

Reducing aggressive intergroup action tendencies:

Effects of intergroup contact via perceived intergroup threat

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Abstract

Two studies tested the prediction that more positive intergroup contact would be associated with reduced aggressive intergroup action tendencies, an effect predicted to occur indirectly via reduced intergroup threat perceptions, and over and above well-established effects of contact on intergroup attitudes. Study 1, using data based on a cross-section of the general population of eight European countries (France, Germany, Hungary, Italy, the Netherlands, Poland, Portugal and the UK; N=7042), examined this hypothesis in the context of aggressive action tendencies towards immigrants. Study 2, using longitudinal data obtained from a general population sample in Northern Ireland, considered effects on aggressive action tendencies between ethno-religious groups in conflict. Both studies confirmed our predictions, showing that while perceived threat was associated with greater intergroup aggressive tendencies, positive intergroup contact was indirectly associated with reduced aggressive action tendencies, via reduced intergroup threat. Findings are discussed in terms of the theoretical contributions of this research for understanding the relationship between intergroup contact and intergroup aggression.

Keywords: Intergroup contact, aggressive action tendencies, perceived intergroup threat, intergroup conflict, longitudinal data.

Intergroup contact theory (Allport, 1954; Williams, 1947) – one of the most prominent social psychological approaches to prejudice reduction and the promotion of positive intergroup relations – proposes that positive contact with individual outgroup members can reduce prejudice and aid conflict resolution. A wealth of research now confirms the positive effects of intergroup contact in intergroup settings (see Pettigrew & Tropp, 2006, for a meta-analytic review), and intergroup contact is thus generally considered one of the key social-psychological approaches to conflict resolution and the reduction of prejudice. However, research to date has focused disproportionately on milder forms of prejudice and conflict-related outcomes, such as evaluative or affective intergroup judgments, while considerably less research has focused on its effects on more extreme manifestations of prejudice, such as negative intergroup behavior. In this paper we address this relative lacuna in contact research, to examine the relationship between intergroup contact and aggressive action tendencies towards outgroup members, as well as the extent to which this relationship can be explained via reductions in perceived intergroup threat. Moreover, we test whether these effects emerge over and above previously confirmed effects of intergroup contact on intergroup attitudes. We examine these relationships in two studies involving two distinct intergroup contexts in which the reduction of intergroup aggression is a particularly pressing and demanding task: Study 1 involves a European, cross-national comparison of host-country majority members' aggressive action tendencies towards immigrants, while Study 2 examines aggressive action tendencies between two opposing groups in a setting, which has witnessed extreme intergroup conflict and violence, Northern Ireland.

Intergroup contact theory

Intergroup contact theory proposes that direct, face-to-face contact with individual outgroup members can reduce prejudice and conflict. Decades of research on intergroup contact

have found widespread empirical support for this proposition in many different contexts and under many different conditions (for reviews see Brown & Hewstone, 2005; Hewstone, 2009; Pettigrew & Tropp, 2006). Moreover, significant advances have also been made in understanding both moderating and mediating mechanisms of contact effects, that is, respectively, the conditions under and processes through which contact may foster positive intergroup attitudes, (see e.g., Brown & Hewstone, 2005, for a review). In this paper we consider one of the key mediators of intergroup contact, perceived intergroup threat, which we expect to explain how intergroup contact may exert effects on intergroup aggression.

Perceived intergroup threat plays a central role in intergroup relations (see Riek, Mania, & Gaertner, 2006), and may be conceptualized as the belief that a given outgroup is in some way detrimental to the ingroup. Although intergroup threats can take many different forms (e.g., symbolic or identity based threats; see e.g., Biernat, Vescio, & Theno, 1996; Branscombe, Ellemers, Spears, & Doosje, 1999), the type of threat that is of particular interest in the context of this research (given media scares about threats to jobs and exploitation of benefits systems in the context of host majority vs. immigrant relations, and the struggle over political power and resources in the context of intergroup conflict) is realistic threat (Stephan & Renfro, 2002; Stephan & Stephan, 2000, Stephan, Ybarra, & Morrison, 2009). Formulations of realistic threat are rooted in realistic group conflict theory (e.g., Sherif, 1966), and generally can include concerns over ingroup territory or resources, the physical and material safety of the ingroup, as well as its political and economic power (Stephan & Stephan, 2000).

While prior research has found realistic threats to be a proximal predictor of prejudice (e.g., Stephan, Diaz-Loving, & Duran, 2000; Tausch, Hewstone, Kenworthy, Cairns, & Christ, 2007a), intergroup contact has been found to reduce intergroup threat perceptions and thereby exert positive indirect effects on intergroup attitudes (Pettigrew, 1998b, Pettigrew & Tropp,

2008; Schmid, Al Ramiah, & Hewstone, in press; Stephan et al., 2000; Tausch et al., 2007a; Tausch, Tam, Hewstone, Kenworthy, & Cairns, 2007b).

However, as mentioned above, much of the prior research on intergroup contact, and indeed on intergroup threat, has focused disproportionately on milder forms of prejudice, with little research focusing on more extreme manifestations of prejudice such as negative intergroup behavior or behavioral tendencies. The small body of research that has examined whether intergroup contact also affects intergroup behavior more generally, focusing primarily on behavioral intent, so-called action tendencies, rather than actual behavior, has confirmed similarly positive effects to those obtained for intergroup attitudes. For example, Tam et al.'s (2009) research on Catholics and Protestants in Northern Ireland found that intergroup contact was indirectly associated with more positive action tendencies (e.g., more willingness to spend time with outgroup members) and with less negative action tendencies (e.g., less desire to keep outgroup members at a distance). Similarly, Paolini et al. (2007) found cross-group friendship to be related to less negative intergroup action tendencies. In this paper, we extend this prior research further to focus explicitly on the effects of intergroup contact on aggressive intergroup action tendencies, which has received insufficient attention in prior research (for an exception see e.g., Brown et al., 2001). Moreover, we do so by examining potential indirect effects of intergroup contact on aggressive action tendencies via reduced intergroup threat perceptions.

Intergroup aggression

Aggression is defined as a form of negative social behavior by an individual or group towards another individual or a group with the intent (motivation) to inflict harm or injury, assuming that the target of aggression is motivated to avoid such treatment (see, e.g., Baron & Richardson, 1994). Definitions of aggression often distinguish between different subcategories

such as direct vs. indirect aggression but also between proactive and reactive aggression (see e.g., Dodge & Coie, 1987). While proactive aggression typically refers to aggressive behavior that is strategic or instrumental, such that it is typically used in a goal-directed manner, reactive aggression primarily refers to aggression that is provoked in some form or other. Among other responses to provocation, Dodge and Coie (1987) identify perceived threat experienced by the provoked individual as a key factor explaining aggression. Thus aggressive tendencies may emerge in response to provocation that is appraised as threatening.

For the most part, aggression research has concentrated on interpersonal aggression (see e.g., Anderson & Bushman, 2002, for a review), with considerably less research focus on *intergroup* aggression. In defining intergroup aggression, we can largely extrapolate from general definitions of aggression. Thus unlike interpersonal aggression, involving aggressive behavior directed towards another individual, intergroup aggression involves aggressive behavior (or aggressive behavioral intent) directed towards another individual or group of individuals due to their social group membership (see Struch & Schwartz, 1989). This is based on our understanding of self-categorization and social identification processes (see e.g., Tajfel & Turner, 1979; Turner et al., 1987), such that intergroup aggression can be considered a distinctly intergroup phenomenon, yet one that is different from other intergroup orientations such as intergroup attitudes (see e.g., Struch & Schwartz, 1989). Although there exists a small but growing body of research on intergroup aggression (e.g., Falomir-Pichastor, Staerkle, Depuiset, & Butera, 2005; Otten, Mummendey, & Wenzel, 1995; Spanovic, Lickel, Denson, & Petrovic, 2010; Stenstrom, Lickel, Denson & Miller, 2008), the effects of intergroup contact on intergroup aggression via perceived intergroup threat have received insufficient attention in prior research.

The present research

In this paper we examine the relationship between intergroup contact and intergroup aggressive action tendencies (Studies 1 and 2) and intergroup attitudes (Study 2), and seek to explain the nature of these relationships by taking account of a key intervening psychological variable: perceived intergroup threat. Based on aforementioned reasoning that aggression is often the result of provocation and emerges as a result of perceived threat, we argue analogously that aggressive action tendencies towards outgroups can result from perceptions of intergroup threat. Focusing on perceived realistic threat we argue that greater threat should be associated with greater intergroup aggressive tendencies as well as with less positive intergroup attitudes. Moreover, since prior research has shown that positive intergroup contact typically reduces perceived realistic threat, to the extent that intergroup contact has positive indirect effects on intergroup attitudes via its effects on intergroup threat, we thus extend this reasoning to predict that intergroup contact should also be indirectly related to lower aggressive action tendencies, via reduced threat perceptions. In Study 2, we include intergroup attitudes as an additional outcome variable, to allow us to test the contact-reducing effect on aggressive tendencies over and above its well-established effects of intergroup attitudes.

We derive the following hypotheses from the above:

H1: Positive intergroup contact will be directly associated with lower perceived intergroup threat.

H2: Greater perceived threat will be directly associated with higher aggressive intergroup action tendencies and less positive intergroup attitudes.

H3: Positive intergroup contact will be indirectly associated with lower intergroup aggressive action tendencies and more positive intergroup attitudes via perceived intergroup threat.

We tested these predictions in two studies. Study 1 involves a cross-national

comparison of eight countries in Europe (France, Germany, Hungary, Italy, the Netherlands, Portugal, Poland, and the UK) to examine effects of contact on aggressive action tendencies towards immigrants. Study 2 involves a general population sample in a political conflict setting that has witnessed extreme intergroup violence and aggression, Northern Ireland, where we examine effects of contact on aggressive action tendencies and intergroup attitudes towards ethno-religious outgroup members. Testing our predictions in two distinct intergroup settings allowed us to consider the reliability of our predictions, on the one hand, among a diverse general population sample drawn from different European countries (involving different immigrant populations), and, on the other hand, among a general population sample in a context in which acts of intergroup aggression have been ubiquitous.

Study 1

Immigration is not a recent phenomenon in Europe, yet it continues to be at the forefront of both political discourse and policy debate (e.g., Caldwell, 2009; Wagner, Christ, & Heitmeyer, 2010). Many countries, particularly in Western Europe, have been facing an increasing inflow of different immigrant groups (e.g., Pettigrew, 1998), and the integration of immigrants into society is a challenge for both immigrants and host societies. Perhaps one of the most important policy issues in immigrant-receiving societies lies in establishing a cohesive and harmonious society, yet anti-immigrant sentiment and even hate crimes towards immigrants among some dominant majority members present an obstacle to this (Zick, Pettigrew & Wagner, 2008). A particularly pressing task for social psychologists and other social scientists is thus to foster understanding of the potential predictors not only of negative attitudes but also of violent or aggressive behavior towards immigrants, and to identify ways in which positive intergroup relations between host-majority members and immigrant-minority members may be fostered.

We tested our predictions using data collected as part of the Group-Focused Enmity Europe Project¹, a cross-national research program involving eight European countries (France, Germany, Hungary, Italy, the Netherlands, Portugal, Poland, and the UK). We thus considered the relationship between intergroup contact with, and aggressive action tendencies towards immigrants present in each of the eight countries, while taking into account the extent to which these relationships can be explained by perceived realistic threat surrounding immigrants.

Method

Participants and Procedure

Participants were 8000 adults, aged 16 and over, drawn from nationally representative samples in eight European countries ($N=1000$ per country). However, since our study focused on intergroup contact with, threat perceptions stemming from, and negative action tendencies towards immigrants, we excluded respondents with an immigrant background (including second- or third-generation immigrants) from our analysis. This resulted in a reduced sample size of $N = 7042$ (France, $N = 711$; Germany, $N = 865$; Italy, $N = 972$; Hungary, $N = 882$, the Netherlands, $N = 922$; Poland, $N = 921$; Portugal = 937; and the UK, $N = 832$; $M_{age} = 49.36$, $SD = 16.98$; age range = 16-98, 3277 males, 3763 females²). A professional survey company collected data using computer-administered telephone interviewing. Respondents completed a 30-minute questionnaire, which included a wide range of pre-tested questions on intergroup and social attitudes, of which only items relevant to testing the above hypotheses were used for the present research. A representative sample was obtained in each country, using a stratified design according to regional location of the general population. Respondents within households were randomly selected either by the next (or last) birthday method, or Kish grid methodology. Selected respondents were contacted up to ten times before they were deemed unobtainable.

Measures

Respondents completed measures of intergroup contact, perceived realistic threat, and intergroup aggression that were embedded in a longer questionnaire (see e.g., Schmid et al., 2012). They also completed socio-demographic variables (socio-economic background, age, gender) that were used as control variables. Means, standard deviations and correlations between study variables for the full sample are shown in Table 1.

Intergroup contact. Our research considered a particularly powerful and high-quality type of intergroup contact, that of cross-group friendship (Davies, Tropp, Aron, Pettigrew, & Wright, 2011), which has generally been found to be a strong antecedent of positive intergroup relations, and can be measured using a single item (e.g., Paolini, Hewstone, Cairns, & Voci, 2004). We measured intergroup contact using the following item: ‘How many of your friends are immigrants?’. Responses were made on a scale ranging from *1 = none*, to *4 = many*. Means across countries ranged from $M = 1.40$ ($SD = .76$) to $M = 2.40$ ($SD = .98$).

Perceived intergroup threat was measured using two items. Respondents were asked to indicate their agreement, using 4-point scales (*1 = strongly disagree*, *4 = strongly agree*), with the following two items (Stephan & Renfro, 2002): ‘Immigrants threaten the economy in my country’; and ‘Immigrants threaten my personal financial situation’. The two items were treated as a single construct (full sample $r = .60$, $p < .001$), and means across countries ranged from $M = 1.66$ ($SD = .64$) to $M = 2.27$ ($SD = .92$).

Aggressive intergroup action tendencies were assessed using the following two items: ‘If an immigrant insults me, I am likely to hit him/her’ and ‘On an issue important to me, I might use violence against an immigrant’ (response scale: *1 = strongly disagree*, *4 = strongly agree*). The two items were treated as a single construct (full sample $r = .56$, $r < .001$), and means across

countries ranged from $M = 1.22$ ($SD = .50$) to $M = 1.91$ ($SD = .53$).

Gender was coded 0 = male, 1 = female.

Age was coded based on respondents' age in full years at time of participation in the study. Mean ages across countries ranged from $M = 45.05$ ($SD = 17.14$) to $M = 54.90$ ($SD = 16.22$).

Socio-economic background was assessed using annual household income, which was coded according to country-specific income brackets, subsequently labeled as ranging from 1 = low to 10 = high. Mean levels of household income across countries ranged from $M = 3.74$ ($SD = 1.47$) to $M = 6.29$ ($SD = 1.46$).

Results and Discussion

We employed path analyses, specifying our key variables of interest as observed composite scores based on the averaged observed items. Model parameters for all analyses reported in this paper were estimated using the *Mplus* version 6 statistical package (Muthén & Muthén, 1998-2010), using fully integrated maximum likelihood estimation. Data were entered as a covariance matrix. We estimated a fully saturated model, including direct regression paths between intergroup contact as independent variable, perceived intergroup threat as mediator, and aggression action tendencies as dependent variable, as well as estimating the regression of all endogenous theoretical variables on the demographic control variables while further allowing for covariation between intergroup contact and the demographic variables. We first estimated our model for the full sample before testing for invariance of the key predicted relationships across countries. We report in detail all regression coefficients and tests of indirect effects for the full sample in the text and Table 2, but include detailed results for each of the eight countries in Table 2 only.

In line with *H1*, we found that intergroup contact was directly associated with lower intergroup threat perceptions ($b = -.10, SE = .01, p < .001$). In support of *H2*, greater intergroup threat was associated with higher aggressive action tendencies ($b = .20, SE = .01, p < .001$). Intergroup contact was not directly associated with aggressive action tendencies ($b = .01, SE = .01, p = .74$). In order to probe for the predicted indirect relationship we employed bootstrapping procedures using 5000 re-samples and bias-corrected confidence intervals (Preacher & Hayes, 2008). A significant indirect effect is observed when the confidence intervals exclude zero. As predicted in *H3*, results revealed a significant indirect relationship between intergroup contact and aggressive action tendencies via perceived intergroup threat ($b = -.02, CI_{95\%} = -.031 / -.018$), such that intergroup contact was associated with reduced aggressive tendencies via reduced threat effects.

Finally, we also observed a number of significant effects of our control variables. Considering the effects for gender, females held lower aggressive tendencies than males ($b = -.19, SE = .02, p < .001$). Considering age, older respondents reported lower threat perceptions ($b < -.01, SE = .01, p < .001$), and lower aggressive tendencies ($b < -.01, SE < .01, p < .001$). And individuals from higher socio-economic backgrounds reported less intergroup threat ($b = -.09, SE = .01, p < .001$), and lower aggressive tendencies ($b = -.01, SE < .01, p < .001$). Together, the model explained 7.50% of the variance in perceived threat perceptions, and 7.80% of the variance in aggressive action tendencies.

Following analyses for the full sample, we proceeded to test whether our model was structurally invariant across countries. To that end we estimated a model in which we allowed the coefficients involving the regression of perceived intergroup threat on intergroup contact, and the regression of aggressive tendencies on intergroup threat, respectively, to vary freely across the eight countries. Comparing the fit of this unconstrained model to the aforementioned fully

saturated, constrained model for the full sample revealed that the constrained model yielded poorer model fit, $\Delta\chi^2(14) = 57.98, p < .001$, suggesting country-specific discrepancies in the regression coefficients underlying the predicted relationships across the eight countries. Table 2 presents the country-specific direct relationships between intergroup contact, perceived intergroup threat and aggressive action tendencies, respectively, as well as the indirect relationship between intergroup contact and aggressive action tendencies. As Table 2 shows, the results for each of the countries by and large mirror the results obtained for the full sample, generally showing only minor variations in the size of the regression coefficients. The predicted indirect relationship between intergroup contact and aggressive action tendencies was confirmed in all countries, with the exception of Portugal where contact failed to predict perceived threat and no indirect relationship between contact and aggressive action tendencies emerged.

In sum, the results of our first study confirmed our predictions, showing that positive intergroup contact with immigrants was associated with lower realistic threat perceptions concerning immigrants, and consequently associated with fewer aggressive tendencies towards immigrants. These effects emerged consistently in all countries, with the exception of Portugal where we failed to obtain the predicted effects of intergroup contact.

Study 2

Our second study sought to test our predictions in a different intergroup context, Northern Ireland – an area, which has witnessed periods of prolonged intergroup conflict and acts of extreme intergroup violence. The conflict in Northern Ireland is between those who wish to see Northern Ireland united with the Republic of Ireland (mainly Catholics), and those who want Northern Ireland to remain part of the UK (mainly Protestants; Moxon-Browne, 1991). Although the conflict itself dates back hundreds of years, it escalated in the 1960s when conflict between

the government and the local civil rights movement triggered a sustained period of violence, resulting in the deployment of British troops. During this time, Northern Ireland witnessed periods of intense political violence, resulting in over 3,500 deaths, over 35,000 injuries, 16,000 people charged with terrorist offences, 34,000 shootings and 14,000 bombings (see e.g. Fay, Morrissey, & Smyth, 1999). A series of ceasefires were negotiated in the 1990s, culminating in a constitutional agreement in 1998 (the ‘Good Friday Agreement’) to establish a devolved, power-sharing government embracing all major political parties. Yet despite these continuing efforts at peace-building, intergroup tensions continue and violent intergroup crime remains high (Police Service Northern Ireland, 2009). Given the extreme degree of segregation in the country, one of the main approaches to improving intergroup relations adopted by policy makers in this context is via intergroup contact (see e.g., Hughes, Lolliot, Hewstone, Schmid, & Carlisle, 2012). And prior research in this context confirms the positive effects of intergroup contact on intergroup attitudes (e.g., Paolini et al., 2007), and that these effects occur, in part, via reduced threat (e.g., Tausch et al., 2007a). Yet to date, most of these studies have considered relatively milder forms of intergroup attitudes, using mostly cross-sectional data.

Our aims in Study 2 were to replicate our findings from Study 1 using data obtained in a different context of intergroup conflict, but also to extend the test of our predictions in important ways. Study 2 allowed us to test our predictions in a methodologically superior way, by examining the longitudinal effects of positive intergroup contact with ethno-religious outgroup members on aggressive action tendencies towards the outgroup, as well as the extent to which realistic threat perceptions surrounding the ethno-religious outgroup mediate these effects over time. We thus test our predictions on the positive effects of contact using a two-wave longitudinal survey involving a general population sample drawn from the city of Belfast. Moreover, in Study 1 our measures of intergroup contact were based on cross-group friendship,

an operationalization of contact that one might readily expect to be related to lower intergroup aggressive behavioral intent since it constitutes a relatively high-quality type of contact. In Study 2 we therefore used a more conservative operationalization of contact, to examine whether a more commonplace and lower-threshold type of intergroup contact would also be associated with reduced potential for intergroup aggression. Finally, Study 2 sought to examine whether the effects of contact on intergroup aggressive action tendencies occur over and above by now well-established effects on general intergroup attitudes, to ensure that any effects of contact we may witness do not occur merely due to positive co-variation between aggressive action tendencies and attitudes.

Method

Participants and Procedure

Our data involved a longitudinal sample of adults (aged 18 and over) recruited at random from the city of Belfast, Northern Ireland. A professional survey company collected the data using face-to-face computer-assisted interviews (cards showing questions and response options were used to supplement verbal statements). The first wave of interviews was conducted between March and July 2006. Respondents were 984 adults ($M_{age} = 51.83$ years, $SD = 17.48$; $N = 439$ Catholics, 158 male, 281 female; $N = 545$ Protestants, 223 male, 322 female). The second wave of interviews was conducted between May and August 2007. Respondents were 811 adults ($M_{age} = 50.66$ years, $SD = 17.53$; $N = 429$ Catholics, 157 male, 272 female; $N = 382$ Protestants, 149 male, 233 female). Of the overall sample, 411 individuals ($M_{age} = 52.59$ years, $SD = 16.74$; $N = 185$ Catholics, 62 male, 123 female; $N = 226$ Protestants, 83 male, 143 female) completed the survey at both time points and constituted the sample for our longitudinal analyses.

Measures

Data were collected as part of a larger survey on intergroup relations (see, e.g., Tausch et al., 2010, Study 4), of which we used a subset of items for this study that measured intergroup contact, perceived intergroup threat, intergroup aggressive tendencies and intergroup attitudes, along with socio-demographic variables (socio-economic background, age, gender). Respondents completed all measures at both time points. Means, standard deviations and correlations between study variables for both time points are shown in Table 3.

Intergroup contact. We measured intergroup contact using the following three items: ‘How often do you greet people who are <OUTGROUP> (e.g., when you see them in the street)?’, ‘How often do you chat to people who are <OUTGROUP> in your neighbourhood?’, and ‘How often do you do something social together with your <OUTGROUP> neighbours (e.g., by way of sport, going out and so on)?’. Responses were made on a scale ranging from 1 = *never*, to 5 = *very often*. The items yielded reliable indices of intergroup contact at time 1 ($\alpha = .90$) and time 2 ($\alpha = .89$), and were subsequently treated as composite constructs at each time point, with higher scores denoting more intergroup contact.

Perceived intergroup threat was assessed using four items. Respondents were asked to indicate their agreement, using 5-point scales (1 = *strongly disagree*, 5 = *strongly agree*), with the following items (Stephan & Renfro, 2002): ‘The more power <OUTGROUP> gain in this country, the more difficult it is for <INGROUP>’, ‘Allowing <OUTGROUP> to decide on political issues means that <INGROUP> have less say in how this country is run’, ‘<OUTGROUP> have been trying to get ahead economically, at the expense of <INGROUP>’, and ‘More good jobs for <OUTGROUP> means fewer good jobs for <INGROUP>’. The four items were reliable at both time points (threat_{time1}: $\alpha = .82$, threat_{time2}: $\alpha = .85$), and averaged for each time point such that higher scores reflect greater threat perceptions.

Aggressive intergroup action tendencies were measured using the following two items: ‘How often have you felt a desire to hurt <OUTGROUP> physically (e.g., to attack, to strike out, and so on)?’ and ‘How often have you felt a desire to hurt <OUTGROUP> with words (e.g., to insult, to call names and so on)?’ (response scale: 1 = *never*, 5 = *very often*). The two items were significantly correlated at each time point (aggression_{time1}: $r = .57, p < .001$; aggression_{time2}: $r = .51, p < .001$) and thus treated as combined indexes at each time point, with higher scores indicating more aggressive tendencies.

Intergroup attitudes were measured using a single item, consisting of a feeling thermometer (see e.g., Converse & Presser, 1986). Respondents indicated on a thermometer that ran from zero (0) to a hundred (100) degrees the extent to which they felt cold (0)/warm (100) toward members of the ethno-religious outgroup.

Gender was coded 0 = male, 1 = female.

Age was coded based on respondents’ age in full years at time of participation in the study.

Socio-economic background was assessed using annual household income, ranging from 1 = low (less than £3,000 per year) to 11 = high (more than £50,000 per year), $M_{income} = 5.50$ ($SD = 2.22$).

Results and Discussion

Preliminary analyses.

Before we tested our predictions we first carried out a multivariate analysis of variance (MANOVA) to compare respondents who completed the survey at both time points with those who completed only the time 1 survey across the intergroup contact, perceived threat and intergroup aggression variables measured at time 1 to check for selective attrition of our sample.

Results of the MANOVA revealed no significant differences between the respondents who dropped out of the study after time 1 and those who completed the survey at both time points, $F(4, 968) = 1.19, p = .31$. These results were confirmed by the univariate analyses of all measures.

Estimation of longitudinal effects of intergroup contact on aggression action tendencies via perceived threat

We estimated a cross-lagged path model (using the composite scores for each variable) in a single model estimation that allowed us to simultaneously test the predicted forward paths, the potential reverse causal paths, and the autoregressive paths. We thus examined the predicted forward paths by estimating the effects of intergroup contact at time 1 on perceived threat, aggressive action tendencies and intergroup attitudes at time 2, respectively. We further estimated the effects of perceived threat at time 1 on aggressive action tendencies and intergroup attitudes at time 2. In order to then test possible reverse causal paths between our constructs, we also estimated the effects of aggressive action tendencies and intergroup attitudes at time 1 on intergroup contact and perceived threat at time 2, respectively, as well as the effect of perceived threat at time 1 on intergroup contact at time 2. In addition, we also specified the autoregressive paths between constructs, i.e., between contact at time 1 and time 2, between perceived threat at time 1 and time 2, between aggressive action tendencies at time 1 and time 2 and between attitudes at time 1 and time 2, respectively. In addition, we regressed all time 2 variables of theoretical interest on the demographic variables measured at time 1.

The model fit the data well, $\chi^2(2) = 5.97, p = .05, CFI = .99, RMSEA = .07, SRMR = .01$ (see e.g., Hu & Bentler, 1999 for an overview of fit indexes). As can be seen in Figure 1, all autoregressive paths between constructs at both time points were significant (contact_{time1}-

contact_{time2}: $b = .75$, $SE = .04$, $p < .001$; threat_{time1}- threat_{time2}: $b = .41$, $SE = .06$, $p < .001$;
aggressive action tendencies_{time1}- aggressive action tendencies_{time2}: $b = .31$, $SE = .09$, $p < .001$;
attitudes_{time1}- attitudes_{time2}: $b = .16$, $SE = .06$, $p < .01$). In line with predictions, intergroup contact at time 1 was significantly associated with lower perceived threat at time 2 ($b = -.10$, $SE = .04$, $p < .01$), as well as with more positive intergroup attitudes ($b = 1.56$, $SE = .74$, $p = .03$), but was not directly associated with aggressive action tendencies ($b < .01$, $SE = .01$, $p = .89$). Perceived threat at time 1 was however associated with higher aggressive action tendencies at time 2 ($b = .08$, $SE = .02$, $p < .001$) and less positive intergroup attitudes ($b = -3.19$, $SE = 1.27$, $p = .01$).

All reverse causal paths failed to reach statistical significance, such that perceived threat at time 1 did not predict intergroup contact at time 2 ($b = .02$, $SE = .05$, $p = .75$), while aggressive intergroup action tendencies at time 1 predicted neither perceived threat ($b = .15$, $SE = .11$, $p = .19$) nor intergroup contact ($b = -.03$, $SE = .14$, $p = .85$) at time 1. Intergroup attitudes at time 1 also failed to predict intergroup contact ($b < -.01$, $SE < .01$, $p = .67$) or perceived threat ($b < -.01$, $SE < .01$, $p = .40$). Finally, considering the demographic controls only revealed a significant effect of gender on intergroup aggression, such that females were lower in aggressive tendencies than males ($b = -.11$, $SE = .04$, $p < .01$), and of age on intergroup attitudes, such that older respondents held more positive attitudes at time 2 ($b = .15$, $SE = .06$, $p < .01$). None of the other demographic controls yielded any significant effects. The model explained 20.5% of the variance in perceived threat, 22.3% of the variance in aggressive action tendencies and 13.0% of the variance in intergroup attitudes at time 2.

In order to then probe for the predicted indirect effects of intergroup contact on intergroup aggressive action tendencies and intergroup attitudes, respectively, we used a half-longitudinal approach (see e.g., Cole & Maxwell, 2003). To examine the indirect effect for aggressive action tendencies we thus estimated the product of the path involving the regression of perceived threat

at time 2 on intergroup contact at time 1 and the path involving the regression of intergroup aggressive tendencies at time 2 on perceived threat at time 1. For intergroup attitudes we computed the product of the coefficient denoting the path between contact at time 1 and threat at time 2 and the coefficient of the path between threat at time 1 and attitudes at time 2. Results confirmed *H3*, such that intergroup contact at time 1 was indirectly associated with lower aggressive action tendencies at time 2 ($b = -.01$, $CI_{95\%} = -.018/ -.002$) and with more positive intergroup attitudes at time 2 ($b = .34$, $CI_{95\%} = .044/ .734$).

Since we initially estimated our model for the full sample we also probed for invariance of the structural parameters underlying our predicted indirect effect of contact at time 1 on aggressive action tendencies and intergroup attitudes at time 2 between Catholics and Protestants. To that end we estimated a model in which we allowed all paths to be freely estimated for each group and compared it to a model in which the paths from contact at time 1 to perceived threat at time 2, and from threat at time 1 to aggression and attitudes at time 2, were constrained. Comparing the fit of this model to our original, fully constrained model, revealed that the two models were comparable, and the regression paths thus invariant, for both groups, $\Delta\chi^2(3) = 8.00$, $p = .05$.

To summarize, the results of our second study provided further support for our predictions, and also replicated, and extended, the results obtained in Study 1, yet in a different context of intergroup relations. First, we were able to show reliable effects of intergroup contact on reduced intergroup aggressive tendencies, via reduced intergroup threat perceptions, over and above the by now well-established effects of intergroup contact on intergroup attitudes. Of note, while contact was directly, as well as indirectly, associated with intergroup attitudes, the effects of contact on aggressive action tendencies were fully mediated by intergroup threat. In addition, we were able to confirm these findings using a more conservative operationalization of

intergroup contact, i.e. a measure of contact that did not entail cross-group friendship and which one may less readily expect to be related to intergroup aggression. Finally, Study 2 provided longitudinal support for our predictions, showing that intergroup contact at time 1 exerted positive effects on reduced intergroup threat and aggressive action tendencies and increased outgroup attitudes at time 2.

General Discussion

Our research addressed a relative paucity in intergroup contact research, namely the relationship between intergroup contact and intergroup aggressive action tendencies. In one cross-sectional and one longitudinal study, involving different contexts of intergroup relations, our results showed that intergroup contact was associated with reduced intergroup aggressive tendencies, a relationship that was explained by perceived intergroup threat (Studies 1 and 2) and emerged over and above effects on intergroup attitudes (Study 2). We discuss our findings, first, with regard to the relationship between intergroup contact and aggressive action tendencies as well as the role of perceived threat in explaining this relationship, and second, by discussing some of the methodological and conceptual limitations of this research as well as making suggestions for future research.

Beyond intergroup attitudes: Effects of intergroup contact on aggressive action tendencies

In two studies involving different intergroup contexts, we have shown that intergroup contact has the capacity to reduce more extreme manifestations of prejudice, in this case aggressive intergroup action tendencies, via lower intergroup threat perceptions. In Study 1, we found that positive intergroup contact with immigrants was associated with lower aggressive tendencies towards immigrants in a cross-sectional sample of eight European countries. The

indirect positive effects of contact, via reduced threat perceptions, were found in all countries with the exception of Portugal where intergroup contact was unrelated to intergroup threat and intergroup aggression. This finding may be due to context-specific peculiarities and the culture-specific representation of immigrants and of national identity in Portugal (see e.g., Vala, Lopes, & Lima, 2008). Indeed, prior research on intergroup relations between Portuguese majority members and immigrant minority members (mainly Black African immigrants from the former colonies) has shown that Portugal often yields different patterns of findings than in other contexts. For example, Guerra et al. (2010) have shown that for Portuguese majority group children, intergroup contact with immigrant children worked better when a dual-group rather than a single-group representation was salient. These findings are contrary to those typically obtained in other contexts such as the US, where the majority group typically prefers minority outgroups to assimilate rather than to retain a dual-identity (see also Gaertner & Dovidio, 2000). Considering our findings, it may thus be that in Portugal the relationship between intergroup contact and perceived threat may not be seen for all respondents, but may depend on certain conditions, for example, the extent to which immigrants are perceived as assimilating or retaining a separate dual-group identity.

Study 2 also confirmed our hypotheses in a different context of intergroup relations involving a setting of intergroup conflict and a history of intergroup violence. Moreover, our second study extended our findings from Study 1, using a methodologically superior longitudinal design and confirming aggressive action tendency-reducing effects of intergroup contact over and above the by now well-established effects of contact on intergroup attitudes (see e.g., Pettigrew & Tropp, 2006). We thus found that intergroup contact at time 1 was not only indirectly associated with more positive intergroup attitudes one year later, via reduced threat perceptions, but was also indirectly associated with fewer aggressive tendencies towards ethno-religious outgroup

members, via reduced threat, over time.

Our research has important implications for how we might think about intergroup contact and its potential in alleviating intergroup tensions and conflict. The majority of prior research on intergroup contact has focused primarily on its effects on intergroup attitudes, such as evaluative outgroup ratings, often ignoring more extreme manifestations of prejudice, such as aggressive intergroup behavior. However, in situations characterized by negative or even violent intergroup relations, changing attitudes, although important, may not be sufficient to resolve conflict. Of course, one may argue that changing attitudes may constitute the first step in changing behavior, and possibly different types of behaviors too, yet it is not entirely clear when, or even whether, such attitudes correspond to intergroup behavior. Indeed, a great deal of theoretical debate and empirical research concerns the question whether and to what extent attitudes are related to behavior (see e.g. Petty, Wegener, & Fabregar, 1997, for a review). Our findings alleviated some of these concerns, and extended a small but growing body of research that seeks to understand the effects of intergroup contact on intergroup action tendencies (e.g., Paolini et al., 2007), by demonstrating effects of intergroup contact on a very specific and extreme form of intergroup behavioral tendencies, aggressive action tendencies. Moreover, we obtained these findings while controlling for key demographic variables (gender, age and socio-economic background). Our research thus highlights that intergroup contact, via its relationship with reduced realistic threat perceptions, is a key approach to consider when seeking to understand how negative intergroup behavior may be prevented or alleviated, or indeed to design interventions to help reduce such negative behaviors.

More generally, our research also makes important contributions to current knowledge on intergroup contact more generally. We have thus shown, for the first time, longitudinal effects of intergroup contact on aggressive intergroup action tendencies. It is often argued that intergroup

contact may be subject to self-selection effects, such that individuals high in intergroup threat and prejudice may actively avoid intergroup contact. Our second study mitigates this concern, since we only obtained statistically significant effects of intergroup contact at time 1 on the outcome variables at time 2, and none of the reverse effects of intergroup threat, aggressive action tendencies and attitudes at time 1 on intergroup contact at time 2 were significant.

Limitations and future directions

Notwithstanding the implications of our findings for approaches to intergroup conflict reduction as well as intergroup contact research more generally, there are a number of methodological and conceptual considerations that should be addressed. One of the key limitations, of course, is that we only measured behavioral intentions to capture aggressive action tendencies, i.e., not behavior *per se*. Naturally, intentions do not equate behavior, a distinction that needs to be kept in mind when seeking to draw conclusions on the effects of intergroup contact on intergroup aggression. Moreover, while it is a strength of our research that both of our samples constituted general population samples, general aggressive tendencies towards immigrants (Study 1) and ethno-religious outgroup members (Study 2) were relatively low in these broad populations, as one would expect. Self-reported aggressive action tendencies may also be subject to socially desirable responding. Nonetheless, given the scarcity of research on the relationship between intergroup contact and extreme forms of intergroup behavior such as intergroup aggression, and the difficulty in measuring actual behavior in this type of research, we consider our study to be an important contribution to understanding the link between intergroup contact and intergroup aggression.

A further concern is that, especially in Study 1, our constructs were assessed with a limited number of items, which also differed between the two studies. This was due to the

constraints inherent in using general population surveys, where space and costs per survey question are prohibitive. This limitation of the present data can thus be considered a trade-off against the large general population samples of the general population, which are of high external validity and extremely rare in social-psychological research, which typically relies on student samples of convenience. Nonetheless, future research should aim to use a greater range of items if and when possible.

It should also be kept in mind that our study considered only the impact of voluntary forms of contact on intergroup aggression, that is, contact situations and experiences that we assume to have been freely chosen and opted into by respondents. This potentially limits the generalizability of effects to more involuntary or imposed contact situations, as might be initiated, for example, by policies aimed at fostering integration, or peace education programs in intergroup conflict settings. However, we note that one of the key findings of Pettigrew and Tropp's (2006) meta-analysis was that the effect of contact on prejudice was lower in freely-chosen contact than in no-choice situations ($r_s = -.22$ vs. $-.28$). Thus, our findings might, in fact, underestimate the impact of contact on aggressive tendencies. It remains, however, for future research to study the effects of more involuntary contact experiences on intergroup aggression, and to explicitly compare the effects of voluntary and involuntary contact.

Moreover, our operationalization of aggressive action tendencies was most akin to conceptualizations of reactive aggression, which may occur in response to some form of provocation, such as realistic threat perceptions that we considered here. Future research should therefore consider a more comprehensive operationalization of aggressive action tendencies, and take account of different subtypes of aggression. Conceptually, it will also be interesting for future research to consider effects of different types of threat on intergroup aggression. While we focused here on realistic intergroup threat, future research may consider other types of group-

based but also more personal-level threat perceptions. Prior research by Cottrell and Neuberg (2005) has suggested that different types of threat evoke different primary and secondary emotional reactions, with different consequences for intergroup behavior. Future research should thus aim to also assess such primary and secondary emotional reactions, which may be more pronounced for some types of threat than others, and their associated consequences for different types of aggression. Relatedly, future research may also consider other types of provocation, such as prior negative intergroup experiences with outgroup members (see e.g., Barlow et al., 2012, for a recent study on negative contact).

To conclude, our research adds to and extends in important ways the body of research on the role of intergroup contact in intergroup relations. The results of these two large general population studies in two different contexts of intergroup relations demonstrate that intergroup contact not only has the potential to reduce intergroup attitudes, but also more extreme manifestations of prejudice, such as tendencies to intergroup aggression, via its effects on reduced intergroup threat perceptions.

Notes.

1. The ‘Group-Focused Enmity Europe Project’ was conducted with the aim of studying prejudice towards a range of different target groups in eight European countries, and included a set of items seeking to examine intergroup relations between host-country members and immigrants. Further details and key findings from the project can be found in Zick, Küpper, and Hövermann (2011); an electronic copy of this report can be downloaded at <http://library.fes.de/pdf-files/do/07908-20110311.pdf>.

2. Two participants did not indicate their gender.

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Table 1. Means, standard deviations and inter-correlations between study variables for full sample (Study 1)

	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
1. Intergroup contact (response scale: 1-4)	1.86	.89	1	-.12*	-.24*	-.05*	-.12*	.08*
2. Perceived threat (response scale: 1-4)	1.88	.76		1	.41*	.06*	-.01	-.25*
3. Intergroup aggression (response scale: 1-4)	1.54	.69			1	-.01	.08*	-.11*
4. Gender (0 = male, 1 = female)	–	–				1	.07*	-.16*
5. Age (age range: 16 – 98)	49.36	16.98					1	-.16*
6. Income (1 = low, 10 = high)	5.11	2.12						1

Note. * $p < .001$

Table 2. Unstandardized regression coefficients of estimated, theoretically relevant direct relationships between pairs of constructs, as well as indirect effects (Study 1).

	Direct effect of intergroup contact on perceived threat	Direct effect of perceived threat on intergroup aggression	Direct effect of intergroup contact on intergroup aggression	Indirect effect of intergroup contact on intergroup aggression
	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>CI</i> 95%)
Total Sample	-.10 (.01) ^c	.20 (.01) ^c	.01 (.01)	-.02 (-.031/-.018) ^a
France	-.18 (.03) ^c	.20 (.05) ^c	.05 (.03)	-.04 (-.063/-.016) ^a
Germany	-.12 (.03) ^c	.23 (.04) ^c	-.03 (.02)	-.03 (-.046/-.015) ^a
Hungary	-.12 (.04) ^b	.21 (.04) ^c	.01 (.03)	-.03 (-.045/-.010) ^a
Italy	-.19 (.04) ^c	.19 (.04) ^c	-.05 (.04)	-.04 (-.059/-.019) ^a
Netherlands	-.13 (.03) ^c	.19 (.03) ^c	-.03 (.03)	-.02 (-.040/-.012) ^a
Poland	-.08 (.03) ^b	.19 (.04) ^c	-.04 (.03)	-.02 (-.029/-.005) ^a
Portugal	-.03 (.02)	.23 (.04) ^c	.00 (.02)	-.01 (-.027/.006)
UK	-.25 (.03) ^c	.14 (.03) ^c	-.03 (.02)	-.04 (-.53/-.020) ^a

Note. Results are presented for total sample and for country-specific samples. ^a*p* < .05; ^b*p* < .01; ^c*p* < .001

Table 3. Means, standard deviations and inter-correlations between study variables (Study 2)

	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
1. Intergroup contact – Time 1	2.39	1.36	1	.78 ^c	-.30 ^c	-.25 ^c	-.03	-.04	.27 ^c	.23 ^c	-.03	.03	.33 ^c
2. Intergroup contact – Time 2	2.44	1.31		1	-.23 ^c	-.30 ^c	-.03	-.06	.20 ^c	.17 ^b	.01	-.03	.28 ^c
3. Perceived threat – Time 1	3.16	.84			1	.42 ^c	.10 ^a	.19 ^c	-.29 ^c	-.21 ^c	.05	.05	-.13 ^a
4. Perceived threat – Time 2	2.80	.99				1	.14 ^b	.25 ^c	-.21 ^c	-.24 ^c	.04	-.06	-.08
5. Intergroup aggression – Time 1	1.15	.40					1	.43 ^c	-.29 ^c	-.18 ^c	-.22 ^c	-.16 ^b	.04
6. Intergroup aggression – Time 2	1.13	.36						1	-.23 ^c	-.30 ^c	-.21 ^c	-.11 ^a	.07
7. Intergroup attitudes – Time 1	66.83	18.45							1	.30 ^c	.03	.09	.14 ^b
8. Intergroup attitudes – Time 2	67.68	18.42								1	.00	.12 ^a	.15 ^b
9. Gender	–	–									1	-.14 ^b	-.22 ^c

10. Age	51.22	16.72							1	-.10
11. Income	5.50	2.22								1

Note. ^a $p < .05$; ^b $p < .01$; ^c $p < .001$

Figure caption.

Figure 1. Estimated cross-lagged path model for Study 2, showing relationship between intergroup contact, perceived threat, intergroup aggression and intergroup attitudes across the two time points. Note. Only autoregressive (dashed lines) and forward paths shown. * $p < .05$; ** $p < .01$; *** $p < .001$.

