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**Impact of Pre-war and Post-war Intergroup Contact on Intergroup Relations and Mental
Health: Evidence from a Bosnian Sample**

Abstract

Using a sample of Bosnian adults (N=381) we investigated the association between intergroup contact, measures of intergroup relations, and mental health. Structural equation models with latent variables showed that post-war contact had beneficial effects, being positively related to outgroup trust and intergroup forgiveness, and negatively associated with social distance. Moreover, post-war contact had indirect effects on reduced morbidity and post-traumatic stress disorder symptoms via increased intergroup forgiveness and reduced social distance. We also analyzed the role of potential inhibitors and facilitators of the beneficial effects of post-war contact, and found that experience of violence played a detrimental role, while pre-war contact was related to positive outcomes. Moderation analyses revealed the interactive effects of pre-war and post-war contact, as positive effects of present-day contact on intergroup relations (promoting trust and reducing social distance) were strongest when pre-war contact was high. Conversely, post-war contact was positively associated with outgroup trust only for respondents with low levels of experience of violence. Findings underline the value of promoting intergroup contact in post-conflict settings.

Keywords: Pre-war and post-war contact; forgiveness; trust; conflict-related trauma

“We all used to be friends and this is the reason for the pain we now feel. We used to share happiness and sorrow with them. And suddenly in 1991 you come to seek protection from a person [from another ethnic group] who until yesterday was your very good friend, and he almost does not recognize you anymore. He would not dare to be your friend any more.”

(Corkalo et al., 2004, p. 145)

The vast majority of research confirming that intergroup contact can reduce prejudice between groups comes from societies that are relatively free of violent intergroup conflict (Wagner & Hewstone, 2012). Considering whether contact can contribute to the resolution of intractable conflicts, Wagner and Hewstone distinguished between different phases for contact and contact effects, namely a *pre-violence phase*, a *phase of physical violence*, and a *post-violence phase*. As they note, evidence shows that intergroup contact helps to prevent escalation of intergroup conflict and violence, and supports the assumption that intergroup contact, after a phase of violence, can contribute to improved intergroup relations. Yet very few studies have investigated the effects of *prior* intergroup contact on post-war contact, intergroup perceptions, and reconciliation *after* violence. The present paper addresses this lacuna, looking at a much wider range of outcomes than are usually conceived or investigated in studies of intergroup bias and prejudice, including measures of the deep psychological impact of conflict on those who have experienced worst violence (i.e., morbidity and post-traumatic stress disorder, PTSD).

The vast majority of intergroup contact research focuses on contact in the pre- or non-violence period, and the main dependent variables studied have been outgroup attitudes, or prejudice. Research conducted during this phase of (non) conflict shows convincingly that contact improves intergroup relations, especially if the supportive preconditions for effective

intergroup contact are present (Pettigrew & Tropp, 2006), although these are not necessary. Yet a much more demanding test of the impact of contact is provided by an analysis of contact effects on post-violence intergroup relations; and following periods of extreme intergroup violence (e.g., ethnic cleansing, genocide), a number of other variables have also been considered, alongside attitudes, including measures of trust (Tam, Hewstone, Kenworthy, & Cairns, 2009), forgiveness (e.g., Čehajić, Brown, & Castano, 2008), and reconciliation (e.g., Biro et al., 2004), which may ultimately be more important for the reduction of intergroup conflict than is promotion of liking for outgroup members.

Few studies have analyzed the effects of pre-violence contact on post-violence intergroup perceptions and behaviours, although Biro et al. (2004) reported results of two surveys in Bosnia-Herzegovina and Croatia between 2000 and 2002. The surveys contained items asking about pre-violence intergroup friendships, and positive as well as negative outgroup experiences. Although the research was not intended specifically to test hypotheses relating to intergroup contact, the results are consistent with the assumptions of contact theory; pre-violence positive intergroup contact was positively associated with an increased readiness for reconciliation after the war, whereas negative contact experiences before the eruption of violence were negatively associated with readiness for reconciliation.

The present paper also studies the conflict in ex-Yugoslavia, specifically in Bosnia and Herzegovina. When this conflict began in 1992, observers and victims alike were perplexed at this internecine conflict, given that ethnically heterogeneous regions of ex-Yugoslavia were marked by cross-ethnic friendships, intermarriage, and tolerance (see Sekulić, Massey & Hodson, 2006). How could neighbors turn on and kill neighbors, people whom they had invited into their homes, built houses with, and with whom they had celebrated respective religious festivals? By its end, in 1995, the conflict had claimed over 200,000 lives (50% Muslim, 30-35% Serb, 15-20 % Croat) in Bosnia (Carmichael, 2002; Weitz, 2003) and forced

over 2 million residents out of the country through a policy described as *ethnic cleansing* (see Toal & Dahlman, 2011). The war showed how quickly peaceful relations could disintegrate in a country whose more heterogeneous regions had apparently been characterized pre-war by relatively positive intergroup relations (Sekulić et al., 2006). Evidently, close contact could not inoculate against such heinous crimes. In pre-war Bosnia, individuals from different ethnic groups did socialize together, but Simic (2000) still referred to an “invisible psychological wall” between neighbors. He argued that “superficial cordiality, more often than not masked a deep sense of alienation, suspicion, and fear” (p. 115). The question remains, nonetheless, whether some benefits of cordial pre-war positive contact could be discerned post-conflict, as a society tried to re-build itself, even though people who once lived in peace now, post-war, “harbour deep-seated resentments and suspicions of one another, making it difficult to renew social relationships or to form new ones” (Corkalo et al., 2004, p. 143).

Intergroup relations in Bosnia-Herzegovina still remain enormously strained (Bar-Tal & Čehajić, 2013), and there has been little social-psychological research on which to draw. However, there is some evidence of the positive effects of contact in this region. Among a sample of Bosniak¹ students, primarily from the University of Sarajevo, Čehajić et al. (2008) found that positive intergroup contact was associated with greater forgiveness of and a lower degree of social distance from Serbs. Čehajić and Brown (2010) found that Serbian adolescents who have contact with Bosniaks were more likely to acknowledge responsibility for their in-group in committing War atrocities. A limitation of these studies, however, is that participants (mean age 18.2 and 17.8 years, respectively) would have been aged 2-3 years at the start of the war, and still only 5-6 years at its end. Would contact function so positively for the older generation, many of whom would have had bitter experiences during the war, and were living with terrible memories and trauma?

Not all studies are sanguine in their findings of the effects of contact in this post-war setting. Hjort and Frisen (2006) collected both qualitative and quantitative data from participants in the *Koraci Nade* peace-reconciliation program in Mostar, one of the most ethnically-segregated cities post-war, whose famous bridge acts as a symbol of division, with the Bosniak community on the east bank of the river Neretva and the Croat community predominantly on the west bank. Results showed that 63% of participants viewed inter-ethnic reconciliation as desirable, whereas only 10% viewed it as realistic. Participation in the program did not promote cross-ethnic friendship, and participants chose to attend their local centers, thereby reducing opportunity for contact. More optimistically, O'Loughlin's (2010) interview surveys found that, among a sample of 2,000 Bosniak adults, 47% were willing to consider cross-ethnic friendships. However, 41% of respondents had friends only of their own nationality.

Although research on intergroup contact in Bosnia-Herzegovina has been sparse, there have been studies elsewhere on the impact of contact on variables that should be important in post-conflict settings. Much of this work has been conducted in Northern Ireland, where the conflict took place over a much longer period and at much lower intensity. Not only has contact been found to be associated with measures of prejudice, but also with intergroup trust (e.g., Tam et al., 2009), and intergroup forgiveness (e.g., Tam et al., 2007; Voci, Hewstone, Swart, & Veneziani, 2015). Given our desire to investigate the impact of pre-war and post-war contact on measures of trauma and morbidity, the impact of contact on forgiveness is a promising finding, since prior research found that intergroup forgiveness was negatively correlated with mild psychiatric morbidity, and mediated the relationship between group identification and morbidity (Myers, Hewstone, & Cairns, 2009). Moreover, individuals who identified more with their own religious group (i.e., as Catholic or Protestant) and were

victimized by “the Troubles” to a greater extent, experienced lower levels of forgiveness towards the out-group.

These latter findings demonstrate that, in addition to pre-violence contact, research has also focused on other relevant variables that may contribute in shaping the context in which present contact occurs. Relevant to the present study are, in particular, experience of violence, i.e. direct experience of the conflict (e.g., Myers et al., 2009), and ingroup identification, which is usually defined as the degree to which individuals see themselves as members of the ingroup (Tajfel & Turner, 1986).

With regard to the experience of violence, studies conducted in Northern Ireland showed that exposure to the conflict was associated with higher levels of mental health problems, assessed through the General Health Questionnaire (GHQ-12; Myers et al., 2009), PTSD symptoms (Muldoon & Downes, 2007), ingroup bias, and several indicators of negative outgroup attitudes, such as perceived threats to physical safety and negative action tendencies (Schmid, Tausch, Hewstone, Hughes, & Cairns, 2008). Relevant to the present research, there is strong evidence for the detrimental effect of experience of conflict on intergroup forgiveness and outgroup trust (e.g., Hewstone et al., 2004). Exposure to violence has also been employed as a moderator of the effect of present contact on both intergroup forgiveness and trust (Voci et al., 2015). Thus the experience of violence seems to be of particular interest in research on intergroup conflict in general, and on the beneficial effects of intergroup contact in particular. Nevertheless, as Schmid and colleagues (2008) noted, the effects of these experiences are often implicitly assumed, rather than empirically assessed.

Turning to ingroup identification, this is one of the most important variables in research on intergroup relations, as it has been shown to influence, or moderate, how individuals react to group-based phenomena (Tajfel & Turner, 1986). Thus, especially in social contexts characterized by conflicts, ingroup identification is likely to be a crucial brick

in the “invisible psychological wall” that may divide groups and communities. Ingroup identification, like violence experience, seems to inhibit intergroup forgiveness (e.g., Hewstone et al., 2004; Myers et al., 2009; Noor, Brown, Gonzales, Manzi, & Lewis, 2008). High, compared to low, levels of identification with the ingroup also seem to strengthen several group-based effects (e.g., Schmid, Hewstone, Cairns, & Hughes, 2010). Ingroup identification was also found to moderate the effects of intergroup contact. In particular, high ingroup identifiers may paradoxically benefit more from contact, as contact effects generalize more strongly when group membership is more salient, as is the case for high identifiers (Brown & Hewstone, 2005). Consistently, a survey conducted in Northern Ireland showed that contact with outgroup members was positively associated with intergroup forgiveness only for respondents with high levels of ingroup identification (Voci et al., 2015).

We are aware of no previous research that has investigated the impact of intergroup contact on PTSD, either directly or indirectly via forgiveness or other measures of intergroup relations. Yet, the psychological trauma of conflict is in some ways more enduring than the physical consequences. Psychological suffering usually lasts for years after the traumatic event has taken place (Carballo, 2003; Mollica et al., 2001). Carballo et al. (2004) tested 1,500 Bosnian families across the main cities in Bosnia-Herzegovina, using a scale of 12 indicators of mental health adapted from the GHQ, and found that people tended to report being chronically nervous, frightened, exhibiting loss of their ‘locus of control’ with symptoms of low self-esteem, depression, and sleep disorders. Moreover, Lagerkvist, Magliajlic, Puratic, Susic, and Jacobsson (2003) reported, eight years after the conflict ended, that up to 500 clients were thought to be attending mental health clinics across Bosnia-Herzegovina each week and roughly 60% of these for serious mental health issues.

The present research

Our primary aim was to investigate the associations between intergroup contact, measures of intergroup relations, and measures of morbidity and PTSD. We predicted that present (i.e. post-war) contact would be positively associated with intergroup relations, being related to higher trust and forgiveness, and lower social distance. Positive intergroup relations, and in particular high levels of forgiveness, would then be related to lower levels of morbidity and PTSD.

We also investigated variables able to inhibit or facilitate the beneficial effects of post-war contact. We considered constructs related to the specific context under investigation, characterized by a history of cohabitation that mutated into a violent conflict (Sekulić et al., 2006), and in which ethnic identity has been, and often still is, a crucial aspect of self-definition (the superordinate identity, ‘Yugoslavian’, was chosen by relatively few respondents within the overall population: 7.9% in 1981; 5.5% in 1991; Carmichael, 2002). In particular, we considered pre-war contact as a possible facilitator of post-war contact effects, while experience of violence and ingroup identification were treated as potential inhibitors. We assessed the role of these constructs in two ways.

First, we treated pre-war contact, experience of violence, and ingroup identification as antecedents of post-war contact, and thus as exogenous variables in a model that further included measures of intergroup relations and conflict-related trauma. We predicted that past experience of intergroup contact would favor post-war interactions with outgroup members. Through this association, pre-war contact should then exert indirect beneficial effects on the other measures included in the model. We predicted that experience of violence and ingroup identification would limit the possibility of having contact with outgroup members, and thus have indirect detrimental effects on intergroup relations and conflict-related trauma.

Second, we tested whether the effects of post-war contact were moderated by pre-war contact, experience of violence, and ingroup identification. We hypothesized that high levels of pre-war contact would strengthen the beneficial role of post-war contact, in a sort of additive, cumulative effect. On the other hand, experience of violence should inhibit contact effects, as experience of violent acts perpetrated by outgroup members should reduce the likelihood of benefitting from cross-group interactions. Past research has shown that the positive effects of contact on intergroup appraisals could be stronger for high- than for low- identifiers (Voci et al., 2015), but being aware that in the specific context ethnic identification could be a prominent cause of perceived conflict (e.g., Carmichael, 2002), we preferred not to formulate specific predictions concerning its role as moderator.

Method

Sample

The data were collected in Sarajevo between June and July 2010, using a ‘snowball’ sampling procedure (see the Supplemental Materials for detailed information). Overall, 409 respondents completed the questionnaire. Based on the aims of the study, we retained respondents of Bosnian ethnicity and citizenship. Moreover, four questionnaires had to be discarded due to missing data. The final sample included 381 respondents (189 men and 192 women). Their mean age was 43.12 years ($SD=13.41$; range: 23-83).

Measures

All instruments were first produced in English, translated into Bosnian, and back-translated into English to ensure absolute accuracy. Unless otherwise noted, responses were provided on a 5-point scale, with higher scores indicating higher levels of the investigated construct (detailed information concerning the translation and the content of the scales can be found in the Supplemental Materials).

Experience of violence. Seven items, developed ad hoc, assessed experience of violence. Respondents indicated whether or not they had suffered directly as a result of the war in Bosnia-Herzegovina (no=1; yes=2; Cronbach's $\alpha=.71$; $M=1.54$; $SD=.27$).

Ingroup Identification. Six items measured ingroup identification, stemming from a pre-existing scale (Luhtanen & Crocker, 1992) and modified to assess the Bosniak (i.e., Bosnian and Muslim) identity ($\alpha=.85$; $M=4.06$; $SD=.82$).

Pre-war (Past) Contact. Nine items measured pre-war contact with Serbs, partly devised for the purpose of the study and partly derived from Cakal (2007). Four items assessed contact with neighbors, three items concerned contact with friends, and two items tapped contact with colleagues ($\alpha=.94$; $M=2.73$; $SD=1.15$).

Post-war (Present) Contact. Nine items measured present, post-war contact, equivalent to those used to assess past, pre-war contact, but adapted to the present time ($\alpha=.95$; $M=2.40$; $SD=1.16$).

Outgroup Trust. Three items adapted from Hewstone et al. (2004) and from Čehajić et al. (2008) assessed trust in outgroup members, i.e. Serbs ($\alpha=.61$; $M=2.37$; $SD=.97$).

Intergroup Forgiveness. Five items adapted from Tam et al. (2007) measured forgiveness ($\alpha=.69$; $M=2.22$; $SD=.89$).

Social distance. Five items derived from the Social Distance Questionnaire (Bogardus, 1925) assessed social distance from Serbs ($\alpha=.81$; $M=3.38$; $SD=.99$).

Morbidity. The 12-item General Health Questionnaire (GHQ-12) was used to screen general morbidity (Goldberg et al., 1997; Cronbach's $\alpha=.83$; $M=2.27$; $SD=.58$; response scale from 0 to 3).

Post-Traumatic Stress Disorder (PTSD). A 17-item Posttraumatic Stress Disorder Checklist, designed for civilians, (PCL-C; Weathers, Litz, Herman, Huska & Keane, 1994)

assessed the presence of PTSD symptoms in response to stressful experiences from the past, not referring to specific traumatic events ($\alpha=.94$; $M=2.64$; $SD=.95$).

Demographic variables. Respondents provided demographic variables, such as age, gender, ethnicity, language usually spoken, citizenship, level of education and religion.

Results

Structural Equation Modelling

Data were analyzed using structural equation modeling with latent variables (Mplus 7; Muthén & Muthén, 2012). We created two subsets of items for each construct, i.e. experience of violence, ingroup identification, pre-war contact, post-war contact, outgroup trust, intergroup forgiveness, social distance, morbidity, and PTSD symptoms. In order to test the goodness of fit of the measurement model, we then performed a confirmatory factor analysis, using the maximum likelihood method and the covariance matrix as input. According to Hu and Bentler's recommendations (1999, p. 27), we used several indexes to assess the goodness of fit: the chi-square test, the ratio of chi-square to degree of freedom (χ^2/df), the Comparative Fit Index (CFI), the Tucker-Lewis index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). The fit of a model is considered to be acceptable when the χ^2 test is non-significant, although it is usual to obtain significant values when analysis are performed on a large sample. An acceptable fit is also suggested by a χ^2/df ratio less than 3, RMSEA and SRMR lower than .08, CFI and TLI higher than .95 (Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Müller, 2003).

Next, we tested the hypothesized model, in which experience of violence, ingroup identification, and pre-war contact were treated as antecedents of post-war contact, which in turn was related to three conflict-related outcomes, namely outgroup trust, intergroup forgiveness, and social distance. These three variables were then considered as possible

mediators in the relation between post-war contact and indicators of conflict-related trauma, namely GHQ-12 scores, as a measure of morbidity, and PTSD symptoms. In order to identify the mediators accounting for the indirect effects, we then applied a bootstrapping procedure using 95% confidence intervals based on 5,000 bootstrap resamples (Preacher & Hayes, 2008). The results of the predicted model were then compared with those of alternative models, in order to further confirm our hypotheses.

Finally, we tested whether the effects of post-war contact on indices of conflict-related outcomes and trauma were moderated by experience of violence, ingroup identification, and pre-war contact. Thus, using the latent moderated structural equations approach (LMS; Klein & Moosbrugger, 2000), we performed three latent variable interactions, adding among predictors of outgroup trust, intergroup forgiveness, social distance, morbidity, and PTSD symptoms the products between post-war contact and each of the three moderators, in separate analyses. As in the ordinary multiple regression, the presence of a moderation is suggested by a significant interaction term. Moderations that emerged as significant were then further analyzed, following Preacher, Curran, and Bauer's (2006) approach.

Confirmatory Factor Analysis and hypothesized model

The confirmatory factor analysis indicated that the model provided an appropriate fit with the data: $\chi^2(99)=207.07$, $p \cong .00$, $\chi^2/df=2.04$, RMSEA=.052 (.042 - .063; $p=.345$), SRMR=.026, CFI=.98; TLI=.97. All the standardized factor loadings were significant at $p<.001$, and ranged from .64 to .98. These findings confirmed the goodness of fit of the measurement model. Correlations between latent variables are presented in Table 1.

We then tested our hypothesized model, in which experience of violence, ingroup identification, and pre-war contact were considered as predictors of post-war contact, which in turn was treated as an antecedent of outgroup trust, intergroup forgiveness, and social distance. These three conflict-related outcomes were treated as mediators of the associations

between experience of violence, ingroup identification, pre-war, and post-war contact, on the one hand, and indicators of conflict-related trauma, i.e. GHQ-12 scores, as measure of morbidity, and PTSD symptoms, on the other hand.

As shown in Figure 1, there were, first, several significant direct effects of the ‘antecedents’ (experience of violence, identification, and pre-war contact) on present (post-war) contact, measures of intergroup relations (outgroup trust, intergroup forgiveness, and social distance), and measures of mental health (morbidity and PTSD symptoms). As expected, experience of violence was negatively associated with outgroup trust and intergroup forgiveness, and positively with PTSD symptoms. Experience of violence was also positively associated with post-war contact, presumably because violence mainly occurred in mixed areas, some of which remained mixed, but also with more contact, post-war.

Ingroup identification was negatively linked with post-war contact and outgroup trust. Pre-war contact was positively related to post-war contact, outgroup trust, and intergroup forgiveness, and negatively associated with social distance.

Figure 1 also shows that post-war contact was negatively linked with social distance, and positively related to outgroup trust, intergroup forgiveness, and PTSD symptoms. This latter association is somehow surprising, but we will see in the mediation analyses that it is counteracted by negative indirect effects of post-war contact on PTSD symptoms.

In the last stage of the model, intergroup forgiveness and social distance were both related, although with opposite signs, to morbidity and PTSD symptoms. Overall, the variables considered explained a substantial proportion of variance in all three attitudinal measures of intergroup relations, PTSD, and, less so, although still significantly, in the case of morbidity.

Mediation analyses

We tested mediations adopting a bootstrapping procedure (Preacher & Hayes, 2008). We first assessed the indirect effects of pre-war contact, experience of violence, and ingroup identification on mental health indicators, via post-war contact and then measures of intergroup relations. Furthermore, we tested the indirect effects of post-war contact on morbidity and PTSD symptoms via outgroup trust, intergroup forgiveness, and social distance. For each predictor we computed a total indirect effect (TIE), which is the sum of all the mediated paths, and then the specific indirect effects (IE) via specific paths of mediation. In both cases, effects were standardized and, to assess their significance, we considered 95% confidence intervals.

Of the three antecedents, only pre-war contact had consistent indirect effects on the criterion variables. In general, pre-war contact had a negative total indirect effect on both morbidity, $TIE = -.162 [-.278, -.045]$, and PTSD, $TIE = -.124 [-.235, -.014]$. Three specific indirect effects of pre-war contact on morbidity were significant. The first involved the mediation of social distance, $IE = -.142 [-.256, -.029]$: pre-war contact had a negative effect on social distance, and the reduction of social distance was associated with decreased morbidity. The other two indirect effects involved a two-step mediation: in one case, of post-war contact and then intergroup forgiveness, $IE = -.018 [-.034, -.001]$; in the other case, of post-war contact and then social distance, $IE = -.036 [-.068, -.004]$. Pre-war contact was positively related to post-war contact, which in turn had a positive effect on intergroup forgiveness and a negative effect on social distance; then, increased forgiveness and reduced social distance were related to diminished levels of morbidity, measured through GHQ-12.

In the case of PTSD there were also three significant specific indirect effects of pre-war contact, and an effect that approached significance. The first was positive, and involved the mediation of post-war contact, $IE = .055 [.004, .106]$: pre-war contact had a positive effect on post-war contact, which in turn was positively related to PTSD, as already described in the

structural equation model. This positive effect was, however, counteracted by three negative indirect effects, analogous to indirect effects found for morbidity. One involved the mediation of social distance, $IE = -.106 [-.209, -.003]$: pre-war contact was negatively related to social distance, and the reduction of social distance was associated with reduced PTSD. The other two involved two subsequent mediators, i.e. post-war contact and intergroup forgiveness, $IE = -.018 [-.034, -.001]$, and, although only approaching significance, post-war contact and social distance, $IE = -.027$, 90%CI $[-.051, -.003]$. Pre-war contact was positively related to post-war contact, which had a positive effect on intergroup forgiveness and a negative effect on social distance; then, increased forgiveness and decreased social distance were related to reduced PTSD.

Concerning experience of violence and ingroup identification, only the experience of violence had a significant total indirect effect on a criterion variable, namely PTSD, $TIE = .055 [.004, .106]$. Indeed, none of the specific indirect effects from experience of violence to PTSD reached the conventional level of significance. Only in three cases did the indirect effect at least approach significance. The first involved post-war contact, $IE = .028$, 90%CI $[.002, .054]$: experience of violence had a positive effect on post-war contact, which was then positively associated with PTSD. The second was related to intergroup forgiveness, $IE = .030$, 90%CI $[.004, .056]$: experience of violence had a negative effect on intergroup forgiveness, and then reduced forgiveness was associated with increased PTSD. The third involved two subsequent mediators, i.e. post-war contact and intergroup forgiveness, $IE = -.009$, 90%CI $[-.017, -.001]$. Experience of violence had a positive effect on post-war contact, which was in turn related to higher levels of intergroup forgiveness; then, increased forgiveness was associated with lower PTSD symptoms.

Concerning post-war contact, the total indirect effects were significant, and negative, for both morbidity, $TIE = -.134 [-.222, -.061]$, and PTSD, $TIE = -.134 [-.211, -.056]$. The pattern

of the specific indirect effects was similar for the two criterion variables. Present contact was associated with reduced morbidity through increased forgiveness, $IE = -.051 [-.094, -.009]$ and reduced social distance, $IE = -.105 [-.195, -.014]$. Similarly, the negative effect of present contact on PTSD occurred via increased forgiveness, $IE = -.051 [-.094, -.008]$, and, although only approaching significance, via reduced social distance, $IE = -.078$, 90% CI $[-.146, -.010]$. Thus, present contact was related to increased forgiveness, and the increase in forgiveness was related to a reduction in both indices of conflict-related trauma. Furthermore, post-war contact was related to reduced social distance, and the reduction of social distance was associated with lower morbidity and PTSD symptoms.

Alternative models

As the study was correlational and analyses were based on Covariance Structure Modeling, equivalent models are conceivable. An equivalent model consists of an alternative model that yields a different pattern of relationships (paths) between variables (Kline, 1998; Lee & Hershberger, 1990). Across the equivalent models, therefore, the possible position of variables is changed, although the measurement part of the model remains constant, meaning that the goodness of fit indexes remain the same. In order to select which model is more plausible, researchers are recommended to evaluate the meaningfulness of each model and the presence or absence of significant direct and indirect effects (Lee & Hershberger, 1990). We will now describe and test three alternative models.²

In the first, we hypothesized a temporal ordering of variables. Thus, pre-war contact preceded the experience of violence, which in turn was treated as an antecedent of post-war contact and ingroup identification, conceived as contemporaneous and therefore reciprocally correlated. Then, post-war contact and ingroup identification predicted outgroup trust, intergroup forgiveness, and social distance, which were considered as antecedents of mental health indicators.

In this first alternative model, pre-war contact was positively related to experience of violence, which was then positively associated with post-war contact and ingroup identification. However, the direct effect between pre-war contact and post-war contact was not mediated by experience of violence. Additionally, the fact of considering ingroup identification at the same level of post-war contact was not particularly useful. Indeed, ingroup identification did not exert any reliable effect, either direct or indirect, on forgiveness, social distance, PTSD, and morbidity. Finally, the fact of treating pre-war contact as a unique exogenous variable was also problematic: pre-war contact still had a negative total indirect effect on morbidity, $TIE = -.143 [-.262, -.024]$, but, differently from our hypothesized model, the total indirect effect of pre-war contact on PTSD was no longer significant, $TIE = -.068 [-.188, .051]$.

In the second alternative model, ingroup identification was treated as an additional measure of intergroup relations, alongside outgroup trust, intergroup forgiveness, and social distance. We acknowledge that reduced ingroup identification can be considered as an index of deprovincialization (see Verkuyten, Thijs, & Bekhuis, 2010), and thus could mediate the beneficial effects of post-war contact on mental health indicators. We therefore tested a model in which experience of violence and pre-war contact predicted post-war contact, which was in turn an antecedent of outgroup trust, intergroup forgiveness, social distance, and ingroup identification. All measures of intergroup relations were then related to morbidity and PTSD symptoms. The findings obtained with this second alternative model were basically the same as those obtained in our main model. Importantly, however, ingroup identification was not related to PTSD and morbidity, nor was it involved in reliable indirect effects. Thus, we can rule out the possibility that a deprovincialization process, indicated by decreased levels of ingroup identification, was involved in the explanation of mental health conditions.

The third alternative model took into account the possibility that conflict-related trauma may hinder post-war contact, and then reduce the possibility of experiencing high levels of outgroup trust and intergroup forgiveness, and low levels of social distance. Indeed, a decrease in mental health and general well-being due to war experience may prevent occasions of post-war contact with outgroup members, and thus may be related to the perception of negative intergroup relations. In this alternative model, experience of violence, pre-war contact, and ingroup identification were directly related to mental health indicators. Morbidity and PTSD were then conceived as antecedents of post-war contact. As in our main model, then, post-war contact was expected to be an antecedent of the three conflict-related outcomes, i.e. outgroup trust, intergroup forgiveness, and social distance. On the left-hand side of the model, as predicted, experience of violence was positively related to morbidity and PTSD, while ingroup identification was negatively related to morbidity. Importantly, however, neither morbidity nor PTSD symptoms were significantly associated with post-war contact. As a consequence, none of the indirect effects of PTSD and morbidity on the three conflict-related outcomes, through the mediation of post-war contact, were significant.

In conclusion, compared to the alternatives, our hypothesized model showed several significant and reasonable direct and indirect effects. Although the alternative models seemed plausible, the analyses seem to confirm our predicted pattern of relationships between variables as the optimal model.

Moderation analyses

In order to explore whether the effects of post-war contact on indices of conflict-related outcomes and trauma were moderated by experience of violence, ingroup identification, and pre-war contact, we performed three latent variable interactions (LMS; Klein & Moosbrugger, 2000). We therefore added among predictors of measures of intergroup relations (outgroup trust, intergroup forgiveness, and social distance) and of mental

health (morbidity and PTSD), the products between post-war contact and each of the three moderators, in separate analyses.

Overall, three moderations were significant³ and were thus decomposed, following the approach of Preacher and colleagues (2006). As reported in Figure 2, two moderations involved the product between post-war and pre-war contact, while one involved the interaction between post-war contact and experience of violence.⁴

In the first moderation, the product between pre-war and post-war contact was a significant predictor of outgroup trust ($\beta=.11, p=.009$). Decomposing the moderation, we found that post-war contact was positively associated with higher outgroup trust only when pre-war contact was high ($b=.24, SE=.07, t=3.63, p<.001$), while there was no significant relation between post-war contact and outgroup trust when pre-war contact was low ($b=.00, SE=.07, t=0.05, p=.958$).

The interaction between pre-war and post-war contact was negatively related to social distance ($\beta=-.13, p<.001$). The decomposition of this moderation showed that the negative effect of post-war contact on social distance was stronger when pre-war contact was high ($b=-.49, SE=.06, t=-8.73, p<.001$) than when it was low ($b=-.21, SE=.06, t=-3.80, p<.001$).

Finally, the product between post-war contact and experience of violence was negatively associated with outgroup trust ($\beta=-.47, p=.028$). Post-war contact was positively associated with outgroup trust only when experience of violence was low ($b=.26, SE=.07, t=3.90, p<.001$), while no significant relationship emerged when experience of violence was high ($b=.04, SE=.07, t=0.73, p=.527$).

Discussion

This research explored the neglected issue of how pre-conflict contact impacts present-day contact and related measures in a study of Bosnian Muslims (Bosniaks) and their relations with Serbs after the Bosnian War of 1992-95. Overall, the results support the conception of contact as a facilitator, and violence and identification as inhibitors, of positive intergroup relations and, to a lesser extent, especially in the case of morbidity, mental health. In the case of each outcome a notable proportion of variance was explained by the predictors.

Furthermore, the results of moderation analyses are consistent with the idea that pre-war contact and post-war contact *combine* to promote better outcomes. In particular, we found a positive effect of post-war contact, being associated with higher outgroup trust, only when pre-war contact was high; a similar result was found for social distance, because post-war contact was more strongly associated with lower social distance when pre-war contact was high. While these two results point to a positive role of intergroup contact before and after the conflict, the final moderation result (showing that post-war contact was only associated with outgroup trust when experience of violence was low) appears to set some, realistic, limits on contact effects, and constrain our enthusiasm for the role it can play in post-conflict settings. We believe that this latter finding is not inconsistent with previous research showing that intergroup contact could be particularly effective in difficult situations (e.g., for individuals with high levels of right-wing authoritarianism, RWA, or social dominance orientation, SDO; Dhont & van Hiel, 2009). In such cases, prejudiced respondents may have substantial room to improve their attitudes after positive intergroup encounters. In the present case, respondents who have experienced conflict may have room to move along scales of improved outcomes, but the situation is quite different from that of people high in RWA or SDO, as it involved people who suffered terribly during a war, especially where the protagonists may have also felt betrayed as former neighbors. Thus, individuals with high experience of violence will likely need more than contact to restore their mental health, and trust and forgive the

outgroup. Nonetheless, based on the evidence we have reported, we propose that contact can play a positive role in restoring positive intergroup relations, and this suggests that carefully planned interventions could be used to promote positive post-war contact as a valuable part of post-conflict social reconstruction.

Notwithstanding the value of our research setting, and the novelty of our findings, especially regarding the impact of contact on mental health and the interaction between pre-war and post-war contact, we acknowledge three main limitations of this study. First, our study is, of course, cross-sectional and correlational. To demonstrate causality an experimental design would be needed, although a longitudinal study would allow us to argue with more confidence for the proposed causal model. Yet both of these methodological strategies would be difficult, if not impossible, to achieve in such a setting, where respondents cannot be randomly assigned to, e.g., high levels of violence, nor can researchers know where and when conflicts will emerge. This is perhaps an argument for establishing ambitious studies with prospective designs in places where such conflict is anticipated, or has taken place in the past on a cyclical basis. Second, we employed ‘snowball sampling’ to recruit our respondents. Although useful in reaching hidden or hard-to-reach populations, snowball sampling is criticized for being a biased sampling technique due to its reliance on social networks and non-random recruitment of respondents (Browne, 2005). However, the present study used a sample of people who had experienced a protracted war, many of who had experienced high levels of violence and trauma and who may therefore have been reluctant to talk about their experiences if approached via unknown interviewers using probability sampling techniques. Moreover, recent research using Markov modelling to compare probability and non-probability sampling techniques found no reliable difference in terms of bias between these sampling procedures (Heckathorn, 2011). Hence, we feel any risk in using this approach is mitigated, but acknowledge that our sample was not random and may have

been somewhat interdependent. Third, we asked our respondents to report on the nature of intergroup contact before the war. Such retrospective reports are potentially subject to various memory biases and one should attempt to replicate such research with a prospective design. Once again, however, we felt obliged to use this data as the only kind of data we could use to investigate the relations between pre- and post-war contact, but we should bear this in mind when considering the results and treat them with caution (Henry, Moffitt, Caspi, Langley, & Silva, 1994).

To conclude, as Corkalo et al. (2004) stated, sometimes the ethnic divide in ex-Yugoslavia is reinforced by an actual physical divide, as in the city of Mostar with its famous bridge, and sometimes there is also a “psychological wall” (p. 143). It would be naive to argue that contact alone can break down that wall, but on the evidence of this study positive contact, both pre- and post-war, can contribute to its destruction, brick by brick. In particular, we have shown that positive effects of present-day, post-war contact on intergroup relations (promoting trust and reducing social distance) are strongest when pre-war contact was high.

Footnotes

¹ Bosniak identity refers to those who identify themselves as Bosnian and Muslim, whereas Bosnian is a more generic term for those who identify themselves as being from Bosnia & Herzegovina but not necessarily as Muslims; they could be Catholic or Orthodox Christian.

² We are grateful to an anonymous reviewer for suggesting these specific models.

³ We applied Holm's (1979) procedure to control Type I error with multiple comparisons, a method that is less conservative, but more powerful than the Bonferroni procedure. All the moderations were still significant after applying Holm's procedure to adjust alpha.

⁴ Notably, in Mplus, means and intercepts of continuous latent variables are fixed at zero (Muthén & Muthén, 2012). The measurement scale of the y axis in the interaction plots does not therefore correspond to the response scale of the criterion variable.

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Table 1*Correlations between latent variables*

	1	2	3	4	5	6	7	8
1. Experience of violence	1							
2. Identification	.21***	1						
3. Pre-war contact	.15**	.01	1					
4. Post-war contact	.19**	-.14*	.37***	1				
5. Outgroup Trust	-.15*	-.44***	.24***	.28***	1			
6. Intergroup Forgiveness	-.11	-.10	.22***	.33***	.39***	1		
7. Social distance	-.06	.15**	-.65***	-.57***	-.39***	-.48***	1	
8. Morbidity	.09	-.09	-.09	-.05	.02	-.21***	.21***	1
9. PTSD symptoms	.36***	.10	-.03	.06	-.16**	-.24***	.16**	.61***

* $p < .05$; ** $p < .01$; *** $p < .001$

Figure Captions and Notes

Figure 1. Estimated Mediation Model.

Note. $\chi^2(99)=207.07$, $p \cong .00$, $\chi^2/df=2.04$, RMSEA=.052, SRMR=.026, CFI=.98; TLI=.97.

Standardized coefficient. Only significant paths are reported.

* $p < .05$; ** $p < .01$; *** $p < .001$

Figure 2. Pre-war contact and experience of violence as moderators of the association between post-war contact and outgroup trust and social distance.