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Egoistic and fraternalistic relative deprivation in the prediction of support for political violence and violent intentions

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Abstract
Outcomes of a recent meta-analysis highlighted the difference in the contribution of egoistic and fraternalistic relative deprivation to the prediction of support for political violence and violent intentions. However, no explanation for this difference was provided. As processual models of aggression contain the "targeting" phase, in which responsibility for the situation is attributed to someone or something, next to testing the relationship between the two types of relative deprivation and support for political violence and violent intentions (intentions to participate in activities of a violent group) as criteria, we also tested if the degree of blame for inequality attributed to the outgroup moderates these relationships. The analysis was conducted on Croatian student (n = 735) and non-student (n = 144) samples of youth. Fraternalistic relative deprivation consistently exhibited stronger relationships with our criteria than egoistic relative deprivation, which predicted only the support for political violence. Despite the shared variance, we also found arguments in favor of the interaction between fraternalistic relative deprivation and blame attribution in the prediction of violent intentions, but not in the prediction of support for political violence. Altogether, the findings confirm the contribution of fraternalistic relative deprivation and blame attribution to understanding attitudes and intentions behind political violence. Implications for deradicalization programs are briefly discussed.

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Introduction

Political violence, defined as the use of violence against the political opposition and/or its property to promote or stop a social change (Apter, 1997; Bosi & Malthaner, 2015), is well-known for its devastating effects on the economy (Kesternich et al., 2014, Sandler & Enders, 2008), social structures and relationships (Apter, 1997; Nussio et al., 2019) and mental health (Eisenman & Flavahan, 2017; Housley & Beutler, 2007) of the population living in the areas

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where it occurs. Considering these consequences, the use of political violence will always be at least in part morally ambiguous (Apter, 1997), which is in line with its interpretation as only one of the many methods to achieve political goals (Bosi & Malthaner, 2015; della Porta, 2006).

Acknowledging that notion, many researchers studied factors that contribute to one's decision to use violence instead of non-violent methods of political actions. This study follows the thread of many researchers who considered the role of inequality in the occurrence of political violence (see Davies, 1962, for a historical overview). Their approach was in line with the definition of inequality as an unequal distribution of valuable resources and opportunities within society (see Koh, 2020). However, a recent systematic review (Franc & Pavlović, 2021) and meta-analyses (Wolfowicz et al., 2019; 2021) have generally failed to establish a consistent relationship between different indicators of inequality (e.g., income, employment status, level of education) and various outcomes related to political violence. This is not surprising: it is known that inequality motivates individuals to act when it is perceived as unjust (Jetten et al., 2017; see also van den Bos, 2020). Unjust inequality represents a concept that is included in multiple models focused on explaining collective actions (e.g., Thomas et al., 2011; van Zomeren et al., 2008) and political violence (e.g., Moghaddam, 2005; Hafez & Mullins, 2015). The notion of unjust inequality stems from several presumptions: 1) inequality, regardless of its extent and form (see Deere et al., 2018, for a more detailed discussion on the multidimensionality of inequality), must be perceivable, 2) individuals have to pay attention to this inequality and as a result of social comparison perceive their position as unfavorable, and 3) based on their moral criteria, they have to declare this perceived inequality as unjust. Therefore, in this study, we focused on the role of perceived unjust inequality – in other words, relative deprivation – in radicalization.

Relative deprivation and radicalization

The previous paragraph roughly defined three out of four components included in the definition of relative deprivation (Smith et al., 2011; Smith & Pettigrew, 2015; Stouffer et al., 1949): as the outcome of cognitive comparisons (1), individuals may perceive themselves or their ingroup as disadvantaged (2), and consider this disadvantage as unjust (3). The fourth,

missing component, is the emotional component of relative deprivation, reflecting the emotional reaction to the perceived unjust inequality, dominantly occurring as anger and resentment. According to Smith et al. (2011) and Smith and Pettigrew (2015), relative deprivation occurs only after a person has gone through all four of its components, implying that the final outcome of relative deprivation is an individual angry about the perceived injustice based on the social comparison. These emotions have already been established as potent predictors of violent (collective) actions (Bal & Van den Bos, 2017; Beugre, 2005). According to Van Stekelenburg (2017), outrage based on anger represents the first step from inequality to radicalization. This step is followed by contempt related to perceived moral superiority in comparison with those causing or maintaining inequality and, finally, their elimination based on disgust. Therefore, emotional outcomes of relative deprivation, as defined by Smith et al. (2011) and Smith and Pettigrew (2015), can (but do not have to) serve as fuel for (political) violence, as described by Van Stekelenburg (2017).

However, relative deprivation can occur as a result of social comparisons of various entities. Runciman (1966) further distinguished between two types of relative deprivation based on two types of social comparisons. In line with the notion of vertical inequality (see Stewart, 2000), individuals can be angry about perceived injustice based on the comparison of their valuables (or outcomes) and valuables (or outcomes) of other people similar to them (their colleagues, friends, or peers), which was named egoistic relative deprivation. Alternatively, in the case of horizontal inequality (Stewart, 2000), a person can be angry about perceived injustice based on the comparison of outcomes of the group person identifies with (ingroup) and outcomes of the other group(s) within a society (outgroup), which was named fraternalistic relative deprivation.

Both types of relative deprivation were discussed in the context of radicalization (see Crosby, 1976; Kunst & Obaidi, 2020). Although their emotional outcomes are very similar, it seems like the effects of egoistic and fraternalistic relative deprivation in the context of political violence differ. Namely, while a recent systematic review (Franc & Pavlović, 2021) and meta-analyses (Jahnke et al., 2021; Wolfowicz et al., 2019; 2021) robustly confirmed a positive correlation between fraternalistic relative deprivation and different outcomes related to political violence, the role of egoistic relative deprivation remained ambiguous. One

possible explanation of this difference in the predictive contribution between egoistic and fraternalistic relative deprivation might lie in the fact that anger is an emotion that promotes approach (Harmon-Jones et al., 2008), implying the necessity of asking "angry at whom?" and considering the questions of causality and blame for experienced inequality when determining the targets of violence.

Attribution of blame in radicalization research

Attribution of the blame can be defined as a cognitive and social process by which responsibility for purposely causing, supporting or maintaining an unwanted consequence is ascribed to an individual or a group (Malle et al., 2012). Mikula (2003) points out four relevant determinants of blame attribution: perception of responsibility for action, perceived level of control over situation or behavior, how justified the situation or behavior is and intentions to conduct or invoke a situation or behavior. Therefore, blame is attributed to individuals who conducted specific behaviors (or caused specific situations) who are seen as in control of the situation and decided to engage in the behavior despite knowing its unfavorable consequences.

The notion of blame presumes that those who are to blame are also perceived as in control of the situation, which was discussed as a foundation for their dehumanization and demonization based on the idea that "good" people would not allow nor promote the experienced inequality (Borum, 2003; 2011). This is in line with the results of multiple studies that incorporated the framework of Weiner's (1985) attributional theory: individuals tend to hold more negative attitudes towards others expressing undesirable opinions or behaviors if they are perceived to be in control of expressing these opinions or behaviors (Haider-Markel & Joslyn, 2008; Weiner et al., 1988). Multiple models of violence emphasize the role of blame attribution in the transition from injustice to violence. For instance, Beugre (2005) describes that individual-level aggression occurs after blame for perceived (and emotionally experienced) injustice is attributed to a specific individual, while De Coensel (2018) reviewed processual models of political violence, emphasized their common points, and came to a conclusion that attribution of inequality plays an important role in determining

targets of group-level aggression. In both approaches, blame attribution seems to focus the tendencies raised by relative deprivation on specific targets.

Therefore, if we know that both egoistic and fraternalistic relative deprivation result in anger that could lead to political violence, it could be assumed that both types of relative deprivation, if equal in intensity, would perform similarly in the prediction of radicalized outcomes if the similar extent of blame for the experienced relative deprivation would be attributed to the same target. In other words, the difference in the contribution of egoistic and fraternalistic relative deprivation in radicalization established in earlier studies may lie in the extent of blame attributed to outgroups, which is also reflected in the structure of measures. Questionnaires measuring egoistic relative deprivation usually ask participants to compare themselves with their coworkers, peers, or individuals similar to them (e.g., Callan et al., 2011; Ma, 2013). This kind of instruction motivates participants to compare themselves with a wide range of individuals without highlighting their group memberships (other than ones based on the similarity with the participant). In this scenario, participants' emotions evoked by comparisons might be more focused on specific individuals than groups to which they belong. This may also focus attitudes and behavioral intentions dominantly towards these individuals and only to a minor extent to their groups. However, this does not exclude the possibility that some individuals experiencing strong egoistic relative deprivation who perceive an outgroup as responsible for creating or maintaining experienced inter-individual deprivation (e.g., political leaders whose actions increase inequality) exhibit violent tendencies towards that outgroup. On the other hand, questionnaires measuring fraternalistic relative deprivation often directly ask participants to compare material and non-material valuables of ingroup and outgroup (e.g., Doosje et al., 2012; Obaidi et al., 2019), with the outgroup also serving as the target group for political violence (Doosje et al., 2012; Obaidi et al., 2019).

Outcomes of this study could have implications for practitioners, as well. If subjective inequality lies in the background of radicalization (Poli & Arun, 2019), it is important to discern who is the criterion of the social comparison upon which relative deprivation, or unfair subjective inequality, is based. This information is relevant at all three levels of prevention (including deradicalization): for instance, the efficacy of interventions based on improving individual wellbeing (e.g., additional education or providing help in finding a job

or structuring social life) may be undermined if the source of radicalization is in fraternalistic relative deprivation. Furthermore, group dynamics are often overlooked in deradicalization training programs (see Köhler & Fiebig, 2019, for a detailed review), meaning that personnel working with radicalized individuals may be unprepared to deal with factors that, in the end, may determine the outcome of the intervention.

This study

In line with the relevance of the distinction between egoistic and fraternalistic relative deprivation and models that distinguish between attitudinal support for political violence and behavioral participation in political violence (Khalil et al., 2019; McCauley & Moskalenko, 2017; Neumann, 2013), the first goal of this study was to test the role of egoistic and fraternalistic relative deprivation in the prediction of support for the use of political violence and behavioral intentions to participate in activities of a violent organization. We hypothesized that fraternalistic relative deprivation would exhibit a stronger positive relationship with support for the use of political violence and behavioral intentions to participate in activities of a violent organization than egoistic relative deprivation.

The second goal of this study was to test the role of blame attribution as a moderator of the relationship between (egoistic and fraternalistic) relative deprivation as predictors and support for political violence and intentions to participate in activities of a violent organization as criteria. We expected to establish a moderating effect of blame attribution on both types of relative deprivation: more relatively deprived individuals who blame outgroup for the inequality were expected to be the most supportive of political violence and exhibit the strongest intentions to participate in the activities of a violent organization. Finally, among individuals blaming the outgroup for inequality, we expected to find a similar contribution of egoistic and fraternalistic deprivation to the prediction of support for political violence and willingness to engage in activities of a violent organization (i.e., we expected similar magnitudes of interaction).

Next to distinguishing between attitudes and intentions, we also applied the bifactor modelling to distinguish between attitudes on and intentions to participate in collective actions in general from attitudes on and intentions to participate specifically in violent

political actions (see Pavlović et al., 2021), in line with the recommendation to study factors that distinguish between the two types of collective actions (Franc & Pavlović, 2021). In line with the earlier studies conducted in the Croatian context (Pavlović & Franc, 2021; Pavlović & Wertag, 2021), this study included politicians as the target group (for blame, violent attitudes and intentions). Politicians are generally perceived as a group elected to lead the nation and protect its interests. However, in the Croatian context, citizens generally do not trust political institutions (Franc et al., 2018) and politicians are often seen as corrupt: more precisely, about 80% of adults believe that (at least) the majority of politicians are corrupted (Školnik, 2021). This perception qualifies Croatian politicians as a group in the position of power that is dominantly perceived as unjust, in line with narratives of populist propaganda (Hameleers et al., 2017; Rocatto et al., 2017). All this makes them an appropriate outgroup to study. Finally, Chermak and Gruenewald (2015) pointed out that both individuals with a high and low attained level of education engage in radicalized activities. Therefore, in order to further evaluate robustness of our findings, we tested these hypotheses on two samples of youth (aged 18-35) citizens: one consisting of students and one consisting of non-students.

Methods

Participants

This study is based on the analyses of two samples. The first sample consisted of 755 university students from Croatia. After data cleaning (see Procedure), 735 participants remained in this sample, 46% of whom were men. The average age of participants was 21.34 years (*SD* = 2.97). The second sample consisted of 162 non-student youth from Croatia aged 18-35. After data cleaning (see Procedure), 144 participants remained in this sample, 31% of whom were men. The average age of participants was 26.82 years (*SD* = 4.54).

Measures

In this section, we briefly described applied measures. Fit indices for each scale reported here were obtained on the combined sample, while the complete outputs of invariance tests can be found in Appendix A.

Support for political violence (radicalized attitudes) was measured using a modified version of the five-item scale originally developed by Kalmoe (2014) and adapted to the local context by Pavlović & Franc (2021). Single-factor solution with correlated residuals of threats and vandalism items fit the data well (CFI = 1, RMSEA = 0, SRMR = .008) and exhibited adequate internal consistency (ω = .80; Pavlović & Franc, 2021). In this study, we further adapted the scale to incorporate four items measuring support for non-violent political participation based on the Activist orientation scale (Corning & Myers, 2002). Altogether, such a scale consisted of eight items, four measuring support for non-violent political actions and four measuring support for political violence (see Table 1). Participants responded on a six-level scale with higher values indicating higher agreement with the statement. The final result was supposed to be calculated in two ways. Firstly, we conceptualized support for political violence as a common factor of relevant items, which exhibited acceptable fit (CFI = .992, RMSEA = .079, SRMR = .018) and internal consistency (ω = .83), as well as scalar invariance across groups. Higher scores indicated stronger support for political violence. Secondly, in line with the preregistration, we attempted to calculate bifactor (S-1) scores where the variance of support for political violence independent of support for political actions in general would be the final outcome. However, we found no meaningful correlation between support for political violence and support for non-violent political actions (r = .05), indicating that the application of the bifactor (S-1) model would not improve the quality of our results.

Intentions to participate in activities of a violent organization (radicalized intentions) were measured using a modified version of the Activism and radicalism intention scale (ARIS; Moskalenko & McCauley, 2009). Originally, the scale consists of eight items: the first four operationalize activism, while the last four operationalize radicalism. However, due to the COVID-19 pandemic, we were reluctant to use radicalism items as they imply some form of public gatherings which citizens were instructed to avoid. Therefore, we modified the scale to measure activism for two types of organizations: peaceful one and one that intends to use violence. We also replaced the last activism item measuring willingness to travel for an hour to participate in a protest with an item measuring willingness to recruit others to avoid any notion of mass gatherings during the pandemic (see Table 1). Participants

provided responses on a six-level scale with anchors denoting probabilities of their participation in various actions. The final outcome was calculated in two ways. Firstly we formed the outcome as a common factor of four belonging items, which exhibited acceptable fit (CFI = 1, RMSEA = 0, SRMR = .003) and internal consistency (ω = .91), and partial scalar invariance. Secondly, we formed the outcome using the bifactor (S-1) model as the variance of intentions to participate in activities of violent organizations unrelated to the variance of intentions to participate in activities of a peaceful (or any) political organization. Correlation between the two factor scores was weak (r = .27), yet sufficient to expect benefits from calculating bifactor scores. Such a model exhibited acceptable fit (CFI = 1, RMSEA = 0, SRMR = .015) and internal consistency (ω = .91) and partial scalar invariance after releasing the same constraint as in the single-factor model. Higher scores in each of these operationalizations indicated a stronger intention to participate in activities of a violent organization.

Both presented measures used "politicians causing or increasing inequality" as the target outgroup. According to Kalmoe (2014), such a vague definition eliminates the potential biases due to participants' political orientation or attitudes on specific politicians or political parties.

Egoistic relative deprivation was operationalized using the Personal relative deprivation scale (PRDS, Callan et al., 2011). The scale was translated by the two researchers. It consists of five items (two of which are reverse-coded) with responses measured on a five-level Likert-type response scale asking about the level of agreement with the statements. These items reflect a single factor. Its use in American samples indicated acceptable internal consistency (α = .78; Callan et al., 2011). In this study, the second item (Table 1, item b.) did not load on the common factor, which motivated us to use only the remaining four items. Such scale exhibited acceptable fit (CFI = .982, RMSEA = .119, SRMR = .029), internal consistency (ω = .83), and scalar invariance across samples. A higher score on this common factor indicated a higher egoistic relative deprivation.

Fraternalistic relative deprivation was operationalized using the local adaptation (Pavlović & Franc, 2021) of Obaidi et al. (2019) scale of group relative deprivation. The adapted scale consists of five items that converge to a single factor measuring how deprived

participants perceive people like them are compared to politicians. Earlier use of this instrument on the local sample indicated acceptable fit (CFI = 1, RMSEA = 0, SRMR = .014) and internal consistency (ω = .83; Pavlović & Franc, 2021). Analyses conducted within the scope of this study confirmed the acceptable fit (CFI = .977, RMSEA = .074, SRMR = .031) and internal consistency (ω = .78). Strong invariance across samples was also achieved. A higher score on this common factor indicated a higher fraternalistic relative deprivation.

Blame for inequality attributed to politicians was measured using a single item that asked participants to denote how responsible for inequality they considered politicians were. The scale consisted of 11 levels, ranging from 0 (level 1) to 100% (level 11) with increments of 10%.

In line with our preregistration, we used sex and age as control variables, while the data on current educational status (student or non-student) was used to separate students from non-students[2].

Procedure

The aims and methods of this study were pre-registered at https://aspredicted.org/blind.php?x=2DK_7T7. Data were collected online in the period between October 11 and November 10, 2021, within a broader research project. Multiple local faculties and organizations were contacted and asked to disseminate the invitation to the study among their students or members. Also, the link was disseminated via different groups on social media sites.

After reading the informed consent and deciding to participate in the study, participants accessed questionnaires in the following order: first they solved scales of egoistic and fraternalistic relative deprivation. Then participants rated how responsible they considered politicians for inequality and responded to the extended questionnaire on support for political violence and modified ARIS. At the end of data collection, participants provided basic socio-demographic data.

[2] Outputs of analyses with age and sex as control factors are exhibited in Appendix B.

After completing the questionnaire, participants were provided with additional information on civic initiatives and organizations they could have contacted in case they felt agitated after filling the questionnaires or felt motivated to participate in political actions. Participation in the study was voluntary, and participants were instructed about withdrawing their consent if they felt so. This study has been approved by two ethical committees (blinded).

Analytical approach

Data were analyzed in R (R Core Team, 2021), dominantly using functions from packages dplyr (Wickham et al., 2021), lavaan (Roseel, 2012), semTools (Jorgensen et al., 2018), and psych (Revelle, 2018).

Data cleaning was done prior to analyses. Of 1048 participants who started filling the questionnaire, 126 stopped responding at some point prior to completing the survey. As we mentioned in the text of informed consent that such an action would be treated as a withdrawal of consent, we excluded these participants from our study. Next, we excluded 23 participants older than 35 as we set our range from 18 to 35. Then we excluded 12 participants who provided the same response more than ten times in a row, under the presumption of careless responding. No systematic careless responses (e.g., 1 – 2 – 3…) were found. Finally, we excluded eight participants who did not state their gender for the purposes of control analyses mentioned in our preregistration. This led us to a total sample size of 879 participants. Occasional non-systematic missing values were then imputed using predictive mean matching with 50 multiple imputations per each of 50 iterations using the functions from package mice (van Buuren & Groothuis-Oudshoorn, 2011).

After cleaning the database, we tested the factor structure of scales and its invariance across groups using CFA. In line with the recommendations on the choice of estimator considering the pseudo-interval nature of scales proposed by Rhemtulla et al. (2012), we used a robust maximum likelihood estimator (Brosseau-Liard & Savalei, 2014; Brosseau-Liard et al., 2012) to obtain fit indices. The following criteria were used to determine model fit: CFI > .95, RMSEA < .08, SRMR < .08 (MacCallum et al., 1996; Hu & Bentler, 1999). However, we acknowledged the limitations related to the precision of fit indices in small samples or when

the number of degrees of freedom is low (Iacobucci, 2010) and were more tolerant towards minor deviations from these criteria in the non-student sample (e.g., we used more lenient threshold for CFI of .90 proposed by Bentler & Bonnet, 1980). Additionally, we tested the invariance of the applied scales (their structure, item loadings and item intercepts) to ensure that the results were comparable across groups (see Milfont and Fischer, 2010, or Fischer and Karl, 2019 for a more detailed discussion on the relevance of measurement equivalence/invariance). When testing scale invariance, we followed Chen's (2007) criteria: a change in CFI of -.01 or larger followed by changes in RMSEA or SRMR of .015 or larger indicated a violation of invariance, implying that scores were not comparable across groups. In such cases, we consulted modification indices (χ^2 with one degree of freedom) to determine which constraints should be released to obtain at least partial invariance. Significance of latent interactions was tested using the product-indicator approach (see Steinmetz et al., 2011, for a detailed description) with double mean centering that was based on all available pairs of items. In brief, manifest variables reflecting one latent factor that enters the analyses were centered, multiplied with centered manifest variables of another latent factor, and centered again. These centered products were used as manifest variables that reflected the latent interaction of the two factors represented by centered and multiplied manifest variables.

In line with the recommendation made by Franc and Pavlović (2021) on the relevance of distinguishing between collective actions in general and violent collective actions, we calculated our criteria in multiple ways (see Measures). Some of these operationalizations relied on bifactor (S-1) models. Like all the other bifactor models, S-1 models consist of one or more specific (S) factors and a general factor (G). As its name denotes, S-1 bifactor model contains one less S factor than possible. The contents of that factor define the G, while the constraints on orthogonality imply that the variance of each remaining S factor is independent of the variance of G. The use of bifactor models to distinguish between correlated constructs is not new (see, for example, Eid et al., 2017) and has recently gained popularity in the field of radicalization, where it was used to distinguish between the (usually correlated) violent and non-violent intentions (Pavlović et al., 2021). Bifactor (S-1) models were chosen instead of symmetric bifactor models due to the nature of sampling that would not allow extraction of

symmetric bifactor scores (see Eid et al., 2017 for a description of issues that occur when symmetric bifactor scores are used instead of S-1 scores).

As we decided to provide a comprehensive overview of bivariate relationships between the two types of relative deprivation and multiple operationalizations of criteria, which would be impossible in a single model, we conducted SEM in three steps. In the first step, only relative deprivation was used as a predictor. In the second step, we tested latent interactions. In the third step, we added age and gender as control factors. Complete codes and outputs can be found in Appendix A.

Results

This section briefly presents the outcomes of this study. As our analytical approach is focused on modelling covariance within lavaan framework, we did not present descriptive data on the level of constructs. Nevertheless, we acknowledge that gaining insights into descriptive data is important for understanding the findings. Therefore, item-wise descriptive data are presented in Table 1.

Generally, we can notice that item means and standard deviations are fairly homogeneous across samples. Although both samples, on average, dominantly blamed politicians for inequality, it seems that non-students blamed politicians more than students. Moreover, an insight into the distribution of blame attribution suggested that only 10% of participants rated the blame of politicians with less than 50% (response 5), implying that individuals scoring low on these scales might be underrepresented, which could introduce some bias to our findings. Generally, neither sample reported strong egoistic relative deprivation as the item means were in the bottom half of the theoretical range. However, the inverse can be observed for fraternalistic relative deprivation, indicating that participants generally felt deprived in comparison with politicians.

Students and non-students were more likely to support non-violent options compared to violent options, both in terms of support for political actions (non-violent political actions and political violence) and intentions to participate in political activities of our (peaceful and violent) organizations. Nevertheless, participants in both samples scored lower on items

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measuring intentions to participate in activities of both peaceful and violent organization compared to the scores on items measuring support for peaceful and violent political actions. Additionally, we can notice a floor effect on items measuring intentions to participate in activities of a violent organization, which is common in studies using Activism and radicalism intentions scales (see Pavlović et al., 2021) and denotes a general unwillingness to participate in political violence.

Table 1.
Item-wise descriptive data calculated on student (N = 735) and non-student (N = 144) sample

		students		non-students		
construct	item label	*M*	*SD*	*M*	*SD*	range
egoistic relative deprivation	a. I feel deprived when I think about what I have compared to what other people like me have.	2.32	1.22	2.47	1.24	1-6
	b. I feel privileged compared to other people like me.*	3.75	1.34	3.65	1.36	1-6
	c. I feel resentful when I see how prosperous other people like me seem to be.	2.27	1.21	2.37	1.33	1-6
	d. When I compare what I have with what others like me have, I realize that I am quite well off.*	2.62	1.07	2.77	1.10	1-6
	e. I feel dissatisfied with what I have compared to what other people like me have.	2.18	1.18	2.39	1.27	1-6
fraternalistic relative deprivation	a. People like me should have the same opportunities to improve their lives as politicians have.	5.24	1.03	5.19	1.08	1-6
	b. People like me will always be at the bottom, while politicians will be at the top of the social ladder.	2.83	1.51	3.04	1.50	1-6
	c. I feel furious about opportunities of people unrelated to politics to get ahead in their lives.	4.31	1.56	4.23	1.70	1-6
	d. I think that people like me are in the worse position than politicians because politicians keep them down.	3.81	1.39	4.04	1.41	1-6
	e. I feel angry because politicians look down upon people like me.	4.25	1.54	4.34	1.53	1-6
blame	To what extent do you think that politicians are responsible for inequality in Croatia?	7.35	2.21	7.74	2.12	1-11
support - political violence	a. When politicians cause or broaden inequality in a society, citizens should send threats to scare them straight.	3.20	1.54	3.12	1.49	1-6
	b. The worst politicians should get a brick through the window to make them stop creating or broadening inequality.	2.64	1.61	2.46	1.58	1-6
	c. Sometimes the only way to stop politicians from creating or broadening inequality is with physical force.	2.89	1.54	2.72	1.61	1-6
	d. Citizens should do whatever it takes to get rid of politicians that cause or broaden inequality, even if it means using violence.	3.05	1.60	3.10	1.66	1-6
support non-violent actions	e. Citizens angry at politicians who cause or broaden inequality should express their feelings by participating in political discussions.	4.84	1.08	4.99	1.13	1-6
	f. Voting is the best method of preventing politics that cause or broaden inequality.	4.50	1.40	4.35	1.36	1-6
	g. Citizens should more often peacefully protest against politicians that cause or broaden inequality in order to solve social problems.	4.75	1.19	4.88	1.32	1-6
	h. Citizens should more often organize various actions that would warn about politicians that cause or broaden inequality.	5.08	1.05	5.28	0.95	2-6
intentions peaceful organization	a. I would join an organization that aims to peacefully prevent politicians from causing or increasing inequality.	2.89	1.58	3.41	1.61	1-6
	b. I would donate money to an organization that aims to peacefully prevent politicians from causing or increasing inequality.	2.59	1.45	2.97	1.55	1-6
	c. I would volunteer (e.g., collect signatures, distribute flyers) for an organization that aims to peacefully prevent politicians from causing or increasing inequality.	2.82	1.59	3.18	1.61	1-6
	d. I would persuade others to join an organization that aims to peacefully prevent politicians from causing or increasing inequality.	2.88	1.58	3.22	1.67	1-6
intentions violent organization	a. I would join an organization that aims to prevent politicians from causing or increasing inequality, even if that organization intends to use violence to achieve its goals.	1.55	1.02	1.59	1.06	1-6
	b. I would donate money to an organization that aims to prevent politicians from causing or increasing inequality, even if that organization intends to use violence to achieve its goals.	1.52	0.99	1.48	1.04	1-6
	c. I would volunteer (e.g., collect signatures, distribute flyers) for an organization that aims to prevent politicians from causing or increasing inequality, even if that organization intends to use violence to achieve its goals.	1.54	1.01	1.44	0.94	1-5
	d. I would persuade others to join an organization that aims to prevent politicians from causing or increasing inequality, even if that organization intends to use violence to achieve its goals.	1.54	1.01	1.54	1.11	1-6

* These items were reverse-coded prior to analyses.

After the overview of descriptive data, we focus on the outcomes of inferential analyses. Firstly, we present the correlations between key constructs from models that achieved acceptable fit in student (CFI = .980, RMSEA = .035, SRMR = .033 for the model with radicalized intentions as a single factor and CFI = .970, RMSEA = .040, SRMR = .037

for the model with radicalized intentions as (S-1) bifactor) and non-student (CFI = .961, RMSEA = .051, SRMR = .069 for the model with radicalized intentions as a single factor and CFI = .936, RMSEA = .061, SRMR = .068 for the model with radicalized intentions as (S-1) bifactor) samples, followed by the outputs of SEM analyses focused on latent interactions.

Table 2.

Model-implied correlations between blame, relative deprivation and radicalized attitudes and intentions calculated on student (below diagonal, *n* = 735) and non-student (above diagonal, *n* = 144) samples

	(1)	(2)	(3)	(4)	(5)	(6)
(1) egoistic relative deprivation	-	.16	.03	.17*	.00	.00
(2) fraternalistic relative deprivation	.35**	-	.56**	.47**	.30**	.29**
(3) attributed blame	.19**	.61**	-	.36**	.34**	.31**
(4) radicalized attitudes	.30**	.40**	.32**	-	.57**	.55**
(5) radicalized intentions	.10**	.19**	.16**	.59**	-	-
(6) radicalized intentions - bifactor	.07	.15**	.11**	.62**	-	-

* $p < .05$, ** $p < .01$

Table 2 shows that the relationships egoistic and fraternalistic relative deprivations form with radicalized intentions and attitudes do not follow the same pattern in student and non-student samples. More precisely, in the student sample, the relationship between egoistic relative deprivation with radicalized outcomes is weaker compared to the relationships between radicalized outcomes and fraternalistic relative deprivation. Nevertheless, they remain significant, although their magnitude in the context of radicalized intentions is negligible (and in the context of their bifactor version, even non-significant). Generally, this indicates that more egoistically deprived individuals tend to exhibit more radicalized attitudes. However, the extent of radicalized intentions more egoistically deprived individuals exhibit is only slightly larger than the extent exhibited by individuals experiencing an average level of radicalized intentions, but only among students. Moreover, when intentions of participating in legitimate political actions are excluded from radicalized intentions (bifactor (S-1) model), the relationship between egoistic relative deprivation and radicalized intentions lost statistical significance.

On the other hand, the relationship between egoistic relative deprivation and radicalized attitudes was barely significant among non-students, while no relationship between egoistic relative deprivation and radicalized intentions were established. A different pattern can be observed in the context of fraternalistic relative deprivation, which achieved slightly stronger correlations with radicalized outcomes among non-students compared to students. This could also be observed for attributed blame. Therefore, in both samples, participants experiencing a stronger fraternalistic relative deprivation compared to politicians, as well as participants blaming politicians for inequality, respectively, were more likely to exhibit radicalized attitudes and intentions.

It is also interesting to notice that the correlations between egoistic and fraternalistic relative deprivation was lower than the correlation between fraternalistic relative deprivation and attributed blame. However, none of these correlations is sufficient to indicate multicollinearity, which is demonstrated with low values of VIF (< 2; see Appendix A.). In the following step, we tested a series of SEM in order to test our hypotheses on latent interactions (Table 3). The upper half presents results obtained on the student sample, while the lower half presents results obtained on the non-student sample. The table reports standardized regression coefficients (β) obtained in models with predictors in rows and criteria in columns. The first column reflects outputs calculated using support for political violence as a criterion (radicalized attitude), while the following two columns contain results using intentions to participate in actions of a violent organization (radicalized intentions) as a criterion: the column with results calculated for single-factor of intentions is followed by results calculated using the bifactor (S-1) model of intentions. Each column contains information on multiple tested models. As each result is obtained from a different model, fit indices of each model (CFI, RMSEA, SRMR) are listed in the table above regression coefficients. The complete output of these analyses can be found in Appendix A.[3]

[3] Results of the analyses with separate models for egoistic and fraternalistic relative deprivation are presented in Appendix B and closely resemble the outputs presented in this manuscript. As an additional robustness test, we tested whether the slopes significantly differ across samples. First, we established configural, weak, and strong invariance of models, and then we imposed equality constraints on the regression slopes and tested whether this reduced fit in comparison with the model without equality constraints imposed on regression slopes. None of the tests emerged significant, implying that the relationships established across samples were relatively similar – the

Table 3.

Relative deprivation and blame as predictors of radicalized attitudes and intentions on two samples from Croatia

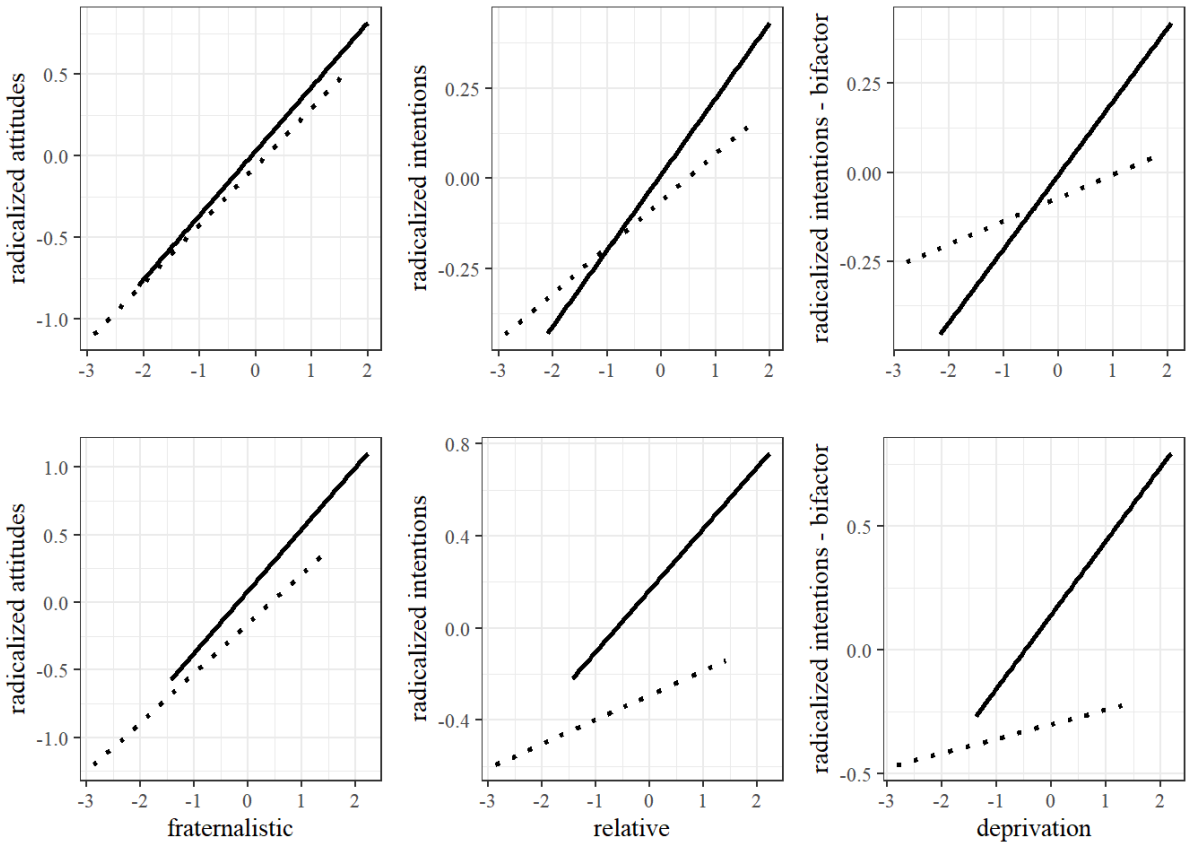
		radicalized attitudes				radicalized intentions				radicalized intentions – (S-1) bifactor			
students (n = 735)	CFI	.967	.965	.963	.938	.983	.982	.976	.955	.968	.968	.966	.950
	RMSEA	.049	.049	.044	.053	.039	.039	.039	.049	.048	.046	.042	.048
	SRMR	.038	.037	.038	.050	.036	.034	.034	.048	.04	.039	.037	.046
	egoistic relative deprivation (ERD)	.18**	.19**	.19**	.19**	.04	.04	.05	.05	.02	.02	.03	.03
	fraternalistic relative deprivation (FRD)	.34**	.25**	.25**	.25**	.18**	.13*	.13*	.12	.15**	.13*	.13*	.12
	attributed blame (blame)		.13*	.13*	.16**		.08	.07	.11*		.04	.03	.07
	blame x ERD			-.01				-.02				-.01	
	blame x FRD				.11				.11				.13*
	R^2	.19	.20	.20	.21	.04	.04	.04	.05	.03	.03	.03	.04
non-students (n = 144)	CFI	.976	.964	.953	.897	.971	.958	.957	.891	.940	.931	.935	.887
	RMSEA	.042	.050	.052	.072	.052	.060	.054	.080	.069	.072	.062	.077
	SRMR	.075	.072	.072	.079	.075	.072	.072	.078	.074	.071	.070	.075
	egoistic relative deprivation (ERD)	.10	.11	.10	.13	-.05	-.04	-.04	-.01	-.05	-.04	-.04	-.01
	fraternalistic relative deprivation (FRD)	.45**	.37*	.37*	.34*	.30*	.16	.17	.13	.29*	.17	.18	.14
	attributed blame (blame)		.16	.16	.20		.24*	.25**	.30**		.22*	.22*	.28**
	blame x ERD			.03				.03				.03	
	blame x FRD				.09				.12				.14
	R^2	.23	.25	.25	.25	.09	.13	.13	.14	.08	.12	.12	.13

*p < .05, **p < .01

Results presented in Table 3 indicate several findings. Firstly, it can be noticed that both fraternalistic and egoistic relative deprivation predict radicalized attitudes among students. However, among non-students, no significant relationship between radicalized attitudes and egoistic relative deprivation were established. In the remaining models egoistic relative deprivation was not established as a significant predictor of radicalized intentions. On the other hand, fraternalistic relative deprivation consistently predicted radicalized attitudes and intentions among students. However, among non-students, relationships between

magnitude of differences was too weak to be detected as consistent in our samples. The complete outputs of these analyses are exhibited in the last part of Appendix A.

fraternalistic relative deprivation and radicalized intentions were non-significant, despite being of the similar magnitude as among students. Also, a substantial reduction in the slope estimates is visible after introducing attributed blame in the models. Attributed blame was a significant predictor of radicalized intentions dominantly among non-students – among students, magnitudes of the relationships it formed were very weak and in most cases insignificant. In terms of radicalized attitudes, magnitudes of their relationships with attributed blame was similar across samples, although these relationships were insignificant among non-students, perhaps due to lower power. We also found weak evidence in favor of latent interactions in models with radicalized intentions modelled as bifactors as criteria (Figure 1). The figure suggests that relationship between radicalized intentions and fraternalistic relative deprivation was strong among individuals blaming politicians for inequality and much weaker among individuals who attributed less blame to politicians.



Note. Results calculated on student sample are exhibited in the top row, while results calculated on the non-student sample are exhibited in the bottom row. Dotted line represents participants scoring below mean on attribution of blame, while solid line represents participants scoring above mean.

Figure 1. Fraternalistic relative deprivation and attribution of blame in the prediction of radicalized attitudes and intentions

Discussion

This study resulted in multiple interesting findings which partially supported our initial hypotheses. Therefore, firstly we discuss the findings related to egoistic relative deprivation, followed by the findings related to fraternalistic relative deprivation.

Firstly, we found that egoistic relative deprivation predicted support for political violence: individuals experiencing a stronger egoistic relative deprivation were more likely to support political violence. However, its contribution to the prediction of intentions to participate in activities of a violent organization was very limited and less consistent. On the non-student sample, we failed to establish any relationship between egoistic relative deprivation and our criteria. Our results are in line with the recent meta-analysis (Wolfowicz et al., 2021) that established quite a weak and positive relationship between egoistic relative deprivation and support for political violence, while the evidence on the role of egoistic relative deprivation in the prediction of intentions to participate in political violence was less consistent. These results deviate from the findings of Doosje et al. (2012), who found a positive relationship between egoistic relative deprivation and various attitudes that could serve as indicators of support for violence against the outgroup, including own violent intentions. This difference might be attributed to the focus of criteria: while we measured the intentions to participate in activities of a violent group aiming to stop politicians from increasing inequality, Doosje et al. (2012) used a broader operationalization that measured willingness to use violence to achieve relevant goals, without any definition of what these goals represent. In other words, as Beugre (2005) explained, perceiving oneself as deprived

compared to others may lead to unspecific anger that, in turn, raises support for various types of violent actions that might be perceived as a method of restoring justice, including own violent intentions to achieve relevant goals. On the other hand, joining activities of an organization is a more specific task, and this specificity might undermine the predictive contribution of egoistic relative deprivation. This explanation is also in line with the absence of interaction between egoistic relative deprivation and blame attribution we consistently established. In other words, cognitions and emotions characteristic for egoistically relatively deprived individuals, even when focused on the outgroup, do not seem to focus behavioral tendencies towards that group. Although one should keep in mind that radicalized attitudes and intentions should not be equated with radicalized behaviors, our results do not provide strong arguments in favor of the role of egoistic relative deprivation in behavioral radicalization.

On the other hand, we established a weak to moderate linear relationship between fraternalistic relative deprivation, support for political violence, and intentions to participate in activities of a violent organization in both samples. Unlike in the case of egoistic relative deprivation, extracting variance of activism from the variance of intentions to participate in activities of a violent organization did not introduce a substantial change in the predictive contribution of fraternalistic relative deprivation. Therefore, we generally confirmed our initial hypothesis as the predictive contribution of fraternalistic relative deprivation was consistently larger than the predictive contribution of egoistic relative deprivation. This finding is in line with the recent meta-analyses (Jahnke et al., 2021; Wolfowicz et al., 2021) and conclusions of Kunst and Obaidi (2020), who pointed out the relevance of studying fraternalistic (or group) relative deprivation in the context of political violence.

Before turning to interactions, it is inevitable to at least mention the high correlation between fraternalistic relative deprivation and blame attribution, which seemingly undermined the consistency of findings regarding both variables. It is reasonable to wonder how precise our estimates of the correlation between fraternalistic relative deprivation and blame attribution in this study were. As processual models of radicalization (see de Coensel, 2018, for a detailed review) generally suggest that the stage of blame attribution follows the stage in which a person perceives injustice, it is obvious that the two constructs would be

correlated - those experiencing no inequality will not be able to blame anyone for inequality. However, the situation becomes more complex among individuals experiencing inequality because they can attribute the blame to various sources. In our study, the target group for blame attribution and violence were politicians (causing or maintaining inequality), the group selected to make decisions that affect citizens. However, other studies may include different groups (see, for example, Obaidi et al., 2019), which are not in a hierarchical relationship. In such comparisons, it might be less clear how much control does the outgroup have over circumstances, which could lead to a weaker relationship between fraternalistic relative deprivation and attributed blame. In other words – it does not seem plausible to expect a strong correlation between fraternalistic relative deprivation and attributed blame in future studies where the target outgroup is not evidently dominant. However, if the outgroup is perceived as in control of the situation, the extent of experienced injustice (in this case, fraternalistic relative deprivation) might be translated into the extent of attributed blame. From this point of view, blame attribution could serve as a (partial) mediator in the potential causal chain between deprivation and political violence. Therefore, its inclusion in regression models represented an example of "overcontrolling bias" (see Cinelli et al., 2020), which, roughly speaking, implies that controlling for potential mediators undermines the precision of relationship estimates. Our data support this notion – after introducing blame attribution in models, the predictive contribution of fraternalistic relative deprivation was reduced, implying that predictive contribution of fraternalistic relative deprivation in models with attributed blame is biased. Additiionaly, some methodological aspects of this study might have contributed to the relationship between fraternalistic relative deprivation and attributed blame. For instance, the order of questionnaires was fixed, and all participants firstly estimated how deprived they felt and then attributed the blame for inequality, which might have increased the magnitude of their relationship. Also, our operationalization of fraternalistic relative deprivation (Obaidi et al., 2019) contained an item ("I think that people like me are in the worse position than politicians because politicians keep them down.") that implied attributing blame to the outgroup.

The complication discussed in the previous paragraph also undermined our probability to find significant interactions. An additional big limitation was severe skewness of blame

attribution: only about 10% of participants believed that politicians were less than 50% responsible for inequality, while the distribution of fraternalistic relative deprivation was only slightly less skewed. Therefore, the "low end" of the combination of fraternalistic relative deprivation and blame attribution may have been underrepresented in our sample, implying it was also underrepresented in the calculations that determined the contribution of the interaction. Despite all these limitations, we managed to find (weak) evidence in favor of the interaction between fraternalistic, but not egoistic, relative deprivation and blame attribution in the prediction of intentions to participate in activities of a violent group, but not in the prediction of support for political violence. If we remove the focus from significance testing that is highly dependent on the sample size, we can notice that all the coefficients point in the same direction, are of similar magnitude, and look similar when visualized: the relationship between fraternalistic relative deprivation and radicalized intentions was stronger among individuals blaming politicians for inequality. These findings represent an argument in favor of the relevance of the "targeting" phase in the development of political violence (see De Coensel, 2018, for a more detailed review), in which emotions aroused by experienced inequality become focused towards a specific outgroup that is perceived as responsible for the development or maintaining these circumstances.

One could also wonder why no evidence of this interaction were found in the context of radicalized attitudes. In line with our earlier explanation, support for political violence may be more abstract than intentions to participate in activities of a violent organization. Therefore, the cognitive mechanisms related to deciding whether to support one general attitude may be qualitatively and quantitatively different compared to forming intentions to participate in activities of a violent group. Bagozzi (1992) discussed the distinction between attitudes and intentions and noticed that desire to participate in action is what separates them: a person can have positive attitudes on activities, but no desire to participate in them. This is in line with Ajzen's (1987) early argumentation on intentions being a motivational state, while attitudes are conceptualized dominantly in terms of cognitive appraisals. One difference between attitudes and intentions in line with the previous arguments that is visible from the instruments used in this study is the level of personal involvement – while the attitudinal measure was ambiguous, measuring agreement with actions "someone" should engage in, the

measure of intentions focused participants on estimating whether they would be willing to participate in activities of a violent organization. This switch of actor from "someone" to "me" (i.e., participant) could lead to different cognitive processes which take different factors, and their interactions, into account. Therefore, this study also provided argumentation in favor of the distinction between attitudes, intentions, and behaviors when studying political violence.

These findings could also have multiple practical implications. The finding that blame can direct violent intentions stresses that blaming groups for injustice should not be used lightly. The blame-attributing messages are widely present in mass media, especially in the context of intergroup conflicts, where blame is often attributed to entire groups. This represents an adaptive behavior: as life is valuable, the easiest way to protect it is to treat the entire outgroup as a threat to wellbeing or existence of the ingroup. Also, people tend to perceive outgroup members as more similar even in non-conflict situations (Ostrom & Sedikides, 1992). However, intergroup conflicts do not last forever and, once they finish, attributing blame to an entire outgroup may severely undermine the efforts of re-establishing peace and cooperation. This prolonged unpleasant state, in turn, can provide fertile grounds for the development of future conflicts. Political violence represents a context where every unjustifiable simplification can result in devastating consequences, which implies the need to properly address responsibility and blame while discussing related subjects.

These findings could also have practical implications for the development of deradicalization programs, which are still under-evaluated (see Hassan et al., 2021). For instance, Webber et al. (2018) included integration of individuals in communities as an important step of their deradicalization program. More precisely, a part of the intervention they described focused on allowing the detainee to feel like a “regular citizen” once he or she returns from rehabilitation. However, what if the “regular citizen” is experiencing strong fraternalistic relative deprivation and blames a specific outgroup for that deprivation? The notion of “regular citizen” implies equality with other citizens, including members of a group that is considered as dominant. This could be achieved at the individual level by, for instance, increasing one’s prospects of employment or structuring one’s social life, but that person could still believe that majority of members of his or her group remain deprived. If returned to a community that emphasizes fraternalistic relative deprivation and blame, the effects of

deradicalization may be undermined, as discussed by Hassan et al. (2021) in their review of deradicalization programs.

In such context, reintegration without proper preparations (e.g., education focused on developing social and political skills that would allow a person to seek help or achieve political goals in a legal way) could lead to undesired consequences. Together, the outcomes of this study indicate that radicalization and deradicalization represent broad processes governed by an interplay between individual and societal factors. Omission of considering these interplays when developing deradicalization programs could undermine their efficacy. On the other hand, recognizing relevant factors and their interplay could raise efficacy of various aspects of deradicalization programs, including psychotherapy and counseling (see Hassan et al., 2021).

Several limitations of this study also have to be acknowledged. Firstly, the study was correlational, indicating that no causal conclusions should be drawn. Secondly, the convenient samples used in this study limits the generalizability of its findings. However, the established findings in terms of fraternalistic relative deprivation are in line with another study that measured support for political violence on a student sample and radicalism on a quota national sample, a representative with respect to age and gender, respectively (Pavlović & Franc, 2021). Therefore, this study replicated (cross-validated) the findings of an earlier study on two samples, indicating that at least some confidence can be put on the consistency of the established findings. Furthermore, we used a single-item measure of blame. Although Ajzen (2002) argued that strong attitudes could be measured using a single item, future studies should include a multi-item measure of blame attribution in order to assess the generalizability of our findings. Moreover, this study focused on the interactive contribution of relative deprivation and blame to the prediction of support for political violence and intentions to participate in activities of a violent organization. Although this is one of the interactions suggested by Smith et al. (2011) when discussing factors that determine the relationships between relative deprivation and outcomes, it is by no means the only one. Therefore, these findings can be treated as a call for evaluating more complex and interactive models of radicalization to broaden our understanding of the phenomenon. Finally, one might notice that the construct we use is blame, yet its measure is focused on responsibility.

Although blame and responsibility are closely related, responsibility can be considered as one of the components of blame: while a person can carry out an action (and, thus, be responsible for its consequences), that person may not have control over the action nor is carrying it out on his or her own will (see Malle et al., 2012, for a further discussion). While in the context of other outgroups (e.g., Muslims vs Westerners), equating responsibility and blame would be questionable, our choice of the outgroup (politicians as representatives elected with a purpose of making decisions and leading the nation) and framing of items implied that the outgroup has the option to control the situation. Altogether, we believe that we covered the notion of blame in the context of this study adequately, although we would advise future researchers, especially if their outgroups are not by their definition in control of the situation, to use more detailed measures of attributed blame.

Altogether, our study confirmed the role of fraternalistic relative deprivation in the context of political violence, as well as exhibited the limited contribution of egoistic relative deprivation to the prediction of behavioral intentions related to political violence. We also found that fraternalistic relative deprivation is closely related to blame attribution, yet their combination provides a meaningful contribution to the prediction of intentions related to political violence. As such, we believe the findings of this study will help future researchers studying radicalization to focus on constructs with more extensive explanatory power than the one provided by egoistic relative deprivation in order to develop more efficient radicalization models that, in turn, could be used as frameworks for the development of more efficient preventive and deradicalization programs. In their development, it seems inevitable to distinguish between radicalized attitudes, intentions, and behaviors, as well as between egoistic and fraternalistic relative deprivation, as the findings of this study confirm that these constructs are not interchangeable.

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Data availability statement

Data supporting the findings of this study are available as supplementary materials.

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