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Exposure to war-time trauma decreases positive emotions and altruism towards rival outgroups (but not non-rival outgroups): a field experiment among Syrian refugees

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Abstract

A survey experiment, carried out in a field setting among Sunni Arab Syrian refugees (N=2479), examined the effect of exposure to war-time trauma, ethnoreligious group affiliation and degree of hostility of intergroup relations on altruism and positive emotional regard. The results showed that ingroup targets were met with more positive emotional regard and altruism than relatively neutral outgroup targets, which in turn were met with more positive emotional regard and altruism than individuals from a hostile outgroup. These tendencies were elevated among participants with a high degree of exposure to war-time trauma. Emotions mediated the effect of ethnoreligious group affiliation on altruism and this mediating effect was moderated by exposure to war-time trauma.

Keywords: Welfare tradeoff ratio, exposure to trauma, altruism, emotions, intergroup conflict

Exposure to wartime trauma decreases positive emotions and altruism towards rival outgroups (but not non-rival outgroups): a survey experiment in a field setting among Syrian refugees

In a famous biblical verse, we are told not to "take vengeance or bear a grudge against the sons of your own people", but rather to "love thy neighbor as yourself" (Leviticus 19:9-18). This passage is often cited in relation to the commandment to be kind and generous to our fellow human beings. But when making actual tradeoffs between one's own welfare and the welfare of others, will people love any neighbor as themselves, or will this mainly apply to "the sons of your own people", as the first part of the passage implies? The current research examines to what degree tradeoffs between one's own and others' welfare are influenced by the ethnoreligious group affiliation of the target individual. We further examine the effect of antagonistic intergroup relations, as well as personal exposure to wartime trauma, on such kindness calculations. We take an evolutionary social-psychological perspective in our attempt to uncover the mechanisms underlying such tendencies.

When determining whether or not to take a cooperative and generous stance toward a fellow human, one has to decide whether he/she can be trusted, or poses a potential threat. The evolutionary threat management approach suggests that one of the central challenges in our ancestral environment was being able to detect significant threats to survival (Schaller & Neuberg, 2012; Neuberg & Schaller, 2016). Since others' aggressive intentions and inherent trustworthiness are hidden from sight, people tend to rely on easily recognizable and quickly processed external cues in order to remain vigilant to threats, such as group affiliation (Neuberg & Schaller, 2012). The end result of these essentially adaptive tendencies, however, is a human threat detection system that may be overly sensitive and lead to generalized negative

perceptions of outgroups (Neuberg, Kendrick, & Schaller, 2011; Cesario & Navarette, 2014; Maner et al., 2005; Schaller, Park, & Mueller, 2003) and consequently, decreased pro-sociality towards outgroup individuals.

In order to determine whether we should activate a state of high alert, we rely on environmental cues that indicate the possibility of approaching danger. We therefore come to rely more on group stereotypes in threatening circumstances. For example, we are more likely to rely on group stereotypes when approaching someone in a dark alley than in a well-lit street (Schaller, Park, & Mueller, 2003). A personal history of trauma can further lead to a near chronic state of vigilance. The literature on the effect of exposure to trauma on prejudice and intergroup pro-sociality provides a complex picture. On the one hand, personal exposure to terror and war has been shown to be related to endorsement of exclusionist attitudes towards outgroup members (e.g., Canetti-Nisim, Halperin, Sharvit, & Hobfoll, 2009). On the other hand, a separate body of research has consistently found that people exposed to war violence tend to behave more cooperatively after war (see Bauer, Blattman, Chytilová, Henrich, Miguel, & Mitts, 2016 for a review). Existing research has, however, either made little separation between in- and outgroup pro-sociality (e.g., Bauer et al., 2016), only examined attitudes toward outgroups (e.g., Canetti-Nisim, 2009), or focused on a simple ingroup-outgroup dichotomy (e.g., Choi & Bowles, 2007; Bernhard, Fischbacher & Fehr, 2006), not taking into account the degree of antagonism between the groups in question. No research has to date systematically examined the effect of exposure to trauma on altruism towards ingroups as well as outgroups with a varying degree of antagonistic relations. The current research aims to address this gap in the literature. We predict that exposure to war-time trauma will have a conducive effect on prosociality for ingroup targets while having a destructive

effect on altruism towards outgroup targets, but only to the extent that the ingroup-outgroup relationship is characterized by antagonism and hostility.

We conceptualize pro-sociality and altruism as the willingness to compromise one's own welfare for the sake of the welfare of someone else. In determining whether or not to trade off our personal welfare to enhance the welfare of someone else, we carry out a mental computation, determining the relative value afforded to our own and the other's welfare (Delton & Robertson, 2016). In order to calculate welfare tradeoffs, people are dependent on input that determine the relative importance of the welfare of the target individual (Tooby, Cosmides, Sell, Lieberman, & Sznycer, 2008; Cosmides & Tooby, 2013; Delton & Robertson, 2016). There are a number of such inputs, including kinship, formidability, reciprocity and emotional stance towards the target. We focus on the role of emotions as an explanatory, mediating, variable in the present article.

We suggest that emotions felt towards the target can account for differences in altruistic responses towards in- and outgroup targets. Certain emotions are particularly relevant for this analysis. Anger, disgust, and fear are often considered basic emotions, shaped by natural selection to automatically address survival-related problems (Ekman, 1999). Other emotions, such as empathy and respect have more likely evolved to manage the complexities of repeated social interaction (Cottrell & Neuberg, 2005). We expect that hostile outgroup members will be met with more negative emotions (anger, fear and disgust) and less positive emotions (empathy, respect) and that these differing emotional responses can account for differences in altruism shown towards in- and outgroup members. Stated in testable terms, we expect emotions to mediate the relationship between ethnoreligious group affiliation

and welfare tradeoff ratio. These tendencies are expected to be elevated among individuals with a high degree of exposure to wartime trauma.

Hypotheses

Based on the above reasoning, we posit the following hypotheses:

H1: More altruism will be shown towards ingroup members than towards members of hostile outgroups

H2: More positive emotional regard will be shown towards ingroup members than towards members of hostile outgroups

H3: Ingroup bias in altruism (H1) and positive emotional regard (H2) is moderated (elevated) by exposure to war-time trauma.

We are further interested in examining the mechanisms by which group affiliation translates into altruism. We suggest that, particularly among individuals with a high degree of exposure to trauma, the ethnoreligious group affiliation of the target individual will affect the valence of the emotional reaction to the target. The valence of the emotional reaction is further expected to affect the degree of altruism shown to the target in question. We thus pose the following hypothesis.

H4: Positive emotional regard mediates the relationship between ethnoreligious group affiliation and altruism and this mediating effect is moderated by (elevated) exposure to war-time trauma.

The current research

In order to examine these hypotheses, we carried out a large-scale survey experiment in a field setting. The fieldwork took place between August 8 and September 8, 2017 in a refugee camp located in the Mardin region, southeastern

Turkey. The residents of the camp are refugees from Syria and Iraq and reside in separate areas of the camp, based on country of origin (Syria or Iraq) and ethnoreligious affiliation (Sunni Arab, Yazidi, Shia Arab). The camp constitutes a highly structured, but safe, environment for the refugees, with strict limitations regarding interaction between refugees from different ethnoreligious groups. Around 60% of the refugees that reside in the refugee camp are Syrian Sunni Arabs, the remaining 40% mainly Iraqi Yazidi (UNHCR, 2015). The civil war in Syria was at its' peak at the time of data collection. This tragic conflict has to a large extent taken place along ethnoreligious lines, with Bashar Al-Assad's government representing the Shiite Arab Alawite minority in the country, while the majority of the rebel groups opposing Assad's rule are Sunni Arab. The conflict has accentuated the tension and hostility between Sunni and Shia Arabs in the country. The country is also home to a small minority of Yazidis, a group which is not clearly associated with either side in the conflict. In order to determine sample size, we carried out power analysis, using G*Power (Faul, Erdfelder, Buchner, & Lang, 2009), which indicated that a sample size of 1548 ($1 - \beta > .95$) was sufficient to detect a small effect (effect size $f=.10$), given the 12 experimental conditions.

Methods

Participants

The sample consisted of Syrian Arab refugees (N=2479, 50% female, median age group 25-34 years). The sampling frame included all Sunni Arab adults living in the camp at the time of the study. The participation rate was >95%. The sample is thus representative of the Sunni Arab population of the camp and included around 80% of this population. Participants that stated another ethnoreligious group

affiliation than Sunni Arab (N=97, 3.77% of the sample) were excluded from the analysis.

Procedure

Each participant was approached by a Research Assistant (RA) and was offered to participate in the study. Those who chose to participate were given a small sum of money (20 Turkish Lira) as compensation for their time.. The RAs were locals, fluent in Arabic and acquainted with local customs. The RAs had received training and instructions by the first author, were well versed in research methodology and had extensive experience from carrying out similar research. Female RAs were used when approaching female participants. The participants carried out the study in a secluded area of a local tea shop and completed the study questionnaire on a tablet computer in the absence of the RA. The sole exception from this seclusion was for illiterate participants, who carried out the study as an oral interview.

After providing demographic information, the participants carried out the Welfare Tradeoff Ratio (WTR) task in which they were asked to make a series of decisions involving the division of money between themselves and a fictitious target individual. In order to examine the effect of social categorization on altruism, the ethnoreligious affiliation (Sunni Arab, Yazidi or Shia Arab), gender (Male or Female) and age (25 or 65 years old) of the target individual were experimentally varied. The participants were thus randomly assigned to one out of 12 conditions (3x2x2 between-subjects design), based on all possible combinations of ethnoreligious group affiliation, age and gender of the target. In other words, each participant was asked to make his/her decisions regarding the division of money in relation to one specific target individual with a particular ethnoreligious affiliation, a specified gender and of

a specified age, all of which were randomly assigned (e.g., "Imagine a 25-year old male Shia Arab refugee..."). The participants were then given the Harvard Trauma Questionnaire. The final part of the questionnaire included items assessing post-traumatic stress, post-traumatic growth, trust and attitudes toward other refugee communities. These items were included in order to examine a separate research question – how exposure to war time trauma affects PTSD, PTG and trust towards other refugee communities – a research question which is beyond the scope of the current article. The analyses of these items are therefore not presented in the present article. The project was approved by the Uppsala Ethical Review Board in May 2016 (Dnr 2016/189).

Measures

Translation

A professional editor of Arabic texts conducted the original translation of the research materials from English to Arabic. We then subjected the instrument to several rounds of testing and re-translation with the help of the locally recruited team, with the aim of ensuring a colloquial and appropriate instrument for the Arabic speaking population of Syria and Iraq. This translation was validated and its' accuracy compared to the English original verified by the professional editor. The Harvard Trauma Questionnaire, for which we had the Arabic translation from the original authors, was left unchanged.

Welfare Tradeoff Ratio (WTR)

WTR measures the relative value placed on one's own welfare relative to the welfare of another individual. In this task, the participants are asked to make 13 consecutive decisions and are instructed to consider each decision on its own. In each

of the scenarios, the participant is asked to imagine a target individual, presented as a refugee with a certain ethnoreligious group affiliation (i.e., Sunni Arab, Yazidi or Shia Arab), a certain age (25 year-old or 65 year-old) and a certain gender (Male or Female). The characteristics of the target individual are held constant across all 13 scenarios. In each scenario, the participants are asked to make a choice between giving the target individual a sum of money, held constant in all scenarios (30 Turkish Lira), or receiving a certain sum of money for themselves. In each scenario, the monetary reward that they would get for themselves becomes progressively lower (see online appendix). To calculate the Welfare Tradeoff Ratio (WTR), we first determine the subjects “switchpoint”, i.e., the average of the last sum of money the participant chose to allocate to him/herself and the first sum of money at which they chose to allocate to the other person. The WTR is calculated by dividing the switchpoint by the sum allocated to the other person. The WTR ranges between -1.67 and 2.67, with higher values indicating a greater degree of altruism.¹

Emotions

Emotional reactions to the target were assessed by asking the participants to what extent they experience a list of feelings when thinking of the individual they considered in the preceding WTR task. The listed emotions were fear, anger, disgust, empathy and respect. The response scale ranged from 1 (Not at all) to 9 (Extremely). We calculated a composite of positive emotional regard (anger disgust and fear reverse coded) $\alpha=.69$.

Exposure to war-time trauma

¹ We wish to thank Andrew Delton for providing the java applet used to score and select the switchpoint for participants.

Exposure to war-time trauma was assessed using Part I of the Harvard Trauma Questionnaire (HTQ; Mollica, Caspi-Yavin, Bollini, Truong, Tor, & Lavelle, 1992). The version of the HTQ used in the study contained a checklist of 16 traumatic life events, determined to be relevant for Syrian refugees. These included lack of food or water, ill health without medical care, lack of shelter, imprisonment, physical abuse, serious injury, combat situation, indiscriminate shelling or bombing, being close to death, forced evacuation, forced separation from family, murder of family or friend, unnatural death of family or friend, murder of stranger or strangers, kidnapping and torture. Participants were asked to indicate whether they had experienced any of these events before arriving in Turkey. They were not limited in the number of events they could choose. We classified participants based on their degree of exposure to war-time trauma using latent class analysis (LCA), a statistical analysis which classifies individuals into mutually exclusive and exhaustive types, or latent classes, based on their pattern of answers on a set of binary categorical variables, such as the ones used in the HTQ (Hagenaars & McCutcheon, 2002). Based on LCA, we divided the participants into three latent classes, which we termed exposure to severe trauma, exposure to intermediate trauma and exposure to low intensity trauma. The full reporting of the LCA can be found in the online appendix.

Results

Altruism

We carried out a four-way ANOVA, examining the effect of target group (Sunni Arab, Shia Arab or Yazidi), exposure to war-time trauma (exposure to low intensity/intermediate/severe trauma), gender of target (male, female) and age of target (younger – 25, older – 65) on altruism (WTR), controlling for participant age

and gender. The analysis revealed a main effect of target group on altruism $F(2, 2361)=5.56, p=.004, \eta^2=.005$. As hypothesized (H1), simple effects analysis showed that participants were more altruistic towards Sunni Arab targets (i.e., ingroup members) $M=1.24, SD=1.30$ than towards Shia Arab targets $M=1.03, SD=1.38, p=.002$, i.e., an outgroup member with which the participants' ingroup were currently in conflict. Outgroup targets belonging to the Yazidi group however (i.e., an outgroup with which the ingroup enjoyed relatively harmonious relations), were shown an equal degree of altruism $M=1.21, SD=1.30$ compared to the ingroup, $p=.788$ and significantly more altruism compared to Shia targets $p=.006$.

There was further a main effect of exposure to wartime trauma $F(2, 2361)=28.24, p<.001, \eta^2=.02$, indicating that participants with exposure to severe trauma showed an overall lower degree of altruism $M=.77, SD=.88$ than participants with exposure to intermediate trauma $M=1.18, SD=1.38, p<.001$, who in turn showed a lower degree of altruism than participants exposed to low intensity trauma $M=1.55, SD=1.51, p<.001$. In accordance with our hypothesis (H3), these main effects were qualified by a group X exposure interaction $F(4, 2361)=3.42, p=.008, \eta^2=.01$. Simple main effects analysis revealed that, among participants exposed to low intensity trauma, levels of altruism did not differ depending on the ethnicity of the target $F(2, 2361)=.67, p=.512$. In contrast, ethnicity of the target had a significant effect on altruism among participants with exposure to intermediate trauma $F(2, 2361)=4.57, p=.010, \eta^2=.004$ as well as among those with exposure to severe trauma $F(2, 2361)=8.26, p<.001, \eta^2=.01$. In essence, the more severe the trauma the participants were exposed to, the more they differentiated between Sunni Arab targets (most altruism), Yazidi targets (less altruism) and Shia Arab targets (least altruism). We illustrate these differences graphically in Figure 1. There were no main effects of

target gender $F(1, 2361)=.01, p=.922$ or target age $F(1, 2361)=.52, p=.470$, nor were there any significant interactions involving target age or target gender. We also carried out analyses treating exposure to war-time trauma as a continuous variable, using a 2-class LCA solution and separate analyses for exposure to violent and nonviolent events. Each of these analyses produced the same pattern of results as the above analysis, indicating robustness of the results to measurement effects. Full reporting of these additional analyses can be found in the online appendix.

Figure 1.

Welfare tradeoff ratio for Sunni Arab, Yazidi and Shia Arab targets among participants exposed to low intensity, intermediate and severe war-time trauma. Error bars indicate standard error of the mean.

Emotions

We were further interested in whether ethnoreligious group affiliation and exposure to trauma would affect emotional reactions to the target. We therefore carried out a 4-way ANOVA, examining the effect of target group, target age, target

gender and exposure to war-time trauma on positive emotional regard (composite measure), controlling for participant age and gender. There was a main effect of ethnoreligious group affiliation $F(2, 2349)=459.34, p<.001, \eta^2=.28$. As hypothesized (H2), simple main effect analysis revealed that Sunni Arab targets were met with more positive emotional regard $M=6.41, SD=1.50$ than Yazidi targets $M=5.52, SD=.61, p<.001$, who in turn faced more positive emotional regard than Shia Arab targets $M=4.85, SD=1.18, p<.001$. We also carried out separate 4-way ANOVAs for the discrete emotions and the results for each of the emotions, except fear, followed the same pattern as those of the composite (see online appendix for detailed results). There were no significant differences in the level of fear for targets with different ethnoreligious group affiliation.

There was further a main effect of exposure to trauma $F(2, 2349)=8.29, p<.001, \eta^2=.01$, indicating that participants with exposure to severe trauma showed an overall higher degree of positive emotional regard to the targets $M=5.83, SD=1.91$ both compared to participants with exposure to intermediate trauma $M=5.52, SD=1.18, p<.001$ and compared to participants exposed to low intensity trauma $M=5.51, SD=.53, p<.001$. Separate analyses for the discrete emotions showed the same pattern of results, with the exception of fear, for which participants exposed to severe trauma reported *lower* overall levels compared to participants exposed to traumas of lesser intensity and severity (see online appendix for detailed results).

Importantly, and in accordance with our hypothesis (H3), these main effects were qualified by an ethnoreligious group X exposure interaction $F(4, 2349)=172.59, p<.001, \eta^2=.23$. Simple main effects analysis revealed that the more severe the exposure, the greater the difference in positive emotional regard depending on target group. There was no effect of target group among participants exposed to low

intensity trauma $F(2, 2349)=.03, p=.968$. Among participants exposed to intermediate trauma, there was a significant effect of target group $F(2, 2349)=136.39, p<.001, \eta^2=.10$ and among participants exposed to severe trauma, the effect of target group was very strong $F(2, 2349)=677.88, p<.001, \eta^2=.37$ (see Figure 2 for a graphical illustration). There were no main effects of target gender $F(1, 2349)=.14, p=.704$ or target age $F(1, 2349)=1.82, p=.177$, nor were there any significant interactions involving these variables. We again ran separate analyses for the discrete emotions and all emotions except fear followed the same pattern (see online appendix). There were no significant differences in ingroup bias for fear depending on intensity and severity of trauma exposure.

Figure 2.

Positive emotional regard (composite of empathy, respect, anger (reversed), disgust (reversed) and fear (reversed)) for Sunni Arab, Yazidi and Shia Arab targets among participants exposed to low intensity, intermediate and severe war-time trauma. Error bars indicate standard error of the mean.

Moderated mediation

We further expected emotions to mediate the relationship between ethnoreligious group affiliation and altruism and this mediation was expected to be moderated by degree of exposure to trauma (H4). In order to examine this hypothesis, we carried out moderated mediation analysis, using Hayes' (2013) PROCESS macro (Model 7). We entered ethnoreligious group affiliation (coded as 1=Sunni Arab, 2=Yazidi, 3=Shia Arab) as independent variable, positive emotional regard as mediator (results for each of the discrete emotions followed the same pattern as those of the composite – see online appendix), the welfare tradeoff ratio as dependent variable and exposure to war-time trauma as moderating variable (coded as 1=Low intensity, 2=Intermediate, 3=Severe), controlling for participant age and gender. Ethnoreligious affiliation of the target $b=1.04$, $p<.001$, exposure $b=1.91$, $p<.001$ and the exposure x ethnoreligious affiliation interaction $b=-.90$, $p<.001$ all significantly predicted positive emotions toward the target. When controlling for emotions, ethnoreligious affiliation of the target did not significantly predict altruism towards the target $b=-.05$, $p=.181$. Conditional indirect effects showed that the mediating effect of emotions on the relationship between ethnoreligious group affiliation and altruism depended on intensity and severity of exposure to wartime trauma. For participants who had been exposed to low intensity trauma, the indirect effect was $b=-.01$, $SE=.00$, $CI^{Low}=-.02$, $CI^{High}=-.00$, $p<.05$, for participants exposed to intermediate trauma, the indirect effect was $b=-.04$, $SE=.02$, $CI^{Low}=-.08$, $CI^{High}=-.02$, $p<.05$ and for participants exposed to severe trauma the corresponding effect was $b=-.08$, $SE=.03$, $CI^{Low}=-.14$, $CI^{High}=-.03$, $p<.05$. Exposure thus moderated the mediating effect of emotions on the relationship between ethnoreligious group affiliation and altruism,

indicated by the index of moderated mediation $b = -.05$, $SE = .02$, $CI^{Low} = -.09$, $CI^{High} = -.02$, $p < .05$.

Discussion

The present study showed that altruism as well as emotional reactions varies as a function of ethnoreligious affiliation of the target as well as exposure to war-time trauma. Target individuals belonging to a hostile outgroup were met with less altruism and less positive regard and these effects were elevated among individuals who had experienced severe war-time trauma. The current study is the first survey experiment in a field setting to compare different outgroups in the effect of ethnoreligious group affiliation on welfare tradeoffs. Thus far, research on welfare tradeoffs has either not taken into account the group affiliation of the target (e.g., Bauer et al., 2016) or focused on a simple ingroup-outgroup dichotomy (e.g., Choi & Bowles, 2007; Bernhard, Fischbacher & Fehr, 2006), without reference to the degree of antagonism with the outgroup in question. The results further elucidate the process by which ethnoreligious affiliation of the target affects altruism. Among individuals with a high degree to exposure to war-time trauma, ethnoreligious group affiliation affects the emotional stance towards the target, which in turn affects the degree of altruism shown.

According to the evolutionary threat management approach, the tendency to favor ingroup members over outgroup members stems from an evolutionary tendency to use external cues, such as group affiliation, in order to provide quick and intuitive information of degree of threat and trustworthiness of individuals that we come into contact with (Schaller & Neuberg, 2012; Neuberg & Schaller, 2016). Further, according to the theory of reciprocal altruism (Trivers, 1971), we are more likely to

show positive regard to individuals with which we expect to be in future exchanges and with whom our fate is intertwined. There was however one notable exception – the emotion of fear. Surprisingly, ethnoreligious affiliation of the target did not matter for this emotion and individuals exposed to severe trauma expressed less fear. The expression of fear entails an estimation of a threat to be greater than one's own coping ability (Lazarus & Folkman, 1984; Halperin, 2015). Expressing fear thus involves an attribution of relative weakness and vulnerability to the self, in addition to the perception of the target as a threat. In order to avoid a display of vulnerability, individuals may therefore have been reluctant to express fear in relation to other groups. Further, while fear involves a general negative stance towards the target (which should involve a lowered welfare tradeoff ratio), it also involves attribution of formidability to one's opponent (which should involve higher welfare tradeoff ratio).

Exposure to trauma elevated the difference in emotional reactions between in- and outgroups. Since the activation of the threat vigilance system is physically and psychologically costly and runs the risk of foregoing potential benefits from cooperative behavior, the activation of this system will depend on contextual cues that indicate the existence of threat (Neuberg & Schaller, 2016; Schaller, Park, & Mueller, 2003). Past personal exposure to war-time trauma serves as one such cue, indicating the existence of potential danger and the need to be vigilant in relation to others. This finding constitutes an important contribution to the literature on the effect of exposure to violence and trauma on pro-sociality. The current dominant view in the literature is that exposure to violence and war-time trauma leads to increased cooperation and pro-sociality (e.g., Bauer et al., 2016). This literature, however, has to a large extent disregarded the group affiliation of the individuals involved in the social exchange. The findings from the current research refine and clarify earlier results and indicate

that exposure to war-time trauma indeed seems to increase pro-sociality and altruism when the target is an ingroup member, but rather *decreases* pro-sociality and altruism when the target individual belongs to the rival group in an ongoing conflict.

It should be noted however, that the comparison made in the present research compares individuals with a differing degree of exposure to war-time trauma within a war-stricken population. It may thus still be the case that the population as a whole is more pro-social than comparable populations that have had no exposure to war. Indeed, the overall level of altruism in the sample was decidedly higher than that of several earlier studies (e.g., Kirkpatrick, Delton, de-Wit, & Robertson, 2015; Forster, Pedersen, Smith, McCullough, & Lieberman, 2017). This is a problematic comparison however, since the target individual in the present study was presented as a refugee, while this has not been the case in these previous studies. It is therefore difficult to know whether the higher overall level of altruism in the population is due to effects of war experiences on altruism, or higher levels of altruism showed towards refugees at the hands of fellow refugees. Indeed, previous research has shown that exposure to war-related violence under some circumstances can increase positive attitudes towards refugees (Hartman & Morse, 2018).

The classification of exposure to wartime trauma, using latent class analysis, into three latent classes – exposure to severe trauma, exposure to intermediate trauma and exposure to low intensity trauma – constitutes a methodological advancement. Previous research has usually treated exposure to wartime violence and trauma either as a dichotomous variable (exposed/not exposed), or as a continuous variable, where exposure to a greater variety of trauma is seen as equal to the amount of trauma that the individual has been exposed to. The terms exposure to severe/intermediate/low intensity trauma were chosen in order to emphasize that the entire sample could be

seen as belonging to the category "exposed to wartime trauma". What differentiated between the participants in our sample was rather the intensity and severity of the trauma the participants were exposed to. This highlights the contribution of the current research to the field of violence and pro-sociality. While previous research has usually contrasted those "exposed" and "not exposed" to wartime violence and trauma, we contribute by studying the effects of traumas of varying intensity and severity within the "exposed" category.

The decisions involved in the welfare tradeoff task involved hypothetical individuals and did not result in actual monetary outcomes. We do not presume that the specific choices our participants made would have been identical in a real-life setting. We do suggest however that our results show that past exposure to war-time trauma will increase reliance on group affiliation and result in greater differences in emotional regard as well as altruism between in- and outgroup members, even in a real-life setting.

The present study was carried out in a naturalistic setting in a large-scale non-WEIRD sample (Henrich, Heine & Norenzayan 2010), representative of the population of the refugee camp. Understanding mechanisms underlying altruism and the lack thereof between different refugee groups is a particularly important challenge in an age of increased refugee mobility and migration. Absorbing societies often face the challenge of conflicts and violence between different groups of refugees and understanding the factors that foster altruism and reduce such conflicts is important in order to deal effectively with these challenges. The current research indicates that people are highly calibrated in their perception of outgroups and that detrimental effects of exposure to war-time trauma on intergroup relations is limited to the outgroups with which the ingroup has been in conflict. In other words, exposure to

war-time trauma does not necessarily lead to a generalized prejudiced perception of outgroups, as some previous research has suggested (e.g., Canetti-Nisim et al., 2009). Instead, the experience of war-time trauma, and the threat it gives rise to, results in negative perceptions of the group from which the threat emanated, but does not necessarily lead to a generalized ethnocentric perception of outgroups.

It would seem then that the degree to which we love our neighbor as ourselves is contingent on a number of factors. Group affiliation matters and we tend to have more positive feelings, and be more altruistic towards, "the sons of our own people". This tendency is further exacerbated in intergroup conflict settings, particularly when we have personally been exposed to war-time trauma.

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Supplemental Material

Supplemental material for this article is available online.

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Online appendix

WTR instructions

Imagine you must allocate money between you and a 65 year-old (25 year-old) Sunni Arab (Yazidi; Shia Arab) male (female) refugee. Which option would you choose?

There are 13 questions. Please consider each question on its own.

Option 1		Option 2
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Get		Give
-----	--	------

75	or	30
----	----	----

65	or	30
----	----	----

55	or	30
----	----	----

45	or	30
----	----	----

35	or	30
----	----	----

25	or	30
----	----	----

15	or	30
----	----	----

5	or	30
---	----	----

-5	or	30
----	----	----

-15	or	30
-----	----	----

-25	or	30
-----	----	----

-35	or	30
-----	----	----

-45	or	30
-----	----	----

Latent class analysis

The appropriate number of latent classes was determined based on goodness of fit (measured by sample size adjusted BIC), interpretability and parsimony. Sample size adjusted BIC was chosen due to its' superiority for assessing goodness-of-fit for

models with > 10 categorical variables with unequal class sizes, compared to other information criteria indices (Nylund, Asparouhov, & Muthen, 2007). Consecutive LCAs were carried out for 1-7 classes. Goodness of fit improved until the inclusion of 3 classes and then leveled off, with the addition of further classes constituting incremental improvements of goodness of fit (see Figure i). In order to assess interpretability of the 2 and 3 class solutions, we calculated percentages of participants in each class who had experienced the different events.

In the 2-class solution, the two classes corresponded to high and low exposure classes. For 13 out of 16 events, there was a higher percentage of participants in the high exposure class that had been experienced the event, compared to participants in the low exposure class (it should be noted that the term "low exposure" is only used in relation to other participants in the same, highly exposed, sample). There was a higher percentage in the low exposure group that had experienced three particular events – lack of shelter, imprisonment and physical abuse (see Figure ii).

In the 3-class solution, the participants were divided into what could be termed *exposure to severe trauma*, *exposure to intermediate trauma* and *exposure to low intensity trauma*. The participants in the severe trauma class had a higher percentage of exposure to 10 out of the 16 events, compared to both other latent classes. This difference was especially marked in regards to torture, kidnapping, witnessing the murder or unnatural death of family friends or strangers and the forced separation from one's family (see Figure iii). The median number of types of events indicated by the participants in this class was 3. The "exposure to intermediate trauma" class had a lower percentage of exposure to most events than the severe trauma participants, but a higher percentage than the individuals in the third class. The only exceptions were imprisonment, physical abuse, serious injury and combat situation, for which there

were higher percentages of exposure than in the severe trauma class. It seems likely that former prison inmates and prisoners-of-war were overrepresented in this class. The median number of types of events indicated by the participants in this class was 1. All participants (100%) in the "exposure to low intensity trauma" class indicated that they had experienced lack of shelter (the corresponding percentages that had experienced this event in the exposure to severe trauma and exposure to intermediate trauma classes were 30% and 20%, respectively). A minority of these participants (11%) had experienced an additional traumatic experience and none in this class had experienced more than 2 types of traumatic events. The 3-class solution thus showed a balance of goodness-of-fit, interpretability and parsimony and was chosen for the main analyses in the study.

Figure i

Sample size adjusted BIC (goodness-of-fit) for consecutive LCAs involving between 1 and 7 classes.

Figure ii. Percentage of exposure to traumatic events per latent class – 2-classes.

Figure iii. Percentage of exposure to traumatic events per latent class – 3-classes.

Exposure as a continuous variable

We carried out a hierarchical multiple regression predicting altruism (welfare tradeoff ratio), entering target group (Sunni Arab, Shia Arab or Yazidi), exposure to wartime trauma (treated as a continuous index), target gender (Male/Female) and target age (Older/Younger) in the first step, and 2-, 3- and 4-way interaction terms between all variables in subsequent steps. We also controlled for participant age and gender. The analysis revealed a main effect of ethnoreligious group affiliation on altruism $B = -.08$, $SE = .03$ $t = -3.07$ $p = .002$, 95% CIs $[-.13, -.03]$. To further probe this effect, we carried out additional regression analyses, entering dummy variables comparing Sunni Arab vs Shia Arab targets, Sunni Arab vs Yazidi targets and Yazidi vs Shia Arab targets. These analyses showed that, as hypothesized (H1), Shia Arab targets were shown less altruism than Sunni Arab $B = -.19$, $SE = .06$ $t = -3.03$ $p = .002$, 95% CIs $[-.32, -.07]$ as well as Yazidi $B = -.19$, $SE = .06$ $t = -3.13$ $p = .002$, 95% CIs $[-.32, -.07]$ targets, while there was no significant difference in altruism shown between Sunni Arab and Yazidi targets $B = -.00$, $SE = .06$ $t = -.04$ $p = .970$.

There was further a main effect of exposure $B = -.24$, $SE = .03$ $t = 9.02$ $p < .001$, 95% CIs $[-.30, -.19]$, indicating that high exposure participants had an overall lower degree of altruism than low exposure participants. In accordance with our hypothesis (H3), this main effect was qualified by a group X exposure interaction $B = -.09$, $SE = .03$ $t = -3.37$ $p < .001$, 95% CIs $[-.13, -.04]$. We explored this interaction using Hayes' (2013) PROCESS macro (Model 1), controlling for target gender and target age as well as participant gender and participant age. Among low exposure individuals, level of altruism did not differ depending on the ethnicity of the target $B = -.00$, $SE = .04$ $t = -.11$ $p = .915$. In contrast, ethnicity of the target had a significant effect on altruism among high exposure participants $B = -.19$, $SE = .04$ $t = -4.32$ $p <$

.001, 95% CIs [-.28, -.11]. Among participants with a high degree of exposure to trauma, more altruism was shown towards Sunni Arab targets $M = .98$ than towards Yazidi targets $M = .83$, which in turn were met with more altruism than Shia Arab targets $M = .67$ (see Figure iv). There were no main effects of target gender $B = .02$, $SE = .05$ $t = .75$ $p = .318$ or target age $B = -.03$, $SE = .05$ $t = -.60$ $p = .548$, nor were there any significant interactions involving target age or target gender.

Figure iv.

Welfare tradeoff ratio for Sunni Arab, Yazidi and Shia Arab targets among participants with low and high exposure to wartime traumas.

Violent and nonviolent exposure

We further distinguished between exposure to violent (imprisonment, physical abuse, serious injury, combat situation, indiscriminate shelling or bombing, being close to death, murder of family and friend, unnatural death of family or friend, murder of stranger or strangers, kidnapped or torture) and nonviolent (lack of food and water, ill health without medical care, lack of shelter, forced evacuation and

forced separation from family) events, and ran a multiple linear regression, entering both types of exposure as well as target group, target gender and target age as predictors of the welfare tradeoff ratio, controlling for participant age and gender. The results showed similar effect of exposure to violent events $B = -.18$, $SE = .03$ $t = -6.64$ $p < .001$, 95% CIs $[-.23, -.13]$ and nonviolent events $B = -.23$, $SE = .03$ $t = -8.76$ $p < .001$, 95% CIs $[-.28, -.18]$.

Treating exposure to wartime trauma as two classes

We carried out a four-way ANOVA, examining the effect of target group (Sunni Arab, Shia Arab or Yazidi), exposure to war-time trauma (low/high exposure), gender of target (male, female) and age of target (younger – 25, older – 65) on altruism (WTR), controlling for participant age and gender. The analysis revealed a main effect of target group on altruism $F(2, 2373)=9.59$, $p<.001$, $\eta^2=.01$. As hypothesized (H1), simple effects analysis showed that participants were more altruistic towards Sunni Arab targets (i.e., ingroup members) $M=1.24$, $SD=1.30$ than towards Shia Arab targets $M=1.03$, $SD=1.38$, $p<.001$, i.e., a member of an outgroup with which the participants' ingroup was currently in conflict. Outgroup targets belonging to the Yazidi group however (i.e., an outgroup with which the ingroup enjoyed relatively harmonious relations), were shown an equal degree of altruism $M=1.21$, $SD=1.30$ compared to the ingroup, $p=.155$ and significantly more altruism compared to Shia targets $p=.003$.

There was further a main effect of exposure to wartime trauma $F(1, 2373)=49.43$, $p < .001$, $\eta^2=.02$, indicating that participants with high exposure to trauma showed an overall lower degree of altruism $M=.77$, $SD=.87$ than participants with a low degree of exposure to trauma $M=1.32$, $SD=1.45$, $p < .001$. In accordance

with our hypothesis (H3), this main effect was qualified by a group X exposure interaction $F(2, 2373)=7.05, p < .001, \eta^2=.01$. Simple main effects analysis revealed that the magnitude of the effect of target group was greater in the high exposure group $F(2, 2373)=9.85, p<.001, \eta^2=.01$, compared to the effect of target group in the low exposure group $F(2, 2373)=4.59, p=.010, \eta^2=.004$.

ANOVA Results for discrete emotions

There were main effects of ethnoreligious group for empathy $F(2, 2235)=445.76, p < .001, \eta^2=.29$, respect $F(2, 2172)=397.05, p < .001, \eta^2=.27$, anger $F(2, 2263)=141.32, p < .001, \eta^2=.11$ and disgust $F(2, 2239)=227.82, p < .001, \eta^2=.17$, but not for fear $F(2, 2275)=1.71, p=.180$ (see Table i for simple main effects).

Table i.

Pairwise comparison of estimated marginal means of emotions by target ethnoreligious group.

		M	SE		M	SE	MD	SE (of MD)	p	CI Lower	CI Upper
Empathy	Sunni Arab	5.33	.06	Yazidi	3.30	.07	2.04	.09	< .001	1.86	2.21
				Shia Arab	2.84	.06	2.49	.09	< .001	2.32	2.67
	Yazidi	3.30	.07	Shia Arab	2.84	.06	.46	.09	< .001	.27	.64
Respect	Sunni Arab	5.45	.06	Yazidi	3.47	.07	1.98	.09	< .001	1.80	2.16
				Shia Arab	2.99	.07	2.45	.09	< .001	2.27	2.63
	Yazidi	3.47	.07	Shia Arab	2.99	.07	.47	.09	< .001	.29	.66
Anger	Sunni Arab	2.94	.06	Yazidi	3.11	.06	-.17	.09	.046	-.35	-.00
				Shia Arab	4.30	.06	-1.36	.09	< .001	-1.53	-1.19
	Yazidi	3.11	.06	Shia Arab	4.30	.06	-1.19	.09	< .001	-1.36	-1.01
Disgust	Sunni Arab	2.79	.06	Yazidi	3.20	.07	-.41	.09	< .001	-.59	-.24
				Shia Arab	4.62	.06	-1.83	.09	< .001	-2.01	-1.66
	Yazidi	3.20	.07	Shia Arab	4.62	.06	-1.42	.09	< .001	-1.60	-1.24
Fear	Sunni Arab	2.89	.05	Yazidi	3.01	.05	-.12	.07	.082	-.26	.02
				Shia Arab	2.91	.05	-.02	.07	.773	-.16	.12
	Yazidi	3.01	.05	Shia Arab	2.91	.05	.10	.07	.156	-.04	.24

There were further main effects of exposure to trauma for all emotions: empathy $F(2, 2235)=45.52, p < .001, \eta^2=.04$, respect $F(1, 2172)=41.76, p < .001, \eta^2=.04$, anger $F(1, 2263)=45.09, p < .001, \eta^2=.01$, disgust $F(1, 2239)=34.06, p < .001, \eta^2=.03$ and fear $F(1, 2275)=39.59, p < .001, \eta^2=.03$ (see Table ii for simple main effects).

Table ii.

Pairwise comparison of estimated marginal means of emotions by degree of exposure to wartime trauma.

		<i>M</i>	<i>SE</i>		<i>M</i>	<i>SE</i>	<i>MD</i>	<i>SE</i> (of <i>MD</i>)	<i>p</i>	<i>CI</i> Lower	<i>CI</i> Upper
Empathy	Low intensity	3.30.07	Intermediate		3.89	.05	-.59	.09	< .001	-.76	-.42
				Severe	4.28	.07	-.98	.10	< .001	-1.18	-.77
	Intermediate	3.89.05	Severe		4.28	.07	-.39	.09	< .001	-.56	-.21
Respect	Low intensity	3.45.08	Intermediate		4.05	.05	-.60	.09	< .001	-.78	-.42
				Severe	4.41	.07	-.96	.11	< .001	-1.17	-.75
	Intermediate	4.05.05	Severe		4.41	.07	-.36	.09	< .001	-.54	-.19
Anger	Low intensity	3.13.07	Intermediate		3.53	.05	-.40	.09	< .001	-.56	-.23
				Severe	3.69	.07	-.56	.10	< .001	-.75	-.36
	Intermediate	3.53.05	Severe		3.69	.07	-.16	.08	.057	-.33	.00
Disgust	Low intensity	3.07.07	Intermediate		3.65	.05	-.58	.09	< .001	-.75	-.41
				Severe	3.89	.07	-.82	.10	< .001	-1.02	-.62
	Intermediate	3.65.05	Severe		3.89	.07	-.24	.09	.006	-.41	-.07
Fear	Low intensity	3.07.06	Intermediate		3.17	.04	-.10	.07	.162	-.23	.04
				Severe	2.57	.05	.499*	.08	< .001	.34	.66
	Intermediate	3.17.04	Severe		2.57	.05	.596*	.07	< .001	.46	.73

The main effects of exposure and ethnoreligious group affiliation on emotions were qualified by ethnoreligious group X exposure interactions for empathy $F(4, 2235)=137.97, p < .001, \eta^2=.20$, respect $F(4, 2172)=124.00, p < .001, \eta^2=.19$, anger $F(4, 2263)=72.36, p < .001, \eta^2=.11$, disgust $F(4, 2239)=98.39, p < .001, \eta^2=.15$, but not for fear $F(4, 2275)=1.93, p=.104$ (see Table iii for simple main effects).

Table 3.

Differences in estimated marginal means of emotions between participants exposed to low intensity/intermediate/severe trauma for Sunni Arab/Yazidi/Shia Arab targets.

			<i>M</i>	<i>SE</i>	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Low intensity	Empathy	Sunni Arab	3.48	0.12	2, 2235	3.45	.032	.00
		Yazidi	3.38	0.13				
		Shia Arab	3.04	0.13				
	Respect	Sunni Arab	3.55	0.12	2, 2172	1.54	.215	.00
		Yazidi	3.53	0.13				
		Shia Arab	3.27	0.13				
	Anger	Sunni Arab	3.23	0.11	2, 2263	1.07	.343	.00
		Yazidi	3.18	0.12				
		Shia Arab	3.00	0.12				
	Disgust	Sunni Arab	3.15	0.12	2, 2239	.69	.501	.00
		Yazidi	3.11	0.13				
		Shia Arab	2.96	0.13				
	Fear	Sunni Arab	3.10	0.09	2, 2275	2.32	.098	.00
		Yazidi	3.20	0.10				
		Shia Arab	2.91	0.10				
Intermediate	Empathy	Sunni Arab	5.04	0.09	2, 2235	125.14	< .001	.10
		Yazidi	3.36	0.09				
		Shia Arab	3.28	0.08				
	Respect	Sunni Arab	5.26	0.10	2, 2172	127.11	< .001	.10
		Yazidi	3.52	0.09				
		Shia Arab	3.36	0.09				
	Anger	Sunni Arab	3.17	0.09	2, 2263	38.63	< .001	.03
		Yazidi	3.28	0.09				
		Shia Arab	4.14	0.08				
	Disgust	Sunni Arab	3.07	0.09	2, 2239	.69	.501	.00
		Yazidi	3.37	0.09				
		Shia Arab	4.51	0.09				
	Fear	Sunni Arab	3.12	0.07	2, 2275	.96	.382	.00
		Yazidi	3.15	0.07				
		Shia Arab	3.24	0.07				
Severe	Empathy	Sunni Arab	7.48	0.11	2, 2235	599.27	< .001	.35
		Yazidi	3.15	0.12				
		Shia Arab	2.20	0.12				
	Respect	Sunni Arab	7.52	0.12	2, 2172	539.84	< .001	.33
		Yazidi	3.36	0.12				
		Shia Arab	2.36	0.13				
	Anger	Sunni Arab	2.41	0.11	2, 2263	245.90	< .001	.18
		Yazidi	2.88	0.12				
		Shia Arab	5.77	0.12				
	Disgust	Sunni Arab	2.14	0.11	2, 2239	75.66	< .001	.06
		Yazidi	3.13	0.12				
		Shia Arab	6.41	0.12				
	Fear	Sunni Arab	2.45	0.09	2, 2275	1.76	.172	.00
		Yazidi	2.69	0.09				
		Shia Arab	2.58	0.10				

Moderated mediation for discrete emotions

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	Lower CI	Higher CI
Empathy						
Effect on emotion (Mediator)						
Ethnoreligious group affiliation (IV: group)	1.31	.13	9.84	< .001	1.05	1.58
Exposure to war-time trauma (Moderator: Exp)	2.98	.13	22.47	< .001	2.72	3.24
Group X Exp (IV X Moderator)	-1.24	.06	-19.91	< .001	-1.36	-1.12
Effect on WTR (DV)						
Emotion (Mediator)	-.08	.01	-5.80	< .001	-.11	-.05
Ethnoreligious group affiliation (IV: group)	-.19	.04	-5.18	< .001	-.26	-.12
Conditional indirect effects of IV on DV						
Low intensity	.02	.01	-	< .05	.01	.04
Intermediate	.09	.02	-	< .05	.06	.12
Severe	.16	.03	-	< .05	.11	.22
Index of moderated mediation	.10	.02	-	< .05	.06	.13
Respect						
Effect on emotion (Mediator)						
Ethnoreligious group affiliation (IV: group)	1.33	.14	9.68	< .001	1.06	1.60
Exposure to war-time trauma (Moderator: Exp)	2.98	.14	21.97	< .001	2.72	3.25
Group X Exp (IV X Moderator)	-1.25	.06	-19.54	< .001	-1.37	-1.12
Effect on WTR (DV)						
Emotion (Mediator)	-.06	.01	-4.09	< .001	-.08	-.03
Ethnoreligious group affiliation (IV: group)	-.17	.04	-4.57	< .001	-.24	-.09
Conditional indirect effects of IV on DV						
Low intensity	.02	.01	-	< .05	.01	.03
Intermediate	.07	.02	-	< .05	.03	.10
Severe	.12	.03	-	< .05	.06	.17
Index of moderated mediation	.07	.02	-	< .05	.03	.10

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	Lower CI	Higher CI
Anger						
Effect on emotion (Mediator)						
Ethnoreligious group affiliation (IV: group)	-1.12	.13	-8.92	< .001	-1.37	-.88
Exposure to war-time trauma (Moderator: Exp)	-1.49	.13	-11.88	< .001	-1.73	-1.24
Group X Exp (IV X Moderator)	.88	.06	14.96	< .001	.76	.99
Effect on WTR (DV)						
Emotion (Mediator)	-.10	.01	-7.00	< .001	-.13	-.08
Ethnoreligious group affiliation (IV: group)	.01	.03	.24	.810	-.07	.06
Conditional indirect effects of IV on DV						
Low intensity	-.00	.01	-	> .05	-.01	.01
Intermediate	-.07	.01	-	< .05	-.09	-.05
Severe	-.13	.02	-	< .05	-.17	-.09
Index of moderated mediation	-.09	.01	-	< .05	-.12	-.06
Disgust						
Effect on emotion (Mediator)						
Ethnoreligious group affiliation (IV: group)	-1.33	.13	-10.33	< .001	-1.59	-1.08
Exposure to war-time trauma (Moderator: Exp)	-1.79	.13	-13.95	< .001	-2.04	-1.54
Group X Exp (IV X Moderator)	1.11	.06	18.38	< .001	.99	1.22
Effect on WTR (DV)						
Emotion (Mediator)	-.11	.01	-7.91	< .001	-.14	-.08
Ethnoreligious group affiliation (IV: group)	.02	.03	.50	.616	-.05	.08
Conditional indirect effects of IV on DV						
Low intensity	-.01	.01	-	> .05	-.02	.00
Intermediate	-.10	.01	-	< .05	-.13	-.07
Severe	-.19	.03	-	< .05	-.24	-.14
Index of moderated mediation	-.12	.02	-	< .05	-.16	-.09

Fear	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	Lower CI	Higher CI
Effect on emotion (Mediator)						
Ethnoreligious group affiliation (IV: group)	-.11	.10	-1.05	.296	-.31	.09
Exposure to war-time trauma (Moderator: Exp)	-.40	.10	-3.95	< .001	-.60	-.20
Group X Exp (IV X Moderator)	.07	.05	1.51	.132	-.02	.17
Effect on WTR (DV)						
Emotion (Mediator)	-.10	.02	-5.03	< .001	-.14	-.06
Ethnoreligious group affiliation (IV: group)	-.09	.03	-2.74	.006	-.15	-.03
Conditional indirect effects of IV on DV						
Low intensity	.00	.00	-	> .05	-.01	.01
Intermediate	-.00	.00	-	> .05	-.01	.00
Severe	-.01	.01	-	< .05	-.02	-.00
Index of moderated mediation	-.01	.00	-	< .05	-.02	-.00