through treatment centres.

Sarajevo city: Sarajevo "Stayers" in psychological treatment: Spent less than a year outside Sarajevo 1991-5. In any kind of psychological or counselling treatment. Approached through treatment centres.

### **13.4 Definitions of "former refugee" etc.**

The terms "returnee" "refugee" etc are used in the literature differently in different contexts. One of the most accepted distinctions is between "refugee" and "internally displaced person". Both of these terms refer to those who have been forced or obliged to leave their homes, e.g. as a result of war or persecution<sup>xxi</sup>. The distinction is then made between refugees, who have, and the internally displaced, who have not, crossed an internationally recognised state border. The present survey broadly follows this distinction. However in the case of former Yugoslavia it is not clear which "internationally recognised state border" is to be considered, as the former constituent republics of former Yugoslavia were only recognised internationally during the war. The decision was made to include someone who was displaced inside former Yugoslavia as internally displaced rather than as a refugee. Of course all distinctions of this kind are somewhat arbitrary; in any case the detailed information assessed in this survey on movements during the war allow more detailed analyses beyond these rough distinctions.

So the present sample of "returnees from outside former Yugoslavia" are all refugees who have now returned to BiH. It should not be forgotten that they are only in one sense "returnees"; many former refugees in BiH, while having returned to their country, are still not able or willing to return to their pre-war accommodation. Those people can in fact be considered to now be internally displaced.

One Sarajevo sample of internally displaced also includes some who *have been* internally displaced by the war and who may now have returned to their pre-war accommodation. In other words, someone with a long history of displacement during the war is included in the same sample as someone who are still displaced rather than in a sample with those who retained their place of residence during this time. The hypothesis can be made that this is closer to the truth from a psychosocial point of view - a hypothesis which will be tested in the course of further analysis.

### **13.5 Problems with samples**

The sampling method employed in Sarajevo, while being a genuinely random selection of the population of registered returnees and displaced persons, is not representative of those *not* registered with the Local Councils.

In addition, with all the samples there were some refusals; i.e. people who were approached and who fitted the criteria but who did not want to take part, as analysed below.

### **13.6 Refusals**

The analysis of refusals is not yet complete. However a significant proportion of those approached declined to be interviewed - except in the case of the displaced people in the collective centres; there, 100% of those approached completed the interview. In similar research using nearly identical methodology carried out by our Institute in 1998, approximately 50% of those approached finally completed an interview. With a proportion of those refusing this year, it was possible to ask them their highest level of education; these levels corresponded roughly to those in the general population. Nevertheless **it is possible that those refusing to be interviewed are on average somewhat less well adjusted psychosocially and so that this research underestimates the levels of psychosocial problems in the populations and possibly overestimates the difference between the displaced people in the collective centres and the others.**

### **13.7 Inclusion criteria**

Inclusion criteria for all samples were:

- Living now, even temporarily, in Sarajevo or Banja Luka
- Adults between 16 and 65 years old
- Not suffering from a psychotic disorder
- Literate enough to answer the questionnaire with help
- Living in Former Yugoslavia for most of 1980-1991

In addition, even those approached but declining to take part will be asked to give their highest level of education, in order to analyse whether there is a bias towards more educated people answering the questionnaire.

### **13.8 Stratification**

Each sample was representative for the population in regard to age and sex according to population data from 1990; i.e., stratified quota method. The cells in the following table are chosen so as to break the population for each of the samples into approximately equal groups.

	Age 16-29	Age 30-44	Age 45-65	Total
Men	16 or 17	16 or 17	16 or 17	48 to 51
Women	16 or 17	16 or 17	16 or 17	48 to 51
Total	32 to 34	32 to 34	32 to 34	96 to 102

## 14 Appendix: References and Footnotes

<sup>i</sup> Details of refusal rates are given in the appendix.

<sup>ii</sup> This definition of "returnee" does not include those who sought refuge inside the boundaries of former Yugoslavia. See the discussion in the appendix.

<sup>iii</sup> It should be noted that the definition of displacement employed in this survey does not take into account whether the person left their original residence as a direct result of the war or not - see the discussion in the appendix. In fact the vast majority of them did; see section 3.1.1.

<sup>iv</sup> PSS-SR: PTSD (Post-Traumatic Stress Disorder) Symptom Scale; Foa, Riggs, Dancu & Rothbaum, 1993

<sup>v</sup> SCL-90-R: Symptom Checklist-90-R; Derogatis, 1977

<sup>vi</sup> SOZU: Fragebogen Zur Sozialen Unterstuetzung; Fydrich Sommer Mentzel & Hoell, 1987

<sup>vii</sup> Monthly income was assessed by asking about the total income in the household and dividing by the number of people living there.

<sup>viii</sup> These numbers may seem low. Please remember that not just married but also single people from the age of 16 were included in the survey.

<sup>ix</sup> Religion was used as criterion rather than ethnicity because the terminology of religious confession is less confusing than that of nationality.

<sup>x</sup> This involves subdividing the sample of around 100 into two smaller groups, which is quite small for statistical analysis. However as the sample was obtained through selecting randomly from Community Centre lists, the results presented here can nevertheless be generalised with a good degree of confidence to returning refugees in general. In section 9, statistically significant differences between these two subgroups are reported for ALL the questions asked in this survey.

<sup>xi</sup> Summary of Returns by Host Countries 9904, published at RIC: <http://www.ric.com.ba>.

<sup>xii</sup> It is not clear to what extent some respondents classified certain accommodation as being both temporary accommodation and a collective centre.

<sup>xiii</sup> As measured by the GSI index of the SCL-90-R.

<sup>xiv</sup> A subsidiary aim was the confirmation/revision of a result in a survey carried out by the Institute of Victimology in Sarajevo in Spring 1999 of very poor psychological status of returnees from outside Former Yugoslavia & of internally displaced persons - through better control of confounding variables, demand characteristics etc (do the respondents think they get more money if they answer in a certain way, etc).

<sup>xv</sup> The subscales are those published with the instrument. Factors specific to the present samples can indeed be found which are very similar to but not identical to those published. The published subscales have been used to facilitate comparison with the reference samples.

<sup>xvi</sup> It should be emphasised that the questionnaires used in this section are designed only to allow comparisons between samples. They are not designed in this context to give information about individuals and they are certainly not sufficient basis to give clinical diagnosis. In other words, one cannot say on that any of the individual members of the samples have clinical disorders, only that there seem to be elevated levels certain symptoms in certain samples.

<sup>xvii</sup> Assessed on the basis of the questionnaire PSS-SR designed to give a diagnosis of Post-Traumatic Stress Disorder according to DSM-IV.

<sup>xviii</sup> This total (99) is less than the total number of returnees (104) due to missing data on these variables.

<sup>xix</sup> i.e. significant at the 0,01 level, assuming unequal variances

<sup>xx</sup> i.e. significant at the 0,01 level, assuming unequal variances

<sup>xxi</sup> Cohen, Roberta & Deng, Francis M. 1998. Masses in flight. The global crisis of internal displacement The Brookings institution, Washington DC.

A.3 Paper 3: Powell, S., & Rosner, R. (2005). The Bosnian version of the international self-report measure of post-traumatic stress disorder, the Post-traumatic Stress Diagnostic Scale, is reliable and valid in a variety of different adult samples affected by war. *BMC Psychiatry*, 5(1), 11. doi:10.1186/1471-244X-5-11

## The Bosnian version of the international self-report measure of posttraumatic stress disorder, the Posttraumatic Stress Diagnostic Scale, is reliable and valid in a variety of different adult samples affected by war

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### Abstract

**Background:** The aim of the present study was to assess the internal consistency and discriminant and convergent validity of the Bosnian version of a self-report measure of posttraumatic stress disorder (PTSD), the Posttraumatic Stress Diagnostic Scale (PTDS). The PTDS yields both a PTSD diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders 4<sup>th</sup> edition (DSM-IV) and a measure of symptom severity.

**Methods:** 812 people living in Sarajevo or in Banja Luka in Bosnia-Herzegovina, of whom the majority had experienced a high number of traumatic war events, were administered the PTDS and other measures of trauma-related psychopathology. The psychometric properties of the instrument were assessed using Cronbach's alpha and principal components analysis, and its construct validity was assessed via Spearman correlation coefficients with the other instruments.

**Results:** The PTDS and its subscales demonstrated high internal consistency. The principal components revealed by an exploratory analysis are broadly consistent with the DSM-IV subscales except that they reproduce some previously reported difficulties with the "numbing" items from the avoidance subscale. The construct validity of the PTDS was supported by appropriate correlations with other relevant measures of trauma related psychopathology.

**Conclusion:** The Bosnian version of the PTDS thus appears to be a time-economic and psychometrically sound measure for screening and assessing current PTSD. This self-report measure awaits further validation by interview methods.

### Background

To obtain a diagnosis of PTSD and an estimation of PTSD severity a wide range of measures either relying on interviews or self-report exist in many languages. However, most of the relevant validation studies for these instruments were carried out for English-language versions [1].

For many languages, validated instruments do not exist. A standard approach in this situation is to translate one of those English-language instruments which are well validated, to carry out a validation study for the translation and to compare the results of the validation study with the studies for the original.

**Table 1: Internal consistency and test-retest reliability of the PTSD and its DSM-III-R precursor the PSS-SR**

Authors	Samples	Scales	Cronbach's alpha	Test-retest reliability
<b>Foa, Riggs, Dancu, &amp; Rothbaum (1993) [8]</b>	44 women (rape and other non-sexual attack) 5 – 6 weeks after the event	Total score	.91	.74 after one month (N = 29)
		Reexperiencing	.78	.66
		Avoidance	.80	.56
		Hyperarousal	.82	.71
<b>Engelhard et al (2001) [7] Stieglitz, Frommberger, Foa, &amp; Berger (2001) [9]</b>	113 women after miscarriage 152 persons: 1. time point: a few days after accident 2 time point: 6 months later	Total score	.87	.60 after six months
		Total score	.85 and .86	
		Reexperiencing	.75 and .82	.39
		Avoidance	.56 and .74	.53
<b>Foa, Cashman, Jaycox, &amp; Perry (1997) [3]</b>	284 victims of various traumatic experiences	Hyperarousal	.75 and .64	.47
		Total score	.92	.83 (approx 2 weeks later)
		Reexperiencing	.78	.77
		Avoidance	.84	.81
		Hyperarousal	.84	.85
				Kappa = .74 for PTSD diagnosis

Self-report instruments have several advantages as compared to interview measures. They are relatively economic in terms of administration and demand minimal clinician time. If clinicians are not familiar with psychiatric diagnostic procedures and especially the clinical diagnosis of PTSD, it is more advisable to use a psychometrically sound self-report measure which is less prone to mistakes than interview measures.

A good self-report measure for PTSD should allow a diagnosis of PTSD as well as an estimation of PTSD severity and should conform to the DSM-IV criteria for PTSD [2]. The English version of the Posttraumatic Stress Diagnostic Scale [PTSD; [3]] fulfils these criteria and has been shown to have adequate psychometric properties. The PTSD has been translated into a German version which also has adequate psychometric properties [4]. These two different language versions of the PTSD have been used in numerous studies [e.g. [4-9]]. Table 1 provides an overview over the internal consistency and the test-retest-reliability of the PTSD as published in the literature.

In terms of convergent validity, Foa, Riggs, Dancu, and Rothbaum [8] compared Posttraumatic Symptom Scale scores (PSS-SR; the DSM-III-R version of the PTSD) with the diagnosis obtained by administering the Structured Clinical Interview for the DSM-III-R [SCID; [10]]. 86 % of the participants with a PTSD diagnosis according to DSM-III-R criteria were correctly identified with the self-report instrument. The sensitivity was 62% and the specificity 100%. The DSM-IV version of the PTSD achieved a sensitivity of .89 and a specificity of .75. Percentage agreement

between SCID and PTSD diagnosis was 82 % and kappa was .65. Overall, the criterion validity of the PTSD with respect to SCID was encouraging. Table 2 provides an overview of convergent and divergent validity for the PTSD and some other self-report measures of trauma related psychopathology.

The symptom items of the PTSD, which reflect more or less verbatim the corresponding items in the DSM-IV criteria, in empirical studies do not necessarily fall into the three groups explicit in DSM-III-R and DSM-IV. The results of a number of factor-analytic studies suggest that the avoidance symptoms load on two separate factors [11-13]. One factor captures wilful and effortful avoidance and the other factor captures involuntary strategies of "shutting down" the emotional system when effortful strategies fail, which thus may load together on the same factor as hyperarousal symptoms. This issue is to be borne in mind when examining the structure of instruments intended to measure PTSD symptoms according to DSM-IV.

Because of the many advantages of the PTSD we decided to use it for estimating rates of PTSD in a series of studies in different samples of war-traumatized inhabitants of Sarajevo and Banja Luka, Bosnia and Herzegovina. The results of these studies have been published elsewhere or are still in the process of being published [14-16].

The PTSD had to our knowledge never been used before in the area of former Yugoslavia; instead, many studies have used similar but more or less ad-hoc constructed

**Table 2: Convergent and divergent validity of the PTSD and its DSM-III-R precursor PSS-SR**

Authors	PSS/PTDS Scales	IES Total score	IES Intrusion	IES Avoidance	BDI
Foa et al. (1993) [8]	PSS Total score		.81	.53	.80
	Reexperiencing		.81	.47	.66
	Avoidance		.71	.52	.73
	Hyperarousal		.70	.45	.75
Stieglitz et al. (2001) [9]	PSS Total score		.67 & .65	.61 & .57	.61 only at first measurement (a few days after the accident)
	Reexperiencing		.63 & .59	.53 & .47	.45
	Avoidance		.56 & .55	.50 & .51	.50
	Hyperarousal		.52 & .49	.47 & .45	.60
Foa et al. (1997) [3]	Total score	.78	.80	.66	.79
	Reexperiencing	.68	.77	.51	.67
	Avoidance	.75	.72	.69	.77
	Hyperarousal	.70	.74	.58	.73

checklist versions of the DSM-IV criteria. The introduction of the PTSD would therefore mean providing clinicians and researchers with a sound Bosnian version of an internationally accepted PTSD self-rating instrument. The goal of this paper is to report first results of the psychometric evaluation of the Bosnian PTSD.

## Methods

### Diagnostic assessment

Although all applied measures are questionnaires, not all subjects proved literate enough to complete them on their own. Therefore in some cases the interviewers had to read some of the questions to them and sometimes to reread or reformulate the questions. Thus the administration deviated slightly from the standard procedures.

The instrument under assessment was the *Posttraumatic Stress Diagnostic Scale* [3,17] which allows, as mentioned before, a diagnosis of PTSD as well as an estimation of symptom severity. The PTSD consists of four parts. Part 1 has 12 items in the original and asks about possible traumatic events (A1 criterion of DSM-IV). In part 2 the time of occurrence of the "most upsetting" event, together with the respondent's assessment of whether the event was life-threatening and whether it was accompanied by feelings of helplessness and intense fear are all evaluated (A2-criterion). Part 3 asks about symptoms of reexperiencing (5 items; criterion B), avoidance (7 items, criterion C), and arousal (5 items, criterion D). Part 4 explores the duration of the disturbance (criterion E) and the consequences of the symptomatology for important areas of functioning (criterion F). Since the original PTSD was designed for a civilian population in times of peace we replaced part 1 with a checklist of traumatic events specific to the war in Bosnia and Herzegovina 1992-5, the Checklist of War Related Experiences, CWE, the items of which are repro-

duced in Appendix 1. (The checklist also included other significant life events relevant to life in post-war Bosnia-Herzegovina. As these items are not relevant to this study, they are not discussed here.)

To obtain a Bosnian version we applied the procedures suggested by Vijver and Hambleton for the translations of psychological assessment measures [18]. That is, we performed an alternating procedure of translations and back-translations until no significant differences could be detected. In a second step we field-tested the resulting pilot versions to further check the appropriateness of the wording to the Bosnian language and the cultural context. The resulting modifications were then back-translated again.

The **Impact of Event Scale** [IES; [19]] is a questionnaire which assesses the frequency of intrusion and avoidance phenomena as a consequence of experiencing a particular event. In the more than 20 years since its publication it has very frequently been used to diagnose PTSD; however, that is neither the intended nor an appropriate use for it. The IES consists of 15 items each to be answered on a four-point scale assessing the frequency of the occurrence of stress reactions in the preceding week (0 = not at all; 1 = occasionally; 3 = sometimes; 5 = frequently). This means that total scores for the IES range between 0 and 75, with higher scores indicating more frequent intrusion and avoidance reactions. The IES has been applied in nearly every kind of traumatisation [for an overview, see [20]] and has been translated into many languages. The IES is one the most frequently used traumatic stress questionnaires internationally. The version used in the present study was almost identical to one which has been used in other studies in the region during and after the war and which has since been subject to a validation study [21]

**Table 3: Overview of samples used**

Sample	Region	Sampling procedure	N
A 1998	Sarajevo	randomised via maps of Sarajevo area	98
B 1998	Sarajevo	admission to psychological treatment	114
C 1998	Sarajevo	admission to medical treatment	99
D 1999	Sarajevo	randomly selected repatriates to B&H from lists held by local councils	103
E 1999	Sarajevo	randomly selected displaced or formerly displaced persons from lists held by local councils	97
F 1999	Banja Luka	randomly selected subjects who stayed in the Banja Luka throughout the war, selected via maps of area	100
G 1999	Banja Luka	randomly selected returned displaced persons, selected from lists of residents	100
H 1999	Prijedor	randomly selected from lists of residents in collective centres	100

**Table 4: Sample description**

	N	Minimum	Maximum	Mean	Std. Deviation
years of education	809	8.00	16.00	11.72	2.50439
age	812	16.00	68.00	37.89	13.78230
		N	%	Missing	
sex	female	426	52.5 %		
	male	386	47.5 %		
	Total	812	100.0 %	0	
employment status	unemployed or waiting list	178	21.9 %		
	other (housewife, student)	360	44.3 %		
	employed	274	33.7 %		
	Total	812	100.0 %	0	
family status	single	363	44.8 %		
	married or long-term relationship	447	55.2 %		
	Total	810	100.0%	2	
	Other	70	8.7 %		
religion	Islam	383	47.3 %		
	Catholicism	45	5.6 %		
	Orthodox	311	38.4 %		
	Total	809	100.0 %	3	

and found to have satisfactory factor structure and reliability.

**The Symptom Checklist-90-R [SCL-90-R; [22]]** is a 90 item self report questionnaire for measuring subjective psychological and somatic stress in the preceding seven days. Like the IES, the SCL-90-R is used widely internationally and has been used in a large number of research projects in a very wide variety of applications [for an overview, see [23]]. The SCL-90-R consists of nine scales and three global indices, of which the GSI, the Global Severity Index, is the most widely used.

#### *Beck Depression Inventory (BDI)*

The Beck Depression Inventory [BDI; [24]] is probably the best documented self-report method of measuring the intensity of depression [25,26]. By 1998 more than 2000 studies had been published using the BDI [27]. The cur-

rent, revised, version consists of 21 items whose scores vary between 0 and 3 [24]. Zero indicates that the symptom is not present whereas three indicates the most extreme level of symptoms. Clients are instructed to report on how they felt in the preceding seven days.

#### **Samples**

The following data was collected between February 1998 and October 1999 in Sarajevo, Banja Luka and Prijedor, which are all in Bosnia-Herzegovina. Sarajevo is in the Federation of Bosnia and Herzegovina, namely that part of Bosnia and Herzegovina which has a predominantly Muslim and Catholic population, and Banja Luka and Prijedor are in the other part, the Republika Srpska, which is predominantly Serbian Orthodox. The samples were stratified by age and sex. The number of years of schooling was also recorded. All subjects participated voluntarily and gave fully informed consent. Table 3 shows sampling pro-

**Table 5: Details of which instruments were given to which sub-samples**

	BDI			IES			PTDS		SCL		total
	not given	missing	available	not given	missing	available	missing	available	missing	available	
1998 samples, Sarajevo											
non-displaced random sample			98		2	96	1	97	1	97	98
non-displaced medical treatment		1	98		4	95	5	94	1	98	99
non-displaced psychological treatment			114		1	113		114		114	114
1999 samples, Sarajevo											
returnees from outside Former Yugoslavia	40		64	40		62	1	103	2	102	104
displaced or former displaced	21		76	21	1	75		97		97	97
1999 samples, Banja Luka and Prijedor											
Banja Luka displaced or former displaced	100			100				100		100	100
Banja Luka non-displaced	100			100				100		100	100
Prijedor displaced in camps	100			100				100		100	100
Table Total	361	1	450	361	8	441	7	805	4	808	812

cedures, region, and numbers for each sub-sample included in the following analysis. Table 4 provides a description of the demographics.

In total 812 persons participated. Inclusion criteria for all were a) age between 16 and 65, b) not suffering from a psychotic disorder and c) literate enough to answer the questionnaires with help. All subjects completed the PTSDS and the SCL-90-R; therefore correlations for these subscales are based on the data of all the subjects. However for reasons of economy, in 1999 the full package of questionnaires including the BDI and IES were only administered to a random selection of participants in only the two Sarajevo sub-samples. All other participants in 1999 only answered a smaller package of questionnaires including the PTSDS. Correlations between the PTSDS and BDI and IES are therefore based on a smaller dataset.

In 20 cases an entire instrument was missing, as detailed in table 5. In the remaining cases, the number of individual missing values for individual items was small (much less than 5%), so it was deemed acceptable to form the total scores for the scales simply by multiplying the mean item score for each individual, allowing for any missing items, by the total number of items on each scale. So in the case of the inter-scale correlations the Ns are merely reduced by the number of completely missing questionnaires. In the case of the reliability analyses for the subscales of the PTSDS, instruments with any missing items on the scale in question were excluded from the analyses, in each case slightly reducing the Ns.

### Interviewers

The medical and psychological samples were assessed through a total of 15 experienced counsellors/therapists, who were working at a variety of clinics and counselling centres in Sarajevo. All other samples were assessed by pairs of final year and third year students of Psychology at Sarajevo University and Banja Luka University. All interviewers were trained in the use of the questionnaires. Two pilot studies were performed to insure the appropriate use of the assessment. During the studies constant supervision for all interviewers was provided.

### Statistical analysis

To obtain an estimation of internal consistency Cronbach's alpha was calculated for the total scores and the subscales of the PTSDS. Convergent and divergent validity were estimated by using Spearman correlations between the scales. Spearman correlations were used because most of the distributions were not normal. For the principal components analysis, oblimin oblique rotation was used.

### Results and discussion

The standardised Cronbach's alphas for the Bosnian PTSDS were .93 for the total symptom score, .89 for the re-experiencing subscale, .84 for the avoidance subscale and .84 for the arousal subscale. The results correspond well with other published results.

The Spearman's correlations between the total scale and the subscales were all quite high at .89, .93 and .87 for re-experiencing, avoidance and hyperarousal respectively; re-experiencing correlated .74 and .67 with avoidance and

**Table 6: Item characteristics of the PTSD symptom items of the Bosnian PTDS**

	sex					
	female		male		total	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
B1 intrusions	1.00	1.12	.76	1.00	.89	1.07
B2 bad dreams	.73	1.02	.57	.92	.65	.98
B3 reexperiencing	.70	.99	.53	.86	.62	.94
B4 upset after remembering	1.14	1.07	.89	1.01	1.02	1.04
B5 physical reaction after remembering	.95	1.09	.62	.92	.79	1.02
C1 attempt not to think about it	1.14	1.16	.83	1.06	.99	1.12
C2 avoiding places people	.86	1.13	.65	1.03	.76	1.09
C3 not being able to remember details	.40	.80	.33	.74	.36	.77
C4 less interest in activities	.66	.96	.51	.89	.59	.93
C5 detachment estrangement	.65	1.00	.50	.93	.58	.97
C6 restricted affect	.81	1.07	.50	.87	.66	.99
C7 foreshortened future	.79	1.08	.58	.95	.69	1.02
D1 difficulty falling or staying asleep	.92	1.11	.63	.96	.78	1.05
D2 irritability	.70	.94	.55	.88	.62	.92
D3 difficulty concentrating	.92	1.02	.68	.92	.80	.98
D4 hypervigilance	.55	.88	.40	.77	.48	.83
D5 exaggerated startle response	.75	.99	.42	.81	.60	.93
total score on subscale b (reexperiencing)	4.53	4.43	3.36	3.94	3.97	4.24
total score on subscale c (avoidance)	5.32	5.02	3.89	4.79	4.64	4.96
total score on subscale d (arousal)	3.82	3.77	2.67	3.44	3.28	3.66
total score on all symptom subscales	13.66	11.73	9.93	10.84	11.88	11.46

The items were scored on a scale of 0 (not at all or once a month) to 4 (5 or more times a week /almost always).

**Table 7: Rotated factor pattern of the PTSD symptom items of the Bosnian PTDS**

Symptom	Loadings		
	Factor 1: Arousal / Numbing	Factor 2: Intrusion	Factor 3: Avoidance
b1 intrusions	.031	<b><u>-.824</u></b>	.050
b2 bad dreams	.127	<b><u>-.779</u></b>	-.049
b3 reexperiencing	.189	<b><u>-.704</u></b>	-.047
b4 upset after remembering	-.042	<b><u>-.830</u></b>	.079
b5 physical reaction after remembering	.084	<b><u>-.729</u></b>	.074
c1 attempt not to think about it	-.163	<b><u>-.480</u></b>	<b><u>.544</u></b>
c2 avoiding places people	-.080	-.256	<b><u>.666</u></b>
c3 not being able to remember details	.103	.014	<b><u>.649</u></b>
c4 less interest in activities	.209	-.105	<b><u>.511</u></b>
c5 detachment, estrangement	<b><u>.567</u></b>	.089	<b><u>.438</u></b>
c6 restricted affect	<b><u>.523</u></b>	-.002	.397
c7 foreshortened future	<b><u>.596</u></b>	.056	.326
d1 difficulty falling or staying asleep	<b><u>.460</u></b>	-.361	.063
d2 irritability	<b><u>.652</u></b>	-.199	-.031
d3 difficulty concentrating	<b><u>.732</u></b>	-.123	-.017
d4 hypervigilance	<b><u>.753</u></b>	-.072	-.122
d5 exaggerated startle response	<b><u>.746</u></b>	-.065	-.003

Factor loadings greater than 0.40 are shown in bold underline.

**Table 8: Convergent and divergent validity of the Bosnian PTSD**

		IES Total	IES Intrusion	IES Avoidance	BDI	SCL GSI
PTSD Total	Spearman's rho	.709	.703	.619	.622	.568
	N	439	438	439	444	802
Reexperiencing	Spearman's rho	.634	.687	.491	.485	.437
	N	439	438	439	444	802
Avoidance	Spearman's rho	.651	.603	.610	.581	.515
	N	439	438	439	444	802
Hyperarousal	Spearman's rho	.573	.574	.493	.596	.595
	N	439	438	439	445	803

hyperarousal; and the correlation between avoidance and hyperarousal was .72.

The item characteristics for the symptom items and subscale totals are shown in table 6. The characteristics are acceptable, with the lowest standard deviation being .77 for the item about not being able to remember details, which also had the lowest mean (.36 on a scale of 0 to 4).

The items from the symptom subscales were submitted to a principal components analysis with oblimin oblique rotation. Factors with eigenvalues greater than 1 were retained. Items were considered as belonging to a factor if their loadings on that factor were above 0.4. (see table 7). The first solution had three factors explaining a total of 61.41% of the variance and was deemed to be satisfactory, so that no further solutions were sought. The first factor, which explains 47.64% of the variance, was labelled Arousal / Numbing. It contains all the items from the DSM-IV arousal scale and three DSM-IV avoidance items, two of which (detachment/estrangement and restricted affect) are also associated with numbing [11]. The second factor, explaining 7.85% of the variance, was labelled Intrusion and includes all the items from the DSM-IV intrusion scale together with one item ("attempting not to think about it") from the DSM-IV avoidance scale. The third factor, which explains 5.92% of the variance, was labelled Avoidance. It contains all the items from the DSM-IV avoidance scale except for two items which load on Arousal/Numbing. Every item loaded on at least one factor and only two items loaded on more than one factor (the item "attempt not to think about it" loaded on the Intrusion and Avoidance factors, and the item "detachment, estrangement" loaded on the Arousal/Numbing and Avoidance factors).

In short, the three DSM-IV scales can be broadly identified, except that three DSM-IV avoidance items including two of the somewhat contentious numbing items load on the arousal scale, which replicates well the findings reported above [11-13].

Table 8 provides the correlations between the various other measures of psychopathology and the Bosnian PTSD. With samples of this size, correlations even as small as approximately .1 are significant, so all the correlations are highly significant and thus the significances are not reported here.

The correlations between the PTSD and the IES are somewhat lower than in the two American publications, closer to those in the German article. Re-experiencing on the PTSD correlates higher with intrusion than with avoidance on the IES, and avoidance on the PTSD correlates higher with avoidance on the IES than with intrusion on the IES, all of which are desirable results in that they support construct validity. The correlations between the re-experiencing and avoidance scales of the IES and the avoidance scale of the PTSD are quite similar, possibly indicating weak specificity of the latter, which was however also the case for all except the oldest of the three previous studies.

The correlation between the BDI total and the PTSD/PSS total is high, as reported in the literature. In fact the Bosnian version seems to differentiate a little better between PTSD and depression than do the American and German versions; nevertheless the specificity is still quite weak.

In the same way there are also quite high correlations with the SCL-90-R. Although the Bosnian version of the BDI and SCL have also not been adequately validated before, validating one new instrument against other instruments which are also not validated is not a meaningless affair but on the contrary the only possible procedure in a situation such as the one we (and our local and international researcher colleagues) found ourselves in, namely that very few world-standard instruments existed. If one does find, as we did, inter-instrument correlations similar to those for the corresponding instruments in other languages then that provides at least some provisional evidence for the psychometric quality and construct validity of all of those instruments.

One of the main uses of the PTDS is to provide a PTSD diagnosis in an economical way. As the PTDS assesses in questionnaire form all the information necessary for the diagnosis according to DSM-IV, the PTDS prevalences can be easily calculated and are in fact 24.72% for the whole sample, 31.37% for women and 17.40% for men.

The most important factor which restricts the interpretation of these results is that the PTDS was not compared with clinical interview, which would have been standard procedure in this kind of study. However, when we began the study there was no suitable validated interview available in the Bosnian language, which meant that we would have had to translate and extensively validate such an interview ourselves, and again we would have run into the problem of validating the interview against instruments which had also not been validated at that time. It also should be stressed that this study says very little about the cultural or contextual validity of the instrument or the construct PTSD which it is intended to measure.

On the other hand, the samples are quite large and taken together quite heterogeneous, and the selection methodologies in each case provided a reasonable approximation to randomness, so that all in all the data can be considered to be of good quality.

### Conclusion

In conclusion it can be said that the psychometric properties of the Bosnian version of the PTDS are as good as those published for other languages. The internal consistencies are at least as good and the Bosnian version appears even to distinguish a little better than the American and German versions between PTSD as measured by the IES and depression as measured by the BDI. The principal components revealed by an exploratory analysis are broadly consistent with the DSM-IV subscales except that they reproduce some previously reported difficulties with the "numbing" items from the avoidance subscale; this issue might explain the poor specificity of the avoidance scale with respect to the IES subscales. None of the analyses revealed anything unusual or indicated problems either with the translation or with the application of the concepts inherent in the instrument to the post-war Bosnian population, all of which indicates that the Bosnian PTDS can be given the green light for further application in the future. Yet our results are only a necessary first step in the validation of the applied measures; a comparison with a validated translation of a Bosnian interview measure for PTSD still needs to be done.

### Competing interests

The author(s) declare that they have no competing interests.

### Authors' contributions

RR participated in the design of the study, and drafted the manuscript.

SP carried out the actual study and performed the statistical analysis.

Both authors worked on and approved the final manuscript.

### Appendix I

#### ***The war traumatic event items of the Checklist of War Events (which replaces the standard traumatic event checklist in the PTDS)***

##### **group 0: injury to self**

Were you severely injured during the war?

##### **group 1: sexual violence to self**

Were you raped or sexually assaulted during the war?

During the war, were you sexually assaulted by a member of your close family who had been forced to do that?

During the war, were you sexually assaulted by a member of your close family who was not forced to do that?

##### **group 2: torture to self**

Were you tortured during the war?

##### **group 3: other threat to self**

During the war, were you in a situation in which you strongly believed you would be severely injured or killed?

During the war, did a bullet come so close to you that you could have been severely injured or killed?

During the war, did a bomb or grenade explode so close to you that you could have been severely injured or killed?

During the war, did anyone threaten to kill you or severely injure you?

Were you captured or held in a detention camp during the war?

During the war, were you without food or water for so long that you strongly believed you would die?

During the war, were you so cold that you strongly believed you would die?

During the war, did you stay in a cellar longer than 3 weeks without a break?

During the war, were you assaulted in a non-sexual way by a member of your close family who had been forced to do that?

During the war, were you assaulted in a non-sexual way by a member of your close family who had not been forced to do?

Were you in the army during the war?

During the war, were you seriously ill because of the war (e.g. heart attack)

**group 4: witnessed: loved ones**

Did you eyewitness a loved one being killed during the war?

Did you see dead body of a loved one who had been killed in the war? (excluding funerals)

Did you see a loved one being tortured or physically assaulted during the war?

Did you see a loved one being sexually assaulted during the war?

Did you touch a loved one who had been killed or wounded in the war?

During the war, did you see a loved one who was severely injured before he/she received medical help?

**group 5: witnessed: others**

Did you eyewitness somebody being killed (not a loved one) in the war?

Did you see the body of a person (but not a loved one) who had been killed in the war? (excluding funerals)

Did you see someone being tortured or physically assaulted during the war (but not a loved one)?

Did you see someone being sexually assaulted during the war (but not a loved one)?

Did you touch someone (but not a loved one) who had been killed or wounded in the war?

During the war, did you see a severely injured person (not a loved one) before they received medical help?

**group 6: losses, nuclear family**

Was your father killed in the war?

Was your mother killed in the war?

Was your spouse killed in the war?

Was a child of yours killed in the war?

Was a brother or sister of yours killed in the war?

**group 7: losses, other loved ones**

Was a close relative of yours killed in the war?

Was a close friend of yours killed in the war?

**group 8: threat, violence, injury to loved ones**

Was a loved one in the army during the war?

Was a loved one severely injured in the war?

Was a loved one raped or sexually assaulted in the war?

Was a loved one tortured in the war?

Was a loved one captured or held in a concentration camp during the war?

During the war, was a loved one seriously ill (e.g. cancer or heart attack) or had some chronic health problem?

**group 9: other war events**

Other traumatic event since 1991 due to war: 1

Other traumatic event since 1991 due to war: 2

Other traumatic event since 1991 due to war: 3

**group 10: other events since 1991 not related to war**

Did a loved one die in the war for reasons unrelated with the war?

(Other stressful and traumatic events since 1991 and unrelated to the war)

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## **Does ICD-10 Overestimate the Prevalences of PTSD?**

**Effects of Differing Diagnostic Criteria on Estimated Rates of  
Posttraumatic Stress Disorder in War Zone Exposed Civilians**

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RITA ROSNER  
STEVE POWELL

# Does ICD-10 Overestimate the Prevalences of PTSD?

## Effects of Differing Diagnostic Criteria on Estimated Rates of Posttraumatic Stress Disorder in War Zone Exposed Civilians

### Abstract

*DSM-IV and ICD-10 criteria for posttraumatic stress disorder (PTSD) differ in important aspects. Presumably, this difference between the two classification systems accounts for the low concordances regarding PTSD. The goal of this study is to compare the estimated rates of PTSD based on different diagnostic criteria in a sample of war zone exposed civilians in Sarajevo, Bosnia-Herzegovina. The Posttraumatic Diagnostic Scale (PDS) and the Checklist of War Related Experiences were administered to 311 people. Rates for PTSD are much higher when ICD-10 criteria were applied as compared to rates resulting from DSM-IV criteria. The agreement between ICD-10 and DSM-IV is low. DSM-IV criteria differentiate better between treatment conditions and gender than ICD-10 criteria.*

### Keywords

*PTSD, war trauma, civilians, ICD-10, DSM-IV, diagnostic criteria, sex differences*

Although the concept of PTSD is agreed upon in the scientific community, the diagnostic criteria for PTSD are still being discussed. Most of the debate centers around two foci. The first focus is social and political in nature. It concerns the differences and concordances between the two major psychiatric classification systems – the International Classification of Diseases, 10th revision (ICD-10) published by the World Health Organization (WHO; 1993) and the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) published by the American Psychiatric Association (APA; 1994). ICD-10 is the official coding system in many countries and regions of the world (for example in Europe and Africa) and is therefore used in health care settings and legal proceedings. On the other hand US-American DSM-IV criteria are used in most research papers. As both sets of criteria differ considerably, it is necessary to compare prevalences and estimate concordances according to both classification systems in order to allow a comparison of the numbers offered by research papers on one hand and

legal or public health reports on the other hand.

The second focus lies within the framework of DSM-IV and concerns the effect of reducing the number of required avoidance symptoms on prevalences. DSM-IV criteria require at least three such symptoms, which is often criticized as unnecessarily strict especially in crosscultural contexts.

### Differences between ICD-10 and DSM-IV

Although the underlying concept of PTSD is similar in DSM-IV and ICD-10, the criteria differ in important points (see Table 1 for a comparison between ICD-10 research criteria and DSM-IV).

One striking difference should be highlighted because of its particular relevance for this present article: Contrary to DSM-IV, the ICD-10 usually regards the A-criterion as being satisfied by the sheer presence in a war zone or by the engagement in war activities. Nevertheless, many

DSM-IV criteria	ICD-10 criteria
A: Event: A1: Threat to live of self or others	A: Event: Exceptionally threatening or catastrophic event which causes distress in almost everybody (such as being in a war zone)
A2: Feeling of helplessness, fear and horror	
B: At least one intrusion symptom	B: At least one intrusion symptom
C: At least three symptoms reflecting avoidance or numbing	C: At least one avoidance symptom
D: At least two hyperarousal symptoms	D: D1: Difficulty in remembering or D 2: At least two hyperarousal symptoms
E: Duration of symptoms longer than a month, time of onset is not specified	E: Symptoms B, C and D develop within 6 months after exposure, otherwise no duration criterion
F: Impairment	No impairment criterion

Table 1: Major Differences between DSM-IV and ICD-10 Criteria for PTSD

studies assessing repeatedly traumatized individuals consider being in a war region as sufficient in its own right to automatically satisfy Criterion A, even when applying the DSM-IV (see Mollica, McInnes, Sarajlic, Lavelle, Sarajlic, & Massagli, 1999; Ai, Peterson, & Uebelhor, 2002). Yet Favaro, Maiorani, Colombo, and Santonastaso (1999) found in a representative sample of Kosovar refugees, that only 30% experienced events qualifying as traumatic in nature in the sense of DSM-IV. Therefore it seems reasonable to have a closer look at the event criterion – even in those heavily traumatized samples – especially because different war zones are characterized by different levels and profiles of exposure to traumatic events.

Another criticism has been expressed by authors working in an intercultural context (Schützwohl & Maercker, 1999; Marsella, Friedman, & Huland Spain, 1996): They postulate that the DSM-IV is too strict in requiring a minimum of three avoidance criteria for criterion C to be fulfilled since this can lead to an underestimation of PTSD diagnoses. There-

fore it is important to investigate the effect of reducing the number of required avoidance symptoms from three to two symptoms.

Finally, duration (Criterion E) is differently specified in both respective criteria catalogues and impairment (Criterion F) is not included in ICD-10. These differences are considerably responsible for low concordance (Peters, Slade, & Andrews, 1999).

### Concordances between ICD-10 and DSM-IV based prevalences

The differences between ICD-10 and DSM-IV criteria usually lead to a prevalence of PTSD twice as high when ICD-10 criteria are used as compared to times when DSM-IV criteria were applied. (Andrews, Slade, & Peters, 1999; Andrews, Henderson, & Hall, 2001; Somasundaram & Sivayokan, 1994). Concordance, calculated by Andrews et al. (2001) as the percentage of people positive on either classification, has been reported as 35%.

### Possible confounders in the estimation of PTSD-prevalences

Apart from the effects of diagnostic criteria on prevalence per se there is the question of how sensitive different criteria are to gender and sample characteristics. While the concept of PTSD was developed mostly on convenience samples of people either in psychotherapeutic or medical treatment the present study included both, a treatment and a randomized resident sample. The authors were interested to see if there are differences between these samples.

Furthermore most epidemiological studies report a gender effect with much higher rates of PTSD in women than in men (Breslau, Chilcoat, Kessler, Peterson, & Lucia 1999, Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Perkonigg, Kessler, Storz & Wittchen, 2000). However, since all these studies applied DSM-criteria, it remains unclear whether the ICD-10 criteria confirm this gender difference.

In essence, a number of explanations accounting for those gender differences can be assumed. One plausible reason may be the difference in reporting styles between males and females, which, in turn, are also influenced by their respective ethno- and socio-cultural context. An example is the A2 criterion of the DSM IV: It is asking for the experience of intensive fear, helplessness and horror. One can expect that in most societies males may agree less to this item, because it contradicts with their expected role-specific behavior. Another explanation refers to the difference in events experienced by males and females. Accordingly, the likelihood to develop PTSD symptoms is related to the type of traumatic events survived (Kessler et al., 1995); in this sense surviving a natural disaster is less likely to cause PTSD than surviving sexual abuse. However, women are more likely to experience these traumatic situations and are therefore more at risk to develop PTSD. Furthermore it is the women who, in most societies, are poorer and less educated; as a result the loss of resources has greater consequences. Finally, it is possible, that biological causes are responsible for a woman's development of PTSD (for a detailed overview of possible causes refer to Gavranidou and Rosner, 2003). If there is a distinction in reporting of events, then the results according to DSM-IV respectively ICD-10-criteria should be different as well.

## Research Questions

1. How do the prevalences based on different criteria sets (DSM-IV and ICD-10) compare?
2. How large is the concordance between DSM-IV and ICD-10 diagnoses?
3. How sensitive are the different criteria sets to sample characteristics and gender?

## Method

### Samples

The following data was collected three and a half years after the end of war, between February and June 1998, in Sarajevo, Bosnia-Herzegovina. A detailed review of the study and its main results can be found in Rosner, Powell, and Butollo (2003). This current article refers only to those results that are relevant for its research questions. The samples were stratified by gender and age, based on the assumption that these variables are correlates of PTSD and treatment utilization (Kessler et al., 1995). Data from 1990 was used for the stratification, because at the time of the study a detailed demographic description of the post-war population was not available. Other potential correlates, such as pre-war socio-economic status, were considered to be no longer relevant. Therefore, they were not assessed, except for the number of years of education. All subjects participated voluntarily and gave their fully informed consent.

This study is based on two treatment and one non-treatment samples. In total 311 persons participated. Inclusion criteria for all three study samples were a) age between 16 and 65, b) living in Sarajevo between February and June 1998, c) living in Canton Sarajevo during the war (between April 1, 1992 and December 31, 1995), d) not suffering from a psychotic dis-

order or an acute crisis and e) literate enough to answer the questionnaires with only a minimum of help. Additional criteria were defined for the respective sub-samples. The sample in psychological treatment consisted of 114 patients participating in some kind of psychotherapy, psychiatric treatment, or psychological or psychosocial consultation with at least one session in the last three months. The 99 patients in the medical sub-sample fulfilled the following criterion: At least three consultations of a specialist physician (not a dentist or a general practitioner) during the last three months. The patients in psychological or medical treatment were approached directly by the staff of 15 psychological or medical treatment centers. Those select centers were broadly representative of psychological and medical treatment in Sarajevo. Each participating psychotherapist or counselor was allocated a quota based on the stratification. In case of the psychological sample, seven of the interviewers approached each new client presenting after the start of the study until their quota was filled. The patients of the medical sample were approached in a similar way by eight interviewers who also worked in hospitals and medical clinics. In this case, the respondents were not their own clients but rather the patients of their medical colleagues. These physicians worked in a wide spectrum of medical disciplines.

The resident sample consisted of 98 non-institutionalized subjects. To approach these individuals a map of the city of Sarajevo was divided into 1 km squares. Two streets from each square were chosen at random. Each pair of interviewers was then given the names of two streets with instruc-

tions to find a total of eight subjects from these two streets. The interviewers started at the first apartment in the first building and questioned the occupants regarding their eligibility according to the general inclusion criteria, the sample-specific criteria and the quotas. After having found suitable subjects in one apartment the interviewers proceeded to the next apartment, interviewing people at a maximum of two apartments per building. Then they moved to the next building in the same street. Each pair had to fill a quota for each cell in the stratification table.

The responder rates were almost 100 % for the two treatment samples. For the resident sample the rate was calculated as follows: In 24 % of households there was no reply. 504 % of the households that initially opened the door refused access. Of those who permitted entry, 83 % were eligible. 35 % of those eligible decided against the interview. It is

unknown how many people lived in the households that refused access. Therefore, the responder rate was calculated by multiplying the percentage of households not refusing access by the percentage of people eligible for interview, resulting in a rate of 32 % (for details see Rosner, Powell, & Butollo, 2003). As there are no comparisons available for responder rates in door-to-door surveys under post-war conditions this rate is difficult to evaluate.

Table 2 provides a short description of the demographics for the three samples.

A comparison between the resident sample and the persons in psychological or psychosocial treatment showed a significant difference in the variable of education level (calculated as the level of the highest school level finished;  $\chi^2 = 10.70$ ;  $df = 2.21$ ;  $p = .005$ ). Likewise, those in medical treatment differed from the resident sample ( $\chi^2 = 6.82$ ;  $df = 2.20$ ;  $p = .03$ ). There was also a significant

difference between the income of members of the resident sample and the persons in medical treatment ( $\chi^2 = 13.96$ ;  $df = 6.20$ ;  $p = .03$ ). Members of the resident sample had a lower average income than members of medical treatment sample. There were no significant differences in the number of traumatic events (a detailed description of events can be found in Rosner et al., 2003). Gender was equally distributed across samples and there were no significant differences in the number of traumatic events between the samples.

### Measures

As none of the standard psychiatric interviews had been translated into Bosnian and validated when the study was carried out, a well known self-report questionnaire for the assessment of PTSD symptoms, the Posttraumatic Diagnostic Scale (PDS, Foa, Cashman, Jaycox, & Perry, 1997) was translated. The PDS offers a diagnosis of PTSD as well as an esti-

		Residents Sample (N = 98)	Medical Treatment (N = 99)	Psycholog. Treatment (N = 114)	Total (N = 311)
Age	M years	39.94	38.32	36.39	38.13
Sex	female	51	53	58	162
	male	47	56	56	149
Monthly Income (currency: "Convertible Marks")		287.90	397.57	366.47	351.46
Highest Education <sup>1</sup>	8 years	10	14	19	43
	12 years	69	52	55	176
	16 years	19	33	40	92
Number of survived traumatic events	Mean	20.37	23.07	21.39	21.60
	SD	8.91	10.49	9.49	9.60

<sup>1</sup>The categories reflect different school tracks in Bosnia-Herzegovina. 16 years of education includes secondary education and university, 12 years secondary education and 8 years is the minimum of schooling currently

Table 2: Sample description

mation of symptom severity. To obtain the translated Bosnian version we applied a cyclical procedure of translations, back-translations and field-testing as recommended for the translations of psychological assessment measures (VanDeVijver & Hambleton, 1996). The event list of the original PDS was replaced by a checklist specific to the war situation in Sarajevo (Checklist of War Related Experiences, CWE). Other significant events (before, after, or unrelated to the war) were assessed as well.

The PDS has proven to be reliable and valid in previous research (Cronbach's alpha for the total symptom score = .92; Alpha coefficients were .78 for reexperiencing, .84 for avoidance and .84 for scales; Test-retest reliability of the overall severity score after three weeks = .83; Foa Cashman, Jaycox, & Perry, 1997). The results based on US-American samples suggest that the self-report version underestimates PTSD prevalence compared to interview measures (Foa, Riggs, Dancu, & Rothbaum, 1993). The Cronbach's alphas for the Bosnian version correspond well with the English language version (Bosnian version: reexperiencing = .89;

avoidance = .84; arousal = .84, total symptom score = .93). Convergent and divergent validity is adequate (Powell & Rosner, 2005)

**Interviewers**

The patients in psychological or medical treatment were approached directly by the staff of 15 psychological or medical treatment centers. The interviewers received the approximate equivalent of one hour's local wage. For the resident sample eight pairs of final year and third year students of psychology at Sarajevo University served as interviewers. All interviewers were trained in the use of the questionnaires. Two pilot studies were performed to ensure the appropriate use of the assessment. During the studies constant supervision for all interviewers was provided.

**Procedure**

Although all applied measures are questionnaires, not all subjects proved literate enough to complete them on their own. Therefore in some cases the interviewers had to read some of the questions and sometimes to reread or reformulate the questions.

**Statistics**

Because of multiple comparisons based on the same data, significance levels were set to p = .01. Differences between sub-samples were calculated with  $\chi^2$  tests. Rates for ICD-10 and DSM-IV were compared using a McNemar test for symmetry.

**Results and Discussion**

**What is the relationship between the PTSD prevalences calculated according to different criteria?**

Table 3 describes estimated rates for PTSD according to standard DSM-IV criteria, DSM-IV without Criterion A, DSM-IV with lowered avoidance criteria (two instead of three symptoms), DSM-IV without E and F, and ICD-10 for the complete sample, the sub-samples, and for gender.

As expected, the strict application of DSM-IV criteria resulted in the lowest PTSD rates. Ignoring both parts of criterion A leads to a rate increase of 6%. This is a procedure which has been followed in a number of studies on multiple traumatization and in particular with war trauma (see for example Arcel & Tocilj-Simunkovic, 1998; Ai et al., 2002), In

	Residents sample		Medical treatment		Psycholog. treatment		Female		Male		Total	
	%	N	%	N	%	N	%	N	%	N	%	N
DSM-IV	18.6	18	32.7	32	38.6	44	38.8	62	21.5	32	30.4	94
DSM-IV without Criterion A	24.7	24	38.5	37	45.6	52	45.9	73	27.0	40	36.8	113
DSM-IV: Lowered avoidance (including A)	19.6	19	37.8	37	42.1	48	42.5	68	24.2	36	33.7	104
DSM-IV without E and F	24.74	24	35.71	35	43.86	50	43.13	69	26.85	40	35.28	109
ICD-10	44.3	43	51.0	49	57.9	66	58.5	93	43.9	65	51.5	158

Table 3: Effect of Using Different Diagnostic Criteria According to Sub-sample and Gender

the case of Sarajevo one can assume that a large majority of the population had experienced an event sufficient to satisfy the Criterion A1, since this group resided about three years in a war zone. For short or geographically restricted wars it is probably not justified to implicitly accept Criterion A1 for 100 % of the population (see Favaro et al., 1999). This criterion, however, also has a subjective aspect in that in some circumstances the respondent has to judge whether they or someone else experienced a severe threat to life. This criterion gains relevance if and when there is a habituation to war events. By the same token, it is possible that the willingness to agree to criterion A2 (feelings of fear, helplessness, and horror) varies in unforeseen ways with the increase of exposure to war events. Reasons range from increasing resilience to develop PTSD to increasing numbing (of emotions) due to having already developed the disorder. These six percent of people mentioned above fulfill all symptom criteria of DSM-IV. That reflects a special weakness of the diagnosis based on DSM-IV. Possibly, it depends on the interpretation of traumatic events of a post-war society.

Reducing the threshold of the avoidance criterion by one symptom does not lead to a dramatic increase in prevalence (from 30.4 % to 33.7 %) indicating that there is no evidence for a critical threshold in between these numbers of symptoms in our sample. Contrary to our finding, Schützwohl and Maercker (1999) found in a study with former political prisoners from the Democratic Republic of Germany, that the PTSD

prevalence rose from 30.8 % to 41.1 % with the relaxed avoidance criterion.

Neglecting the criteria of duration and impairment leads to an increase of about 5 % and consequently contributes to an increase in PTSD rates. These results compare to Peters et al. (1999).

Frequency estimates on the basis of the ICD-10 criteria yield a PTSD diagnosis for more than 50 % of the population, which is significantly different from DSM-IV (McNemar test, sig. = .00). In general, the results for the comparisons between ICD-10 and DSM-IV correspond well with others from previous literature (Andrews et al., 1999; Somasundaram & Sivayokan, 1994). ICD-10 rates are twice as high as DSM-IV rates when community samples are used. The higher PTSD rate according to ICD-10 diagnosis is fed by the lower number of avoidance symptoms and the missing criteria concerning duration and impaired functioning in everyday life. However, as mentioned above, the ICD-10 event criterion is, per definition, satisfied by the sheer presence in a war zone. This does not apply to DSM-IV, another factor, which increases the rates.

#### **How large is the concordance between DSM-IV and ICD-10?**

Percentage agreement, calculated from all cases, which are consistently classified as either non-cases or cases, is 75 %. To allow a comparison with another published paper on this issue (Andrews et al., 1999), we calculated the level of concordance defined as the percentage of participants positive on either classification and positive on both sets of criteria. The positive concordance is 53 % as op-

posed to Andrews et al. (1999) who found a concordance of 35 %. The higher number is possibly due to a ceiling effect in our study where all subjects had spent three years in a war zone.

#### **How sensitive are the criteria to sample characteristics and gender?**

Differences between the sub-samples were significant ( $\chi^2 = 10.28$ ;  $df = 2.31$ ;  $p = .006$ ) when DSM-IV criteria were applied. They were not significant with ICD-10 criteria ( $\chi^2 = 3.87$ ;  $df = 2.31$ ;  $p = .11$ ). Both sets of criteria seemed therefore differently sensitive to treatment conditions.

Differences between men and women became significant for DSM-IV ( $\chi^2 = 10.88$ ;  $df = 1.31$ ;  $p = .001$ ), but just missed significance for ICD-10 criteria ( $\chi^2 = 6.52$ ;  $df = 1.31$ ;  $p = .01$ ). Just as reported in literature, our sample showed large differences in PTSD symptomatology between men and women. However the gender differences start fading somewhat when ICD-10 criteria are used. As the gender difference for ICD-10 is only barely significant and other articles on this subject are not available these finding needs to be evaluated cautiously. In order to assess which items contribute the most to gender differences, the individual symptoms and criteria based on DSM-IV were sorted according to their size of difference. Contrary to the assumptions formulated in the beginning, namely that the A2 criterion differentiates the most, it was barely found among the five foremost differentiators. Instead, items of any symptom cluster were identified.

Items	Female	Male	Difference
C 6 emotional numbing	58.9	38.8	20.1
D 5 exaggerated startle response	45.5	28.6	16.9
B 5 physiological reactivity on exposure	65.8	50.0	15.8
C 7 foreshortened future	51.3	37.2	14.1
C 5 detachment	41.1	27.9	13.2

Table 4: Items Yielding Gender Differences in Percent

## Conclusions

Any conclusions based on the results of this study must first mention its major methodological disadvantage, namely its sole reliance on self-report measures. Having this in mind, there are still a number of conclusions, which can be drawn from our results, as follows.

If DSM-IV and ICD-10 do not actually intend to mean anything different with their respective PTSD constructs, then future formulations of their PTSD criteria should be further aligned, ensuring higher concordances. In addition, special consideration should be given to definitions of event, duration and impairment criteria. Although DSM-IV criteria have been discussed controversially in regards to their three required avoidance symptoms, it seems that in our sample the relative increase in prevalence is relatively small when compared to the contributions by the event, duration and impairment criteria.

The event criterion, which is defined differently in both criteria systems, contributes most to the difference in prevalences. This may be due to habituation and/or emotional numbing caused by war events.

However, the interpretation of an event may also be due to a comparison of one's own situation with those of other traumatized people.

Special conclusions drawn from the case of multiply exposed persons in a war zone highlight the necessity of assessing A1 and A2 criteria for war exposed civilians even when high exposure is verified. DSM-IV criteria are largely conceived in terms of single traumatic events rather than multiple traumatic events and therefore may underestimate true rates of PTSD. Therefore, a diagnosis based on the DSM-IV criteria seems to be better suited for a single-event trauma than for a complex chain of traumatic events as they happen through prolonged war trauma, ongoing torture or physical or sexual abuse. As for ICD-10, neglecting the aspect of impairment portrays an insufficiency. The revision of both classification systems should reflect all these aspects.

Furthermore DSM-IV criteria seem to differentiate more between samples in treatment and between men and women than ICD-10 criteria do. Presumably this is due to the tighter formulation of PTSD in DSM-IV as compared to ICD-10. Whether this increased sensitivity to treatment conditions and gender related symptoms in DSM-IV reflects genuine differences between groups is a

question which needs to be addressed in further research.

It is also necessary to study the reasons for gender differences. One should minimize those differences that are based on the formulation of items in order to find the actual reasons apart from methodological artifacts.

In conclusion, the DSM-IV seems to better portray the current theoretical construct of PTSD. It also appears to be better suited for its refinement regarding research aspects. Nevertheless, the DSM-IV shows weaknesses in terms of definitions, especially those of the A-criterion and its translation into the respective diagnostic instruments. Hence, for European purposes, the research criteria of ICD-10 are absolutely suitable for clinical reports – despite of their shortcomings, because they allow for a greater clinical judgement than DSM-IV, especially regarding clinical relevance and the interpretation of the traumatic event.

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**Why do people in Bosnia-Herzegovina go into treatment? The role of Posttraumatic  
Stress Disorder in psychotherapy service utilization**

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### Abstract

The central research question in this paper is to estimate the connection between current prevalence of Posttraumatic Stress Disorder (PTSD) and psychotherapy service utilization in three study samples in Sarajevo, Bosnia-Herzegovina in 1997, two and a half years after the end of the war. 212 people surviving the siege of Sarajevo were assessed with the Posttraumatic Diagnostic Scale (PDS), the Coping Inventory of Stressful Situations and an extensive demographic questionnaire. The study groups consisted of a randomly selected residents' sample (N=98) and a group of individuals in psychological treatment (N= 114). Subjects in treatment suffered from more PTSD symptoms than subjects in the randomly selected sample of residents. Service utilization was predicted by avoidance symptoms, problem-oriented coping style and employment status.

The connection between PTSD symptoms and treatment utilization has been discussed from two different standpoints – on the one hand PTSD is considered to be particularly prevalent in treatment populations, albeit often not diagnosed as such; on the other hand other studies demonstrate that large percentages of people with PTSD do not receive any treatment at all. For example, a lifetime PTSD prevalence of 28% was found in a sample of psychiatry inpatients largely suffering from affective or anxiety disorders in a psychiatric clinic (McFarlane, Bookless & Air, 2001). Switzer, Dew, Thompson, Goycoola, Derricott & Mullins (1999), who investigated 181 patients in an outpatient psychiatric clinic found even higher prevalences: 94 % reported at least one traumatic event, and 42 % had PTSD during the preceding year. Yet only three of these patients received a PTSD diagnosis in the course of the standard clinic diagnostic procedures; instead, substance abuse and depression were more often diagnosed. Moreover the patients with PTSD reported more use of psychological and psychiatric services and were less satisfied with these services than patients without PTSD. Davidson and Smith (1990), who investigated a sample of newly referred outpatient psychiatric patients, reached a similar conclusion: 82 % of them had experienced at least one traumatic event in their lifetimes. With 31 % there were signs of previous or current PTSD. Yet not one of these patients was referred for PTSD, i.e. PTSD symptoms were not specified as reason for referral either by the patient or the referring institution. A further study with psychiatric patients conducted by Mueser, Goodman, Trumbetta, Rosnerberg, Osher, Vidaver, Auciello & Foy, (1998) found that 43 % of the patients with a psychiatric diagnosis also suffered from PTSD, but that only 2 % of them had a PTSD diagnosis in their treatment records.

The other group of contributions to this discussion attempts to assess how many patients with a full PTSD enter treatment. Brom, Kleber und Hoffmann (1993) found that only 10 % of all persons with PTSD (in this case, people involved in motor vehicle accidents) entered treatment. The authors of the National Vietnam Veterans Readjustment Study (Kulka,

Schlenger, Fairbank, Hough, Jordan, Marmar, & Weiss, 1990) reported that 86 % of the Vietnam Veterans exposed to a high level of war zone stress were currently (more than 15 years after the end of the war) not receiving any psychological or psychiatric treatment and 59 % had never applied for any services. Kahana, Harell and Kahana (1988) found that, although 92 % of Holocaust survivors reported that the Holocaust negatively affected their health, 77 % never received psychological help. Bramsen & van der Ploeg (1999) investigated a large sample of World War II survivors 47 years after its end. 22% of those contacted had entered treatment (mostly with general practice doctors) for what they considered to be problems caused by the war. PTSD symptomatology differed most strongly between those entering and not entering treatment. In a logistic regression, treatment was predicted by level of education, stressor intensity, depression, intrusion symptoms and divorce. Overall, treatment status was correctly predicted in 89% of cases. However this study suffers both from oversampling those who had experienced more traumatic events and from the long time which elapsed between exposure and investigation.

However one explanation for the low percentages entering treatment amongst Second World War soldiers and Holocaust survivors could be the minimal availability of psychological or psychiatric help as well as the negative image of psychotherapy in the case of these earlier cohorts. Correspondingly one would expect increasing rates of treatment utilization in younger cohorts. In the case of Bosnia and Herzegovina before the war, psychotherapy was a rarity and PTSD as a diagnosis was largely unknown even to psychologists and psychiatrists (Koic, Delalle-Zebic & Bosnic, 1992). Largely due to a particular emphasis on psychological models in the work of international relief organisations during and after the war in Bosnia and Herzegovina, the concept of PTSD was adopted very quickly there (Powell, 2002). For example, radio programs on the topic were transmitted regularly over a long period of time and knowledge about reactions to traumatic events has become everyday knowledge in Sarajevo.

Based on these results, the following two questions arise.

How many people suffer from PTSD in treated and untreated samples?

Which factors predict utilization of psychological services?

## Method

### Samples

The following analyses are based on two samples collected between February and June 1998 in Sarajevo, Bosnia-Herzegovina, as part of a larger study. The two samples were each stratified by gender and age, as it was assumed that these variables are correlates of PTSD and service utilization (Schepank XX; Gesundheitsamt der Landeshauptstadt München, 1999). Data from 1990 was used for the stratification, because at the time of the study a detailed demographic description of the population after the war was not available. Other potential correlates such as pre-war socio-economic status were considered to be no longer relevant and were therefore not assessed, with the exception of the number of years of schooling. All subjects participated voluntarily and gave fully informed consent.

In total 212 persons participated in the study. Inclusion criteria for both study samples were a) age between 16 and 65, b) living in Sarajevo between February and June 1998, c) living in Canton Sarajevo during the war (between April 1, 1992 and December 31, 1995), d) not suffering from a psychotic disorder or an acute crisis and e) literate enough to answer the questionnaires with help. Additional criteria were defined for the two samples. The sample in psychological treatment consisted of 114 patients participating in some kind of psychotherapy, or psychiatric treatment, or psychological or psychosocial consultation with at least one session in the last three months. These patients were approached directly through the staff of 10 psychological treatment centers selected to be broadly representative of

psychological treatment in Sarajevo. Each participating psychotherapist or counselor was allocated a quota based on the stratification. The seven interviewers approached each new client presenting after the start of the study until their quota was filled.

The sample of residents consisted of 98 non-institutionalized subjects. To approach these individuals a map of the city of Sarajevo was divided into 1 km squares. Two streets from each square were chosen at random. Each pair of interviewers was then given the names of two streets with instructions to find if possible a total of eight subjects from these two streets. The interviewers started at the first apartment in the first building and asked the occupants questions to ascertain their eligibility according to the general inclusion criteria, the sample-specific criteria and the quotas. Having found suitable subjects in one apartment the interviewers proceeded to the next apartment, interviewing people in a maximum of two apartments per building. They then left that building and moved to the next one in the street. Each pair had a quota for each cell in the stratification table to fill.

From the households approached, in 24 % there was no reply. From the households where the door opened, in 50 % access was refused. Of the people in the households where entry was gained, 83 % were eligible in terms of the inclusion criteria (i.e. were in Sarajevo during the war). Of these people who were eligible for interview, 35 % decided they did not want to be interviewed or began but did not complete the interview. As it is not known how many people were living in the households where access was refused, a responder rate was estimated by multiplying the percentage of households not refusing access (50 %) by the percentage of people eligible for interview in those households who then finished an interview (65 %), giving a rate of 32 %.

Table 1 provides a description of the demographics for the three samples. Religion as a descriptor is included rather than ethnicity, since religious confession gives a less ambiguous

estimation of “ethnicity” in post-war Sarajevo than a direct question about ethnic affiliation. Education was measured as a ordinal variable with three levels (completing basic, secondary or higher education), which is also recoded into approximate number of years of completed education (8, 11.5 and 15 years respectively). Employment status was coded as a three-level ordinal variable.

**Table 1: Demographic description of the two samples**

	Random sample (N = 98)	Psycholog. Treatment (N = 114)
<b>Age</b>	39,94	36,39
<b>Gender</b>		
female	51	58
male	47	56
<b>Religion</b>		
Islamic	61	78
Catholic	9	17
Orthodox	8	2
other	20	16
<b>Income (Convertible Marks)</b>	287,90	366,47
<b>Education</b>		
NSS (elementary school)	10	19
SSS (secondary school)	69	55
VSS (further or higher education)	19	40
<b>Family status</b>		
Single, divorced, widowed	43	55
in relationship, married	54	58
<b>Number of Children</b>	1,11	,80
<b>Employment</b>		
Unemployed or waiting list	21	6
Other, e.g. student	48	47

### Interviewers

The interviewers for the psychological treatment sample are described in the section above. For the sample of residents eight pairs of final year and third year students of Psychology at Sarajevo University served as interviewers. All interviewers were trained in the use of the questionnaires. Two pilot studies were performed to insure the appropriate use of the assessment. During the studies constant supervision for all interviewers was provided.

### Mode of Administration

Although all applied measures are questionnaires rather than interviews, not all subjects proved literate enough to complete them on their own. Therefore in some cases the interviewers had to read some of the questions to the subjects and sometimes to reread or reformulate the questions.

### Assessment of PTSD

For the assessment of current PTSD symptomatology the Posttraumatic Diagnostic Scale (PDS: Foa, Cashman, Jaycox, & Perry, 1997, German version by Steil & Ehlers, in preparation) was applied. The PDS consists of four parts. Part 1 originally has 12 items and asks for possible traumatic events. In part 2 the time of occurrence of the “most upsetting” event, whether the event was life threatening to the persons themselves or to others (A1 criterion of DSM-IV) and whether it was accompanied by feelings of helplessness and intense fear are all evaluated (A2-criterion). Part 3 asks about the symptoms of re-experiencing (5 items; criterion B), avoidance (3 items, criterion C), numbing (4 items, criterion C) and arousal (5 items, criterion D). Part 4 explores the duration of the disturbance (criterion E) and

the consequences of the symptomatology for important areas of functioning (criterion F). Since the original PDS was designed for a civilian population in times of peace we replaced part 1 with a checklist specific to the war situation in Sarajevo (Checklist of War Related Experiences, CWE; Powell, Rosner, Krüssmann, & Butollo, 1998). In an effort to focus memory recall we increased the list of events in part 1 to 72 items. The new items were based either on the items used in a study on children and adolescents (Layne, C.M., Personal communication, November, 1997) and adapted for adults, or on the original items in the PDS, or on our own qualitative interviews performed before we started this study. Some of the items reflect experiences specific to the siege situation in Sarajevo such as the following item "During the war, did you stay in a cellar longer than 3 weeks without a break?" While the first 56 questions describe traumatic and stressful experiences during the war, the last 16 questions deal with other traumatic experiences before or after the war. This additional information allows an assessment to be made of whether the symptomatology is based on a war event or some other event. The amount of trauma exposure not related to the war permits a comparison with the results of other studies which have been carried out in other countries not affected by war. Some other additions to the instrument will not be subject of this article.

The scores on the different subsections of the PDS are combined according to DSM-IV criteria in order to arrive at a PTSD diagnosis. The instrument has been shown in previous research to be reliable and valid. Cronbachs alpha for the total symptom score is .92; Alpha coefficients were .78 for re-experiencing, .84 for avoidance and .84 for scales; test-retest reliability of the overall severity score of after three weeks was .83; Foa et al., 1997. The results based on American samples suggest that the self-report version underestimates PTSD prevalence compared to interview measures (Foa et al., 1993). To obtain a Bosnian version we applied a cyclical procedure of translations, back-translations and field-testing as recommended for the translations of psychological assessment measures (Vijver &

Hambleton, 1996). The Cronbachs alphas for the Bosnian version correspond well with the American version (re-experiencing = .85; avoidance = .82; arousal= .80, total symptom score =.91).

The Coping Inventory of Stressful Situations (CISS; Endler & Parker, 1994) is a self-report paper and pencil measure of coping and consisted originally of 48 items. 16 items assess task-oriented coping, 16 items assess avoidance-oriented coping and 16 items assess emotion-oriented coping. Kälin and Semmer (1996), in their German version of the instrument, divided the content of item 28 (“Wish that I could change what had happened or how I felt“), into two new items. Since this seemed to us to represent a meaningful improvement, we adopted their modification and so the Bosnian version also contains 49 items.

### Data Analysis

Chi-square analyses were used to test the differences in the current prevalence of PTSD by sample and sex. A logistic regression was carried out in order to predict service utilization. For all analyses the SPSS software package (Version 10.0.5) was employed.

### Additional information about the war situation in Sarajevo between 1992 and 1995

Generally it can be assumed that each theater of war is characterized by a specific pattern of traumatizing events embedded in a specific cultural situation. The description of the number and type of events experienced allows a description of the war environment for the population. Sarajevo was besieged between 1992 and 1995 by Bosnian Serb forces which occupied the surrounding hills, shooting and shelling down at the city from their higher positions. For most of the war it was virtually impossible for civilians to leave the city. The center of the city was less affected than the periphery by direct combat but was highly exposed to sniper and shellfire. Many civilians took refuge in cellars, some remaining for weeks without returning to the surface. Other citizens were forced to leave the part of the town where they had been living and had to take refuge elsewhere in the town. Some food

was provided by the UN and other organizations, but securing food was often very dangerous as this involved exposure to enemy fire while waiting at or reaching collection points. The situation with water supplies was similar. For most of the time there was no electricity and no heating of kind. Nevertheless the majority of the population tried to continue with as close an approximation to normal life as was possible in the circumstances and continued to report for work and school. The city was ethnically mixed before the war, with Bosnjaks constituting the largest group (International Federation of Red Cross and Red Crescent Societies, 1998). However by 1998 the proportion of Bosnjaks had increased at the expense of the proportion of Serbs. The sample composition (see table 1) is comparable to numbers reported for the city of Sarajevo.

## Results

Although there were minor deviations from the stratification quotas, this did not lead to any statistically significant differences for age or gender between the samples.

### Current Prevalence of PTSD

18.6 % of the persons in the sample of residents and 38.6 % of the people in psychological treatment fulfilled the DSM-IV criteria for PTSD. Thus the PTSD rates in the treatment samples are nearly twice that in the non-treatment sample yielding in a Chi Square Test for overall differences between the samples a significant result (Chi-Square = 10.14,df =1; p = .001)

### Predictors of Service Utilization

A logistic regression was carried out in order to investigate the role of various predictors of service utilization. All the predictors were entered in one block rather than sequentially. A

prior analysis showed no serious problems with collinearity. The Omnibus Test of the model coefficients is significant ( $\chi^2 = 34.681$ ;  $df = 10$ ;  $p < .000$ ). Nagelkerke's  $R^2 = .205$ .

Nagelkerke's  $R^2$  is an analogue of  $R^2$  in linear regression. Overall, 69.2 % of the respondents were correctly classified. Table 2 presents the results for the respective variables.

**Table 2: Prediction of Participation in Psychotherapy: results of a Logistic Regression**

Variables	B	S.E.	Wald	df	Sig.	Exp (B)
War events	.006	.037	.026	1	.871	1.006
Intrusions	.009	.053	.027	1	.868	1.009
Avoidance	.081	.043	3.564	1	.059	1.085
Hyperarousal	-.073	.061	1.442	1	.230	.929
Education	.205	.288	.507	1	.477	1.228
Income	-.096	.110	.770	1	.380	.908
Employment status	1.063	.317	11.245	1	.001	2.896
Task-oriented Coping	-.051	.018	7.820	1	.005	.950
Emotion-oriented Coping	-.009	.016	.323	1	.570	.991
Avoidance-oriented Coping	.006	.016	.154	1	.695	1.006
Constant	1.307	1.204	1.179	1	.278	3.695

The Wald statistic was only significant for two of the indicators, employment status and task-oriented coping. The unique positive contribution of avoidance symptoms to treatment utilisation (i.e. people with more avoidance symptoms are more likely to seek treatment) just misses being significant. The connection between employment status and treatment is such that those who have work are more likely to be in psychological treatment. Income and education, as further indicators of socioeconomic status, show on the other hand no unique

contribution to treatment status. The connection with task-oriented coping is negative, which means that persons showing this kind of coping are less likely to enter treatment.

### Discussion and Conclusions

Interestingly, the prevalence of PTSD in the sample of residents is quite similar to those found in the two other representative civilian non-treatment samples under war conditions reported in the literature. Thus a study from Sri Lanka after nine years of civil war reports 27.5 % PTSD (according to ICD-criteria; Somasundaram, & Sivayokan, 1994), a study with displaced persons in Croatia reports 25 % (Arcel et al, 1998). This is in spite of the fact that there are differences in methodology between the studies (interviews in Sri Lanka and different questionnaires in Croatia) and differences in the kind of experiences since the end of the war.

Whereas random samples of civilians in war areas are very rare, there are even for Bosnia and Herzegovina quite a large number of results based on convenience samples of people in treatment. The prevalences for studies carried out two to three years after the end of the war lie between 18 and 53 % (Favaro et al., 1999; Drozdek, 1997; Dahl et al., 1998; Thulesius & Hakansson, 1999). The value in the present study for the treatment sample is in the middle of this range. Overall it seems that our results fit well with published studies. People in treatment two and a half years after the end of the year suffer more from PTSD than a random sample from a population which was overall exposed to a very high level of traumatic events. It should also be mentioned that the difference between the treatment and non-treatment samples would probably have been higher if unstratified samples had been used, because the treatment sample would then have contained higher proportions of women and older people. Overall the answers to the first and second research questions seem to contradict one another. On the one hand, there were significantly more people with PTSD in the treatment group,

whereas on the other hand PTSD symptoms did not play a large role in predicting treatment utilisation. This apparently contradictory result however only confirms a tendency found throughout the literature on this topic and in particular in another study which was methodologically very similar (Bramsen & van der Ploeg, 1999). In that study, people in treatment differed most strongly from people not in treatment on PTSD symptomatology. However in a logistic regression, treatment was best predicted by education, divorce, stressor intensity, depression and intrusion symptoms. That study, in contrast to ours, investigated veterans of the Second World War 47 years after its end, and they sought treatment mostly with general practice doctors. This latter aspect was explained by Bramsen and van der Ploeg (1999) as due to characteristics of the Netherlands health system, in which the general practice doctor is the first point of contact. It is indeed in general true that factors of the individual society and its health system including for instance attitudes to psychological symptoms play an important role in utilization of psychological and psychiatric support. As far as the individual variables are concerned, in contrast to other studies the present investigation did not find that a higher level of education increased the likelihood of treatment use; and the same is true of income. The latter result is probably explained by the fact that most psychological treatment centers in post-war Sarajevo operate free of charge. As “donor fatigue” amongst the international community has already set in with respect to Bosnia and Herzegovina it is to be expected that psychological support will become more expensive in the future. In that case the latter result can be seen as being of temporary nature.

At first glance it seems surprising that those who were in employment were significantly more likely to be in psychological treatment. One explanation for this could be that being in employment helps to overcome the withdrawal tendencies common in people with PTSD. In addition it is possible that the contacts established in connection with employment help to alert PTSD sufferers to the possibility of treatment. It is also plausible that in society with an extremely high rate of unemployment that those with a job will do anything to remain healthy

in order not to lose it. On the other hand, this result could also be trivially due to a selection bias between the samples: to the extent that some of the people living in the contacted households were working when the households were contacted (in the evenings and at weekends), employed people will be underrepresented in that sample.

Task-oriented coping is negatively connected with treatment utilization. Possibly active problem solvers already have other sources of help and are therefore less likely to seek institutional help.

The positive connection between avoidance symptoms and treatment use just failed to be significant but corresponds to the results of a series of other studies confirming such a relationship (Kulka et al., 1990, Van der Ploeg, 1999, Solomon, 1993). However one or two studies report the opposite result. For instance in a group of school employees who witnessed a shooting incident, those with avoidance symptoms made less use of treatment (Schwartz & Kowalski, 1992); and a similar result was reported by Weisaeth (1989) for the victims of an industrial accident. These seemingly contradictory results can perhaps be explained by the length of elapsed time since the traumatic event. Whereas on the one hand the latter two studies took place shortly after the traumatic event, the first three were carried out after a longer lapse of time. The persons in our sample were contacted two and a half years after the end of the war, and thus our sample is more similar to those in the first three studies. It could be that avoidance symptoms immediately following a traumatic event tend to reduce the chances that treatment will be sought and are therefore functional in the sense that the other symptoms are kept under control. After a longer period of time the individual's surroundings no longer tolerate the avoidant behaviour and indeed that behaviour does not lead to a reduction in the other posttraumatic symptoms, since early avoidance predicts chronic PTSD (Ehlers, 1999). Possibly the avoidance generalises, making it harder to cope with everyday life and increasing the likelihood that outside help will be sought.

In all this research it becomes clear, although mostly only implicitly, that not only demographic, social, psychological and symptomatological factors but also sociopolitical and structural variables play a role in the utilisation of psychological help. Relevant factors could include density of service provision and costs on the one hand and social acceptance of seeking help for psychological problems on the other hand. Unfortunately, in the case of PTSD, little effort has been made to date to explain with these kinds of factors the considerable proportion of unexplained variance in treatment seeking. One reason for this could be the specificity of the results for individual geopolitical contexts, as it is difficult to generalise the results from e.g. the Netherlands or Bosnia and Herzegovina to other healthcare systems. Moreover the health sector is subject to such rapid change that demand for and use of psychological help can change very quickly. This is also true for Bosnia and Herzegovina. Psychological and psychiatric support in the sense of psychological counseling or psychotherapy was a rarity before the war. The latter was carried out almost exclusively by psychiatrists and had a heavy psychoanalytic bias. Much more common was exclusive reliance on pharmaceutical therapy via large psychiatric clinics. The war and the break-up of the Titoist system changed the health system irrevocably. Many international and national organisations offered treatment and support in an outpatient setting. Density and type of service on offer varied however very much from place to place. In Sarajevo there were a number of local psychological services, mostly supported by international organizations, some independent and some placed in city health centers. International financial help is now disappearing and it remains to be seen at what level of service can be offered without continuing help from outside.

In spite of the above-mentioned obstacles, future studies on PTSD and service utilization will not be able to avoid taking account of structural factors as they are likely to include some very influential variables.



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## The “psychosocial approach” to the consequences of war: a critical essay

Steve Powell

The research in this book attempts to outline the “*psychosocial* consequences of war”. Moreover, most of the intervention programs mentioned in this research describe themselves as “*psychosocial*”. In place of an introduction, therefore, this short essay attempts a critical outline of this notion of “psychosocial”.

### *The problem*

Altogether, hundreds of thousands people died in the conflicts in former Yugoslavia between 1991 and 1999, over 200,000 in Bosnia-Herzegovina (B&H) alone (ICRC, 1999). This means that just about everybody in B&H and very many people outside it lost at least one family member. According to the B&H Helsinki Committee for Human Rights (2002), “seven years after the end of the 1992-1995 war, over one million B&H citizens are still not in their pre-war homes, of whom (...) about 500,000 have the status of displaced people”. Many of these people are still housed in collective centres and camps or are crowded in the homes of families and friends. Nearly everybody suffered loss of property, working in a job below their qualifications, or unemployment. About 300,000 people from Bosnia and Herzegovina still live as refugees outside the country. In addition, a large proportion of the population endured extreme hardship during the war and were exposed to, or witnessed others being exposed to, very traumatic events, such as torture or wounding.

### *The professional situation*

Taken together, these facts suggest that a large proportion of the population was exposed to severe challenges to its mental health and psychosocial functioning. Every time that local and international governmental and nongovernmental organisations try to respond to protect populations from the indirect effects of terrible events like these, they look to disciplines such as medicine, social work and psychology for assistance. These organisations are seeking not only abstract models of how to help, but also, more concretely, professionals from the various disciplines to design, run and implement programs. In the case of former Yugoslavia, there were only a limited number of professionals with this kind of expertise compared to the size of the increased need due to the war, mainly concentrated in Belgrade, Zagreb and Ljubljana. The splintering of a single federal state into a number of smaller states meant that academic and professional excellence in the relevant disciplines was rather fragmented. The department of psychology at Sarajevo University, for instance, was only formed just before the start of the war and that in Banja Luka was only founded in 1994. There were considerably more psychologists working in Croatia and Serbia, and some of them formed their own organisations for implementing and evaluating psychosocial programs. However, the increasing isolation of Serbia until 2000 meant that Serbian psychosocial professionals found themselves working with less and less support from outside organisations.

Many psychologists and members of other groups of professionals (for example, “psycho-pedagogues”) were prepared and able to go through additional relevant training, mostly of a rather ad-hoc nature, especially at the beginning of the war. This additional training has in some cases led to disputes about expertise between the professional groups in the post-war context. However, a great deal of additional help was also provided by lay people with little or no previous relevant training, many of whom also took part in some of these more or less ad-hoc training workshops as time went by. In many places, such as Sarajevo, providing any kind of assistance was difficult or dangerous due to war conditions - military action, sniper fire, lack of heating or electricity, shortage of food or water. Wherever it took place, providing relief from inner suffering meant doing pioneering work, creating awareness amongst the general public while trying to

develop a method of work and model of support for oneself. Often the staff were overwhelmed by the imbalance between the extent of the need for support amongst their clientele on the one hand, and their own limited resources on the other. Their courage, determination and selflessness must not be forgotten. Moreover, it is important that the vast amount of experience that they gained should be integrated into both improving academic models on the one hand, and the training of new generations of professionals on the other, both in the region and beyond it.

*The response: the psychosocial approach*

For a number of reasons - not least of them the commitment of psychologist Rune Stuvland, who began his activities with UNICEF in the region in 1992, the activities of local and international organisations in the territory of former Yugoslavia had an unusually strong input from psychosocial disciplines in general, and psychology in particular, in comparison with the approaches adopted after previous wars and disasters which tended to be dominated by the medical sciences.

The best-developed and most influential model of human suffering is *the medical model*, which has also had a powerful influence on psychology. The medical model focuses on the suffering of particular individuals, manifested as pathology. The factors directly explaining the suffering, and which should be addressed to alleviate that suffering, are located within the physical body of the person. Thus healing requires above all somatic, e.g. pharmaceutical, intervention.

Psychology, especially clinical and health psychology, extends the medical model by what we can call the psychological model. This retains the existing definition of suffering but locates within the mind rather than the body of the suffering individual additional factors directly causing that suffering. This model as implemented in the region firstly implies increasing the use of psychological concepts such as posttraumatic stress, secondly emphasises the need for psychological, usually questionnaire-based, assessment and evaluation preceding and accompanying intervention, and finally and above all stresses the importance of counselling and psychotherapeutic interventions addressing the emotional, cognitive and behavioural processes directly responsible for suffering. These interventions are ideally carried out by trained psychotherapists receiving adequate supervision.

Nearly all programs in the region and most of those mentioned in this book acknowledged, at least on paper, that medical and psychological models and individual pharmaceutical and psychological therapy were still not enough. Following common practice in the rest of the world, they moved on to adopt what we will call here "the *psychosocial* approach". "Psychosocial" has come to completely eclipse "psychological" in the collective thinking of the United Nations agencies on war and disaster. For instance, in a recent UNICEF report on the impact of armed conflict on children (Machel, 2000), the word "psychological" appears only once not immediately juxtaposed with the word "social".

"Psychosocial" became a by-word. For a time it seemed that everything anyone ever did had to be accompanied by a "psychosocial program". A handbook of psychosocial projects in Croatia and Bosnia and Herzegovina in 1995 lists 216 separate programs (Agger, 1995). Even now, in the ICVA Handbook for Bosnia and Herzegovina of humanitarian and developmental agencies, approximately half of 300 organisations include "psychosocial" in the description of their activities (ICVA; 1999).

However, to date, this special "psychosocial" approach has rarely been documented in a way which makes its special characteristics and results available for comparative analysis. So the Sarajevo Symposium and the present book provide an opportunity for this kind of reflection.

What is, then, the "psychosocial approach"? How does it go beyond the medical model?

The psychosocial approach identifies the "owners" of the suffering caused by war and disaster as both individuals and social groups, e.g. families and communities, simultaneously. This implies

that not only individuals, but also social groups should be addressed as the recipients of support (Weine, 2000). Secondly, it stresses that the factors responsible for suffering and its prevention and healing are both psychological and social, and that these factors interact (Machel, 2000). So for example, both the concrete loss of the workplace and one's cognitions about that loss can, separately and together, contribute to suffering. Consequently, both psychotherapy addressing negative cognitions, but also a community program to create jobs or at least meaningful activities, especially when planned and implemented together, could be defined as psychosocial interventions.

One problem with the ambitious nature of these definitions is that they are too wide: they leave open the question of whether the systematic attempt to rebuild a damaged economic infrastructure could or should also be defined as a psychosocial intervention.

What this meant concretely in the region was at the very least the attempt to address the wider social environment surrounding the suffering individual. In the case of needs assessment, the psychosocial approach to individual support meant taking note not only of individual psychological factors but also the broader context within which the beneficiaries - individuals, families and communities - were living.

Another aspect often associated with "the psychosocial approach" although compatible with a purely psychological method is shifting the aim of intervention from direct relief of symptoms towards strengthening individual coping mechanisms on the one hand and longer-term prevention on the other. Many of the programs implemented in the region included this aspect.

Group counselling and support work became very popular in the region, not only because they are more economical than individual therapy, but also because these modes of intervention address interpersonal as well as intrapsychic functioning, and in some cases make direct contact with the social networks surrounding individuals. These features make group interventions popular elements of the psychosocial approach.

The provision of therapy, whether for individuals or in groups, tends to address those individuals who are the most distressed and who identify with the role of patient (Weine, 2000). The majority of people are much less comfortable with a patient role and are unlikely to conceive of themselves as needing help, even when suffering immense psychological pain. This realisation led in a few cases to the attempt to integrate interventions broadly based on psychotherapeutic models inside more general activities designed to address basic social or material needs or strengthening of family and/or community links. So the "psychosocial approach" also meant trying to address potential recipients without using the concept of illness or the patient role. School-based programs are a good example of ways to address the needs of larger communities in this way, reaching not only the pupils but also potentially their parents.

#### *Criticisms of the psychosocial approach as implemented*

However, the psychosocial approach as implemented in the region can be criticised on a number of counts, many of which apply, unfortunately, to some of the papers in the present book.

#### Failure to implement

In practice, of course, many or most of the features of the psychosocial approach were never fully implemented. For example, psychological needs assessment, where it took place at all, was often limited to the administration of psychological questionnaires to individuals designed to assess, above all, posttraumatic symptomatology. Interventions often had to be administered by untrained lay people who were not adequately supervised. Evaluation of the effectiveness of programs was often not carried out, and where it was there were no resources to act on the lessons learned. Above all, the social features of the psychosocial approach often remained mere phrases.

#### Use of unproven interventions

The effectiveness of the interventions used in the region, although nominally based on psychological theory, is largely unproven, at least in a way which would satisfy the stringent standards of a respectable psychological journal. A lot of work still needs to be done in this area. Even the basic issue of whether interventions encouraging individuals to “re-express” feelings associated with traumatic events are helpful or perhaps even harmful has not been definitively settled even in the case of the kind of traumatic events and clientele typical in America and Western Europe, let alone for the populations in the territory of former Yugoslavia after the recent war.

#### Is everybody traumatized?

A well-known UNICEF report “The state of the world’s children” (UNICEF1996a) claims that “time does not heal trauma”. This kind of claim is often made and generalised by proponents of the psychosocial approach. There has also been some criticism, notably by Summerfield (1996), of exaggerated assessment of damage. Here follow some words of caution about “trauma”.

- One cardinal sin is to use the words “trauma” or “traumatisation” without distinguishing between exposure to traumatic events and significant damage to psychosocial functioning. There is no inevitable path from the former to the latter. The explicit or implicit suggestion that there is such a path can lead to the use of illness labels for individuals who have experienced terrible events without reference to their actual psychological well-being. Some people survive terrible events without any major challenge to their psychological well-being.
- The experience of war can indeed lead to long-term psychological damage identifiable decades (e.g. Mooren, 2001) or even generations later, but this need not be the case. Many people recover spontaneously from even severe posttraumatic stress disorder.
- An excessive focus on PTSD as a consequence of war can obscure the presence of other problems such as depression and abuse of alcohol and sedatives.
- Reliable and valid criteria are needed to distinguish between genuine psychopathology and perhaps transient or clinically and subjectively insignificantly raised levels of symptoms. Merely reporting that subjects scored a “high” level on some scale of symptoms may pathologise both individuals and populations unnecessarily. The exclusive use of mean scores for population subgroups can also suggest that everyone in the population has raised levels of symptoms, which may or may not be the case.
- The strong focus on inner suffering often associated with the psychosocial approach can divert attention from the material and human devastation which are usually the primary consequences of war. “War-affected populations are argely directing their attention not inwards, to their mental processes, but outwards, to their devastated social world” (Summerfield, 1996, p. 1454).
- A focus on psychopathology can also divert attention from other responses to war – both amongst the healthy population and amongst those with psychological disorders. Even people with high levels of symptoms can display strengths and positive adaptation in other areas.

#### Taking sides

Particularly at the start of the war, most international agencies had difficulty in identifying who were the aggressors and who were the victims, which meant that they went out of their way to avoid taking sides, at least explicitly. Moreover, the tradition of psychosocial support in the area was itself already substantially a technological one and other approaches such as the rights-based approach popular in Latin America did not fit well with this paradigm (Agger, 2001). So the mainstream of psychosocial help in the region was delivered in a manner which did not attempt to question the political issues surrounding and perpetuating the violence. There were some

exceptions. A good example is the work of the women at Medica, based in Zenica, who integrated their psychotherapeutic work with women and their children into a larger program aimed at combating war-related and post-war violence against women and children. More important for the concerns of this book is the way that this reluctance to take sides has affected not only the political stance, but also the psychological content of models and interventions. Psychologically very relevant issues of guilt, perpetration and revenge were largely sidelined, at least in official program plans, being replaced above all by the colossus of posttraumatic stress disorder, which is a highly medicalised model of one kind of human response to what happens in wartime. The psychosocial response was (in this sense) politically neutralised so that it could be offered to all (Agger, 2001).

#### Focus on the victim

There are a large number of demobilised soldiers in the region who suffer psychologically due to their own participation in the war - whether defending themselves and their communities or more or less willingly committing atrocities - and who in some cases pass on this suffering to their families. Partly for the reasons mentioned in the preceding subsection, there are very few formal psychosocial programs designed to meet their needs. The very mention of such issues tends to meet with resistance, even from the soldiers themselves. Often it is easier just to work with those who are obviously nothing but victims, such as children. Nevertheless, a pressing need is going unmet.

#### Role of the family

Is the concept of "society" the best or the only counterpart to that of the individual psyche? In this region, many people are now allergic even to the *word* "society" ("zajedništvo") in a political context, because it seems to hark back to the ideology of pre-war Yugoslavia. Perhaps a more appropriate counterpart to the individual psyche in the area of former Yugoslavia is not so much society, as the *family*, in both its nuclear and its extended forms (Weine, 2000). Perhaps the very strong family bonds typical of the Balkans are one of the protective factors which explain how many individuals managed to come out relatively healthy, or even strengthened, from terrible war experiences. Equally, it is quite possible that a dysfunctional family in this region is even worse for its members than a dysfunctional family in the West. Certainly, some programs tried to address and strengthen family coping mechanisms. But the family as a system seems to be largely missing from most formal models of adaptation and intervention, and from most published research in the region.

#### Cultural imperialism?

Most of the concepts, programs and assessment instruments (questionnaires, etc.) used recently in the region were either introduced during the war from America and Western Europe or were based on the predominantly academic tradition in the psychosocial sciences in former Yugoslavia before the war. It is not clear to what extent the concepts implicit in this psychosocial technology is really appropriate to the general population in this region and to the rural population in particular. Does it reflect the worldview, symptomatology, interests and priorities of the intended recipients? Concretely, is posttraumatic stress disorder really, of all possible constructs, the one most appropriate to describe the distress experienced by different sections of the population during and after the war?

On the positive side, this preponderance of existing, more proven constructs and measures allows not only better comparison with existing data (a secondary priority in wartime) but also better integration with existing systems of diagnosis and care. Nevertheless, we know of no research conducted recently in the region which really attempted to address these questions of cultural

validity in a systematic way. The common and very cost-effective practice of, at the very least, adding new items or open questions at the end of existing questionnaires with the intention of exploring situational or culture-specific issues is to be encouraged, providing this data is then actually analysed and reported.

Concerns about cultural appropriateness are often expressed with regard to *questionnaires* and *models of pathology*. Quite possibly these worries are displacements from the larger, more pertinent issue about who sets the agendas for research and intervention.

But realistically ...

At the start of this section the attempt was made to characterise how the insights inherent in the psychological model extend the medical model of human suffering, and how this "psychosocial approach", particularly with respect to post-war and disaster relief, attempts to go beyond both these models. The psychosocial approach implies that good interventions should be designed according to these insights.

The criticism that what has actually been happening in the region falls short of these goals was then addressed.

Of course, there is a big difference between the handbook or the project proposal and what actually happens in counselling and therapy and other forms of support. On the one hand, the reality may be a less than perfect implementation of the plan. On the other hand, the details of many program activities and individual contacts between staff and beneficiaries may actually be addressing many of the above-mentioned issues – guilt and retribution for instance – in ways not covered in either the handbook or the final reports. As these "unofficial" aspects do not fit the official model they are less well documented and hard to assess. Certainly they do not feature much in the contributions to this volume.

All in all, the majority of the research and intervention programs delivered in the region since 1991 each probably extended the medical model in only very limited ways. Of course, there were and are many reasons for these lapses, above all lack of time and other resources. However, the opportunity has now come, with the transition from emergency response to the development of sustainable programs of psychosocial support and research, to build on the pioneering work reported in part in this book, but emphasising quality over quantity. It is the responsibility of psychosocial professionals to deliver care which actually addresses the real needs of potential beneficiaries and is proven to be effective in meeting those needs.

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# Posttraumatic Growth After War: A Study with Former Refugees and Displaced People in Sarajevo



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Research carried out with survivors of a variety of different traumata indicates that a large proportion of them perceive positive changes in themselves after the trauma. This study investigated whether posttraumatic growth also could be found among people who had been exposed to particularly severe traumata over a period of several years (1991 to 1995) during the war in the area of the former Yugoslavia. Included in the study were two representative samples of adult former refugees and displaced people who lived anywhere in former Yugoslavia before the war and were currently living in Sarajevo, Bosnia and Herzegovina, three and a half years after the war. The main instrument was a new Bosnian translation of the Posttraumatic Growth Inventory. Results indicated some differences in the factor structure as compared with the original instrument. The overall means for the scale were considerably lower than reported in most studies

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on other kinds of trauma. Younger people reported considerably more growth than older people. © 2003 Wiley Periodicals, Inc. *J Clin Psychol* 59: 71–83, 2003.

Keywords: posttraumatic growth; perceived benefits; war; Posttraumatic Growth Inventory; trauma; Posttraumatic Stress Disorder; refugees; displaced persons

Survivors of a wide variety of different traumata, besides suffering from psychological and medical symptoms, often also perceive positive changes in themselves after the event. Following an overview of the literature on theoretical, practical, and empirical approaches to understanding posttraumatic changes of this kind, Tedeschi and Calhoun (1996) identified three relevant dimensions: changes in self-perception, changes in interpersonal relationships, and a changed philosophy of life. On the basis of this overview, they developed the Posttraumatic Growth Inventory (PTGI), which consists of 21 items on five scales: New Possibilities, Relating to Others, Personal Strength, Spiritual Change, and Appreciation of Life. Tedeschi, Park, and Calhoun (1998) conceptualized posttraumatic growth as “. . . a significant beneficial change in cognitive and emotional life that may have behavioral implications as well” (p. 3). Further, it involves “such fundamental changes or insights about living that it does not appear to be merely another coping mechanism” (p. 3).

So far, to our knowledge, no previous study has systematically assessed posttraumatic growth among the general population after an accumulation of traumatic events in wartime. This study investigated posttraumatic growth among former refugees and displaced people currently living in Sarajevo, Bosnia, and Herzegovina. As reported in Rosner, Powell, and Butollo (this issue), the majority of these people experienced, during the years of the war in former Yugoslavia, a considerable number of traumatic events. Yet, life goes on in Sarajevo. Are at least some of the people thriving, or are they all merely surviving?

The PTGI was selected as the main measure of posttraumatic growth for this study because although there are other measures covering this and similar constructs the PTGI has the most differentiated factor structure.

## Results From the Literature

### *Factor Validity of the PTGI*

Can the original five factors of the PTGI be identified in different cultural and historical contexts? In their small sample, Polatinsky and Esprey (2000) did not find sufficient evidence to support the five original factors. To date, only one translation of the PTGI has been made, a translation into German by Maercker and Langner (in press). A factor analysis was able to reproduce the original factors to a limited extent. The cultural surroundings in Sarajevo in 1999 were sufficiently different from those of the original factorization that some differences in the factor structure can be expected in the present study.

*Age and Sex Differences in Positive Changes After Traumatic Events*

Differences in posttraumatic growth according to age at the time of event are often not tested; when they are tested, there is usually no effect of age on growth (Collins, Taylor, & Skokan, 1990; Krizmanic & Kolesaric, 1996; Lehman et al., 1993; Maercker, Herrle, & Grimm, 1999; Polatinsky & Esprey, 2000; Tedeschi & Calhoun, 1996). However, as the majority of studies either involve students or focus on particular kinds of events such as heart attack (which tend to be associated with particular age groups), the age range covered in most studies is fairly limited, leaving the question open as to what to expect in the present study (see Hypothesis 3).

Sex differences have been reported, with women indicating more growth than men (Lehman et al., 1993; Park, Cohen, & Murch, 1996; Tedeschi & Calhoun, 1996). Polatinsky and Esprey (2000) and Collins et al. (1990) reported no difference between the sexes.

*Relation Between Posttraumatic Growth and PTSD Symptomatology*

In most theoretical work on posttraumatic growth, it is conceived of as being a separate outcome independent of symptom scores. All surveyed studies reported either a moderate positive correlation between growth and symptom scores (Maercker & Langner, 2001; Park et al., 1996) or no significant correlation (Lehman et al., 1993; Maercker et al., 1999).

*“Dose–Response” Relationship for Posttraumatic Growth*

Evidence for a “dose–response” relationship between posttraumatic growth and exposure to traumatic events can be sought in two places: within studies or between studies.

Within some studies, there is a moderate positive correlation between growth and the severity of exposure to traumatic events, either measured via objective characteristics of the event in self-report (Maercker et al., 1999) or via the subjects’ own ratings of subjective stressfulness (Park et al., 1996). Elder and Clipp (1989) used qualitative and quantitative measures to study positive and negative changes reported by U.S. veterans of World War II and the Korean War as a function of the degree of their exposure to combat. Although participants in the heaviest combat had more cases of significant psychosocial dysfunction, they also reported more positive changes in themselves. Posttraumatic growth with convenience samples of civilian survivors of the war in former Yugoslavia was investigated by Krizmanic and Kolesaric (1996). The refugees and displaced people interviewed in their study reported more positive changes, but also more negative changes, than citizens of Zagreb less affected by the war.

The studies reported in the previous section, reporting a moderate positive correlation between growth and the severity of exposure to traumatic events, focus largely on one kind of traumatic event such as the loss of a child, victimization, and so on. However, each individual study can be seen as covering a small slice of a much broader scale of severity, giving rise to the question of the nature of the dose–response relationship over this broader range. Table 1 summarizes mean PTGI scores reported in various contexts over the whole range of severity between studies. An inverted-U relationship between severity and growth can be discerned according to which medium stress produces the highest average growth.

Most of the people in the present study had experienced not one but several traumatic events—moreover, in a particularly stressful and threatening war and postwar environ-

Table 1  
*Mean Overall Scores on the PTGI in Different Studies*

Study	Subjects	Presumed level of stress in comparison to other studies	Scoring system if not standard PTGI scoring (0,1,2,3,4,5); mean	Mean PTGI score (transformed from nonstandard scale where necessary <sup>a</sup> )
Tedeschi & Calhoun (1996), third study	Students with no stressful events	low		$M = 69.75$
Tedeschi & Calhoun (1996), third study	Students who had experienced a stressful event (events such as relationship break-up and motor vehicle accidents)	medium		$M = 83.16$
Calhoun, Cann, Tedeschi, & McMillan (2000)	Students who had experienced a major traumatic event	medium		$M = 76.5$
Tedeschi & Calhoun (1996), first study	Students who stated they had experienced a significant negative life event	medium		$M = 75.18$ for women; $M = 67.77$ for men
Maercker & Langner (2001)	Dresden bombing night victims 50 years later	high	Three-point scoring (1,2,3) <sup>b</sup> $M = 48.7$	$M = 69.3$
Polatinsky & Esprey (2000)	Parents who had lost a child	high	6-point scale scored from 1 to 6. $M = 83.5$ for mothers; $79.3$ for fathers	$M_s = 62.5$ and $58.3$ , respectively.
Peltzer (2000)	Criminal victimization in an urban community in South Africa	high	6-point scale scored from 1 to 6. $M = 61.3$	$M = 40.3$

Note. PTGI = Posttraumatic Growth Inventory.

<sup>a</sup>Transformations of this kind should be treated with caution.

<sup>b</sup>Personal communication, January 2001.

ment over a period of several years. This would place them well on the downward slope of an inverted-U, leading to a specific hypothesis for the present study not only of lower overall growth compared to other studies (Hypothesis 4b) but also to the expectation of a negative correlation between growth and traumatic events within the present samples (Hypothesis 4a), due to the hypothesized downward gradient at this part of the inverted-U.

#### Aim of This Study

The overall aim of the study was to assess whether and to what extent posttraumatic growth is found among people exposed to particularly severe stress during the war in former Yugoslavia.

### *Hypotheses*

The following hypotheses were formulated.

Hypothesis 1: A five-factor solution similar to that for the original can be found.

Hypothesis 2: Women have higher overall scores. Age has no effect on posttraumatic growth.

Hypothesis 3: The factors of posttraumatic growth have a weak positive relation to posttraumatic symptoms.

Hypothesis 4: "Dose-response" relationship between amount of trauma and posttraumatic growth

- a) The factors of posttraumatic growth are negatively correlated with exposure to stressful events within this study.
- b) The mean overall score for the PTGI is rather low compared to those reported in studies with survivors of other types of extreme stress.

### Method

#### *Instruments*

*PTSD Symptomatology.* For the assessment of current PTSD-symptomatology, a translation of the Posttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997; German version by Steil & Ehlers, in preparation) in the self-report version was applied. The PDS is described in greater detail in Rosner et al. (this issue). Part 3 of the PDS includes 17 items covering the symptoms of PTSD, which together form a global PDS symptom scale. This scale has good characteristics in this sample: The smallest item-total correlation to the whole scale = .58, and standardized item  $\alpha = .94$ . The range of possible scores is from a minimum of 0 to a maximum of 51.

*Traumatic Events.* The Checklist for War Related Experiences (CWE; Powell, Rosner, Kruessmann, & Butollo, 1998) replaced the section on traumatic events in the original PDS, which was not suitable for postwar application. Forty-nine of the CWE items cover traumatic events, such as "Did you eyewitness a loved one being killed during the war?" that are scored as either "more than once," "once," "no," or for certain items simply "yes" or "no." These 49 items are grouped into ten categories: injury to self; sexual violence to self; traumatic threat to self; torture to self; other witnessed traumatic events: loved ones; witnessed traumatic events: others; traumatic losses, nuclear family; traumatic losses, other loved ones; traumatic threat, violence, injury to loved ones; and other pre- and postwar traumatic events

A measure of the total number of all traumatic events experienced in all categories was established by summing the  $z$ -transformed scores on each of the aforementioned event category variables. The range of possible scores is a minimum of 0 to a maximum of 98. It was necessary to  $z$ -transform the category scores prior to further analysis because the standard deviations and both the theoretical and empirical ranges were quite different for each category.

*Sociodemographic Information.* Sociodemographic information was assessed with a separate questionnaire. Only sex, age (expressed as a three-level variable reflecting the three levels of age described later), and education (a three-level variable reflecting hav-

ing finished elementary, secondary, or higher education) were analyzed for the present study.

*PTGI.* The original version of the instrument developed and used by Tedeschi and Calhoun (1996) explicitly states that the respondents are to answer about changes which occurred "in your life as a result of your crisis." However, as the "crisis" in the present study could have been as wide as the whole complex situation of war and refuge, each item was adapted to include a reference to changes "since April 1992" or "in comparison with the period before the war." The adapted instrument then went through three cycles of translation, pilot administration with small groups, adaptation, and back-translation.

Many of the respondents in the pilot studies had difficulties understanding some of the items in which the aspect of change was not explicitly mentioned. Such items were altered accordingly. For example, Item 4, "A sense of closeness with others," was changed to read "I feel more closeness to others in comparison with the period before the war." As nearly all the other questionnaires in the package used a 5-point Likert scale and our respondents had difficulty understanding and adapting to the scales, a 5-point scale, ranging from 1 (*not at all*) to 4 (*very strongly*), was retained for this study rather than the 6-point scale in the original. The range of possible scores in our instrument is a minimum of 0 to a maximum of 84. As the item scores are corrected by multiplying by  $\frac{5}{4}$  in subsequent analyses to make them comparable with the original instrument, the range of possible transformed scores was 0 to 105. The Bosnian items and instruction are available from the first author.

### *Sample and Data Gathering*

The data for the present study were extracted from data collected for a larger project conducted by our Institute in 1998 and 1999. More details of the 1999 phase of the study and the sample definitions and data-gathering methodology are given in Powell, Rosner, and Butollo (2000). Inclusion criteria were: Adults between 16 and 65 years old who lived in former Yugoslavia for most of 1980 to 1991, living at the time of interview (1999) in Sarajevo, but who had lived outside Sarajevo for more than 12 months between 1991 and 1995, not suffering from a psychotic disorder or other serious crisis, and literate enough to answer the questionnaire with some help. Current and former military personnel were not excluded.

The PTGI was administered as part of an additional, larger package of instruments which, due to financial constraints, could not be administered to all the respondents. Two subgroups of 75 each were randomly selected for these longer packages from two samples of 97 former refugees and 104 displaced (or former displaced) adults, providing the data analyzed in the present study. The original samples of 97 and 104 persons were stratified to ensure an approximately equal number of each sex in three age groups: 16 to 30, 31 to 45, and 46 to 65 years.

The terms "refugee" and "internally displaced person" (in this study, the latter are referred to just as "displaced persons") both refer to those who have been forced or obliged to leave their homes, e.g., as a result of war or persecution (see Cohen & Deng, 1998, pp. 15–39); refugees are those who subsequently cross an international border—in this case, that of former Yugoslavia. Accordingly, the first sample consisted of 75 former refugees who had taken refuge in countries outside former Yugoslavia for more than 12 months between 1991 and 1995; the second sample consisted of 75 displaced (or formerly displaced) adults now living in Sarajevo who did not take refuge outside former

Yugoslavia. Many of the former refugees are still not able or willing to return to their pre-war accommodation. The sample of internally displaced persons includes some who were displaced by the war, but who have now returned to their pre-war accommodation. Both groups had experienced a wide range of war events. Although the former refugees in the first sample had spent an average of  $M = 4.02$  years outside former Yugoslavia, most also had experienced severe war stress ( $M = 17.42$  months in a war zone) before they left the country. In most cases, they lost family members in the area of former Yugoslavia while they were abroad.

People targeted for inclusion in the study were selected at random from lists prepared by 16 Local Councils (“Mjesne Zajednice”) of all those registered with them who could meet the inclusion criteria for either of the two samples. These Local Councils had themselves previously been selected at random from all the local councils in Sarajevo.

Those interested in cooperating with the survey were informed of the aims and conditions of participation, given guarantees of confidentiality, and asked to sign an informed consent form. Interviewers were pairs of final-year and third-year students of psychology. The respondents were paid for their cooperation. It is rather difficult to define a responder rate since the original names and addresses from the Local Councils were not always reliable. A rate of 80.90% was calculated; details are available from the first author.

*Sample Characteristics.* Some data were missing for the PTGI, leaving a total of 136 valid questionnaires. The samples are described in Table 2. Chi-square tests reveal that the sample was approximately evenly distributed across sex and age group (for the whole sample, Pearson  $\chi^2 = 2.30$ ,  $df = 2$ , n.s.). A Mann–Whitney  $U$  test for the level of education between the samples revealed a significant value of 1739.5 (asymptotic two-sided significance,  $p < .05$ ) in the sense that the former refugees were somewhat better educated.

*Minimum Age of Respondents.* The minimum age according to the inclusion criteria was 16 years; however, coincidentally no respondents were between 16 and 17 years of age, and thus the minimum age in the sample is 17. This means that they were being asked to compare themselves with how they were when the youngest respondent was only 10 years old. The ability of young people to distinguish the influence of traumatic and unusually challenging events from normal maturation is questionable (Cohen, Hettler, & Pane, 1998, p. 39). A  $t$  test was conducted within only the younger age group (16–30

Table 2  
Sample Description

Sample	Sex	Age Group (years)			Total
		16–30	31–45	46–65	
Former refugees from outside former Yugoslavia	female	15	12	12	39
	male	11	10	4	25
	Total	26	22	16	64
Displaced or formerly displaced	female	12	13	13	38
	male	17	7	10	34
	Total	29	20	23	72

years) to check whether the overall score on the PTGI for those who had not yet reached the age of 15 in 1992 ( $M = 41.74$ ,  $SD = 18.06$ ) differed from those who had ( $M = 37.86$ ,  $SD = 16.92$ ). As this difference was not significant,  $t = .791$ ,  $df = 49$ , n.s., these very young respondents were not excluded from the analysis.

## Results

### *Basic Data*

*PDS Symptom Scores.* The mean level of PDS symptoms for the whole sample was 9.98 ( $SD = 11.13$ ). There were no significant differences for subsample (former refugees:  $n = 63$ ,  $M = 9.11$ ,  $SD = 8.84$ ; displaced:  $n = 72$ ,  $M = 10.74$ ,  $SD = 12.83$ ), for unequal variances,  $df = 126.35$ ,  $t = .87$ , n.s., or sex (female:  $n = 77$ ,  $M = 10.16$ ,  $SD = 10.69$ ; male:  $n = 58$ ,  $M = 9.74$ ,  $SD = 11.78$ ),  $df = 133$ ,  $t = .213$ , n.s.

*Traumatic Events.* The mean total number of traumatic events for the whole sample was 19.23 ( $SD = 13.32$ ). Analyses were conducted for the standardized total number of traumatic events. Former refugees had experienced significantly fewer traumatic events than displaced people (former refugees:  $n = 64$ ,  $M = -1.24$ ,  $SD = 5.33$ ; displaced persons:  $n = 72$ ,  $M = 1.55$ ,  $SD = 6.65$ ), two-tailed  $t$  test (unequal variances):  $t = -2.72$ ,  $df = 132.64$ ,  $p < .005$ .

Women had experienced significantly fewer traumatic events than men (female  $n = 77$ ,  $M = -1.59$ ,  $SD = 5.129$ ; male:  $n = 59$ ,  $M = 2.63$ ,  $SD = 6.70$ ), two-tailed  $t$  test (unequal variances):  $t = -4.02$ ,  $df = 105.56$ ,  $p < .001$ . The number of traumatic events experienced did not differ significantly according to age (16–30 years:  $n = 55$ ,  $M = -.56$ ,  $SD = 5.68$ ; 31–45 years:  $n = 42$ ,  $M = -.06$ ,  $SD = 6.02$ ; 46–65 years:  $n = 39$ ,  $M = 1.69$ ,  $SD = 6.95$ ), ANOVA:  $F = 1.590$ ,  $p = .20$ .

### *Hypothesis 1: A Five-Factor Solution Similar to That for the Original Can Be Found*

The PTGI total score had an acceptable distribution, very symmetrical although somewhat flat, with a mean of 35.82 ( $SD = 18.09$ ). Item scores were corrected by multiplying by 5 or 4 in all subsequent analyses to make them comparable with the original instrument, which used a 6-point Likert scale rather than our 5-point scale. For the whole scale of 21 items, standardized item  $\alpha = .93$ . The item means are acceptable, varying between 1.31 and 2.76. Only Item 1 (“My aims in life changed in comparison with before the war.”) gives cause for concern. While all other corrected item-total correlations were above .51, Item 1 had a correlation of .24. Item 1 also had the highest mean score.

The five original factors had acceptable alpha and item-total correlations, with the exception of Item 1, which is assigned to Factor 5, and which had an item-total correlation of .09. The pairwise intercorrelations between the factors were high; every one was significant at the .005 level, ranging between .48 and .75. Item 1 correlated very low with its intended subscale and with all other items (The maximum correlation with any other item was .31.) As the translation of this item also was problematic, it was deleted from further analyses.

An exploratory principal components<sup>1</sup> analysis was conducted with the remaining 20 items, with criterion for extraction = eigenvalue  $> 1$ , followed by a varimax rotation.

<sup>1</sup>The results of the Principal Components Analysis are referred to here as “factors.”

Table 3  
 Loadings on the Three New Factors of the PTGI

Item Number and Text	Number of Factor in Original Factorization	New Factor 1: Changes in Self/Positive Life attitude	New Factor 2: Philosophy of Life	New Factor 3: Relating to Others
<u>14 I have new opportunities which would not have been available otherwise</u>	<u>2</u>	<u>.703</u>		
<u>12 I accept better the way things turn out</u>	<u>3</u>	<u>.691</u>		
<u>11 I can do more good with my life</u>	<u>2</u>	<u>.690</u>	<u>.332</u>	
<u>10 I know that I can deal with problems better</u>	<u>3</u>	<u>.677</u>		<u>.417</u>
19 I discovered that I am stronger than I thought I was	3	.615		.520
7 I established a new path for my life	2	.605	.440	
4 I have more self-confidence	3	.579	.553	
5 I understand spiritual matters better	4	.509	.440	
9 I am more willing to express my feelings	1	.446	.396	.422
<u>2 I appreciate the value of my life more</u>	<u>5</u>		<u>.741</u>	
<u>13 I appreciate each new day more</u>	<u>5</u>		<u>.675</u>	
16 I try to have the best relationships to others	1		.589	.547
3 I developed new interests	2	.547	.577	
6 I know that I can count more on people when I am in trouble	1		.535	
15 I have more compassion for others	1		.496	.464
17 I try more to change things which need changing	2		.494	.471
<u>21 I accept more that I need other people</u>	<u>1</u>			<u>.783</u>
<u>20 I learned a lot about how wonderful people are</u>	<u>1</u>			<u>.767</u>
<u>18 I believe more strongly in God</u>	<u>4</u>			<u>.615</u>
<u>8 I feel closer to others</u>	<u>1</u>	<u>.394</u>	<u>.342</u>	<u>.524</u>

Note. Only item loadings greater than .3 are shown. Item 1 is excluded from this analysis. The item texts all ended with the additional comparison “. . . in comparison to the period before the war.”

The resulting solution produced three factors which explain 21.23, 18.64, and 18.06% of the variance, respectively, totaling 57.93%.

Factor scores on these three factors were saved for further analysis using the regression method. To facilitate interpretation, items were allocated to a rotated factor if its loading on the factor was greater than .5 and at least .1 greater than its next-highest loading. These items are underlined in Table 3. The factor structure is not very clear, with many items loading highly on more than one factor.

All items on Factor 1 stem from the original factors “new possibilities” and “personal strengths.” Three of the items allocated to Factor 3 stem from the factor “relating to others” in the original, and the other one comes from “spiritual change.” However, although two of the items on Factor 2 come from “appreciation of life,” the third comes again from “relating to others.” Thus, although the rotated factor solution is roughly interpretable in the terms of the original, it is very far from reproducing it.

The three broad categories of posttraumatic growth originally identified by Tedeschi and Calhoun (1995) and mentioned earlier give a more plausible interpretation to our

factors than do the five factors which they found in their study. "A changed sense of relationship to others" is a good title for Factor 3, providing one accepts that a stronger belief in God fits under this heading. "Changed philosophy of life" fits our Factor 2 adequately. However, although the items of Factor 1 do seem to be relatively coherent, "perceived changes in self" only covers part of their meaning. This factor is therefore given the title "changes in self/positive life attitude" in the rest of this article.

*Hypothesis 2: Women Have Higher Overall Scores. Age Has No Effect on Posttraumatic Growth*

In the following analyses, to facilitate comparison with other studies, the overall scores were further scaled by  $\frac{21}{20}$  to allow for the deletion of Item 1. The means of the overall score on the PTGI, together with the scores on the three PTGI factors (which are expressed in standardized units,  $M = 0$ ), were compared in two one-way analyses of variance with age and sex as factors. There was no significant sex difference (Table 4). Inspection of scatter plots did not reveal any strong nonlinear relation between age and posttraumatic

Table 4  
Mean Posttraumatic Growth Score Broken Down According to Age and Sex

		PTGI Overall Score	New Factor 1: Changes in Self/Positive Life attitude	New Factor 2: Philosophy of Life	New Factor 3: Relating to Others
Total	<i>M</i>	44.10	.00	.00	.00
	<i>SD</i>	23.24	1.00	1.00	1.00
Age Group (years)					
16–30	<i>M</i>	49.49	.38	.18	-.19
	<i>SD</i>	22.48	.96	.90	.89
31–45	<i>M</i>	45.50	.12	-.07	.07
	<i>SD</i>	19.99	.94	.93	1.12
46–65	<i>M</i>	35.00	-.64	-.18	.19
	<i>SD</i>	25.31	.79	1.17	.99
Between-groups <i>df</i> = 2					
Within-groups <i>df</i> <sup>a</sup>					
		133	129	129	129
	<i>F</i>	4.80	14.77	1.60	1.86
	<i>p</i>	.010	.000	.208	.160
Sex					
Female	<i>M</i>	43.89	-.05	.01	.02
	<i>SD</i>	23.04	.94	1.01	.91
Male	<i>M</i>	44.38	.06	-.01	-.03
	<i>SD</i>	23.70	1.08	1.00	1.12
Between-groups <i>df</i> = 1					
Within-groups <i>df</i>					
		134	130	130	130
	<i>F</i>	.015	.373	.009	.085
	<i>p</i>	.904	.543	.924	.771

Note. PTGI = Posttraumatic Growth Inventory.

<sup>a</sup>As four respondents had at least one item on the PTGI scale with a missing value and the principal components analysis was carried out excluding cases listwise, the degrees of freedom are smaller for the factor scores than for the total scale score.

growth or its factors. Scores were lower for the oldest age group, in particular on the factor “changes in self/positive life attitude.” Post hoc comparisons using Tukey’s HSD to reveal homogenous subsets indicate that (a) for the total scale score, the youngest and the medium age groups taken together were significantly different from the medium and the older age groups taken together; and (b) that for Factor 1, the youngest and the medium age groups taken together were significantly different from the older age group.

*Hypothesis 3: Factors of Posttraumatic Growth Are Negatively Correlated With Posttraumatic Symptoms*

Inspection of scatter plots does not reveal any strong nonlinear relation between post-traumatic growth and posttraumatic symptoms, even when analyzing each age group and sex separately. Table 5 shows the correlations. The total score for PTGI was not related to PDS symptom score, but the first factor was negatively correlated with symptoms, contrary to hypothesis.

*Hypothesis 4a: Factors of Posttraumatic Growth Are Negatively Correlated With Exposure to Stressful Events Within This Study*

Inspection of scatter plots revealed no strong nonlinear relation between exposure to traumatic events and growth, even when analyzing each age group and sex separately. In fact, there appears to be very little relation at all. Remarkably, there are individuals reporting both high levels of growth even after the most extreme exposure to traumatic events. Table 5 gives the Pearson correlations. The overall posttraumatic growth score and the first two factors were not correlated with events. Only the third factor, “relating to others,” had a weak but significant positive correlation, contrary to expectations.

*Hypothesis 4b: The Mean Overall Score for the PTGI Is Rather Lower Than Those Reported in Studies With Survivors of Other Types of Extreme Stress*

The overall mean of 44.10 (excluding the problematic Item 1, corrected by  $\frac{21}{10}$  and converted into the units of the original, i.e., corrected again by 5 or 4) is much lower than reported in most other studies. Former refugees ( $n = 64$ ) reported significantly more

Table 5  
*Pearson Correlations Between Posttraumatic Growth, Traumatic Events, and PTSD Symptoms (n = 131)*

	1	2	3	4	5	6
1. Corrected Total PTGI	1.000	.610**	.571**	.547**	.046	.001
2. Factor 1: Changes in Self/Positive Life Attitude		1.000	-.002	.000	-.092	-.197*
3. Factor 2: Philosophy of Life			1.000	-.001	.004	.050
4. Factor 3: Relating to Others				1.000	.179*	.163
5. Total traumatic events					1.000	.334**
6. PTSD symptoms						1.000

Note. PTGI = Posttraumatic Growth Inventory; PTSD = Posttraumatic Stress Disorder.  
\*Correlation is significant at the .05 level (two-tailed). \*\*Correlation is significant at the .01 level (two-tailed).

growth ( $M = 48.54$ ,  $SD = 23.00$ ) as opposed to displaced persons ( $n = 72$ ,  $M = 40.16$ ,  $SD = 22.90$ ),  $t = 2.127$ ,  $df = 134$ ,  $p = .03$ .

### Discussion and Conclusions

While the factor structure of the original instrument could not be adequately reproduced, the factor solution for this sample could at least be interpreted in the terms of literature in this area. As the total number of respondents was rather low for a factor analysis and as the scoring methods used in the different versions of the PTGI reported here varied, comparisons between studies reported in the literature and the results of the present study should be treated with caution. The mean score of around 1.7 on the 5-point scale used in the present study corresponds to a mean answer rather closer to “moderately” than “a little,” so on average our respondents were not rejecting out of hand the idea of posttraumatic growth. However, the overall corrected means are nevertheless very low in comparison with other studies. As this study used a single instrument to measure growth, which was directly adapted from an American original, further work is necessary to validate the concept of posttraumatic growth for the area of former Yugoslavia after the war. However, it seems unlikely that these low scores can be purely ascribed to cultural differences existing before the war. Rather, it seems plausible that the process of adaptation to terrible events has been hindered in the population studied not only because of the unusual accumulation of traumatic events but also because the individuals themselves as well as the micro- and macrosystems surrounding them have been shaken, changed, or destroyed. In short, these low scores seem to provide further support for the inverted-U hypothesis.

With some rather weak exceptions, there was no connection between posttraumatic growth and either the number of stressful events or posttraumatic symptoms. However, the former refugees, who spent a considerable amount of time abroad, did report significantly more growth than the internally displaced persons. In this case, sample membership was a better predictor of growth than the total number of stressful events experienced. Presumably, sample membership is an indicator not only of shared traumatic history but also more generally of shared world-view and collective coping strategies. The fact that Factor 1 (“changes in self/positive life attitude”) is negatively associated with PTSD symptoms gives some support to findings published elsewhere (e.g., Ehlers, Maercker, & Boos, 2000) that a perceived permanent change for the worse predicts PTSD symptoms.

There was a strong age effect, especially for the first factor. Although the large age span allows conclusions to be drawn about growth in the life span which is contrary to most other published results, it also involves asking quite young people to assess the influence of events which occurred in their childhood. A speculative interpretation of this latter result would be that it is only unusual or exceptional older individuals who are in a position to perceive significant benefit from further traumata after having already come to terms with their “fair share” of other lifetime stressors and traumatic events. Another possible interpretation concerns the evaluation of the future: The older cohorts are less likely to be able to make significant adaptive changes in the new and changed society, such as starting a new family after the old family ties were destroyed or learning a new profession.

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Including 3 tables and 1 appendix

**Title: Posttraumatic or Adversarial Growth after War**

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*Case Vignette 1:*

Almir was 15 when the war started in Bosnia and Herzegovina. At first, like most people, he didn't believe it would last long. Then one day enemy forces approached his town, burning houses and shooting civilians. He fled with most of the rest of his family and was quite lucky to arrive in Sarajevo unscathed, where they were able to live in a relative's apartment, albeit in very crowded conditions. By now the city was besieged, food was short, and often there was no heating or power. Collecting water meant standing for hours in lines which were targeted by snipers positioned in the surrounding hills. Then he was drafted to fight in the army and defend the city. He often had to fight on the front line which went right through the city itself. Although he himself was not seriously wounded he saw things which still recur in nightmares and which he never talks about, even to his closest friends.

By the end of the war in November 1995 he had lost quite a number of more distant relatives but no-one in his immediate family. The family home had been completely destroyed and they had lost virtually all their possessions. Nevertheless, he looks back on the war with a lot of nostalgia and quietly thinks of it as the best time of his life. People had to learn to live from day to day and that made everything they did seem more meaningful. There were parties that went on all night where it seemed that there were no rules and everything was allowed. Sometimes he now thinks that he had all those feelings just because he was a teenager, but as he has nothing to compare it with it is hard for him to be sure. He felt, and still feels, intensely close to his comrades in his unit and

also to his family, even to aunts and uncles he hadn't liked before. Quite early on in the war he was impressed by the strength which some of his friends gained from their faith and started to go to the mosque with his father for the first time in his life.

After the war he worked for a Swedish humanitarian organization for a while and earned very good money and made some friends among the international community in Sarajevo. Nevertheless he believes that he has been through things that none of them can understand and from which he has learned a lot of important lessons. That knowledge helps him cope with the frustration of living in a very poor and divided country on the edge of Europe, which sometimes feels almost like a prison. Although he still has occasional nightmares and his heart seems to stop whenever there is an unexpected loud noise, he has learned to live with these things and they seem to him much less important than the different ways he feels that he has benefited.

Every now and then he meets someone he got to know very well in the war but has not seen for a while. Then it is sometimes very difficult to know what to say. It seems too much effort to get back into that feeling of belonging together, and often they just go their separate ways without talking at all.

Almir's story is quite common, but many others, especially older people and those who were seriously injured or lost close family members, remember primarily pain when they think back to the war. However even many of these people will mention at least some aspects in which they feel they changed for the better due to the war.

**Case Vignette 2:**

Nermin was persuaded to come to our treatment center by his employer and his wife. The employer, although a good friend, threatens to dismiss him if he doesn't do something about his problem. His wife, whom he loves very much, told him that she really feels that she has come to the end of her tether with him. She does not feel that they can live together any more. Nermin's "problem" is that he gets excessively angry without any reason or warning. He yells at people and gets verbally abusive. Every once in a while he gets into fights, but up to now, he has somehow avoided getting into trouble with the police. But the problem is getting worse and as he is a big, powerfully built man, people around him easily get frightened and start to avoid him. Asked how he himself feels about his problem he describes feeling keyed up and tense almost all the time. He has frequent nightmares and sleeps only few hours a night. He feels like he is going to explode at any time. Triggers for an angry outburst wait for him around every corner. A funny look or a certain tone of voice, just about anything can set him off. Further exploration of his symptoms reveals that besides a very high arousal level, Nermin suffers from intense intrusive symptoms. Although he makes efforts to avoid situations which remind him of his past, this seems like a hopeless task: almost everything from high buildings to news about former Yugoslavia can elicit intrusive symptoms. A quantitative questionnaire-based assessment reveals that Nermin has very high scores on the Posttraumatic Diagnostic Scale and scores more than two standard deviations above average on almost all SCL-90 R subscales; and at the same time has a very high score on the Posttraumatic Growth Scale.

Nermin had worked as a private bodyguard before the war and so, as there was a shortage of men with any kind of military training when the war broke out, he was quickly enlisted and remained in the army for almost the whole of the war, spending most of it on the front line. Only about 10 % of his original unit were alive at the end of the war. Nermin remembers many terrible events. Those which recur most frequently in his intrusions are those during which he felt without hope of surviving the situation. At the beginning of the war he coped by picturing himself talking with his father after it was all over. He imagined that they would have long conversations and cry about all the terrible things that happened during their lives, and that afterwards he would feel consoled, safe and complete again. Yet after the second year of the war he came to believe that the events he had participated in and witnessed were too terrible even to share with his father; in fact, too terrible to talk about at all. Yet the fighting went on and Nermin felt more and more like a machine. Shortly before the end of the war he was severely wounded. Luckily he was given a place on one of the flights of an international rescue organization and was flown out to a western European country. When he woke up he found himself in a peaceful hospital ward far away from the war. Yet his first thoughts were to get better and to return to the fighting as soon as possible. On his first day out of the hospital, using his crutches, he walked to a nearby café. While he was sitting there a wedding procession went by. The people were noisy and seemed to be very happy. At that moment he realized that he has a choice and that he didn't need to go back to war. The future seemed to get all at once a bit brighter and he decided to start a new life in the here and now. During his convalescence the

war in Bosnia and Herzegovina ended, and his guilt feelings about being in a safe place while friends and family were still in danger resided. He fell in love, got married and got himself his first truly civilian job. He now feels like every day is a special present for him and values every single moment in his new life with his wife with whom he feels deeply connected. Although symptoms of intrusion and arousal are present all the time he feels confident that they will become less intense over time. Yet although the positive feelings do not diminish, his arousal level seems to be getting worse. After getting into a fight with someone at work about what he perceived to be a spiteful putdown, he lost his job. His family starts to worry about him. Although he finds himself another job, and continues to feel so very much connected with his new surroundings, his problems overall seem to be getting worse.

### ***Introduction***

Nearly everyone who survived the war in Bosnia and Herzegovina experienced traumatic events. Our research, combined with our personal and clinical experience, shows that at least some people have experienced positive changes which they attribute to the wartime. In the short literature review which begins this chapter we will put the above case reports from Bosnia and Herzegovina in a wider perspective by attempting to summarize what is known about adversarial growth due to war, especially in civilians. In the second half of the chapter we will present some new results on adversarial growth from our own research in Bosnia and Herzegovina.

It is unclear to what extent the positive changes which many of them report are due to the *specifically traumatic* or *generally adversarial* aspects of the war. As traumatic and adversarial aspects are both conceptually and empirically difficult to separate in the case of war, this question is as yet unanswered and so the more conservative formulation "adversarial growth" is probably more appropriate.

During the last years posttraumatic growth or adversarial growth has developed into a widely used and recognized concept. However, reviews of published studies indicate that most are based either on individuals surviving individual traumatic events ("type-I" events) or suffering from chronic diseases (see Linley and Joseph, 2004). Studies on growth following exposure to complex series of traumatic and adversarial events and situations, and in particular to war, are comparably rare. In a review of the literature we were able to identify only a few studies dealing with war affected individuals and adversarial growth (Elder & Clipp, 1989; Fontana & Rosenheck, 1998; Jones, 2002; Krizmanic & Kolesaric, 1996; Maercker, Herrle, & Grimm, 1999; Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003; Schnurr, Rosenberg & Friedman, 1993; Waysman, Schwarzwald, & Solomon, 2001).

### ***Characteristics of war as a complex traumatic and adversarial environment***

In contrast to individual traumatic events, war exposes people to a combination of multiple events in a persistently unsafe environment. It also differs in a

number of aspects for soldiers and civilians. These differences are also confounded with the fact that by far the best studied group of soldiers is U.S. military, who are probably not typical for the rest of the world's soldiers. At least in the case of U.S. soldiers in recent decades, joining the army is usually a deliberate choice, which indicates that there is some sense of control. Furthermore US soldiers have always fought abroad which means that their families are safe and their home environment is comparably stable. A different situation arises for war affected civilians. For many of them, no point in time existed were they were able to make a deliberate decision about living in a war region or not. Not only are they themselves affected by war but so are their families and their entire environment.

### ***Displacement and flight***

One can differentiate three groups of war-affected civilians in terms of residence status: those who stay at home/are not displaced, those who are forced to leave their homes but do not cross a national border ("internally displaced persons"), and those who are forced to leave their homes and then also leave the country ("refugees"). While displacement is usually a forced process, flight to a different country usually, though not always, involves some deliberate decision to move further away and implies that the person had some control over his or her flight. Often the head of the household decides and other family members are taken with them. Whether fleeing across borders increases personal and family safety depends on the circumstances in the host country. Most of the refugees from

former Yugoslavia certainly improved their safety by fleeing. But all refugees have to adapt to different cultures and often to learn new languages.

### ***Return***

Returning to the old home or to another place in the home country usually means coming back to a region which is still suffering from various war outcomes. Houses are destroyed, civil structures are not working, society has changed radically, and sometimes one is seen as a traitor by members of one's own former community. Moreover, the complex geography of ethnic hatred and distrust often means that one has to return to a new and unfamiliar area or run the risk of being harassed or victimized by the changed population of one's former town or village. And as in the case of former Yugoslavia, usually the original conflict has not been fully resolved and the threat of renewed conflict cannot be excluded.

### ***Variables Associated with Growth in General and within War Affected Samples***

In their review of positive changes following trauma and adversities in general (not only in war related studies), Linely and Joseph (2004) name a number of variables which were consistently positively associated with growth: Cognitive appraisal variables such as problem focused coping, acceptance and positive reinterpretation, and emotion focused coping, controllability, and cognitive processing. Inconsistent associations have been found for demographic

variables, such as age, gender, education and income, and for psychological distress variables, such as depression, anxiety and Posttraumatic Stress Disorder.

The results of this broad and general review are only partially supported by the results of studies on war traumatized samples. For individuals surviving war the following findings can be reported:

Elder and Clipp (1989) selected from two longitudinal studies with men born in the 1920s a sample of 149 war veterans from World War II, Korea and Vietnam and followed this sample from adolescence to old age. Besides looking at the effect of combat exposure on current stress symptoms and negative effects in general the authors were interested in positive outcomes as well. They found more positive outcomes in terms of “learning to cope with adversity”, “self-discipline”, “value life more” and a “clearer sense of direction” in the group of veterans with high combat experience as opposed to those with no or only light combat experience. Men who served in heavy combat became more assertive and resilient up to mid-life when compared to veterans with light or no combat experiences.

In a longitudinal study of college students from adolescence to adulthood who attended college during the Vietnam War Schnurr et al. (1993) estimated changes in MMPI-scores as a measure of adversarial growth. In a comparison of adjusted change scores between men without combat exposure, with peripheral exposure and those with direct exposure positive changes were only found in the group with peripheral exposure.

Fontana and Rosenheck (1998) reported for a sample of Vietnam veterans a positive association for the two cognitive appraisal variables “perceived harm” and “perceived threat” and adversarial growth as well as between education and adversarial growth. Nevertheless, growth was measured with only one open question.

Waysman et al. (2001) assessed 164 Israeli POWs and a matched group of 184 veterans of the Yom Kippur war in terms of perceived positive and negative changes in a wide range of areas, assessed retrospectively as the difference in these areas between the time before their war experiences and the time of the study. Findings indicated a positive correlation between hardiness and positive changes. The interaction of group (POW vs. non-POW) and hardiness also contributed to positive changes. Although the results were statistically significant the total amount of variance explained by all variables in the regression equation (age, combat exposure, group, hardiness, group X hardiness) for positive changes was very small (3.8 %).

Of those studies dealing with soldiers and combat exposure, three are based on assessments of US soldiers (Elder & Clipp, 1989; Fontana & Rosenheck, 1998; Schnurr et al., 1993;) and one is based on Israeli veterans (Waysman et al. 2001). Thus the best studied samples share the scenario of “soldiers going to war” whose families and communities were comparably safe and stable. In none of the studies one of the known questionnaires on growth was used. Rather a idiosyncratic item or scale was used.

Within the studies on civilians three originate from the region of former Yugoslavia and one from Germany. The three studies on civilians in post-war

societies yielded the following results: a qualitative study on adolescents from opposite sides of the conflict (Jones, 2002) looked at search for meaning and its association with psychological well-being. "Search for meaning" in the latter study is related, but not identical to, similarly named concepts measured by some growth scales; Jones was interested particularly in the search for a specific meaning of the conflict itself rather than in the perception of having found more meaning in life in general. 40 adolescents were selected from a sample of 337 adolescents between 13-15 years old. Discussing her results, Jones (2002, p. 1351) states: "Searching for meaning did not appear to be protective. Less well adolescents in both cities were more engaged in searching for meaning. Well adolescents appeared to be more disengaged. Searching for meaning appeared to be associated with sensitivity to the political environment, and feelings of insecurity about the prospect of future war." Within the group of those searching for meaning local social and political context had a mediating effect. An association between exposure to violence and search for meaning was only found in the group of adolescents living in the predominantly Muslim town of Goražde, while there was no such association in the predominantly Serbian town of Foča/Srbinje. The children in Foča/Srbinje had almost no exposure to the war in contrast to the children of Goražde.

Krismanić and Kolesaric (1996) assessed 657 survivors of the war in Bosnia and Herzegovina and Croatia with an adaptation of the *Change in Outlook Questionnaire* (Joseph, Williams, & Yule, 1993) called the *Positive and Negative Consequences of War questionnaire* (PANCOW). The questionnaire comprises 15 positive and 15 negative statements and was given to eight

different groups of war affected subjects: disabled and wounded persons, refugees, widows, army physicians and psychologists, soldiers, nurses without exposure, and citizens and students from Zagreb (which were – as Zagreb was not in the war region - almost not exposed). Participants reported generally higher positive changes than negative changes, with the more war affected subsamples showing the greatest amount of positive changes. The authors interpret their results to the effect that especially refugees and displaced persons had a strong motivation to stay healthy out of spite for the enemy. Another interpretation of the authors is that some subjects were minimizing their traumatic experiences in an attempt to avoid victim status. As the study was carried out right at the end of the war the results might also reflect a short-term outcome.

Only one study in the area of war traumatization (Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003) used one of the established measures of post-traumatic growth, the *Posttraumatic Growth Inventory* (PTGI; Tedeschi & Calhoun, 1995, 1996). In this study on former refugees and displaced persons from Bosnia and Herzegovina no differences between men and women were found in terms of their PTGI total scores as well as in the subscales, while older individuals reported less growth than younger persons. Furthermore symptoms of posttraumatic stress were not correlated with growth. Overall reported growth was smaller than in other studies.

Maercker, Herrle and Grimm (1999) used a German adaptation of the PTGI. Their study is unusual in that the time lapse between traumatic exposure and assessment was about 50 years. Study subjects were victims of the Dresden

bombing night during which 35 000 people were killed within four hours. Results yielded a positive correlation between posttraumatic growth and traumatic exposure as well as internal control beliefs.

In general the intercultural variance of these published studies is limited; on the other hand, the relative homogeneity better allows a comparison between groups. Yet in this short review of adversarial growth it becomes evident, that there is an interesting aspect which has been neglected up to now in the research on posttraumatic growth, i.e. daily living conditions, unemployment, bad health, poverty, having a permanent place of residence or just physical security. Yet from meta-analyses of predictors of PTSD symptoms (Brewin, Andrews, and Valentine, 2000) we know that living conditions after trauma are comparatively potent predictors of PTSD symptoms.

Based on these findings and derived from our personal observations in Sarajevo as well as clinical experience in Munich with patients coming from war regions we hypothesized that there is a minimum of safety and distance which is necessary to facilitate growth. Thus we assumed that refugees who spent at least some time outside the war region would quite simply show more growth than those who did not. As displaced vs. refugee status incorporates a range of psychologically relevant aspects such as physical and economic safety as well as the ability to leave the region or not, we were interested if refugee or displaced status would be connected with posttraumatic growth.

### ***The Post-War Situation in Bosnia and Herzegovina***

As more recent wars such as those in Afghanistan and Iraq are more present in the media and probably in public consciousness, we would like to remind readers of the outline of the war in Bosnia and Herzegovina to which the persons in our samples were exposed. Bosnia and Herzegovina had approximately 4.3 million inhabitants before the war. During the war between 1992 and the end of 1995, approximately 250 000 people died, the majority of whom were Bosnian Muslims. Approximately 2.2 million of the former residents of Bosnia and Herzegovina were displaced. Of these, approximately 1,200,000 refugees found refuge in about 100 countries all over the world (Source: Gesellschaft für bedrohte Völker, [www://gfbv-sa.com.ba/ruckkehr.html](http://www://gfbv-sa.com.ba/ruckkehr.html), 10.1.2002). By 2002, an estimated number of 300 000 people had returned to Bosnia and Herzegovina. In the whole of Bosnia and Herzegovina there were about 870 000 internally displaced persons in 2002.

Although the threat of violence has very much diminished, living conditions are still quite difficult especially in rural regions and especially so for those returning to areas in which they do not belong to the dominant ethnicity. Unemployment is still very high and a secure future for the country is far from certain as the prevailing political parties in the constituent areas or "Entities" continue to disagree about most of the basic parameters of statehood.

## ***Hypotheses***

Derived from results on the variables associated with growth in mixed trauma, and based on our review of variables associated with growth in war affected samples, the following hypotheses are put forward:

1. Coping styles and posttraumatic growth are positively associated.
2. Posttraumatic growth and general distress symptoms and depressive symptoms are not associated.
3. Posttraumatic growth is more strongly correlated with current stressors than with traumatic war events.
- 4 a. Being a refugee contributes to posttraumatic growth both overall and when differences in exposure to traumatic events are accounted for.
- 4 b. Better current living conditions such as employment, income, current accommodation status or being in a stable relationship are associated with posttraumatic growth.

The results presented here are based on the same sample as our earlier report (Powell et al., 2003) but are based on previously unpublished analyses of a wider set of variables (coping, refugee status and depression).

## ***Method***

### ***Instruments***

To assess the effect of demographic characteristics and current living we collected information on age, sex, education, marital status, flight and displacement and current living conditions. Family status (single as opposed to

married or living in a long-term relationship) as well as monthly income in the household were also assessed with single questions.

The *Posttraumatic Diagnostic Scale* (PTDS, Foa, Cashman, Jaycox, & Perry, 1997) was selected for the assessment of PTSD symptoms. The PTDS has been shown in previous research to be reliable and valid in English (Foa et al., 1997) as well as in Bosnian (Powell, Rosner, & Butollo, submitted).

Exposure to traumatic and other stressful events was measured with the *Checklist of War Related Events* (CWE; Powell, Rosner, Krüsmann, & Butollo, 1998) which is a checklist adapted to the war situation in Sarajevo. 49 of the 72 CWE items cover traumatic events such as "Did you eyewitness a loved one being killed during the war", scored either "more than once", "once", "no", or for certain items simply "yes", "no". These 49 items are grouped into ten categories. A measure of the total number of all traumatic events experienced in all the categories was established by summing the z-transformed scores on each of the aforementioned event category variables. The range of possible scores is from a minimum of 0 to a maximum of 98. It was necessary to z-transform the category scores prior to further analysis because the standard deviations and both the theoretical and empirical ranges were quite different for each category. Scores for pre-war traumatic events, stressful (but not necessarily traumatic) events during and since the war, and current stressful events were formed in a similar way. (A copy of the CWE is available from the first author.)

Postrumatic growth was assessed with the *Posttraumatic Growth Inventory* (Tedeschi & Calhoun, 1996). The PTGI explicitly states that the respondents

are to answer about changes which occurred "in your life as a result of your crisis". However, as the "crisis" in the present study could have been as wide as the whole complex situation of war and refuge, each item was adapted to include a reference to changes "since April 1992" or "in comparison with the period before the war". A factor analysis of the Bosnian version using orthogonal rotation resulted in a three factor solution (for details see Powell et al., 2003) explaining 58 % of variance. While the factor structure of the original instrument could not be adequately reproduced, the solution which was found did correspond well to the three broad categories of posttraumatic growth originally identified by Tedeschi & Calhoun (1995). These factors and therefore the subscales used in this study were "Changes in Self/Positive Life Attitude", "Philosophy of Life", and "Relating to Others".

A Bosnian translation of the *Beck Depression Inventory* (BDI; 1978) was used to assess severity of depression. Although the BDI does not allow a diagnosis in the sense of DSM-IV, a cut-off score of 18 is usually regarded as an indicator for moderate depression. The BDI has been used in more than 2000 studies worldwide (Richter, Werner, Heerlein, Kraus, & Sauer, 1998) and can be regarded as a suitable measure for depression in refugees (Hollifield, Warner, Lian, Krakow, Jenkins, Kesler, Severson, & Westermayer, 2002).

The *Symptom-Checklist-90 revised* (SCL-90-R; Derogatis, 1977) measures psychological distress. Besides being a widespread measure (Franke & Stäcker, 1995) the SCL-90-R has been used in research on refugee populations (Hollifield et al., 2002). The *General Severity Index* (GSI) is based on the sum of

all items, divided by the number of answered items and describes the level of general psychological distress.

As a measure of coping the *Coping Inventory of Stressful Situations* (CISS, Endler & Parker, 1994) was used. The CISS consists of three subscales (task-oriented, emotion-oriented and avoidance-oriented coping) and assesses general coping styles. The psychometric evaluation of the CISS is good with Cronbach's alpha for the subscales between .77 and .92 and adequate convergent validity (Kälin & Semmer, 1996).

### **Sample**

People targeted for inclusion in the study were selected at random from lists prepared by sixteen Local Councils ("Mjesne Zajednice") of all those registered with them who could meet the inclusion criteria for either of the two samples. These Local Councils had themselves previously been selected at random from all the local councils in Sarajevo.

Participants in the study had to be a) Adults between 16 and 65 years old who lived in former Yugoslavia for most of 1980-1991, b) living at the time of interview (1999) in Sarajevo, but who had lived outside Sarajevo for more than 12 months between 1991 and 1995; c) not suffering from a psychotic disorder or other serious crisis, and d) literate enough to answer the questionnaire with some help. Current and former military personnel were not excluded.

The terms "refugee" and "internally displaced person" (in this study the latter are referred to just as "displaced persons") both refer to those who have been

forced or obliged to leave their homes, e.g. as a result of war or persecution (see Cohen & Deng, 1998, pp. 15-39); refugees are those who subsequently cross an international border, in this case that of former Yugoslavia. Accordingly, the first sample consisted of 75 former refugees who had taken refuge in countries outside Former Yugoslavia for more than 12 months between 1991 and 1995; the second consisted of 75 displaced (or former displaced) adults now living in Sarajevo who did not take refuge outside Former Yugoslavia. Many of the former refugees are still not able or willing to return to their pre-war accommodation. (These two sub-samples are each random selections out of larger sub-samples in a more comprehensive study.) The sample of internally displaced persons includes some who were displaced because of war but who have now returned to their pre-war accommodation. Both groups had experienced a wide range of war experiences. Although the former refugees in the first sample had spent an average of  $M = 4.02$  years outside former Yugoslavia, most had also experienced severe war stress ( $M = 17.42$  months in a war zone) before they left the country. In most cases they lost family members that stayed in the area of former Yugoslavia while they were abroad.

Those interested in co-operating with the survey were informed of the aims and conditions of participation, given guarantees of confidentiality and asked to sign an informed consent form. Interviewers were pairs of final year and third year students of psychology. The respondents were paid a small amount of money (equivalent to the rate for one hour of work) for their co-operation.

Some data was missing for the PTGI, leaving a total of 136 valid questionnaires. The samples are described in Table1.

Please insert table 1 about here

Chi-Square Tests reveal that the sample was approximately evenly distributed across sex and age group (Pearson Chi-Square for the whole 136 persons who returned complete PTGI datasample = .918,  $df = 1$ , n.s.). A Mann-Whitney U test for the level of education between the groups revealed a significant value of 1767.00 (asymptotic 2-sided significance  $p < .05$ ) in the sense that the former refugees were somewhat better educated.

### ***Data analysis***

For all analyses the SPSS software package (SPSS Inc., Versions 10.0.5 and 12.0.2) was employed. As not all the variables are normally distributed, where correlations are reported, these are Spearman's coefficients.

## ***Results***

### ***Results for Hypothesis 1***

Table 2 shows means, standard deviations and the Spearman's correlations between PTGI scores, PTGI subscales and CISS total scores and respective subscales.

Please insert table 2 about here

It seems that as hypothesized, the constructs represented by the CISS coping subscales and the PTGI subscales are strongly related. In particular, the PTGI total score correlates strongly with the CISS total score as well as with the CISS subscales. In particular, most of the shared variance seems to be due to the PTGI subscale "relating to others".

### ***Results for Hypothesis 2***

Table 2 reveals the correlations between the PTGI and its respective subscales on the one hand and the GSI as a measure of general psychological distress as well as the BDI as a measure of depression and the PTDS-symptom score as a measure of PTSD-symptoms on the other hand.

Results indicate, as hypothesized, no significant correlations between the total score for growth on the one hand and depression, general symptoms and PTSD symptoms on the other, as measured by the BDI, the GSI and the PTDS respectively. However it is very striking that the interpretation becomes more complicated when one looks at the individual subscales of the PTGI; while the scale "changes in self" shows low negative correlations, the scale "relating to others" shows moderate positive correlations which are contrary to hypothesis. It is this latter subscale which is largely responsible for the moderate correlation

with overall coping behavior as reported above, and its the only PTGI subscale to be related to the cumulative total of traumatic war events.

### ***Results for Hypothesis 3***

As can be seen in table 2 the PTGI subscale "relating to others" shows within the variables examined in this study the highest correlation to current stressors. However the total PTGI scale is not related to any of the stressor totals. From this limited data about overall levels of different kinds of exposure, ongoing stressors and current stressors and growth, it is not possible to conclude whether growth in this sample is specifically post-traumatic or whether it should be more broadly classified as adversarial growth.

### ***Results for Hypotheses 4***

According to the assumptions set out above, we assumed that those who had to a more secure environment during the war, operationalized as being a refugee as opposed to the internally displaced persons, and currently better living conditions, operationalized as being employed, having a higher income and a stable relationship, show more growth than those with a less secure environment. A sequential multiple regression was used to test this hypothesis. For a better understanding the correlation of all variables included in the multiple regression can be found in Appendix 1. In order to control for the effects of demographic variables and exposure to traumatic and stressful war events, these variables were included in the model in the first step. Variables

representing a more secure environment during the war were included in the second step, and in the third and final step, variables representing a secure environment post-war were included. The multiple regressions were calculated for the PTGI-total score as dependent variables as well as for all PTGI-subscales as dependent variables. Table 3 yields the results for the PTGI-total score and the subscale “changes in self”.

Please insert table 3 about here

The effect size for model 3 and the dependent variable PTGI-total score is  $f^2=.14$  which can be considered small (Bortz & Döring, 1995). The standardized coefficient for age is significant in the first model and remains so in all three models. From the other variables, only flight status, i.e. having been a either a refugee or internally displaced person, makes a significant contribution to predicting the PTGI total score.

Effect sizes for the subscale “changes in self” are with  $f^2 = .39$  in the medium range. Within the models age again is significant and remains significant in all three models. Introducing flight status (refugee vs. displaced) improves the prediction significantly. Adding current living conditions also improves the prediction significantly. From the variables included in the third model only the standardized beta for family status yielded significant results. Inspection of the direction of effect reveals that those who were younger, refugees and in a stable relationship reported more positive changes.

Two similar multiple regressions for the two other PTGI-subcales revealed no significant results. With an adjusted  $R^2$  for “philosophy of life” of -.004 for model 1, .005 for model 2, and -.013 for model 3 effects vary around 0. For the subscale “relating to others” adjusted  $R^2$  equals .019 for model 1, .013 for model 2 and .016 for model 3. None of the standardized betas in any model showed a significant contribution.

### ***Discussion***

Comparably little has been published to date on the relationship between coping styles and post-traumatic or adversarial growth after war. Yet our results support Linley and Joseph’s (2004) finding of a positive correlation between all coping styles and adversarial growth. As significant results emerged mostly for “relating to others” and coping style and the correlations are of small to medium size only we think that the results support the position of Tedeschi et al. (1998, S. 3), that post-traumatic or adversarial growth is more than another coping mechanism. Nevertheless both constructs have much in common. The somewhat lower correlation between PTGI and coping compared to that found by Maercker and Langner (2001) may on the one hand be due to the different coping instruments used, but may also be due to lower reported growth overall. In particular, in our study the use of coping strategies overall, regardless of their nature, is associated with growth in terms of increased value given to relationships with others. One plausible explanation is that use of coping, at least in our sample, implies activating personal relationships which are as a result more highly valued. Possibly this result should be seen against the

special background of the war in Bosnia-Herzegovina, in which people one had known well before the war, whether the local shopkeeper or one's own child, ended up fighting on the enemy side. Perhaps the events of the war demonstrated that one cannot simply trust other people and that one must rather work to maintain good relationships which can then provide a strong feeling of support. Furthermore the war meant going through intensive, sometimes life-threatening situations together, leading to very strong bonding and feelings of togetherness.

There is a significant positive connection between the interpersonal factor of the PTGI and post-traumatic symptoms, general distress and depression, indicating that those suffering the most evaluate positive relationships more highly. One possible explanation could be that the subscale "relating to others" covers some aspects of social support in difficult situations, an interpretation which seems quite plausible, since current stressors show a stronger connection with this subscale than war traumatic events of several years ago. The variable "stressors during and since war" consistently takes a middle position. However the results have to be discussed in a more differentiated way as the factors are not equally associated with depression and general symptoms: the first factor, which measures perceiving positive changes in oneself, is most strongly associated with lower depression and general distress symptoms. As depression in the sense of Beck, Rush, Shaw, and Emery (1979) includes a negative view of oneself this result is quite consistent with the cognitive theory of depression. Yet only a longitudinal study would be able to answer the question of whether the perceived changes in the self actually contribute to

lower depression or whether being depressed prevents one from undergoing (or perceiving) this kind of positive change.

Since the dose-response relationship between exposure to traumatic events and growth is weak in this sample, the search for factors which encourage posttraumatic or adversarial growth must continue elsewhere. It seems that some aspect of having been a refugee rather than an internally displaced person contributes to growth although this effect is quite small. Interestingly the more specific variables such as higher income and having a secure place to live which might be expected to circumscribe this effect do not contribute to growth in this sample when assessed in relation to present day circumstances, which would suggest that other aspects of being a refugee play a role. As we did not use a measure of control attributions we can only speculate that leaving the country entirely as compared to remaining inside it shows that the former group of people are willing and able to take more control of a situation even under very difficult circumstances and that this eventually leads to more growth and specifically to a more positive picture of oneself. Another possible explanation can be found in the reports of Bosnian patients in treatment centers in Germany, which point to the possible positive effects of geographical separation. For example the patient whose story is told at the beginning of this chapter, and who was flown out to Western Europe due to a serious injury, reported that after his recovery he realized in a flash how much the war had "sucked him in". He reported that the contrast between war and peace, which came so abruptly for him, made him more sensitive to the value of each moment. Perhaps the effect of flight status (former refugee vs. internally

displaced person) is partly explained by distancing: the opportunity to take a step back and view the events and one's involvement in them from further away.

The first case study, of a young man who was displaced inside the country during the war, seems to suggest that although some who were exposed to the horrors of war for its whole duration might feel that they grew as people. For them war-related growth is perhaps strongly tied to a collective view of the world. That kind of shared view can, depending on the political circumstances, easily become superseded in the years after the war ends.

### ***Conclusions***

- Based on a narrative review of studies concerning adversarial growth after war it became clear that there is very little overlap in terms of used measures. This means the results are difficult to compare and for future studies in the field the use of previously published scales is recommended.
- For our study, it can be said in summary that there is indeed some limited empirical evidence for posttraumatic or adversarial growth due to war.
- The aspect of valuing relationships with others seems to be particularly important and is connected to coping styles and to traumatic and stressful events as well as to higher symptom levels. The aspect of perceiving positive changes in oneself is on the other hand negatively related to symptom level.

- Our results were quite different in terms of subscales. While the subscale “relating to others” is probably confounded with social support, the subscale “changes in self” is probably close to self schemas in cognitive theories. Thus any study on adversarial growth should give detailed information on results based on different subscales.
- As there is as yet no empirical evidence that growth during and after war is specifically due to traumatic events, the more conservative formulation "adversarial growth" should be preferred at least for the meantime.

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**Table 1: Sample Description**

		Returnees			Displaced			Total		
		Count	Column %	Mean	Count	Column %	Mean	Count	Column %	Mean
sex	female	39	60.9%		38	52.8%		77	56.6%	
	male	25	39.1%		34	47.2%		59	43.4%	
	Total	64	100.0%		72	100.0%		136	100.0%	
family status	single	23	35.9%		28	38.9%		51	37.5%	
	married or long-term relationship	41	64.1%		44	61.1%		85	62.5%	
	Total	64	100.0%		72	100.0%		136	100.0%	
years of education	8.00	8	12.7%		19	27.1%		27	20.3%	
	11.50	46	73.0%		47	67.1%		93	69.9%	
	16.00	9	14.3%		4	5.7%		13	9.8%	
	Total	63	100.0%		70	100.0%		133	100.0%	
monthly household income in KM	41.00	11	17.5%		9	12.5%		20	14.8%	
	131.00	6	9.5%		10	13.9%		16	11.9%	
	215.00	5	7.9%		11	15.3%		16	11.9%	
	275.00	5	7.9%		7	9.7%		12	8.9%	
	450.00	20	31.7%		22	30.6%		42	31.1%	
	800.00	10	15.9%		6	8.3%		16	11.9%	
	1200.00	6	9.5%		7	9.7%		13	9.6%	
	Total	63	100.0%		72	100.0%		135	100.0%	
	Other	6	9.4%		3	4.2%		9	6.6%	
religion	Islam	53	82.8%		63	87.5%		116	85.3%	
	Catholicism	1	1.6%		3	4.2%		4	2.9%	
	Orthodox	4	6.3%		3	4.2%		7	5.1%	
	Total	64	100.0%		72	100.0%		136	100.0%	
	age			36.83			36.58			36.70

**Table 2: Spearman Correlations between Posttraumatic Growth and Coping,**

	PTGI-Total score	Changes in Self	Philosophy of Life	Relating to Others
task-oriented coping	.269(**)	.115	.166(*)	.220(**)
emotion-oriented coping	.187(*)	-.004	.119	.230(**)
avoidance-oriented coping	.345(**)	.161(*)	.180(*)	.297(**)
CISS total	.333(**)	.112	.181(*)	.309(**)
BDI	.043	-.254(**)	-.019	.261(**)
SCL-GSI	.126	-.160(*)	.062	.251(**)
PTSD-symptoms	.100	-.142	.074	.181(*)
traumatic prewar events	.100	-.102	.031	.142
traumatic war events	.058	-.079	.013	.179(*)
other stressors during and since war	.032	-.109	.008	.211(**)
current stressors	.112	-.114	.028	.324(**)

\*\* Correlation is significant at the 0.01 level (1-tailed).

\* Correlation is significant at the 0.05 level (1-tailed).

**Table 3: Prediction of Post-traumatic/adversarial growth on the Basis of Demographic Variables, Flight Status and Current Living Conditions**

Model	Variables	Dependent Variable: Total PTGI					Dependent Variable: Changes in Self				
		B	SE B	$\beta$	R <sup>2</sup>	adj.R <sup>2</sup>	B	SE B	$\beta$	R <sup>2</sup>	adj.R <sup>2</sup>
1					.058	.037*				.152	.132**
	Constant	48.577	5.032				1.034	.267			
	sex	-1.577	3.341	-.044			.037	.180	.018		
	age										
	traumatic war events	-.329	.118	-.244			-.028	.006	-.381		
		.297	.273	.100			-.006	.014	-.036		
2					.107	.080**				.206	.181**
	Constant	85.889	14.864				3.229	.791			
	sex	-1.560	3.266	-.043			.038	.175	.019		
	age	-.339	.116	-.251			-.029	.006	-.388		
	traumatic war events	.467	.275	.157			.004	.014	.026		
	sample	-8.178	3.074	-.228			-.482	.164	-.241		
3					.116	.067				.282	.241**
	Constant	85.313	15.877				3.133	.815			
	sex	-1.730	3.310	-.048			.037	.169	.018		
	age	-.295	.123	-.218			-.022	.006	-.294		
	traumatic war events	.538	.287	.181			.016	.014	.099		
	sample	-8.308	3.328	-.231			-.480	.171	-.240		
	Unsure if you can stay living where you are now?	-.032	3.516	-.001			-.081	.179	-.041		
	household income	.003	.005	.061			.000	.000	.144		
	family status	-2.853	3.312	-.077			-.495	.169	-.240		

**Appendix 1: Spearman correlations of all variables included in the multiple regressions**

	sex	traumatic war events	sample	Unsure if you can stay living where you are now?	monthly household income KM	family status	changes in self	philosophy of life	relating to others	PTGI-total score
age	-.136	.154*	-.009	.113	-.247**	.339**	-.413**	-.156*	.149*	-.224**
sex		.337**	.082	.150*	-.013	.004	.031	-.033	-.041	.006
traumatic war events			.237**	.305**	-.157*	.215**	-.079	.013	.179*	.058
sample				.397**	-.057	-.030	-.216**	-.163*	.054	-.185*
Unsure if you can stay living where you are now?					-.277**	.178*	-.175*	-.061	.135	-.082
monthly household income KM						-.090	.243**	.068	-.149*	.108
family status							-.275**	-.010	.142	-.140
changes in self								.102	.071	.647**
philosophy of life									.070	.618**
relating to others										.548**

\* Correlation is significant at the 0.05 level (1-tailed).

\*\* Correlation is significant at the 0.01 level (1-tailed).

A.9 Paper 9: Rosner, R., & Powell, S. (2007). How real is post-traumatic growth after surviving traumatic war events? In Proceedings of Psihologija i drustvo ("Psychology and Society") (pp. 9-15). Novi Sad, Serbia: University of Novi Sad.

Rosner, R & Powell, S. (2007, October). How Real is Posttraumatic Growth after Surviving Traumatic War Events? In Proceedings of Psihologija i društvo ("Psychology and Society") (pp. 9-15). Novi Sad, Serbia: University of Novi Sad

**Title:** How Real is Posttraumatic Growth after Surviving Traumatic War Events?

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**Abstract**

In the aftermath of traumatic experiences some survivors report positive long-term changes in themselves, which have been recently discussed in the light of the concept "posttraumatic growth". However the validity of the concept is still under discussion. In particular, it is not clear whether existing operationalisations of the construct are sufficiently comprehensive: do they really cover enough of the content of perceived growth in a wide variety of post-traumatic contexts? And are the changes described in discussions of post-traumatic growth really perceived as uniformly positive by those experiencing them?

The present study uses a modification of the Posttraumatic Growth Inventory to address these issues. Respondents were a convenience sample of students at Sarajevo University who had been exposed to a variety of traumatic and stressful events during the war which had ended six years before the study.

The results confirm that positive changes are indeed seen as substantial when compared to negative changes. The PTGI is also confirmed as being a relatively comprehensive catalogue of post-traumatic changes, although some new aspects perhaps typical of civilians after war are revealed, in particular changes related to discovering the value of true friendship.

***Background***

In the aftermath of traumatic experiences some survivors report positive changes, which have been recently discussed under the headings of "posttraumatic growth" or "adversarial positive outcome". The concept of

posttraumatic growth has developed into a widely used and recognized concept (Tedeschi, & Calhoun, 2006), but there have been some critical voices. The central objections are that most studies rely on self-reports and therefore cannot capture “true” positive changes, and that posttraumatic growth has a strong illusory and self-deceptive side in the sense of “if it had to happen, then, at least it should have been good for something”. (Taylor, & Armor, 1996; Zoellner, & Maercker, 2006). Related to this latter argument is a methodological objection: as there are also high levels of psychological symptoms in some of the investigated populations, it could be that any positive changes are subjectively virtually meaningless when compared to an overwhelming level of negative changes. In other words, the mere fact that people have answered two different self-report questionnaires, one assessing distress symptoms and another one assessing positive change, does not mean that they believe that the second is subjectively as important as the first. One other argument frequently discussed is that posttraumatic growth is a “Western” concept which must be adapted or even rejected for non-Western contexts.

Our work in Bosnia and Herzegovina after the 1992-5 war, where nearly all members of the adult population have experienced at least one significant traumatic event, has given us the opportunity to contribute to answering some of these questions. An earlier study of ours (Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003; Rosner & Powell, 2006), seems to show that the areas of growth covered in the original instrument can also be found in post-war Sarajevo. But this does not answer the question of whether there might not be other kinds of positive changes not covered in the instrument.

Based on these considerations, a new study was carried out with the following objective.

### ***Objective***

The intention was to answer the validity criticisms mentioned above.

Specifically we were interested in the following issues.

- “Positive vs. Negative”: how significant are positive changes compared to negative changes?
- “Really positive”: how much are the typical changes listed in the PTGI really experienced as positive?
- “Content”: are there any areas of growth not covered in the existing instrument?

### ***Method***

#### ***Instruments***

Exposure to traumatic and other stressful events was measured with the War trauma questionnaire (WTQ, Duraković-Belko, Kulenović, & Đapić, 2003). The WTQ has 28 items that describing different traumatic war events, such as displacement, general war events, separation, loss, life threatening events to self and significant others and witnessing violence. The total range for the whole questionnaire is 0-28.

Postrumatic growth was assessed with a modified version of our translation (Powell et al., 2003; Rosner, & Powell, 2006) of the *Posttraumatic Growth Inventory* (Tedeschi, & Calhoun, 1996). Specifically we made three major changes:

**Modification 1:** We added three new questions at the beginning about positive compared to negative growth. The questions were as follows:

Question 1: Positive vs. negative

“Please tell us in which ways, if any, you POSITIVELY changed as a person because of the war and war circumstances such as trusting other people more, believing in God .....

“Please tell us in which ways, if any, you NEGATIVELY changed as a person because of the war and war circumstances such as nervousness, disappointment, ..... do NOT include changes in life circumstances or general health problems.”

Question 2: Parallel importance

“Now we would like you to say how important all these positive changes (if you have any) are for you. Please put a cross in the box“ (Likert scale from 0 = not important to 5 = very important).

“Now we would like you to say how important all these negative changes (if you have any) are for you. Please put a cross in the box" (Likert scale from 0 = not important to 5 = very important).

Question 3: Direct comparison

“In general do you think the overall changes in yourself taken together have had a more positive or more negative effect on you. Please put a cross in the box” (Likert scale from  $-4$  = very negative to  $0$  = neutral to  $+4$  = very positive).

**Modification 2:** The original PTGI lists 21 possible aspects of post-traumatic growth and asks how much the respondent has experienced each change. High scores do not necessarily mean that the changes are experienced as positive. In order to gather this additional information, the instrument was modified so that each growth item had to be rated on two different scales (from  $-4$  to  $+4$  for decrease or increase due to the war (“occurrence”), with  $+4$  meaning “very much more”; and from  $-4$  to  $+4$  for “how positive is this to you” (“valence”), with  $+4$  meaning “very positive”).

The original instrument instructs respondents to answer about changes which occurred “in your life as a result of your crisis”. However, as the “crisis” in the present study could have been as wide as the whole complex situation of war and refuge, each item was adapted to include a reference to changes “since April 1992” or “in comparison with the period before the war”. This modification was identical to that undertaken in our previous translation of the PTGI (Powell et al., 2003; Rosner, & Powell, 2006).

**Modification 3:** Four new items were added which were considered not to be covered by the existing items of the PTGI, based on a previous qualitative pilot study with students. The new items were: Item 1: “I am less upset by small things”. Item 2: “I value real friendship more”. Item 3: “I believe more in fate”. Item 4: “I am more cautious with people”.

### ***Sample***

Participants were 69 third and fourth year female students at Sarajevo University. All students present after a lecture answered the questionnaires. Data from four students was excluded because of missing data. The study was carried out in 2001, about six years after the end of the war. The students reported a mean number of 9.09 traumatic events.

### ***Data analysis***

For all analyses the R software package (2.5.1) was employed.

## ***Results***

### ***Results for Concept Validity***

#### **Modification 1: Positive vs. negative changes in open self report**

The free-text questions about positive and negative changes were coded by trained psychology students. Most frequently reported positive changes were “believing in God”, “being content with little”, “value of real friendships”, and “accepting fate”. Most frequently reported negative changes were “disappointment”, “mistrust”, and “symptoms” (e.g. nervousness). The content of all of the positive changes was judged to be covered by the items of the original instrument and/or by the four additional items (Modification 3, above) with the exception of “being content with little”.

Parallel importance: A paired samples t-test for the difference between the participants' ratings of the overall importance of positive and negative changes yielded significant differences. Participants reported positive changes as more important (two sample t-test, 1-sided hypothesis that positive is greater than negative,  $t = 3.40$ ,  $df = 102$ ,  $p < .00$ ). The direct comparison question on the overall changes taken together also yielded a significant effect (one-sample t-test that the mean comparison score of 1.85 significantly differs from 0:  $t = 6.45$ ,  $df = 60$ ,  $p < .00$ ).

The correlation between importance of positive and importance of negative changes is not significant, indicating that both concepts might be independent.

**Modification 2:** the item ratings for occurrence and validity showed that every single item had a positive mean rating. No item received a significantly lower rating for valence than for occurrence. Valence scores tended to be higher than occurrence scores, 1.88 as opposed to 1.52, but this difference was not quite significant (Two Sample t-test:  $t = -1.89$ ,  $df = 106$ ,  $p\text{-value} = 0.06$ ). Valence and occurrence were highly positively correlated (Pearson correlation coefficient = 0.86,  $t = 11.8$ ,  $df = 50$ ,  $p\text{-value} < .00$ ). Neither valence nor occurrence were significantly correlated with the number of war events experienced.

**Modification 3:** the mean occurrence scores for the four new items were higher than the mean occurrence score for the original 21 items, with the exception of the item "I believe in fate". In terms of valence, the new "I value real friendship more" was ranked first of all 21+4 items.

## ***Discussion***

Summarizing the results in terms of concept validity, positive changes were clearly more important to participants than negative changes on all three methods of assessment. All items assessed were evaluated as really positive. On a scale from "very negative" to "very positive", the overall changes in oneself are rated at just below "moderately positive". Moreover, every one of the individual items of the PTGI (21 original items and 4 new items) is indeed experienced as positive. These findings support the content validity of posttraumatic growth especially considering that the participants in the study were highly traumatized by war.

The PTGI covers adequately the positive changes in Sarajevo after the war, but does not do so completely. The four items added in this study are probably all important for a long-term traumatic situation which was on the whole experienced as collective resistance to a shared adversary. The item "being more cautious with other people", is evaluated as positive by participants and might therefore capture an adaptive response to multiple interpersonal traumatisation. The fact that the new item "valuing true friendship" scored highest of all the items is particularly striking. These new items could be considered for any revised version of the PTGI.

The study has a number of limitations. The participants were all students, and represent therefore a highly selective sample. Furthermore positive and negative changes only cover "personality", not life circumstances, and represent therefore only a small area of possible changes.

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# Appendix B

## The author's contribution to each paper

	Reference	Authorship information
1	Rosner, R., Powell, S. & Butollo, W. (2003). Post-traumatic Stress Disorder three years after the Siege of Sarajevo. <i>Journal of Clinical Psychology</i>	<p>SP had a 40% share in the concept for the paper; SP had a 30% share in the concept and design of the field research. Selection of instruments: RR and WB with contributions from SP. Coordinating adaptation and translation of instruments: SP with contributions from RR WB. Coordinating field research: SP 100% Design of statistical analyses: RR and SP 50% each Conducting statistical analyses: SP with corrections from RR.</p> <p>Text: Abstract: RR with corrections from SP and WB. Subsection "Prevalence of PTSD in war affected civilians": 50% SP. Method, data analysis, results and tables: RR on the basis of similar textual material provided by SP, with substantial additions and corrections from SP and with corrections from WB. Section "Additional Information about the War Situation in Sarajevo Between 1992 and 1995": SP with corrections from RR Discussion and conclusion: RR with substantial additions and corrections from SP</p>
2	Powell, S., Rosner, R., & Butollo, W. (2000). Flight Paths: Report to the Office of the (German) Federal Government Commissioner for the Return of Refugees, Reintegration and related Reconstruction in Bosnia and Herzegovina. Sarajevo: GTZ-Büro. (Published in English, German and Bosnian).	<p>Concept for the paper: SP on the basis of discussions with the GTZ.</p> <p>Research design for the additional samples (i.e. including displaced persons and returnees as well as non-displaced, in two cities, using similar instruments to previous samples but including instruments on flight and displacement) was conceived by SP and then discussed with RR and WB. SP led the field research in collaboration with colleagues in Banja Luka.</p> <p>Research questions: SP, with substantial contributions from RR and contributions from WB. Selection of additional instruments: SP with substantial contributions from RR. Translation and adaptation led by SP.</p> <p>Text: SP, with substantial contributions from RR and contributions from WB. All statistical analyses: SP</p>

	Reference	Authorship information
3	Powell, S., & Rosner, R. (2005). The Bosnian version of the international self-report measure of post-traumatic stress disorder, the Post-traumatic Stress Diagnostic Scale, is reliable and valid in a variety of different adult samples affected by war. <i>BMC Psychiatry</i> 2005, 5:11. internet: <a href="http://www.biomedcentral.com/1471-244X/5/11">http://www.biomedcentral.com/1471-244X/5/11</a>	Concept for the paper: RR 60%, SP 40% Research design and field research as above. Research questions: RR, with substantial contributions from SP. Text: SP, with substantial contributions from RR. All statistical analyses: SP Overall, taking into account research questions and original design of field research, contributions of SP and RR were of comparable size.
4	Rosner, R., & Powell, S. (2009). Does ICD10 Overestimate the Prevalences of PTSD? <i>Trauma &amp; Gewalt</i> , (3:2).	SP had a 30% share in the concept for the paper. Field research: as above. SP conducted all the statistical analyses. Abstract: rewritten by SP on the basis of text by RR Introduction: RR, with contributions by SP Research questions: RR in discussion with SP Method and samples: rewritten by RR on the basis of text by SP, then corrected by SP Results and discussion: rewritten by SP on the basis of text by RR, which was written on the basis of tables provided by SP in discussion with RR Conclusion: rewritten by SP on the basis of text by RR,
5	Rosner, R., Powell, S. & Butollo, W. (2002). Why do people in Bosnia & Herzegovina go into treatment. The role of Post-traumatic Stress Disorder in psychotherapy service utilization. <i>European Psychotherapy</i> , 3 (1), 117-129. <a href="http://www.cip-medien.com/06_EP_Vol3_2002.pdf">http://www.cip-medien.com/06_EP_Vol3_2002.pdf</a>	SP had a 40% share in the concept for the paper. Field research: as above. Questions for analysis: 30% SP SP conducted all the statistical analyses Most of the text was written in German by RR, partly on the basis of previous documents and other information provided by SP, and then translated into English by SP, which also involved some substantial changes and suggestions. Resulting text was then again corrected by RR and SP and WB.
6a	Powell, S. (2002). The Psychosocial Approach. In Powell & Duraković-Belko (eds.): <i>Sarajevo 2000: the psychosocial consequences of war, Results of empirical research from the territory of former Yugoslavia</i> . Sarajevo: UNICEF.	Concept for the paper: SP 80% Research design and field research: as above. Research questions: SP, with contributions from RR. All text: SP, with numerous corrections from RR / WB. All statistical analyses: SP RGT and LGC also made some suggestions and small corrections to the text.
7	Powell, S., Rosner, R., Butollo, W., Tedeschi, R. G., & Calloun, L.G. (2003). Post-traumatic growth after war: A study of former refugees and displaced people in Sarajevo. <i>Journal of Clinical Psychology</i> , 59, 71-84.	Concept for the paper: SP 80% Research design and field research: as above. Research questions: SP, with contributions from RR. All text: SP, with numerous corrections from RR / WB. All statistical analyses: SP RGT and LGC also made some suggestions and small corrections to the text.

	Reference	Authorship information
8	Rosner, R & Powell, S. (2006). Post-traumatic Growth After War. In: Lawrence G. Calhoun and Richard G. Tedeschi (eds.). Hillsdale, NJ: Lawrence Erlbaum Associates.	Field research: as above. Text: Case studies in introduction: RR, with substantial corrections by SP Next 3 sections, up to Hypotheses: RR, heavily corrected by and with some additions from SP Method: about 50% SP and RR Sample: adapted by RR from texts provided by SP Analyses: SP Results, discussion: first draft provided by RR, translated from German into English with substantial changes and suggestions from SP. Some new paragraphs provided by SP.
9	Rosner, R & Powell, S. (2007, October). How Real is Post-traumatic Growth after Surviving Traumatic War Events? In Proceedings of Psihologija i drustvo ("Psychology and Society") (pp. 9-15). Novi Sad, Serbia: University of Novi Sad	SP conceived of, designed and implemented the study to 100% on his own initiative separately from and subsequent to the rest of the field research, and also carried out the statistical analysis. SP presented the study and results in Zadar in 2004. RR wrote most of the first draft on the basis of the powerpoint presentations and other documentation provided by SP. SP then corrected and added some sections. RR is named as first author because she presented the paper