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The role of inter-ethnic online friendships in prejudice reduction in post-conflict societies: Evidence from Serbia, Croatia and Cyprus

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ABSTRACT

Direct contact between members of ethnic groups is proven to reduce intergroup prejudice. Recent research, however, explores the effects of alternative types of contact, amongst them via social networks in virtual space. This is especially important for e.g. post-conflict societies in which there is limited opportunity for direct contact between the groups. Drawing from a sample of 374 ethnic majority students from three such societies – Serbia, Croatia, and Cyprus, we tested if the number of online inter-ethnic friends predicted more positive out-group attitudes over and above the effect of face-to-face contacts. This relationship testified to the added value of online ties. We also tested if intergroup anxiety and perceived ethnic threat would mediate the relationship between online friendships and out-group attitudes. Results from the combined sample showed clear mediation effects. This suggested that the mechanisms through which online contact reduces prejudice are comparable to the mechanisms detected for face-to-face contact. Yet the mediation was not convincingly replicated at the country level. Further research could make use of this simple measure of alternative contact, as well as test a different set of mediators to identify mechanisms that are possibly unique to online contacts.

1. Introduction

The positive effects of good quality intergroup contact on prejudice reduction have been repeatedly demonstrated by studies in a large array of settings and across different social groups, including ethnic groups. The meta-analysis of contact studies by Pettigrew and Tropp (2006) and a more recent meta-analysis of the effects of intergroup friendships on prejudice by Davies, Tropp, Aron, Pettigrew, and Wright (2011), attest to this. Intergroup contact can, thus, be seen as a powerful tool for improving intergroup relations.

The opportunity to meet people from another group is one of the main structural barriers to the establishment of intergroup contacts. This opportunity depends primarily on the size of the groups in question and the degree of segregation (Blau & Schwartz, 1984). Contexts such as cities, neighborhoods, or institutions that consist of smaller and spatially more dispersed groups provide more opportunities for, and thus result in more intergroup encounters. The importance of meeting opportunities for the development of contact between ethnic groups has been demonstrated by multiple studies. Wagner, Van Dick, Pettigrew, and Christ (2003), for example, showed that opportunities for contact are distal predictors of prejudice, in the sense that more opportunities for contact lead to less prejudice by giving room to greater and more frequent intergroup contact. Similarly, longitudinal research in immigrant-receiving societies, such as Canada and the Netherlands, shows that immigrants who live in neighborhoods inhabited by fewer co-ethnics develop more contact with the native majority over time (Martinovic, Van Tubergen, & Maas, 2009; Martinovic, Van Tubergen, & Maas, 2011).

One of the paradoxes of intergroup contact, however, is that contact, or rather the opportunities to pursue contact, are often absent from settings that could potentially benefit from intergroup contact the most. Opportunities for face-to-face interactions are often scarce in post-conflict societies where, despite the absence of actual conflict, the society is still largely segregated. Furthermore,

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even when opportunities for contact emerge in post-conflict societies, prior conflict between groups may render direct contact psychologically difficult for individuals. As Stephan and Stephan (1985) noted, negative affective states like intergroup anxiety may prevent people from engaging in what they tend to perceive as an uncomfortable, awkward, and even threatening situation where they have to face an out-group member (e.g. Žeželj, Jakšić, & Jošić, 2015). Additionally, prior conflict is often accompanied by latent feelings of threat coming from the out-group which cannot be easily alleviated even among generations that did not directly experience conflict. Lastly, alienation from the out-group may lead individuals who grew up in a context of segregation to be disinterested and not particularly eager to meet out-group members. Even if there is opportunity for intergroup contact, such contact will be less likely to take place if people do not also express a preference for interacting with the out-group (Byrne, 1971; Kalmijn, 1998).

The above suggest that practical obstacles (e.g., segregation), psychological obstacles (e.g., anxiety, perceived threat), or mere lack of motivation to pursue contact that often accompany intergroup conflicts (particularly the protracted ones) may, and oftentimes do, render intergroup contact unfeasible, unlikely, or even unwanted. If, however, intergroup contact is as central to prejudice reduction as findings of intergroup contact research suggest, then what happens in these situations in which direct intergroup contact is for one reason or the other absent?

More recent developments in the field of intergroup contact research have therefore pointed at the importance of alternative types of contact. The most popular alternative to direct contact has been extended contact, either in the form of extended friendships (having an in-group friend who has an out-group friend), or in the form of vicarious contact where one observes, listens to, or learns about the interaction of an in-group member with an out-group member (Dovidio, Eller, & Hewstone, 2011; Hewstone & Swart, 2011; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997).

Imagined contact (Turner, Crisp, & Lambert, 2007) was recently added to the list of alternative forms of contact. Both of these forms of indirect contact have shown to have positive effects on prejudice reduction, as well as on preparing individuals for forthcoming contact primarily via reducing individuals' anxiety about future interactions (see Dovidio et al., 2011, for a review of the findings of extended contact, and Miles & Crisp, 2014, for a meta-analysis of imagined contact studies).

An alternative to direct contact that has been less researched to date is online contact. Online or internet contact is understood to be a sub-type of computer-mediated communication (see Harwood, 2010) and its use, as well as research on it, is steadily growing given the technological advancements as well as the fact that we live in an internet era. Amichai-Hamburger and McKenna (2006) were the ones to officially coin the internet contact hypothesis which, akin to Allport's (1954) contact hypothesis, postulates that online interaction happening between members of different groups will procure positive changes in intergroup relations.

Amichai-Hamburger and McKenna (2006) claimed that online communication can overcome challenges associated with face-to-face contact such as the lack of contact opportunities and the debilitating effects of anxiety experienced during the actual interactions. The reason is that participants in an online contact situation have greater control over how they present themselves, which eliminates common fears such as coming across as prejudiced (Stephan & Stephan, 1985). Being given time to monitor one's responses at one's own pace also lowers the possibility of allowing heuristics, such as negative stereotypes (Stephan & Stephan, 1985), to boycott the interaction. Aside from the fact that online interactions happen despite the existence of physical barriers and that they take place in an anxiety-free environment, Amichai-Hamburger and McKenna (2006) also propose that internet contact abides by Allport's key conditions for successful intergroup contact, such as individuals having an equal status during the intergroup interaction.

When compared to other alternatives of face-to-face contact, White, Abu-Rayya, Bliuc, and Faulkner (2015) claim that online contact, as opposed to most of the common indirect types of contact, does not undermine the role of active personal engagement in the contact situation. Unlike vicarious contact, during which the self is not at all an actor but is only vicariously exposed to the out-group, or imagined contact, during which the self is an imagined actor, in online contact the self is present as an actor (building social identity was also shown to be one of the major factors driving the usage of social networks in various cross cultural settings, e.g. De Oliveira, Huertas, & Lin, 2016). White, Abu-Rayya et al., (2015), White, Harvey et al. (2015) highlight that the active involvement of the self in the contact situation is beneficial for a number of reasons, including the potential for building greater empathy for the out-group and the fact that interventions entailing the self tend to produce more lasting effects.

Internet contact has been operationalised and studied in a number of ways in the past. These ways include facilitated online discussions (e.g. Ellis & Maoz, 2007; Yablon & Katz, 2001), e-mail exchanges (Mollov & Schwartz, 2010), scripted interactions such as E-contact (see White, Harvey & Abu-Rayya, 2015, for a review on E-contact interventions), online communication happening in social network sites, such as Facebook groups (Schumann, Van der Linden, & Klein, 2012), online videoconferencing (e.g. Austin, 2006), and role-play, immersive reality, and simulation games (Hasler & Amichai-Hamburger, 2013).

With a quantitative assessment of the overall effect of online contact on prejudice still pending, and given that the majority of online interventions have not (yet) been vigorously evaluated in terms of their effectiveness in reducing prejudice (Schumann et al., 2012; White, Abu-Rayya et al., 2015, White, Harvey et al. 2015), it should suffice to say that evidence so far implies that online contact has ample potential to form a promising intervention to address intergroup conflict (Hasler & Amichai-Hamburger, 2013; Walther, 2009; White, Abu-Rayya et al., 2015, White, Harvey et al. 2015).

While a lot of emphasis has been placed on creating careful contact interventions using computers and/or the internet, little to nothing has been done to inquire into online intergroup contact that individuals have on their own (i.e., without being involved in a planned intervention). Schumann et al. (2012) content-analysed the comments of Facebook users (who were not Facebook friends) on Facebook groups that contained discussions on the categories nationality, religion, and gender, to show that more contact in the form of longer intergroup interactions and discussions caused a reduction of rude and provocative comments towards out-group members.

Interestingly, however, there has been no study looking into whether individuals having online intergroup friendships, just like individuals who have real-time out-group contacts, are more positive towards the out-group in comparison to individuals who do not have online friendships. Our research attempted to fill in this gap by testing the effect of online inter-ethnic friendships on out-group attitudes in three post-conflict societies: Serbia, Croatia and Cyprus.

2. Present study

Our study's goal was two-fold: (i) to test whether online friendships are associated with more positive attitudes towards the out-group and (ii) to investigate which psychological mechanisms

account for the positive relationship between online friendships and attitudes. We addressed these in three different contexts, Serbia, Cyprus, and Croatia whose commonality is that they are post-conflict societies. We briefly describe the course of the inter-ethnic conflicts in the three countries below.

2.1. Country contexts

Serbia: Socialist Federative Republic of Yugoslavia (SFRY 1941–1991) was a federal union of six states. Kosovo was an autonomous province within Serbia, with majority Albanian population. After the violent breakup of SFRY, a Union between Serbia and Montenegro was formed (1992–2006), and tensions between Albanians and Serbs in Kosovo province continued to grow. These erupted in an armed conflict in 1998; over the course of one year more than 10,000 people were killed, about 3000 were abducted, and approximately 800,000 people fled to neighboring countries (O'Neill, 2002). Kosovo unilaterally claimed its independence from Serbia in 2008 and its status is disputed by Serbia. Kosovar and Serbian officials are currently engaged in an EU-facilitated dialogue aimed at normalizing their relations. The unresolved country status remains a source of political and cultural clashes between Serbs and Albanians.

Croatia: Croatia, like Serbia, was a federal state in the SFRY. In 1991, when Croatia proclaimed its independence from the SFRY, ethnic Serbs constituted about 12% of Croatian population, and were a majority in some parts of Croatia. The ethnic Serbs who opposed Croatian independence declared own autonomy in some of these areas (Despalatovic, 2000). The conflicts grew into the war between Croatian forces on one side, and the ethnic Serbs rebelled forces backed by the Yugoslav National Army and Serbia on the other (UN-ICTY). During the war, an estimated 54% of Croatian territory (inhabited by 36% of the Croatian population) was directly affected by the war, while 26% was held by the Serb forces for several years (Perković & Puljiz, 2001). The fighting ended in 1995 (although the territory was fully integrated in 1998 after peace agreement), leaving between 15,000 and 20,000 people killed, 500,000 refugees and displaced persons and significant material losses (Frucht, 2005). The relationships between Croats and the Serbian minority have since then improved significantly, but prejudice, social distance and tensions still remain (Ajduković & Čorkalo Biruški, 2008).

Cyprus: Cyprus became an independent republic in 1960 after having been officially annexed as a colony of Britain in the early 20th century. The two main communities making up the Republic of Cyprus – Greek Cypriots (majority, 77%) and Turkish Cypriots (minority, 18%) – engaged in intercommunal fights during the 60s which culminated in a coup d'etat by the junta in Greece. The coup d'etat was followed by a military invasion by Turkey in 1974. Turkish troops proceeded to occupy approximately 38% of the northern part of the island before they declared a ceasefire. This operation led to the partition of the island into two territories, the Turkish-Cypriot-controlled north and the Greek-Cypriot-controlled south. Free mobility of people vis-à-vis the ceasefire line was prohibited in 1974 and was reinstated when mobility prohibitions were partially lifted in 2003.

All three contexts experienced inter-ethnic conflicts in the fairly recent past, as was just presented. They are all also characterized by low levels of direct (face-to-face) contact between previously conflicted groups (Ioannou, Jarraud, & Louise, 2015; Milošević-Đorđević, 2016; Rogić and Šakić, 1997). Such post-conflict settings with low opportunities for, and hence low levels of, face-to-face contact might particularly benefit from alternative forms of contact such as online contact.

We contend that especially in contexts deprived of real-life opportunities for contact, the internet can form a sheltered space where intergroup contact can accidentally or intentionally occur. What justifies our expectation to *register* occurrences of online contact in our sample to begin with is that we study online contact in countries with high internet usage and activity in social networking. More specifically, according to most recently available data 66.7% of the population in Serbia, 71.9% of the of population in Cyprus, and 70.3% of the population in Croatia are Internet users (Internet world statistics, 2017). Social networking sites have high penetration, with Facebook by far being the most common: 47.6% of the population in Serbia, 68.1% of the population in Cyprus, and 40.4% of population in Croatia are Facebook users (Milošević-Đorđević & Žeželj, 2014; Vincos, 2017). Facebook usage is even higher amongst the 18–24 years olds. We thus expected that cross-group networking (in the form of online friendships) would occur in the social networking sites of the three countries which provided as an impetus to proceed and study the effects of registered online friendships on out-group attitudes.

Our study looked into the relationship between online friendships and out-group attitudes of the adversarial ethnic group in each country – Serbs in Serbia, Greek Cypriots in Cyprus, and Croats in Croatia – towards the main adversarial group in that country. For Serbs in Serbia the out-group was Albanians, for Greek Cypriots in Cyprus it was Turkish Cypriots, and for Croats in Croatia the out-group was Serbs.

2.2. Research goals and hypotheses

To study whether online friendships are beneficial for prejudice reduction, we investigated the relationship between the number of cross-ethnic online friends and attitudes towards out-group while at the same time controlling for face-to-face contacts.

Hypothesis 1. We expected online friendships to be associated with more positive out- group attitudes and that this effect would exist over and above the effect of face-to-face contact on out-group attitudes. We expected this effect to hold across all three countries. To investigate the mechanisms via which online friendships work to improve out-group attitudes, we tested two commonly used mediators of face-to-face contact – intergroup anxiety and perceived intergroup threats (Pettigrew & Tropp, 2008; Stephan & Stephan, 2000) – as potential mediators of the effect while controlling for face to face contact.

Hypothesis 2. Controlling for direct and indirect effects of face-to face contact, intergroup anxiety will mediate the relationship between online friendships and outgroup attitudes (Blair, Park, & Bachelor, 2003; Pettigrew & Tropp, 2008; Stephan & Stephan, 1985).

Hypothesis 3. Controlling for direct and indirect effects of face-to face contact, perceived ethnic threat will mediate the relationship between online friendships and outgroup attitudes (Pettigrew & Tropp, 2008; Stephan & Stephan, 1985).

We expected to find support for these mediating mechanisms in all three countries (the model is depicted in Fig. 1).

Our study looked into the relationship between online friendships and out-group attitudes of the numerical ethnic majorities in each country – Serbs in Serbia, Greek Cypriots in Cyprus, and Croats in Croatia – towards the main adversarial ethnic group in that country. For Serbs in Serbia the out-group was Albanians, for Greek Cypriots in Cyprus it was Turkish Cypriots, and for Croats in Croatia the out-group was Serbs.

3. Methods

3.1. Participants

Our sample consisted of 374 undergraduate university students studying social sciences in the capital cities in one of the three countries: Serbia, Belgrade (156), Cyprus, Nicosia (88), and Croatia, Zagreb (130). The sample included individuals belonging to the majority ethnic group, that is, Serbs in Serbia, Greek Cypriots in Cyprus, and Croats in Croatia. The survey was initiated 478 times, but only 399 participants completed it far enough to provide information on interethnic contacts. From these 399 completed surveys, we left out participants who did not have any parent of ethnic majority background (N = 25). In the remaining sample of 374 participants that the analyses in our paper are based on, there were 41 participants with one parent belonging to another ethnic group (e.g. mostly Bosniaks in the Croatian sample and Montenegrins in the Serbian sample). The conclusions remained substantially the same when these were left out. Considering the relatively small sample sizes per country, we decided to keep these participants in the analyses presented here. Age raged from 18 to 45. The mean age of the total sample was 21.19 ($SD = 2.43$), and this was comparable across countries, Serbia: $M = 21.16$ ($SD = 2.09$), Cyprus: $M = 21.21$ ($SD = 3.12$), Croatia: $M = 21.20$ ($SD = 2.28$). The vast majority of the participants were females (81%). Gender distribution was similarly disproportionate across countries, Serbia: 80% females, Cyprus: 78% females, and Croatia: 85% females.

3.2. Process and tool

Participants were recruited from university classes using opportunity sampling. The participation was voluntary and anonymous. Upon agreeing to take part, participants were asked to fill in the questionnaire either electronically (Serbia, Cyprus) or via paper and pencil (Croatia) as truthfully as they could. The master questionnaire was developed in English and translated into the mother tongue of the participants in each country by two independent native speakers. Local research coordinators compared the two versions against one another and corrected minor discrepancies. As this study was part of a larger cross-cultural survey, we are only reporting the variables relevant to the purposes of this paper.

3.3. Measures

Face-to-face interethnic contacts were assessed with four items which asked participants to note how often they had face-to-face contacts with people whose background was Albanian (in Serbia), Turkish Cypriot (in Cyprus), and Serbian (in Croatia). Each item referred to a specific context (as in Islam & Hewstone, 1993), and we emphasized that we were interested in actual communication and not just seeing out-group members. In Serbia and Croatia the contexts were the following: university, clubs/association, the neighbourhood, and in free time. Given that Cyprus is still institutionally segregated (e.g. university is not mixed), we adapted the questions to capture contexts that were relevant there, which is why we asked about the frequency of contact in the North (the Turkish part), in the South (the Greek part), in the neighbourhood, and during free time activities (e.g. shopping). All the questions could be answered on a five-point scale ranging from 1 (*never*) to 5 (*very often*). The four items formed a reliable scale ($\alpha = 0.78$ for the whole sample; Serbia: 0.62, Cyprus: 0.79, Croatia: 0.79). As contact is not necessarily a latent construct but rather an index scale (e.g. people might not be club members and thus have no contact in clubs, while they do have contact in the neighbourhood), we constructed a mean score of these items rather than treating them as indicators of a latent factor.

Online interethnic friendships were measured with one item asking participants to declare the number of respective out-group friends they had within the online social network they used most often, which was Facebook in all three countries. Participants stated they had between 0 and 70 online friends, but as this variable was right-skewed, we recoded it into the following scale: 1 (*none*), 2 (*one to three*), 3 (*four to nine*) and 4 (*10 or more*) (as in Binder et al., 2009). We also ran sensitivity analyses using the log transformed original scale, and the conclusions were substantially the same (output is available upon request).

Intergroup anxiety was measured via a simplified version of Stephan and Stephan's (1985) intergroup anxiety scale. Respondents were asked (e.g. in Serbia): "In a hypothetical situation in Serbia, how would you feel if you were the only Serb among a

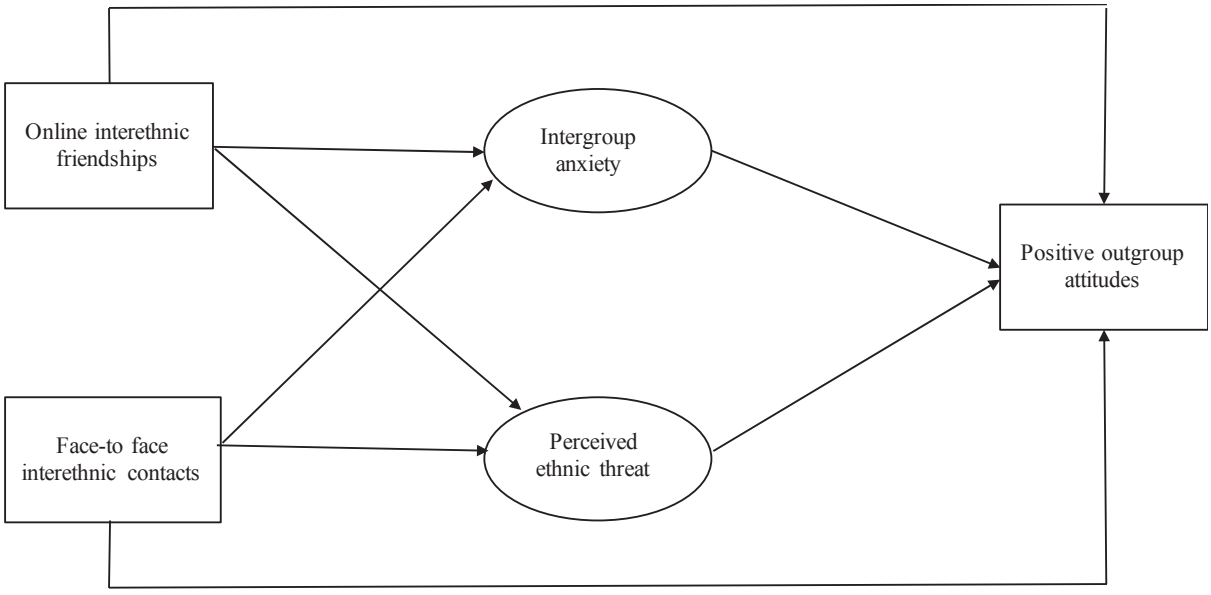


Fig. 1. The mediation model.

group of strangers all of whom are Albanians?" The question was adapted to the respective groups in Cyprus and Croatia. Respondents had to indicate on a five-point scale (1 = *not at all*, 5 = *very*) how they would feel in this situation based on four negative adjectives (anxious, nervous, awkward, suspicious) and two positive adjectives (safe, comfortable), which were reverse coded. Cronbach's alpha for the intergroup anxiety scale was 0.87 for the whole sample (Serbia: 0.87, Cyprus: 0.84, Croatia: 0.77).

Perceived ethnic threat was captured by four items adapted from Stephan & Stephan's (2000) realistic threat measure that taps into perceived threat to power and resources. Participants had to assess their agreement or disagreement on a seven-point scale (e.g. in Serbia): 1) The more power Albanians gain in Serbia, the more difficult it will become for Serbs, 2) I am afraid that allowing Albanians to decide on political issues would mean that Serbs will have less to say in how this country is run, 3) I worry that Albanians will claim more and more from Serbs in the future, 4) Albanians are taking away jobs from Serbs. The threat items referred to the respective in-group and out-group in Cyprus and Croatia. Cronbach's alpha for this scale was 0.91 (Serbia: 0.90, Cyprus: 0.87, Croatia: 0.87).

Positive out-group attitudes were assessed on a thermometer-like scale (Converse & Presser, 1986). In each country the participants' task was to rate how warm their feelings were towards the respective out-group (Albanians/Turkish Cypriots/Serbs) on a scale that ranged from 1 (*0 degrees*) to 11 (*100 degrees*), with ten degree increments.

We controlled for gender, as well as for two constructs that have been shown to predict out-group attitudes and that also correlate with intergroup contacts. These are ethnic group identification and political orientation. Ethnic group identification was measured on a 10-point scale ranging from 1 (*not identifying at all*) to 10 (*identifying very much*) with one's ethnic group, and political orientation was captured on a 5-point scale ranging from 1 (*left-wing*) to 5 (*right-wing*) (Jost, 2006). As all of our participants were students, age and education were not controlled for.

4. Results

4.1. Descriptive statistics and correlations

Means, standard deviations, and correlations are detailed for the whole sample and for each country separately in Table 1. The registered levels of intergroup contact (face-to-face and online) were low. When tested against the midpoint of the scale, out-group attitudes were negative in Serbia ($t(155) = -6.91$, $p < 0.001$), neutral in Cyprus ($t(87) = -0.60$, $p = 0.548$), and positive in Croatia ($t(128) = 4.56$, $p < 0.001$). Croatia is also the country where the least intergroup anxiety and perceived threat were registered. The correlations between the main variables were all significant and in the expected direction in the combined sample, and a similar pattern was found for each country separately. The correlation coefficient between online friendship and face-to-face contacts was moderate, ranging from 0.36 to 0.53 across countries, meaning that the two measures capture different (yet related) forms of intergroup contact.

4.2. Measurement model

We ran a confirmatory factor analysis in Mplus (version 7) to ensure that the mediators – intergroup anxiety and perceived ethnic threat – were two distinct constructs. A two-factor model in which we freed the covariances for two sets of items measuring anxiety (anxious with nervous, and safe with comfortable) fitted the data well, $\chi^2(32) = 90.88$, $p < 0.001$, Comparative Fit Index (*CFI*) = 0.974, Tucker-Lewis index (*TLI*) = 0.963, Root Mean Square Error Of Approximation (*RMSEA*) = 0.070 (low = 0.053, high = 0.087), Standardized Root Mean Square Residual (*SRMR*) = 0.056. All the items loaded on the designated factors with loadings ranging from 0.55 to 0.79 for intergroup anxiety and from 0.76 to 0.89 for perceived ethnic threat. A measurement model in which the items representing these two constructs were forced to load on a common factor yielded a worse fit, $\chi^2(33) = 447.95$, $p < 0.001$, *CFI* = 0.816, *TLI* = 0.749, *RMSEA* = 0.183 (low = 0.168, high = 0.199), *SRMR* = 0.152, as demonstrated by a significant chi-square difference test, $\Delta\chi^2 = 357.07$, $\Delta df = 1$, $p < 0.001$. We are therefore certain that the two constructs are empirically distinct.

To check whether this finding can be replicated in each of the three country samples, we ran a multiple group confirmatory factor analysis and found that the two-factor model was supported in Serbia, Cyprus and Croatia. The same factor structure was found and the loadings on the designated factor were positive and high for all the items. However, to be able to compare the structural paths of our model, we had to make sure that the meaning of these constructs was the same in the three countries. For this, we needed to establish measurement invariance by constraining factor loadings to be equal across countries. The model which constrained all the factor loadings, $\chi^2(112) = 210.18$, $p < 0.001$, *CFI* = 0.951, *TLI* = 0.941, *RMSEA* = 0.084, *SRMR* = 0.088, had fit that was not worse than the fit of the unconstrained model, $\chi^2(96) = 187.91$, $p < 0.001$, *CFI* = 0.954, *TLI* = 0.936, *RMSEA* = 0.088, *SRMR* = 0.71, as shown by a non-significant chi-square difference test, $\Delta\chi^2 = 22.27$, $\Delta df = 16$, $p = 0.135$. This means that the latent constructs of perceived ethnic threat and anxiety are fully invariant across the three national contexts. Therefore, we could treat these constructs as latent variables and proceed with estimating structural relations using data from all three countries combined.

4.3. The relationship between online friendships and positive out-group attitudes

To determine whether online out-group friendships are significantly and positively related to out-group attitudes, and whether this relationship is mediated by intergroup anxiety and perceived ethnic threat, we estimated a mediation model in Mplus (version 7) using the combined valid sample from the three countries ($N = 374$). We regressed out-group attitudes on anxiety, perceived ethnic threat, face-to-face contacts and online friendships. Further, we regressed anxiety and threat on the two types of contacts. Thereby we specified four mediation paths, two from face-to-face contact to attitudes, and two from online friendships to attitudes. In this way we controlled for the direct and indirect effects of face-to-face contacts, but we also controlled for gender (in relation to attitudes), ethnic group identification (in relation to anxiety and threat), and political orientation (in relation to anxiety and attitudes). The remaining paths from the control variables were not significant and were therefore omitted to improve the model fit. To obtain confidence intervals for the indirect effects, we used bootstrapping, relying on 5000 replacement samples (Preacher & Hayes, 2008).

The first model in Table 2 shows the total, direct and indirect effects for the whole sample. Looking at the total effects, online friendships were significantly positively related to out-group attitudes, independently of the effect of face-to-face contacts. This finding confirms Hypothesis 1. Furthermore, the indirect effects of online friendships through both anxiety [point estimate = 0.060, with a 95% confidence interval of (0.016, 0.105)] and perceived ethnic threat [point estimate = 0.071, with a 95% confidence interval of (0.026, 0.116)] were significant, in line with Hypothesis 2. The more online intergroup friendships people have, the less

Table 1
Correlations, means, and standard deviations for the main variables, for the whole sample and three country subsamples separately.

	2	3	4	5	M	SD
Whole sample						
1. Online interethnic friendships (1–4)	0.56***	−0.31***	−0.38***	0.43***	1.68	1.00
2. Face-to-face interethnic contacts (1–5)		−0.28***	−0.34***	0.45***	1.62	0.78
3. Intergroup anxiety (1–5)			0.45***	−0.50***	2.41	0.85
4. Perceived ethnic threat (1–7)				−0.51***	4.43	1.49
5. Positive out-group attitudes (1–11)					5.78	2.58
Serbia						
1. Online interethnic friendships (1–4)	0.36***	−0.18*	−0.22**	0.27**	1.33	0.77
2. Face-to-face interethnic contacts (1–5)		−0.24**	−0.25**	0.31***	1.29	0.45
3. Intergroup anxiety (1–5)			0.37***	−0.49**	2.40	0.80
4. Perceived ethnic threat (1–7)				−0.38**	5.09	1.32
5. Positive out-group attitudes (1–11)					4.77	2.23
Cyprus						
1. Online interethnic friendships (1–4)	0.47***	−0.30**	−0.36***	0.38***	1.40	0.74
2. Face-to-face interethnic contacts (1–5)		−0.31**	−0.29**	0.41***	1.60	0.83
3. Intergroup anxiety (1–5)			0.48***	−0.64***	3.01	0.86
4. Perceived ethnic threat (1–7)				−0.44***	4.68	1.23
5. Positive out-group attitudes (1–11)					5.83	2.65
Croatia						
1. Online interethnic friendships (1–4)	0.53***	−0.21*	−0.16	0.36***	2.29	1.10
2. Face-to-face interethnic contacts (1–5)		−0.19*	−0.06	0.34***	2.04	0.85
3. Intergroup anxiety (1–5)			0.40***	−0.45***	2.01	0.63
4. Perceived ethnic threat (1–7)				−0.42***	3.48	1.35
5. Positive out-group attitudes (1–11)					6.98	2.43

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 2
Direct and indirect effects of online interethnic friendships and face-to-face contacts on positive out-group attitudes, for the whole sample, and for Serbia, Cyprus, and Croatia separately.

	Whole sample (N = 374)	Serbia (N = 156)	Cyprus (N = 88)	Croatia (N = 130)
Online interethnic friendships				
Total effect	**0.231 (0.000)**	0.127 (0.158)	**0.192 (0.072)**	**0.266 (0.004)**
Direct effect	**0.099 (0.047)**	0.086 (0.304)	0.071 (0.472)	**0.161 (0.091)**
Indirect effect via anxiety	**0.060 (0.008)**	0.025 (0.377)	0.094 (0.154)	0.043 (0.348)
Indirect effect via threat	**0.071 (0.002)**	0.017 (0.403)	0.027 (0.499)	0.061 (0.116)
Face-to-face interethnic contacts				
Total effect	**0.298 (0.000)**	**0.241 (0.003)**	**0.281 (0.005)**	**0.163 (0.062)**
Direct effect	**0.220 (0.000)**	**0.169 (0.046)**	**0.147 (0.065)**	**0.168 (0.070)**
Indirect effect via anxiety	**0.042 (0.047)**	0.022 (0.351)	**0.123 (0.078)**	0.022 (0.615)
Indirect effect via threat	**0.036 (0.036)**	0.050 (0.104)	0.011 (0.655)	−0.027 (0.389)

Note: Coefficients are standardized, p-values in parentheses. Significant coefficients ($p < 0.10$) are bolded.

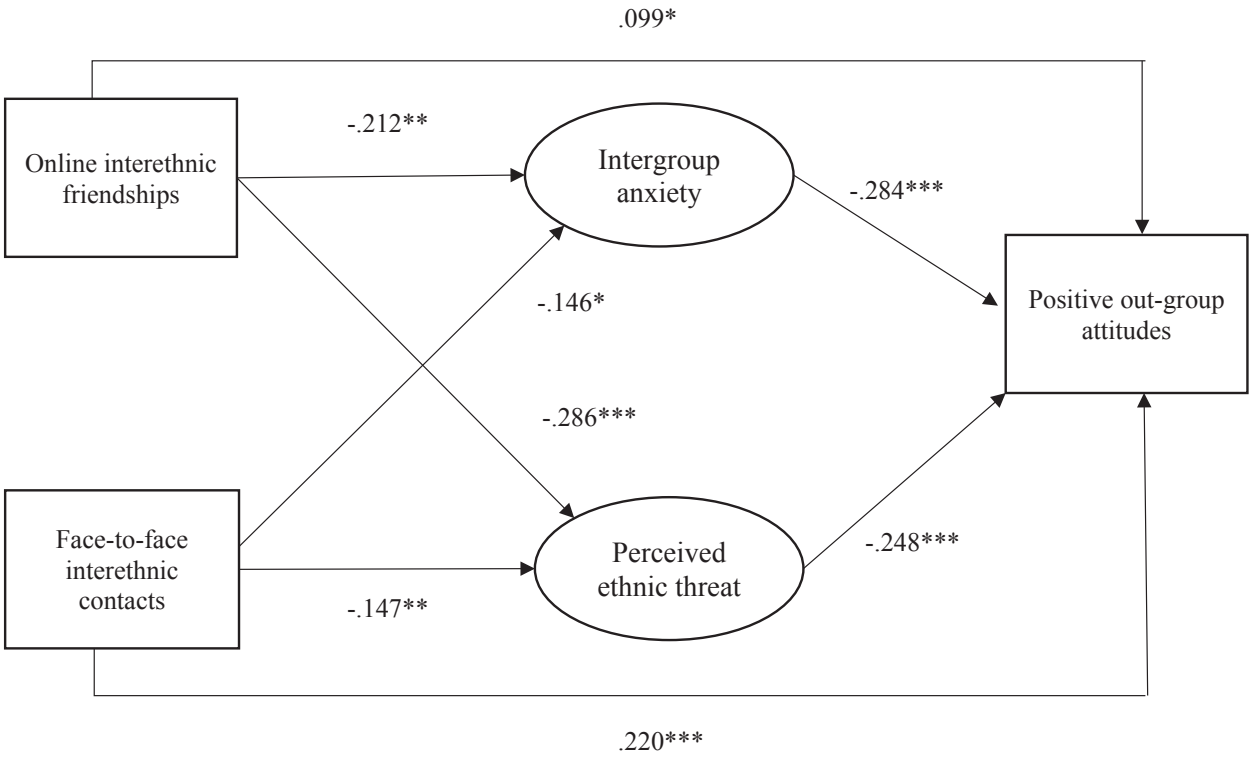
anxious and threatened they feel, which in turn improves their attitudes towards the out-group. These effects were found over and above the significant direct and indirect effects of face-to-face contacts. The mediation was only partial, however, as a significant direct effect of online contacts remained. Fig. 2 summarizes the coefficients for each of the structural paths of the combined model. Regarding the control variables, ethnic identification was related to more perceived threat, $\beta = 0.313$, $p < 0.001$, and more anxiety, $\beta = 0.295$, $p < 0.001$. People on the right-end of the political spectrum reported more anxiety, $\beta = 0.149$, $p = 0.018$, and had less positive out-group attitudes, $\beta = -0.094$, $p = 0.035$. Males also reported less positive attitudes than females, $\beta = -0.108$, $p = 0.017$.

To check whether the patterns were consistent across countries, we estimated a multi-group structural model, again controlling for the same variables as in the overall model (see Table 2 for total, direct and indirect effects per country, and Fig. 3 for country-specific path coefficients).[1] Importantly, we confirmed a significant positive direct effect of online friendships on out-group attitudes in the Cypriot and Croatian samples, and this relationship was also positive but did not reach significance in the Serbian sample.

Further, none of the indirect effects of online friendships via anxiety or perceived threat were significant, however, the coefficients were all pointing in the right direction (Table 2). Looking at each of the paths separately (Fig. 3), the path from anxiety to attitudes was negative and significant in all three countries, whereas the path from ethnic threat to attitudes was negative and significant in Serbia and Croatia, and negative but not significant in Cyprus ($\beta = -0.138$, $p = 0.256$). Both online friendships and face-to-face contacts were negatively related to both anxiety and ethnic threat in the three countries, with the exception of the positive non-significant path between face-to-face contacts and threat in Croatia. However, the only significant paths were those from face-to-face friendships to anxiety in Serbia and Cyprus, and from online friendships to threat in Croatia.

Thus, whereas the combined model provides convincing evidence for the relevance of online contact in prejudice reduction through lower anxiety and ethnic threat, the findings per country show support for the total effect, and a consistent trend for each of the hypothesized mediation paths. However, the mediation paths failed to reach significance, possibly due to smaller sample sizes and a large number of parameters being estimated simultaneously.

[1] Due to the smaller sample sizes in each country, we are reporting significances of $p < 0.10$ in this multi-group model.



Note: Model fit: $\chi^2(90) = 214.69$, $p < .001$, CFI = .953, TLI = .943, RMSEA= .061, SRMR = .061. Standardized coefficients presented; the correlation between the two mediators was accounted for (β = .310, $p < .001$). Control variables gender, ethnic identification and political orientation were included in the model. * $p < .05$, ** $p < .01$, *** $p < .001$.

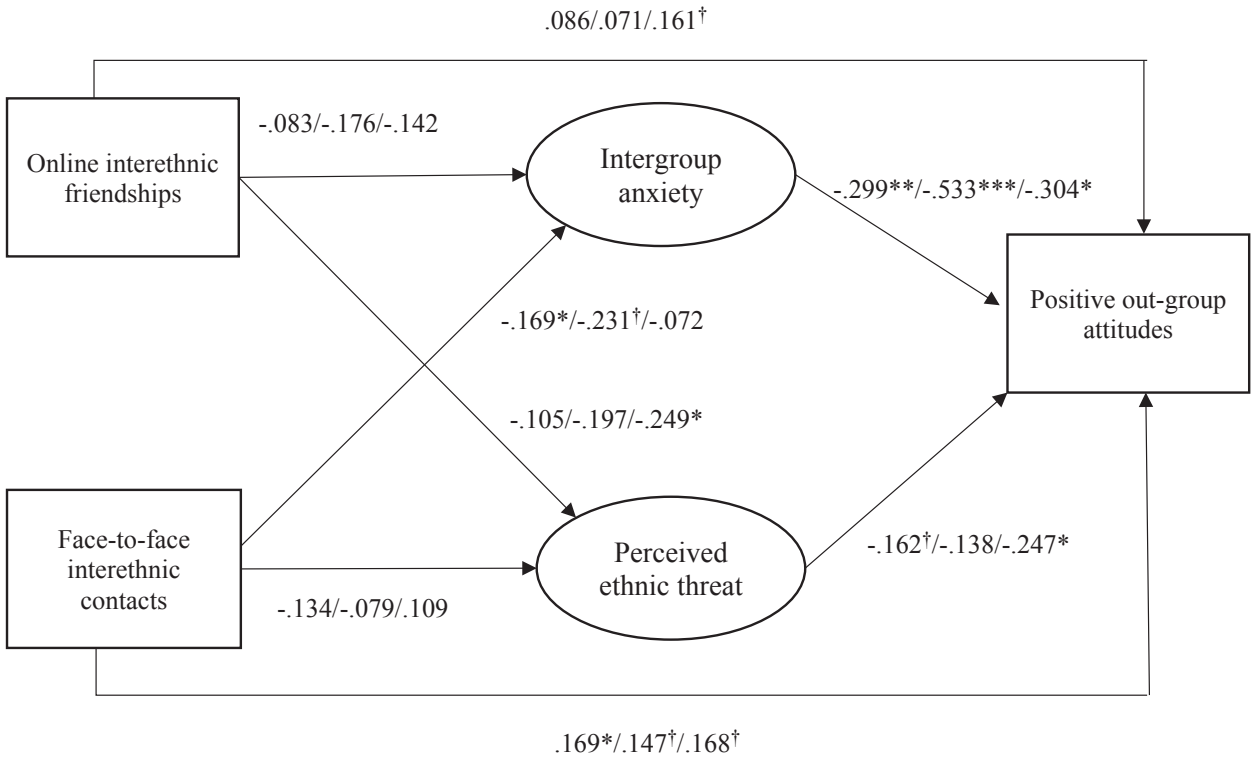
Fig. 2. The effects of online friendships and face-to-face contacts on out-group attitudes, mediated by anxiety and perceived ethnic threat (N = 374).

5. Discussion

Our results are the first to provide support for the positive intergroup effects of online friendships with out-group members. In a sample that combined participants from three post-conflict societies, namely Serbia, Cyprus and Croatia, we found that online intergroup friendships were related to more positive feelings towards rival out-groups. This relationship held over and above the effect of face-to-face contacts, testifying to the added value of online ties. When looking at the three countries separately, we replicated the effect in the Cypriot and Croatian samples and found a similar positive trend in the Serbian sample. This is an important finding as these are divided societies that provide very few opportunities for direct contact and are hence characterized by low levels of face-to-face intergroup interactions. Thus, online friendships represent an alternative to direct contact in situations in which contact is not attainable.

It remains to be shown whether online friendships can have a unique contribution to prejudice reduction in contexts where meeting opportunities, and thus actual contact, are more common. Previous studies on indirect contact in the form of extended friendship and its effects on prejudice reduction have shown that indirect contact is more beneficial in contexts where contact opportunities, and therefore actual face-to-face contact, are scarce (e.g., Christ et al., 2010). Such findings lead us to believe that like extended friendships, online contact, will be more beneficial in low-direct-contact contexts than high-direct-contact contexts. In fact, we would go a step further to postulate that the effects of online contact on out-group attitudes would only be registered in contexts providing little opportunity for direct contact. There are two important reasons for which we make this contention: (a) we do not believe that online contact, or any other form of indirect contact, can permanently replace face-to-face contact, or match its effectiveness in reducing prejudice; so when opportunities for direct contact are there, direct contact will outweigh all other forms of contact; (b) in contexts with low opportunity for contact, face-to-face contact, when it occurs, is likely to be short and infrequent. In these cases, online contact may function as a valuable supplement to actual but infrequent contact. This would not be the case in contexts where instances of direct contact are frequent. The above, of course, are only contentions that need to be tested in a study comparing the effects of online contact on prejudice (controlling for frequency of direct contact) between low-contact contexts and high-contact contexts either between or within countries.

We furthermore examined whether the effect of online interethnic friendships on attitudes was mediated by intergroup anxiety and perceived ethnic threat. We chose these mediators because they have been shown in the past to mediate the effects of direct and extended contact on prejudice reduction (see Pettigrew & Tropp, 2008; Pettigrew, Tropp, Wagner, & Christ, 2011; Tausch, Hewstone, Kenworthy, Cairns, & Christ, 2007). We also argued that intergroup anxiety and perceived ethnic threat were very relevant in societies where a lack of contact and prior conflict are likely to have led to contact-related anxiety and the perception of the out-group as threatening to the physical integrity and political power of the in-group. The mean scores for intergroup anxiety and



Note: Model fit: $\chi^2(329) = 524.66$, $p < .001$, CFI = .901, TLI = .888, RMSEA= .080, SRMR = .107. Standardized coefficients presented and separated by a slash (Serbia/Cyprus/Croatia); the correlation between the two mediators was accounted for. Control variables gender, ethnic identification and political orientation were included in the model. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Fig. 3. Results from a multi-group structural model comparing three countries (Serbia N = 156, Cyprus N = 88, Croatia N = 130).

perceived ethnic threat in the three contexts corroborate these points as they indicate relatively high levels of anxiety and threat, particularly in Serbia and Cyprus. Our results obtained from the combined sample showed clear mediation effects, both via intergroup anxiety and perceived threat, suggesting that the mechanisms through which online contact reduces prejudice are comparable to the mechanisms detected with respect to direct, face-to-face contact. However, this finding was not convincingly replicated at the country level. We did find that the patterns of associations were very similar across countries, however, these were non-significant. This could be due to relatively small sample sizes combined with complex modeling. The bivariate correlations were, in contrast, significant and in the expected direction in all three countries.

5.1. Limitations and suggestions for future research

Future research should test the mediation mechanisms further using larger and more socio-demographically diverse samples (ours was comprised of university students, predominantly female and politically liberal) from these three countries, as well as from other post-conflict societies. Importantly, the direct effect of online contact on out-group attitudes remained significant in the overall model, suggesting that there must be other mechanisms that additionally explain the effects of online friendships on prejudice. For instance, perspective taking, as well as knowledge about out-group that disconfirms stereotypes, all of which have been identified as additional reasons why face-to-face contact reduces prejudice (Pettigrew & Tropp, 2008), might be worth investigating in relation to online friendships. In hindsight, these more cognitive mediators might be particularly relevant for online friendships because such friendships come with certain unique characteristics. Becoming a friend with someone via an online social network instantly lets one into the private sphere of their virtual friend, which is not always the case in real-life environment and face-to-face friendships. Through online friendships one gets exposed to the other person's activities, their preferences in music, literature, films and food, and their everyday routines. More so than through face-to- face friendships, through online friendships people also quickly and easily get information about their out-group friend's circle of friends. In that sense, having even a single out-group friend on social media can substantially increase knowledge about the out-group as a whole. In addition, this comprehensive exposure to the out-group happens in a non-threatening and anxiety-free environment in which individuals can consume information at their own pace and out of their own free will. Such exposure to the out-group member's private sphere could facilitate perspective-taking, increase knowledge about out-group (see Harwood, 2010), and increase perceived interpersonal or intergroup similarity (see Brown & Abrams, 1986; Byrne, 1971). We expect that these mechanisms that are primarily of cognitive nature might account for the remaining effects of online friendships on prejudice and should be examined in future research. In fact, we argue that the main difference between face-to-face and online friendships in their effect on prejudice reduction is that the latter are more likely to work primarily via cognitive mechanisms while the former work

primarily through affective mechanisms (see Pettigrew & Tropp, 2008). This difference can be postulated as a tentative hypothesis that can be put to test in a future study that aims at directly comparing online and real-world friendships.

Our study is, to our knowledge, the first investigating the impact that online friendships have on intergroup attitudes, and we focused specifically on friendships in online social networks. This type of online contact is qualitatively different from other possible computer-mediated interactions with the out-group members, such as more text-based virtual discussion groups (Walther, 2009) or structured interventions, such as e-contact (White, Abu-Rayya et al., 2015, White, Harvey et al. 2015). To study online contacts we used a simple, straightforward measure of online friendships. Merely registering the number of online friendships is a simple but accurate measurement of online contact, which allows us to easily test its impact on prejudice. However, this is only a first step towards researching the effects of online friendships on intergroup relations, and other forms of online interaction should be considered in future research. Measures of real online behaviors instead of self reported measures (e.g. registered instead of reported number of online friends, number of online interactions etc …) could be the first step in this direction.

One of the limitations of our research is the use of correlational data, which makes it impossible to make causal claims. As is the case with real-world contacts (see Binder et al., 2009), the argument can always be made that less prejudiced people are more open to adding an out-group member to their online social network friendship circles. In order to establish that there is a path that extends from online friendships to prejudice-reduction instead of or in addition to the reverse path (extending from prejudice to online friendships), longitudinal data on online friendships are needed. This will provide evidence against selection bias and corroborate the point that online friendships lead to prejudice reduction.

5.2. Policy implications

Finally, we believe that our study has implications for research, policy, and education. The implications for future research were elaborated earlier in this discussion. In terms of policy, these findings can be utilized by governmental policy-makers as well as by non-governmental bodies, as input for the design of interventions: online interaction platforms, virtual events or virtual groups composed of the members of adversarial groups could all be tested in programs aiming at promoting positive out-group attitudes. Intergroup friendships in social networks can also be collateral outputs of programs with different main aims, and their impact on intergroup attitudes can be tracked. As far as education is concerned, teachers and university professors could use these findings as a springboard for the development of specially-designed curricular that include pedagogical activities embedded in online friendships (e.g., Facebook reading groups, webinars and online discussions).

6. Conclusion

Social networking sites provide a virtual interaction space for people who would otherwise not be able to interact. They also provide an opportunity to widen one's social network without directly meeting a person face-to-face. This way, people belonging to different groups are more likely to be exposed to one another, and this can be of special importance for scientists studying the effects of contact on intergroup relations, particularly in societies with a long history of conflict and segregation. With our study we have made a first step towards confirming the importance of online friendships for intergroup relations. However, the exact mechanisms and uniqueness of these effects are yet to be fully explored in future research and made use of in policy-making.

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