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**The Personality of Extremists:
Examining Violent and Non-Violent Defense of Muslims**

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Abstract

Many early explanations for violent extremism focused on clinical dispositions, with poor empirical support. In the current work, we argued that violent extremists might be “normal” in a clinical sense while nonetheless bearing certain personality signatures. Results from five studies among four general population of Muslims and a sample of former Mujahideen suggest that both violent and non-violent behavioral intentions among European Muslims and Muslims in the Middle East are predicted by basic personality traits. Results from individual studies and a meta-analysis showed that more violent intentions were related to lower altruism, lower openness to experience, and lower emotionality, whereas more non-violent intentions were primarily related to higher altruism. When substituting non-violent intentions with actual behaviors the results were similar, suggesting that the findings are not merely self-report artefacts. Finally, the violent intention effects were consistent across the three European countries (e.g., Belgium, Denmark and Sweden) that provided the most foreign fighters to Islamic State per capita. Overall, the personality model explained 11% of the individual differences in non-violent and 27% of the violent intentions.

Keywords: extremism, HEXACO personality, individual differences, violent and non-violent behavioral intentions, altruism, cross-cultural

Significance

Research on violent extremism has disfavored explanations focused on non-clinical personality traits. In the assessment of who might become an Islamist terrorist, our findings suggest that non-clinical personality variables are relevant, however. The use of violence seems more appealing to people who are more dogmatic, less empathetic, and less emotional. In contrast, non-violent group mobilization is predicted by higher degree of empathy. Taken together, these findings, being the first of their kind, have clear implications for extremism prevention. Overall, the personality model explained 11% and 27% of the individual differences in non-violent and violent intentions, which may provide additional insight into why some individuals, but not others in the same situations, become involved in extremist violence.

Introduction

Understanding what inclines people to terrorist activities is a pressing issue, both theoretically and practically. Broadly speaking, a dominant explanation in psychology is a “situationist” position, which maintains that “most anyone” may engage in terrorist activities (e.g., Atran, 2003) or other extreme behaviors (e.g., Fiske, Harris, & Cuddy, 2004; Zimbardo, 2007), at least when they are in particular social surrounding. For example, Ginges and colleagues noted that “a key difference between terrorists and most other people in the world may lie not so much in individual pathologies, personality, education, income, or any other demographic factor but in small-group dynamics where the relevant trait just happens to be jihad” (Ginges, Atran, Sachdeva, & Medin, 2011, p. 517). A second position attributes such behavior to individuals psychopathological (i.e., maladaptive) qualities, such as “*suicidal motives, mental health problems*” (Lankford, 2014, p. 352, see also Victoroff, 2005). In the present work, we argue that broader attention to non-clinical personality variables could provide important complementary insights into extremism, such as Jihadism. Extremism, broadly defined, encompasses behaviors, ideas, intentions and attitudes that are in opposition to fundamental values and norms of the society, including democracy, the rule of law, and the state monopoly of using violence (Schmid, 2013).

Clinical personality assessments identify dysfunctional trends in thoughts, feelings, and behaviors, which also defines mental illnesses (e.g., Bender, Morey, & Skodol, 2011). Non-clinical personality assessments aim to describe the full spectrum of the ways that individuals consistently differ from each other in everyday life, without classifications of illness versus normality (e.g., Larsen & Buss, 2017). From this perspective, the question is not whether extremists are mentally ill or not, but rather whether they have any consistent personal characteristics that are predictive of their extremist orientations. Understanding how stable personality traits that operate, often in positive functional ways, in everyday life can incline individuals to extremism can also contribute to personality × situation interactionist perspectives on extremism, which delineates mindsets that are characteristic of extremists, while also emphasizing the impact of the immediate contexts or broader environment and individual experience (Jasko et al., 2019; Kruglanski et al., 2014). Thus, personality research can help guide the development of more individually-tailored interventions to counteract extremism.

The current understanding of individual differences in susceptibility to extremism is limited in three major ways. First, research on this topic has typically focused on generally antisocial or maladaptive (i.e., pathological) personality traits (e.g., Cooper, 1978; Gottschalk & Gottschalk, 2004) rather than on the potential role of non-clinical personality variables. Second, whereas the broader literature on group intolerance provides a rich portrait of the personalities and values that predict derogation of minorities and disadvantaged groups (e.g.,

Duckitt & Sibley, 2016), much less is known about what characterizes people who strongly dislike powerful groups (Horwitz & Dovidio, 2015), and even less about those who endorse violence to overthrow them. Some research suggests that individuals who are intolerant toward powerful groups may have different personalities and opposing values compared to those who are intolerant toward minority, low-power groups (e.g., Brandt, Chambers, Crawford, Wetherell, & Reyna, 2015). For example, lower trait empathy is associated with greater intolerance toward low power groups but not toward powerful groups (Bergh et al., 2016).

Taken together, the literature is limited in its identification of what kinds of personality, if any, predispose people to endorse and support violence against powerful groups. For example, the question is whether there are certain non-clinical traits that are associated with Jihadism against Western nations. Across five studies in different national contexts, we provide a first systematic examination of that question. We propose that those Muslims who endorse violence on behalf of their group may be “normal” in a clinical sense while nonetheless bearing certain non-clinical personality signatures. Following Moskaleiko and McCauley’s (2009) distinction between activism and radicalism we differentiated between the willingness to take action on behalf of a group into normative and non-normative actions (see also Van den Bos, 2018; Tausch et al., 2011) and propose that personality traits predict normative and non-normative actions in different ways.

Exploring links between non-clinical personality and extremism extends existing work on the factors associated with and that potentially predict political protests and collective action among the majority populations. Previous research reveals that non-clinical personality dimensions such as openness to experience (indicating an interest in and appreciation of new experiences), conscientiousness (a tendency to act dutifully in compliance with conventional standards) and agreeableness (reflecting a desire to get along with others) predict conventional political mobilization and engagement in normative collective action (Gallego & Oberski, 2012; Ha, Kim, & Jo, 2013). For instance, Gallego and Oberski (2012), using a Spanish sample of respondents, demonstrated that people higher in conscientiousness were more likely to engage in highly conventional political behavior, voting, whereas people higher in openness to experience (but not those higher in conscientiousness) were more likely to engage in collective but non-violent forms of political action, such as participating in a boycott.

The present research, by contrast, focuses on minority populations and investigates the personality traits as predictors of intentions to engage in extremist or terrorist activities, which are non-normative and violent. We further compare the personality basis for such outcomes with the personality basis for normative, non-violent support for one’s group (e.g., charitable giving and petitioning). Previous research has shown how commitments to normative and non-normative action on behalf of one’s group have different social psychological antecedents (e.g., Becker & Tausch, 2015; Obaidi, Bergh, Sidanius, & Thomsen, 2018) and here we extend that comparison to also explore personality differences.

Research Overview and Aim

Although some scholars dismiss the influence of personality in determining who becomes a terrorist (e.g., Monahan, 2015), other scholars have acknowledged the potential role of these influences, but caution that for such arguments to be scientifically meaningful, they “must be based on many comparative studies of terrorists from different countries and functions, using standard psychological tests and clinical interviews. As such studies have not been published, the only scientifically sound conclusion for now is that *we do not know* whether terrorists share common traits, but we cannot be sure that such traits do not exist” (Merari, 2010, pp. 253-254). Despite this valuable guidance for a robust test of the role of

personality across different social and cultural contexts, this gap in the literature remains. To address this key issue for understanding who is inclined toward extremism, which can provide theoretical insights into the psychological dynamic more generally as well as suggest interventions for combating or reducing extremism, we investigated whether *non-clinical personality* would predict *violent* as well as *non-violent behavioral intentions* in five Muslim samples from a number of countries.

We focused on *behavioral intentions* (see also Obaidi et al., 2018; Tausch et al., 2011) because such measures tend to be better predictor of behavior than are attitudes (Ajzen, Fishbein, Lohmann, & Albarracin, 2018). Thus, the external validity of our violent behavioral intention measure should at least be on par with studies focusing on *attitudinal support* for violence in general populations (e.g., Ginges, Hansen, & Norenzayan, 2009). Aside from validating the measure in an extremist sample (see Study 2), we also provide supplementary analyses to demonstrate that our measure is well suited to cover the full spectrum from completely unwilling to use violence on behalf of a group to completely willing to engage in extreme violent acts (see Supporting Information, item response analyses). We provide further validation by showing that violent and non-violent intentions measures are inversely related to actual behavior in terms of donation of part (or all) of the participation reward to Muslim charity (see Supporting Information, Donation).

As for predictor variables, we employed the HEXACO-PI-R inventory, which provides a comprehensive mapping of human personality. The HEXACO model was introduced to account for observations that in many languages there is evidence of six broad personality dimensions (Ashton & Lee, 2007). Our interest in the HEXACO model was also guided by recent research suggesting that the last extracted factor, honesty-humility (feeling little temptation to break rules or take advantage of others), is an important predictor of hostile group attitudes (e.g., Sibley, Harding, Perry, Asbrock, & Duckitt, 2010). It could also bridge basic personality research with the claim in (some) clinical research that extremists have psychopathic traits (Cooper, 1978), as honesty-humility is inversely and strongly related to such tendencies (e.g., Lee & Ashton, 2014). The remaining factors of the HEXACO model are Emotionality (experiencing high levels of anxiety, fearfulness, and sentimentality), Extraversion (feelings of confidence and interest in social gatherings), Agreeableness, Conscientiousness, and Openness to Experience (for definitions see preceding pages). The inventory also includes a narrower trait associated with several of the broader factors, labelled altruism. This variable is similar to measure of empathic concern (see Bergh & Akrami, 2016). To measure altruism, we included four items from the 200-item HEXACO-PI-R. For a detailed description of all measures see Supporting Information, Table S3.

Although our analytical strategy was generally explorative, some factors have a clearer connection to existing theory of group hostility and extremism. Whereas people higher in openness to experience have been shown to be more likely to engage in some forms of non-violent action (such as a boycott; Gallego & Oberski, 2012) we expected a negative relation between openness to experience (henceforth openness) and violent intentions. This prediction follows a long line of research suggesting that measures, such as dogmatism, that are related to a resistance to new ideas, opinions, or experiences (i.e. low openness to experience, are associated with intolerance, often expressed in direct forms of harm, toward people perceived to threaten cherished values (e.g., Altemeyer, 1998) and non-critical submission to authorities (e.g., religious ones, Duckitt, 2001).

Further, even if most extremists are not clinically ill (see Gill & Corner, & 2017), there are two HEXACO dimensions that have connections with psychopathology, at utmost trait levels (e.g., Ruchensky & Donnellan, 2017). Thus, we explored whether individuals with extremist inclinations might be described as having tendencies in a pathological direction, but at “pre-diagnostic” levels. Emotionality encompasses greater anxiety and it has been linked to

greater risk of depression (Roncero, Fornés, García-Soriano & Belloch, 2014) which, in turn, has been argued to underpin suicide terrorism (Lankford, 2014). In contrast, others have claimed that emotionally instable individuals do not make good (suicide) terrorists because they would be a liability to the cause and as result, they are weeded out by the recruiters (McDonald, 2013). Hence, the extent to which terrorists can be characterized by any pathological tendencies related to anxiety and emotion regulation is an open question. Honesty-humility is the second dimension that is instead linked to psychopathy (e.g., Lee & Ashton, 2014). Psychopathy used to be a popular explanation for extremist violence, although never corroborated in empirical research with validated measures (Gill & Corner, 2017). Here, we examined whether a well-validated measure that encompasses non-clinical psychopathic tendencies is associated with inclinations toward Jihadism.

Finally, we test the relationship between altruism and violent intentions. Many have proposed altruism as a mechanism underlying engagement and involvement in suicide terrorism for the sake of one's group (e.g., Pedahzur, Perliger & Weinberg, 2003; Atran, 2003). In contrast, others have proposed that Islamist extremists (e.g., foreign fighters to Islamic state) are motivated primarily by personal incentives (Stern & Berger, 2015). Hence, it was of particular interest here, to address the question whether there is an association or not between empathy/altruism and endorsement of violence against powerful groups on behalf of one's group.

We started by exploring the relation between our variables among Muslims in Denmark. Subsequently, we examined the generality of our results among Afghani Mujahideen and a general sample of Afghans from Afghanistan that served as a baseline. Finally, we collected data among Muslims in Belgium and Sweden. Including samples from Denmark, Belgium and Sweden was motivated by evidence showing that these countries have produced most Islamic State fighters per capita in the West, since 2012 (Benmelech, 2016). Exploring a common pattern of trait associations across these contexts would directly address the current lack of comprehensive, trans-national studies on extremism using standard, well-validated personality measures (see Merari, 2010).

Results

Our first aim in Study 1 was to comprehensively map the associations between violent and non-violent intentions and principle domains of personality. As such, we conducted path analyses¹ employing all HEXACO dimensions, and the interstitial facet of altruism, as predictors of non-violent and violent intentions among Danish Muslims in Denmark. Two personality dimensions were significantly associated with violent intentions: openness ($\beta = -0.17, p = .02$) and emotionality ($\beta = -0.26, p < .01$). In contrast, non-violent intentions were primarily associated with altruism ($\beta = 0.38, p < .01$). For this outcome, there was also a suppressor effect for agreeableness ($\beta = -0.13, p = .05$, including altruism; $\beta = 0.07, p = .32$, alone). Path analysis employing only the variables with significant predictors showed that lower openness and emotionality were significantly associated with violent intentions and higher altruism was associated with non-violent intentions (See Figure 1). Additional statistical details and psychometric assessments along with robustness checks with demographic covariates are presented in the Supplemental materials.

In Studies 2 and 3, we turned to the former Afghani Mujahideen and non-Mujahideen samples aiming to examine mean differences in personality and violent and non-violent intentions between these samples, as well as the robustness of personality predictions of violent and non-violent intentions in a context where Jihadism is more prevalent.

¹ We used robust maximum-likelihood estimation to account for non-normal outcome distributions.

Based on violent intentions being associated with lower openness and emotionality in Study 1, we expected a sample of known extremists to score lower on those personality traits, on average, compared to a non-extremist general sample in Afghanistan. Indeed, the analyses showed significantly ($p < .05$, two tailed) lower means on openness and emotionality (marginally, $p < .06$) for the Mujahideen sample. The difference in violent intentions between the two samples was also marginally significant ($p < .08$, two tailed). Further, the Mujahideen sample scored significantly higher on altruism, but lower on non-violent intentions. For details, see Table S8 in the Supplemental materials.

While the reported mean differences were mostly theory-consistent, a caveat is that the Mujahideen sample only consisted of males. Thus, we further examined mean differences between the males only. The results showed the differences between the two samples diminished, except for altruism and non-violent intentions. The Mujahideen scored significantly higher on the former and the non-Mujahideen scored significantly higher on the latter (see Table S8b in the Supplemental materials). Taken together, these findings provide only partial support for the validity of our behavioral intention measure.

Path analyses of the personality association with dependent variables for the Mujahideen and non-Mujahideen samples showed a comparable outcome. Specifically, in both samples emotionality and openness were negatively associated with violent intentions. The outcome diverged as to the correlation between violent and non-violent intention, which was nonsignificant for the Mujahideen sample, and the altruism effect on non-violent intentions which was significant non-Mujahideen sample only. This pattern of results showed that, despite some differences in mean scores, the same personality variables (e.g., openness and emotionality) remained the significant predictors of violent intentions. This similarity was also valid when comparing the outcome for Mujahideen and non-Mujahideen samples with the Danish sample (See Figure 1).

We further tested the robustness of the personality associations with violent and non-violent intentions by analyzing data collected among Muslim populations in Belgium and Sweden (Study 4 & 5). Path analyses for these two samples showed, akin to the samples examined above, that openness and emotionality were linked to violent intentions. Similarly, altruism was significantly associated with non-violent intentions, but only for the Swedish sample. By contrast, unlike all other samples, emotionality was significantly (and positively) associated with non-violent intentions in the Belgian sample. Another association that diverged from the general pattern is that we found that altruism was negatively associated with violent intentions in the Swedish as well as the Belgian sample.

Another aim of Study 5 was to provide further validation of the notion that personality predicts behavioral inclinations – and not just self-reported intentions. Thus, we provided our participants an opportunity to donate a part (or all) of the participation reward to the Red Crescent. Donation was positively related to non-violent behavioral intentions and negatively related to violent intentions. Moreover, altruism predicted the decision to donate (for more details, see Supplemental materials, under Donation).

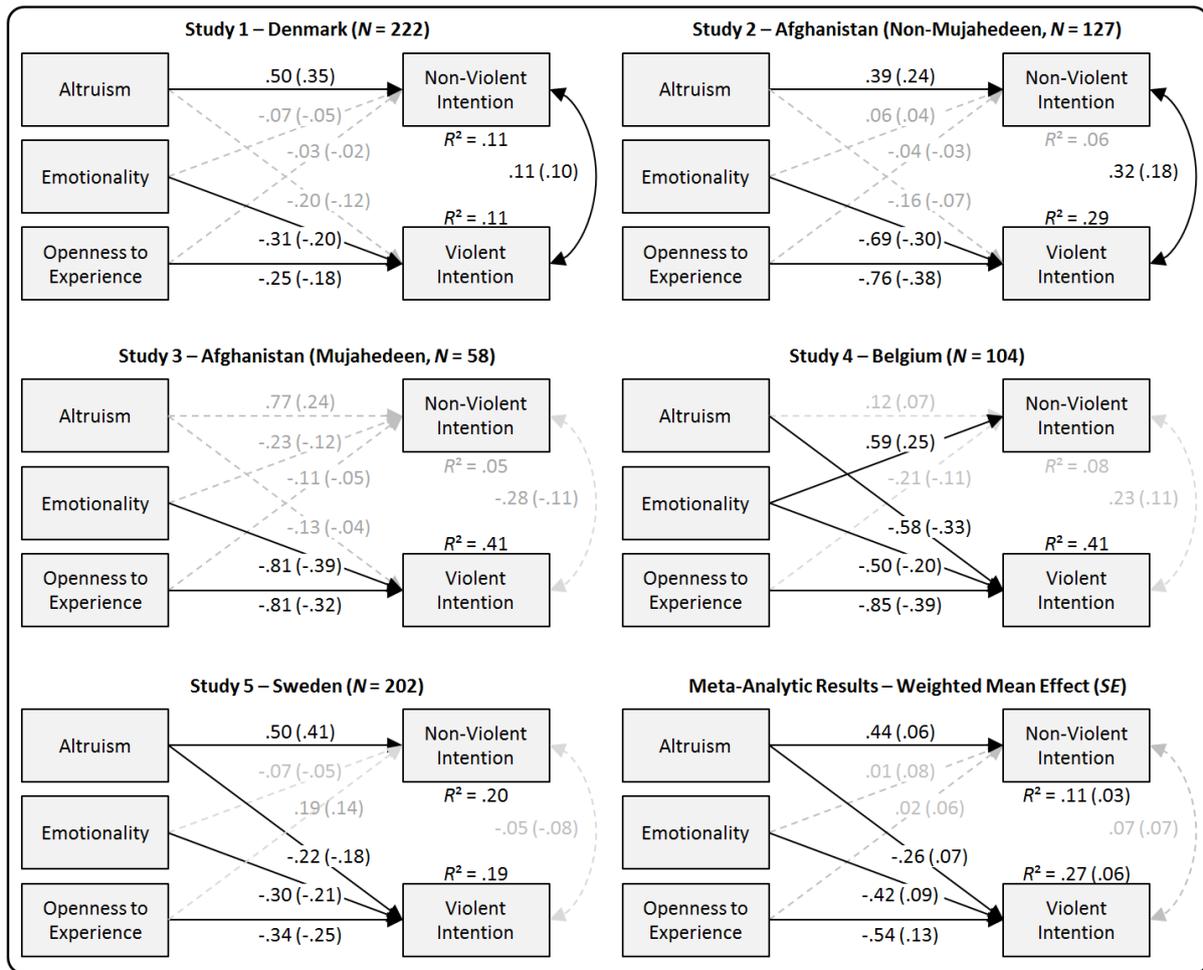


Figure 1. Unstandardized (standardized) path coefficients for personality variables explaining non-violent and violent intentions and the results of random-effects meta-analysis for each path/ R^2 (conducted using unstandardized path coefficients and R^2 and their standard error). Gray-colored paths/coefficients are nonsignificant while others are significant ($p < .05$).

Random-effects meta-analysis

While the general pattern of results across the samples showed more consistencies, some inconsistencies were observed (See Figure 1). Therefore, to synthesize the pattern of results reported above and assess the magnitude of the effects we conducted a series of random-effects meta-analysis – one for each association/effect size. To this end, we used the unstandardized indirect effects and their standard error and submitted these to meta-analysis (we used Comprehensive Meta-Analysis software). Unstandardized indirect effect provides a meaningful metric that is comparable across studies, as our measures were based on the same response scales. The outcome of the meta-analysis showed that the weighted mean effect was significant for the association between altruism, openness, emotionality with violent intentions and for altruism with non-violent intentions. Summarizing what we found for the individual studies, this outcome shows that normal/nonclinical personality is associated with violent intentions.

Discussion

Many scholars have argued that extremists cannot be characterized by particular personality traits (e.g., Ginges et al., 2011). Our data suggest otherwise, and we focused on a broader gamut of non-clinical personality traits than previous research. Meta-analytic results

showed that individuals scoring lower on altruism, open-mindedness, and emotionality expressed more willingness to endorse violence to defend their group, in the general population of European and Afghan Muslims.

Many scholars have theorized that extremists are psychologically inflexible, dogmatic, rigid and intolerant of ambiguity (e.g., van Den Bos, 2018; van Prooijen & Kouwel, 2019). Empirically, there are studies showing an association between extreme political standpoints and dogmatism, as well as low openness (Gøtzsche-Astrup, 2019). When it comes to Islamist violent extremist behaviors, however, there is a dearth of data. To the best of our knowledge, this is the first empirical study demonstrating that low openness also predicts inclinations toward extremist group violence among Muslim populations.

As for the negative relationship between emotionality and violent intentions, it has implications for the literature on the ongoing characterization of those committing violence as mentally ill (e.g., Lankford, 2014). High emotionality is associated with mental problems related to anxiety and depression, and suicidal inclinations (e.g., Roncero et al., 2014). Some have argued that such problems explain why some people become terrorists (Lankford, 2014, but see McDonald, 2013). The findings of the current research seemingly contradict that notion, instead indicating that Muslims endorsing violence on behalf of their group are *less* emotional than the average person. An alternative view though is that we may have tapped into a mentality of entirely *absent* emotionality – a psychopathic nature. However, this perspective is contradicted by the lack of relations with honesty-humility (Study 1), the best basic personality predictor of psychopathy (e.g., Lee & Ashton, 2014). Indeed, one of the reasons why we chose to assess personality with HEXACO was that we would have the best possible leverage to test the notion of a “psychopathic extremist,” which lies beyond the Big Five personality factors (see Lee & Aston, 2005). These data showed no evidence thereof.

Another consistent finding across all studies was the positive association between altruism and non-violent intentions, as well as a negative or nonsignificant association between altruism and violent intentions. In terms of overt behavior, we saw a similar pattern of results: Altruistic Muslims are more likely to support charities (Study 5). Moreover, we found a weak but significant negative relationship between violent intentions and donation behavior. This speaks to some anecdotal and empirical findings suggesting that some extremists are motivated by personal incentives and rewards rather than altruistic self-sacrifice for the sake of co-religionists. One such personal reward is the belief that one be redeemed, honored, venerated and celebrated; one’s deeds would be upheld as a symbol of heroism for a greater cause. Such beliefs have been shown to influence support for suicide attacks (Ginges, Hansen, & Norenzayan, 2009) and recently, such glorification and path to personal redemption has been effective in recruiting Westerners to ISIS organization (Stern & Berger, 2015). However, there was evidence of heightened altruism among Afghani Jihadists (Study 2), which is in line with previous research among Palestinian suicide terrorists in the Middle East (e.g., Pedahzur et al., 2003). These findings seem to corroborate the recent developments demonstrating that terrorists do not share common psychological profiles; instead, some terrorist types may be more likely to have certain psychological traits (Gill & Cornor, 2017).

Our survey assessed self-reported intentions to use violence in defense of one’s group, and self-report measures in the “general” populations can be questioned for validity when predicting actual terrorist acts. One can argue that some variation in this type of response would appear among any group without necessarily have to be ideologically motivated and most importantly would predict actual behavior. For obvious ethical reasons we did not measure violent behavior, but nonetheless, we took steps to address this concern by including a sample of Mujahideen to test converging evidence for our survey results and the discriminate validity of our measures.

To validate the findings for non-violent group mobilization, in Study 5 we incorporated actual behaviors; those who scored higher on altruism and non-violent intentions also donated more money to a Muslim charity. Further, violent intentions and donating behavior was weakly and negatively related.

Related to above, the literature on extremism has had many '*armchair arguments*' (Sageman, 2014), but few empirical studies and particularly empirical studies including actual extremists. Some claim that despite increased funding and increased interest in the topic, research on violent extremism has been experiencing stagnation to an extent that "*we are no closer to answering the simple question of 'What leads a person to turn to political violence?'*" (Sageman, 2014, p. 1). Our research addresses this issue by advancing the empirical literature on extremism by not only providing primary data, but also data collected among previous jihadists.

A More Comprehensive Personality Explanation of Extremism

A personality model could complement other psychological approaches to extremism and collective action and may be useful in addressing the "specificity problem": why some individuals, but not others experiencing the same situations, engage in extremism (Horgan, 2005). For example, Atran (2010) argued that the making of a terrorist is primarily traced to the social dynamics of friends and family. Personality factors could, however, help explain why certain circles of families and friends are susceptible to violence whereas others are not. Research shows that people select their friends based on their personality traits (Selfhout et al., 2010), and studies indicate that people who score similar on the openness tend to gravitate toward each other (Lee et al., 2009).

An important contribution of our work is that we do not rely on inventories created with the specific purpose of mapping an extremist personality (e.g., Gottschalk & Gottschalk, 2004; Merari, Diamant, Bibi, Broshi & Zakin, 2010). Research on the personality basis of group intolerance has often started with attempts to tailor the predictors to the outcomes, with measures of a "fascist personality" (Adorno et al., 1950) or an "extremist personality" (e.g., Cooper, 1978). However, such inquiries can be criticized as being tautological (Atran, 2004). That criticism would be far-fetched with the current predictor variables. Specifically, the HEXACO variables are based on a theory-agnostic search for communalities in adjectives describing interpersonal behavioral tendencies (Ashton & Lee, 2001), and they have nothing to do with group extremism, neither by definition nor operationalization. As such, we can be more confident that the observed associations between personality and group extremism are not due to overlapping measures or concept definitions. In future work it would be important, however, to examine personality-extremism at different levels of specificity. Beyond broad trait associations, it is possible that more specific dispositions and psychological processes would provide better and more precise explanations of extremism. Nevertheless, knowledge about broad trait associations provides clear guidance for future research. A search for specific explanations within the agreeableness domain is unlikely to be fruitful, but it is meaningful to dissect the openness and emotionality associations further.

Concluding Remarks, Limitations, and Future Directions

Previous research has shown that social psychological models of collective action account for 20-30% of variance in violent and non-violent intentions (e.g., Obaidi et al., 2018; Tausch et al., 2011). Overall, the personality model explained 5-41% and of the individual differences in the same kind of outcomes in our samples (and 11/27% in the random-effects meta-analysis). More broadly, instead of debating whether individual or social, environmental factors matter more, we suggest that such findings should inspire studies of extremism that considers complementary and/or interactive effects. For instance, future research can focus on

reciprocal effects between traits and environments over time, as well as “simple,” mechanical interaction effects of person and situation to explain why some, but not others under the same circumstances get drawn to extremism.

Our studies focused on inclinations toward Jihadism because it is one of the three major forms of extremism found in many societies today (next to political right-wing and left-wing extremism). We keep the type of extremism constant and instead focused on having a broadly varying personality predictors and behaviorally validated outcomes, across a number of countries. It was beyond the scope of these studies and a single paper to also vary the studied type of extremism. Nevertheless, it is an important question for future research to identify individual difference variables that predict most forms of extremism, versus specific expressions thereof (as well as playing different roles within extremist organization; see also Gill & Corner, 2017). The association between low openness and violent support of Muslims is consistent with findings showing that both right-wing and left-wing extremists are simplistic in their style of thinking (van Prooijen & Krouwel, 2019). The association with low empathic concern is also consistent with hostile group attitudes on the political right (e.g., against immigrants; e.g., McFarland, 2010). Our emotionality finding, however, is not clearly documented for other forms of extremism.

It would further be relevant to explore whether common attitudinal intolerance (e.g., prejudice) and endorsement of group violence have different personality signatures. Openness and empathic concern both vary in their connections with prejudiced attitudes, depending on whether the target group is seen as progressive or conservative, as well as high or low in status and power (Bergh et al., 2016; Brandt et al., 2015). Yet, these dispositions seem to be consistent predictors of extremism, regardless if the target is a powerful group or not, or conservative versus progressive. More work is needed to examine how personality, ideology, and power asymmetries might differently predict general negativity versus hostile, violent behavior intentions.

Overall, there is more research on personality and “conventional” right-wing intolerance, as compared to other forms of intolerance and extremist inclinations. Still, studying individual differences in inclinations to Muslim extremism is perhaps most pressing against the backdrop of cultural stereotyping: Whereas right-wing extremism is often described in terms of acts of particular individuals, and not Western culture at large, the opposite is true for Jihadist extremism (e.g., Harris, 2005). With knowledge about different personality dispositions of violent and non-violent behaviors among Muslims, we could help avoid harmful stereotypes that all Muslims are potential extremists. Avoiding such stereotypes does not only have practical utility for terrorism prevention, but it could be considered a basic principle in a democratic society.

Materials and Methods

Study 1 ($N = 222$; 64% women) took place in Denmark. We aimed to use sample size around 200 based on a power analysis assuming personality correlates of .20, $\alpha = .05$, and a power of .80. The effect size estimate was (conservatively) based on meta-analytic data on personality correlates in group attitudes (see Sibley & Duckitt, 2008). Participants were recruited from a range of Danish Facebook groups related to Islam. Given that the participants came from a hard-to-reach population, it took us three months to collect this amount of data. Only those reporting to be Muslim (practicing or non-practicing) were included in the analyses. For detailed demographic data such as socio-economic status and age see Supporting Information. To assess personality, we used the Danish translation of the 100-item HEXACO-PI-R inventory (Zettler, 2015). Each of the six factors includes 16 items. For a better measurement of altruism, we included four items from the 200-item HEXACO ($\alpha = .70-.82$; for details see Supporting Information). For the purposes of this research we created

three measures to use as dependent variables (see Obaidi et al., 2018). These included non-violent intentions to defend Islam and other Muslims ($\alpha = .72$), a violent intentions counterpart ($\alpha = .87$), and intentions to assist Muslims carrying out acts of violence ($\alpha = .72$). Behavior intentions to personally use violence was strongly correlated with behavioral intentions to assist violent others ($r = .74, p > .001$). Thus, we combined all items related to violence into the same index ($\alpha = .87$). The decision to do so was also supported by an exploratory factor analysis. For more details see Supporting Information.

Study 2 was mainly aimed as a replication of the effects from Study 1 in a sample of Afghans in Afghanistan. This was a convenient online study using Facebook. We recruited 127 Afghans (46% women) in a data collection that took approximately three months. All of our participants identified themselves as Muslims. We aimed a sample size around 200 based on a power analysis (see method, Study 1), but due to challenges collecting data among hard-to-reach population and from a conflict zone (e.g., Afghanistan), we did not reach the aimed sample size in this and Study 4. A decision was made to stop the data collection after approximately three months. In this replication we focused specifically on the variables (α s = .80-.94) that were most clearly predictive of violent and non-violent intentions in Study 1 that is, altruism, emotionality, and openness using items from the HEXACO-60.

Study 3 was aimed to validate the results from studies 1 and 2 in sample of previous Jihadists in Afghanistan, testing the generalizability and the pertinence of our findings to real-world phenomena. The study was conducted among a sample ($N = 58$) of previous Mujahideen in Kabul (100% men), an organization that is associated with war crimes in Afghanistan (Braithwaite & Wardak, 2013). Study 3 was a pencil and paper snowball study and took over 3 months to collect the data. Also, in this replication we focused specifically on the same variables (α s = .82-.94) as Study 2.

Study 4 ($N = 104$, 44% women) was conducted among members of 15 different Islam-related Facebook sites in Belgium. Also, in this study we focused specifically on the variables (α s = .75-.93) that were used in studies 2 and 3.

Study 5 ($N = 202$, 56% women) took place in Sweden and participants were recruited from a yearly Muslim convention (“Muslim family days”) – the largest meeting place for Muslims in Scandinavia). It is important to note that some consider the event to be controversial due to links between invited speakers and the Palestinian organization Hamas as well as the Muslim Brotherhood (Gudmundson, 2014). Again, this replication we focused specifically on the variables (α s = .61-.82) that were employed in studies 2-4.

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Supporting Information for:

The Personality of Extremists: Examining Violent and Non-Violent Defense of Muslims
Milan Obaidi, Robin Bergh, Nazar Akrami, John F. Dovidio

Table S1
Overview of the samples size and proportion of female participants in Study 1-5

Study	Country	N	% Females	Mean (SD) Age
1	Denmark	222	64	^a
2	Afghanistan (Non-Mujahideen)	127	46	27.9
3	Afghanistan (Mujahideen)	58	00	45.6
4	Belgium	104	44	30.1
5	Sweden	202	56	22.8

^aAge was recorded in bins (percentage of participants) 18-20 (21,5%) 21-25 (33,5%), 26-30 (26,3%), 31-35 (8,6%), 36-40 (4,3%), 41-45 (1,9%), 46-50 (0,5%), 51-55 (1,0%), 56-60 (1,4%), 61-65 (0,0%), 66-70 (0,5%), 71-75 (0,0%), 76-80 (0,5%).

Table S2
Self-reported socioeconomic status in Study 1-5

Study	% upper	% upper middle	% middle	% lower middle	% working class
1	-	-	-	-	-
2	16	26	31	20	7
3	-	-	-	-	-
4	4	12	43	29	12
5	4	14	37	31	14

- Socioeconomic status was not measured. Socioeconomic status was measured by asking participants to indicate which socioeconomic class they belong to: Upper class, Upper middle class, middle class, lower middle class, or working class. In Study 5 the socioeconomic status was measured by a 7 step scales but recoded to enable comparison with the other studies.

Table S3
Overview of the variables included in each study

Variable	Study 1	Study 2	Study 3	Study 4	Study 5
	Denmark	Afghanista n	Mujahideen	Belgium	Sweden
Personality/Independent					
Honesty-humility	✓	✗	✗	✗	✓
Emotionality	✓	✓	✓	✓	✓
Extraversion	✓	✗	✗	✗	✗
Agreeableness	✓	✗	✗	✗	✗
Conscientiousness	✓	✗	✗	✗	✗
Openness to Experience	✓	✓	✓	✓	✓
Altruism	✓	✓	✓	✓	✓
Intentions – Dependent					
Non-Violent Intentions	✓	✓	✓	✓	✓
Violent Intentions	✓	✓	✓	✓	✓
Other					
Gender	✓	✓	✓	✓	✓
Socioeconomic status	✓	✓	✓	✓	✓
Age	✓	✓	✓	✓	✓

Table S4
Measures and items included in Study 1-5

Violent behavioural Intentions

1. If nothing else helps I'm prepared to use violence to defend Muslims.
2. As a last resort I'm personally ready to use violence for the sake of other Muslims.
3. I will personally use violence against people harming other Muslims that I care about.
4. I'm ready to go and fight for Muslims in another country.
5. I'm not prepared to use violence in any situation. (R)
6. I will not personally use violence to help Muslims. (R)
7. Even as a last resort, I will not use violence for the sake of others Muslims. (R)

Non-Violent behavioural Intentions

1. To help Muslims, I will sign petitions.
2. I'm prepared to stand up for Muslims by peaceful means.
3. I will express my support for Muslims by taking parts in public debates.
4. I'm not prepared to take part in a peaceful demonstration for Muslims. (R)
5. I will not express my support for Muslims in public. (R)
6. I am not prepared to take part in debates to defend Muslims. (R)

*Openness HEXACO-PI-R**

1. I would be quite bored by a visit to an art gallery. (R)
2. I'm interested in learning about the history and politics of other countries.
3. I would enjoy creating a work of art, such as a novel, a song, or a painting.
4. I think that paying attention to radical ideas is a waste of time. (R)
5. If I had the opportunity, I would like to attend a classical music concert.
6. I've never really enjoyed looking through an encyclopedia. (R)
7. People have often told me that I have a good imagination. (R)
8. I like people who have unconventional views.
9. I don't think of myself as the artistic or creative type. (R)
10. I find it boring to discuss philosophy. (R)

*Emotionality HEXACO-PI-R**

1. When it comes to physical danger, I am very fearful.
2. I would feel afraid if I had to travel in bad weather conditions
3. I sometimes can't help worrying about little things.
4. When I suffer from a painful experience, I need someone to make me feel comfortable.
5. I feel like crying when I see other people crying.
6. I worry a lot less than most people do. (R)
7. I can handle difficult situations without needing emotional support from anyone else. (R)
8. I feel strong emotions when someone close to me is going away for a long time.
9. Even in an emergency I wouldn't feel like panicking. (R)
10. I remain unemotional even in situations where most people get very sentimental. (R)

Altruism HEXACO-PI-R

1. I have sympathy for people who are less fortunate than I am.
2. I try to give generously to those in need.
3. It wouldn't bother me to harm someone I didn't like. (R)
4. People see me as a hard-hearted person. (R)

Note. (R) = Reverse scored. *In Studies 2 to 5 we included the *HEXACO 60*.

Table S5
Reliability indices for the variables in Study 1-5

Variable	Study 1	Study 2	Study 3	Study 4	Study 5
	Denmark	Afghanistan	Afghanistan (Mujahideen)	Belgium	Sweden
Emotionality	.80	.80	.91	.75	.64
Openness to Experience	.82	.89	.86	.84	.61
Altruism	.70	.80	.82	.84	.76
Violent behavioral intentions	.87	.94	.94	.90	.82
Non-violent behavioral intentions	.72	.83	.92	.93	.64

Table S6
Bivariate correlations among variables in Study 1-5 (Denmark/Afghanistan/Mujahideen/Belgium/Sweden)

Variable	Openness	Emotionality	Altruism	Non-violent intentions
Openness to Experience	--			
Emotionality	-.04/.13/.53/.21/.12	--		
Altruism	.10/.31/.29/.19/.25	.38/.24/.46/.29/.29	--	
Non-violent intentions	-.01/.05/-.04/-.04/.23	.06/.09/-.03/.25/.09	.33/.24/.18/.13/.43	--
Violent intentions	-.21/-.44/-.54/-.49/-.32	-.21/-.36/-.58/-.36/-.30	-.22/-.26/-.31/-.46/-.30	.12/.09/-.06/.01/-.21

Boldfaced coefficients are significant (two-tailed). Openness and Emotionality are based on HEXACO 60 in all studies.

Table S7
Mean (standard deviation) for the total sample, males, and females on variables in Study 1-5

Variable		Openness	Emotionality	Altruism	Non-violent	Violent
Study 1 (Denmark)	Total	3.33 (0.67)	3.32 (0.62)	4.27 (0.49)	4.11 (0.71)	2.02 (0.85)
	Male	3.23 (0.70)	2.92 (0.51)	4.08 (0.62)	3.98 (0.78)	2.42 (1.02)*
	Female	3.38 (0.65)	3.51 (0.58)*	4.36 (0.40)*	4.17 (0.68)	1.84 (0.69)
Study 2 (Afghanistan)	Total	3.68 (0.86)	3.23 (0.75)	3.95 (0.77)	5.24 (1.25)	3.03 (1.74)
	Male	3.48 (0.91)	2.97 (0.72)	3.76 (0.72)	5.23 (1.16)	3.96 (1.55)*
	Female	3.91 (0.73)*	3.53 (0.68)*	4.17 (0.78)*	5.25 (1.36)	1.95 (1.28)
Study 3 (Mujahideen)	Total	3.29 (0.78)	2.99 (0.94)	4.36 (0.59)	4.68 (1.87)	3.54 (1.95)
	Male	3.29 (0.78)	2.99 (0.94)	4.36 (0.59)	4.68 (1.87)	3.54 (1.95)
	Female	-	-	-	-	-
Study 4 (Belgium)	Total	3.60 (0.80)	3.37 (0.68)	3.56 (0.99)	4.85 (1.60)	3.34 (1.74)
	Male	3.47 (0.85)	3.32 (0.67)	3.33 (1.06)	4.70 (1.64)	3.62 (1.72)
	Female	3.76 (0.71)	3.43 (0.69)	3.85 (0.80)*	5.04 (1.56)	2.99 (1.73)
Study 5 (Sweden)	Total	3.21 (0.62)	3.17 (0.58)	4.00 (0.71)	3.92 (0.86)	2.58 (0.86)
	Male	3.19 (0.59)	2.97 (0.53)	3.80 (0.76)	3.76 (0.93)	2.76 (0.82)*
	Female	3.22 (0.65)	3.30 (0.58)*	4.13 (0.65)*	4.03 (0.79)*	2.46 (0.86)

*Significant gender differences, $p < .05$ (two tailed).

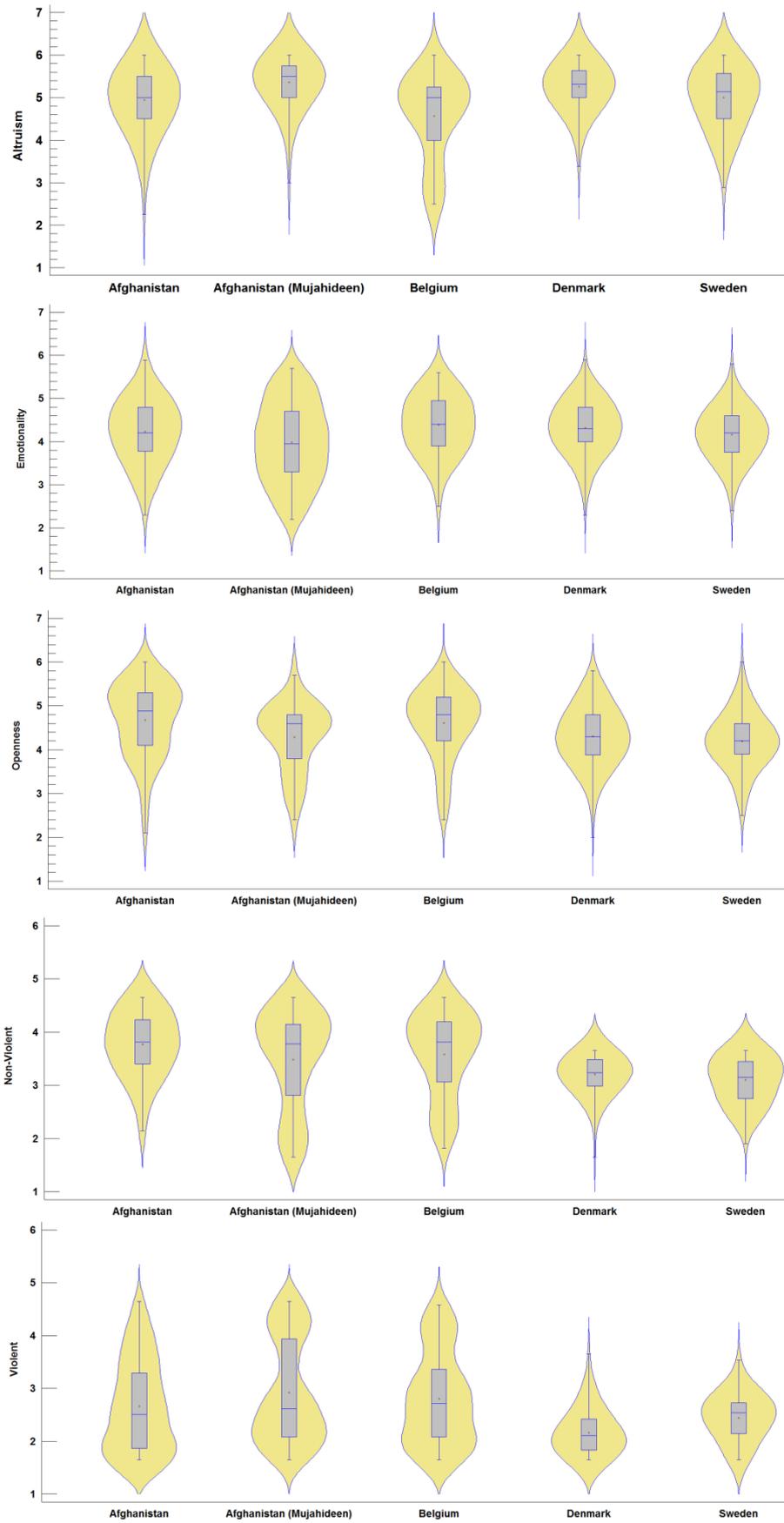


Figure S1. Distribution of key variables across all studies.

Table S8
Means on key variables for the Afghani Mujahideen (only males) and Non-Mujahideen (males and females) Samples

Variable	Non-Mujahideen			Mujahideen			<i>t</i> (183)	<i>p</i> (two tailed)
	<i>M</i>	<i>SD</i>	<i>SE</i>	<i>M</i>	<i>SD</i>	<i>SE</i>		
Openness to Experience	3.68	0.86	0.08	3.29	0.78	0.10	2.96*	.00
Emotionality	3.23	0.75	0.07	2.99	0.94	0.12	1.88	.06
Altruism	3.95	0.77	0.07	4.36	0.59	0.08	-3.62*	.00
Non-violent behavioral intentions	5.24	1.25	0.11	4.68	1.87	0.25	2.42*	.02
Violent behavioral intentions	3.03	1.74	0.15	3.54	1.95	0.26	-1.77	.08

Table S9
Means on key variables for the Afghani Mujahideen (only males) and Non-Mujahideen (only males) Samples

Variable	Non-Mujahideen			Mujahideen			<i>t</i> (124)	<i>p</i> (two tailed)
	<i>M</i>	<i>SD</i>	<i>SE</i>	<i>M</i>	<i>SD</i>	<i>SE</i>		
Openness to Experience	3.48	0.91	0.11	3.29	0.78	0.10	1.26	0.21
Emotionality	2.97	0.72	0.09	2.99	0.94	0.12	-0.10	0.92
Altruism	3.76	0.72	0.09	4.36	0.59	0.08	-5.02	0.00
Non-violent behavioral intentions	5.23	1.16	0.14	4.68	1.87	0.25	2.03	0.05
Violent behavioral intentions	3.96	1.55	0.19	3.54	1.95	0.26	1.34	0.18

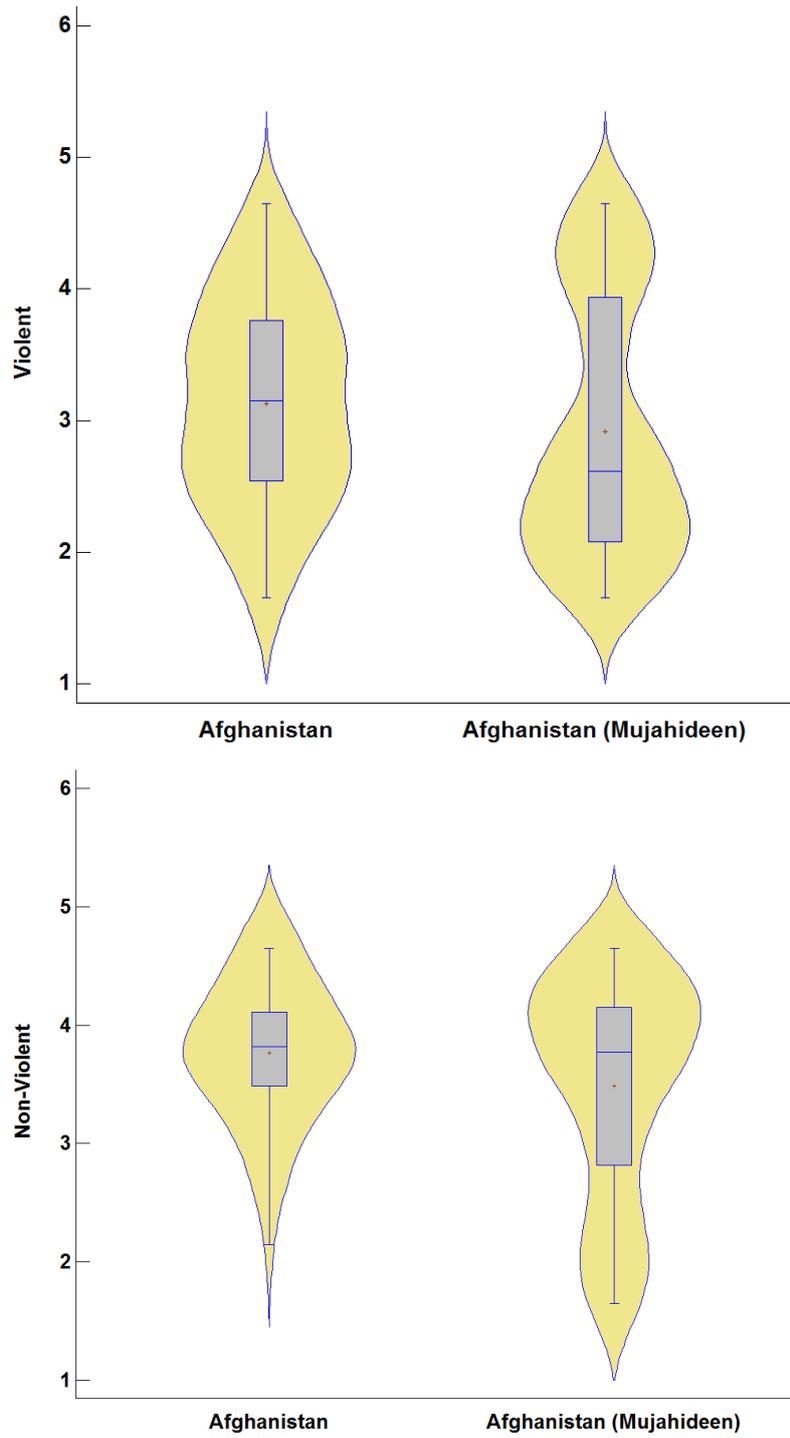


Figure S2. Distribution of Violent and non-violent intentions for the Afghani Samples (only males)

Validation of the dependent variables

In the following preset results related to the validity of our dependent measures (violent and non-violent behavioral intentions). We started by examining the mean differences between the Non-Mujahideen and Mujahideen samples, mean differences between and females and mean differences between the violent behavioral intentions in one hand and non-violent behavioral intentions on the other. Further, we examined the structure of the two dependent measures by conducting exploratory factor analysis. Furthermore, we examined the validity of violent behavioral intentions measure to differentiating between individuals who endorse, as opposed to reject, violence to defend Muslims. Finally, we examine the relation between our violent and non-violent behavioral intentions measures and an actual behavior in terms of donation.

Mean differences (violent VS. non-violent, and Gender differences,)

We simultaneously the mean differences of the violent and non-violent intentions and gender differences in all studies (accept the Mujahideen sample where only mean differences of the violent and non-violent intentions we examine). A general linear model with violent and non-violent intentions as within subject a repeated measure variables and gender as a between subject variables for each sample showed a significant main effect of gender in two studies indicated the females score lower in the intention measures. Further, the results revealed a significant within-subject effect (violent vs. non-violent) in all five studies indicating that participants scored higher on non-violent compared to violent intentions. Moreover, there was a significant interaction effect in all studies where examining the interaction effect was possible (all except the Mujahideen sample). These significant interactions showed females scored higher than males on non-violent intention but the other way around on violent intentions (see Table 10 and Figure S1).

Table S10

Means scores on violent and Non-violent behavioral intentions as a function of gender. The F-values denote testing of gender differences (between subject), within-subject differences of the means of violent and Non-violent behavioral intentions (within subject), and instruction effect.

Study/behavioral intentions	Male		Female		F (between) Partial eta ²	F (within) Partial eta ²	F (interaction) Partial eta ²
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Study 1 (Denmark)							
Non-violent	3.98	0.78	4.17	0.68	4.96*	704.46**	27.45**
Violent	2.42	1.02	1.84	0.69	.02	.77	.12
Study 2 (Non-Mujahideen)							
Non-violent	5.23	1.16	5.25	1.36	30.48**	202.45**	39.75**
Violent	3.96	1.55	1.95	1.28	.20	.62	.24
Study 3 (Mujahideen)							
Non-violent	4.68	1.87	-	-	-	9.62**	-
Violent	3.54	1.95	-	-	-	.14	-
Study 4 (Belgium)							
Non-violent	4.70	1.64	5.04	1.56	0.36 <i>ns</i>	46.03**	4.43*
Violent	3.62	1.72	2.99	1.73	.00	.32	.04
Study 5 (Sweden)							
Non-violent	3.76	0.93	4.03	0.79	0.04 <i>ns</i>	169.79**	10.21**
Violent	2.76	0.82	2.46	0.86	.00	.48	.05

- There were no females in the Mujahideen sample (Study 3).

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

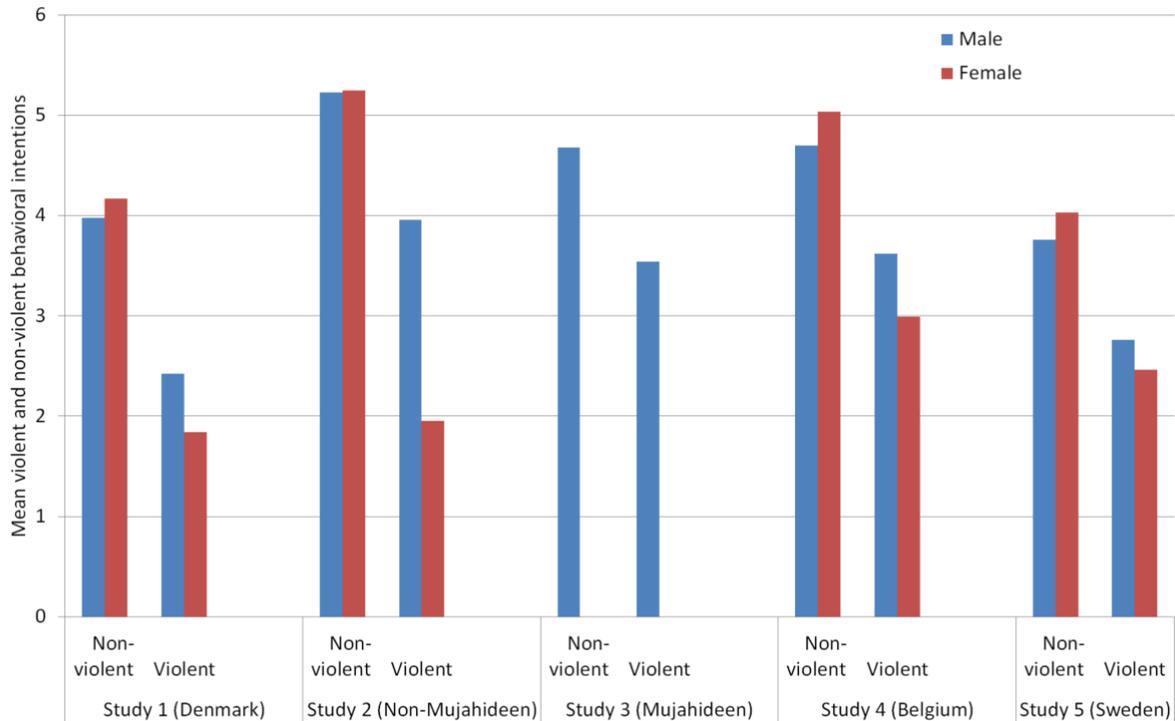


Figure S3. Mean violent and non-violent intentions as a function of gender across all studies.

Exploratory Factor Analysis for Behavior Intentions (Study 1)

For the purposes of our studies we created items to assess non-violent and violent behavior intentions, as well as a willingness to help others carrying out violence. However, an exploratory factor analysis in Study 1 (using robust maximum likelihood) suggested that only two factors had eigenvalues above chance level. Specifically, this was concluded in a parallel test with 50 random datasets (see e.g., Fabrigar, Wegener, MacCallum, & Strahan, 1999). Also, from a one- to two-factor solution the RMSEA dropped from .11 (poor fit) to .08 (acceptable fit), and beyond that the fit improvements were smaller (.07 for a three-factor solution). A scree-plot including the results of the parallel test is presented in Figure S1. Geomin rotated loadings (for the two-factor solution) are presented in Figure S4.

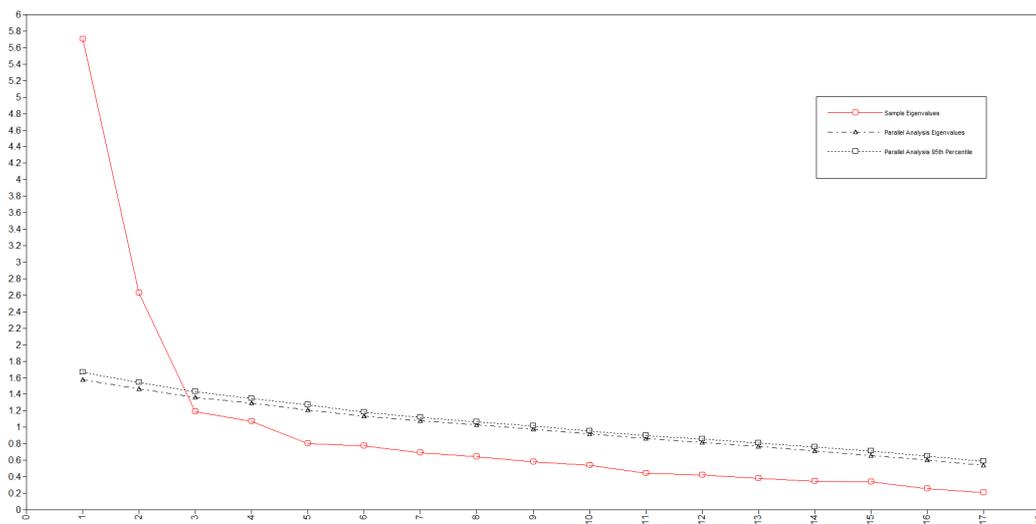


Figure S4. Scree plot from parallel test with 50 random datasets, the analysis are based on all items for violent, violent assistance, and non-violent behavior intentions.

GEOMIN ROTATED LOADINGS (* significant at 5% level)		
	1	2
V1	0.812*	0.029
V2	0.834*	-0.084
V3	0.697*	0.037
V4	0.555*	0.168
V5R	0.666*	0.010
V6R	0.698*	0.047
V7R	0.594*	0.016
A1	0.729*	-0.016
A2	0.665*	-0.138
A3R	0.702*	-0.151
A4R	0.504*	-0.085
NV1	-0.087	0.406*
NV2	0.011	0.461*
NV3	-0.006	0.703*
NV4R	-0.218*	0.416*
NV5R	0.003	0.667*
NV6R	0.030	0.684*

Figure S5. Mplus screenshot showing the rotated loadings in the two-factor solution for violent (V1-V7R), violent assistance (A1-A4R), and non-violent (NV1-NV6R) behavior intentions.

Item Response Analysis for Violent Intentions

The violent intention measure was developed under the assumption that individuals vary on a continuum from completely unwilling to use violence on behalf of a group (Muslims here) to completely willing to engage in violent acts deemed extreme by most people. To capture the full spectrum we further varied the type of violence from ones that most people might agree with (e.g., “I will personally use violence against people harming other Muslims that I care about”) to ones that we expected few to agree with (e.g., “I’m ready to go and fight for Muslims in another country”). In other words, the items varied in “difficulty” of agreement and we expected respondents to vary in their thresholds of violence that they perceive as acceptable or not. Item response theory is ideal for testing such assumptions (e.g., Baker, F. B., & Kim, S.-H. (2004). *Item response theory: Parameter estimation techniques*. New York, NY: Marcel Dekker.). Perhaps more important, item response analysis would also provide a test of the idea that all items differentiate individuals along the same underlying propensity (willingness to use violence for the sake of other Muslims). Alternatively, critics could argue, our scale might be unipolar and solely differentiating individuals in meaningful ways at the lower end of the scale (i.e. levels of “group pacifism”). To address both the question of difficulty (or location in IRT terminology) and capturing individual variability along the whole theorized spectrum (discrimination) we used a two-parameter model (2PL). We estimated this model for the first sample in Mplus (version 7.3; Muthén & Muthén, 2012).

Figure 1 illustrates item response curves for the probability of answering 4 or 5 on the 5-point scale (strong agreement). Curves that are further to the left are better at differentiating between individuals at low levels of endorsed violence; curves toward the right are better at differentiating individuals at high levels of violence (reflecting the difficulty parameter). The steeper the curve, the better the item is at differentiating those who reject versus endorse violence (discrimination parameter). Most items discriminate well, including the most extreme item (see e.g., response curve for item 4).

Overall, the full instrument is better at differentiating individuals who endorse, as opposed to reject, violence to defend Muslims. This is reflected in the total information curve in Figure 2. This finding contradicts the notion that the instrument is primarily a pacifism measure. Instead, the findings overall supports the notion that the current instrument can be used to distinguish individuals who are especially likely to endorse extremist Islamist violence (see also the results in the main text for comparing Mujahideen with a general-population sample in Afghanistan).

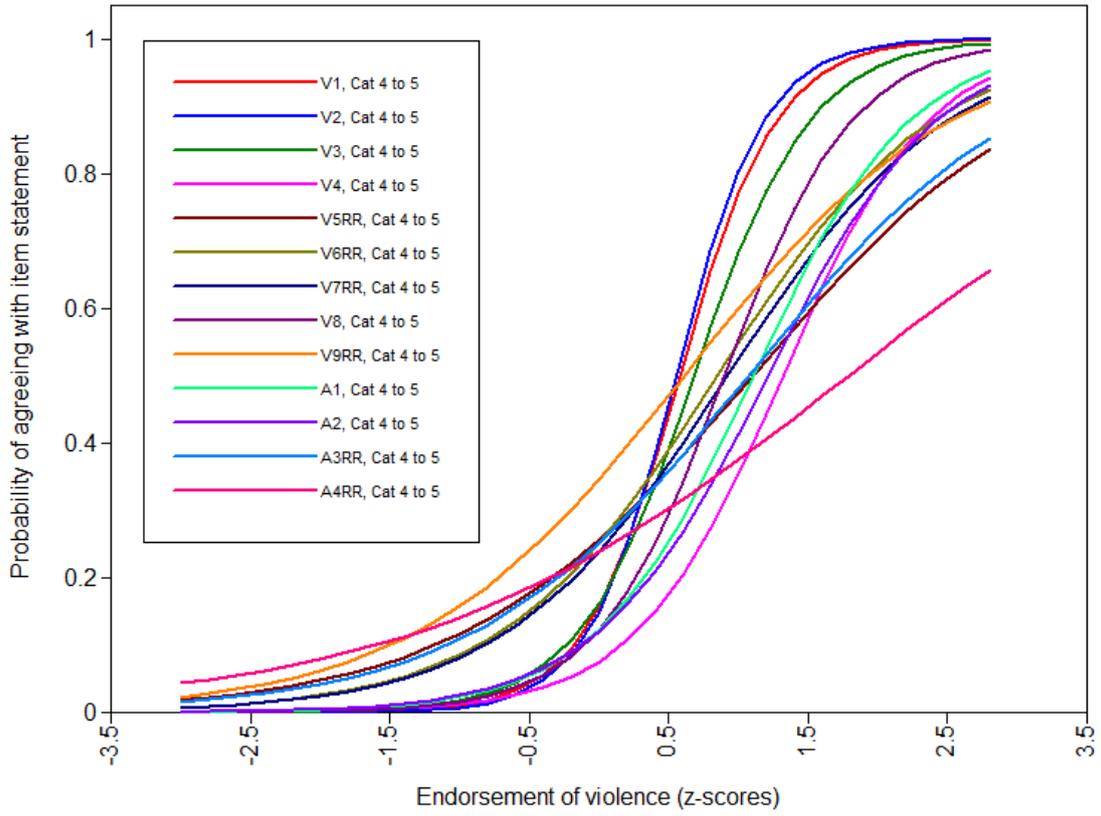


Figure S6. Item response curves for violent intentions.

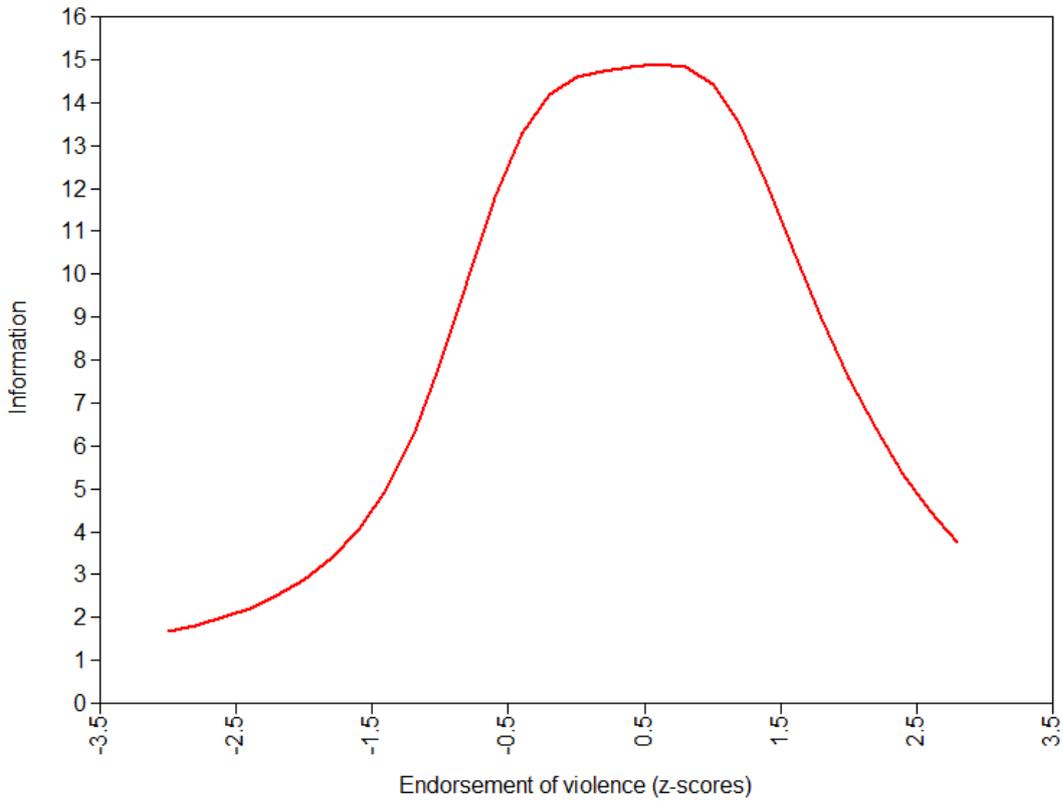


Figure S7. Total information curve for violent intentions.

31% of the participants chose to donate their entire reward, whereas 69% kept the whole amount. Responses were recoded into a binary variable (0 = no donation, 1 = donation) as nobody donated half. As expected, donations were positively related to non-violent intentions (point biserial $r = .16$, 95% CI [.01, .29], $p = .02$). Donations were also negatively related to violent intentions (point biserial $r = -.18$, 95% CI [-.01, -.31], $p = .01$). Finally, we ran a logistic regression with donations as the dependent variable and the HEXACO variables as predictors. As in the case of non-violent behavioral intentions, altruism was the strongest predictor of donations. In fact, that was the only significant predictor ($\beta = 0.22$, $p = .05$). However, adding honesty-humility to the model this variable turned out to be a better predictor ($\beta = 0.33$, $p < .001$) and the empathy relationship dropped to non-significance ($\beta = 0.06$, $p = .59$).

Path Analyses – full model, Study 1 (Denmark)

We initially conducted path analyses (using robust maximum-likelihood estimation to account for non-normal outcome distributions) employing all HEXACO dimensions, and the interstitial facet of Altruism, as predictors of non-violent and violent intentions among Danish Muslims in Denmark. The results are depicted in *Figure S8*.

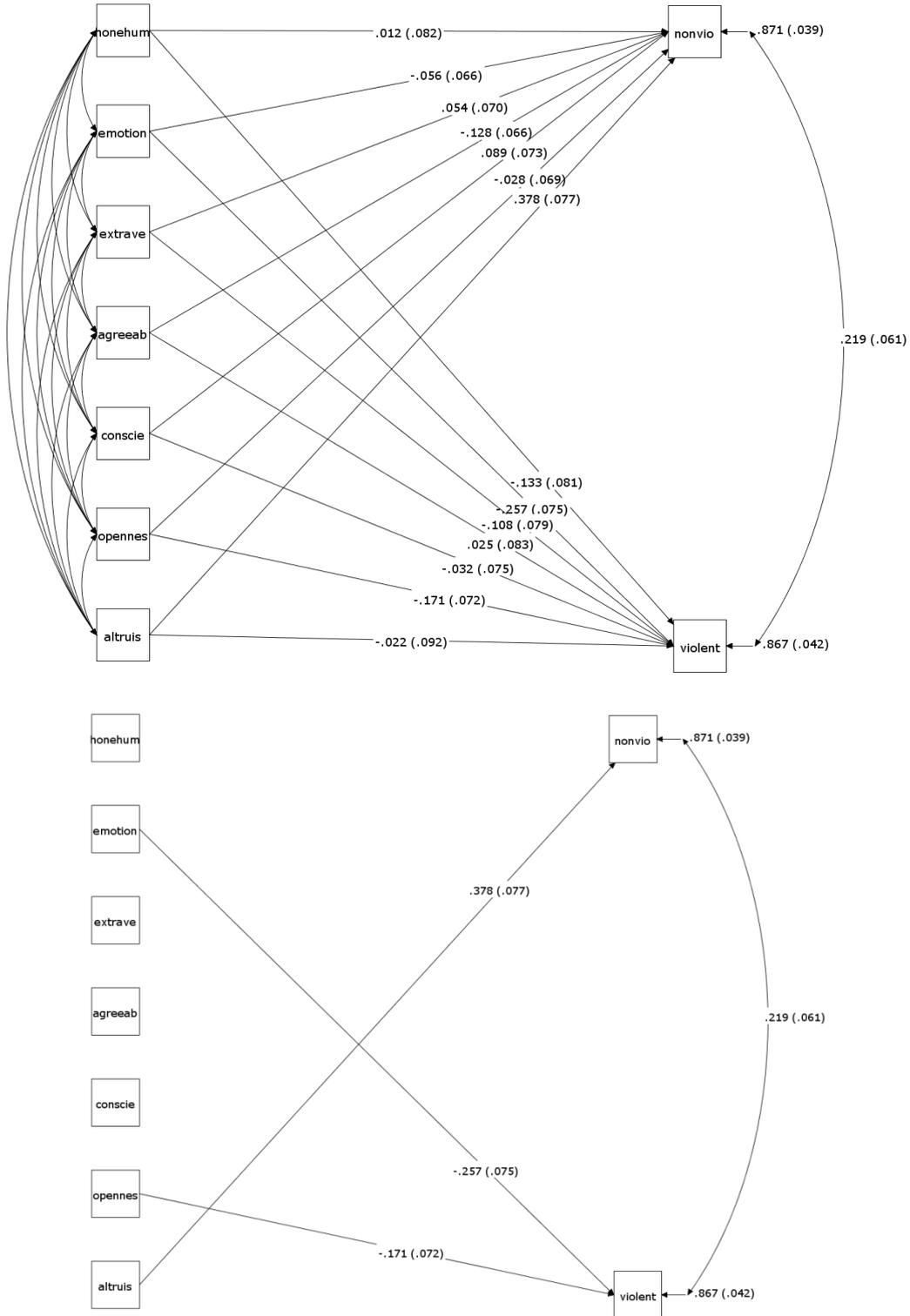


Figure S8. Path diagram and standardized path coefficients (standard errors) with HEXACO factors and Altruism predicting violent and non-violent intentions in Study 1 (Denmark). The model nethermost shows only significant paths ($p < .05$)

We observed a suppressor effect for agreeableness ($\beta = -0.13, p = .052$) and thus conducted the analysis above with only agreeableness as a predictor of non-violent intentions. The results showed that agreeableness changed sign, from negative to positive. The results are depicted in *Figure S9*.

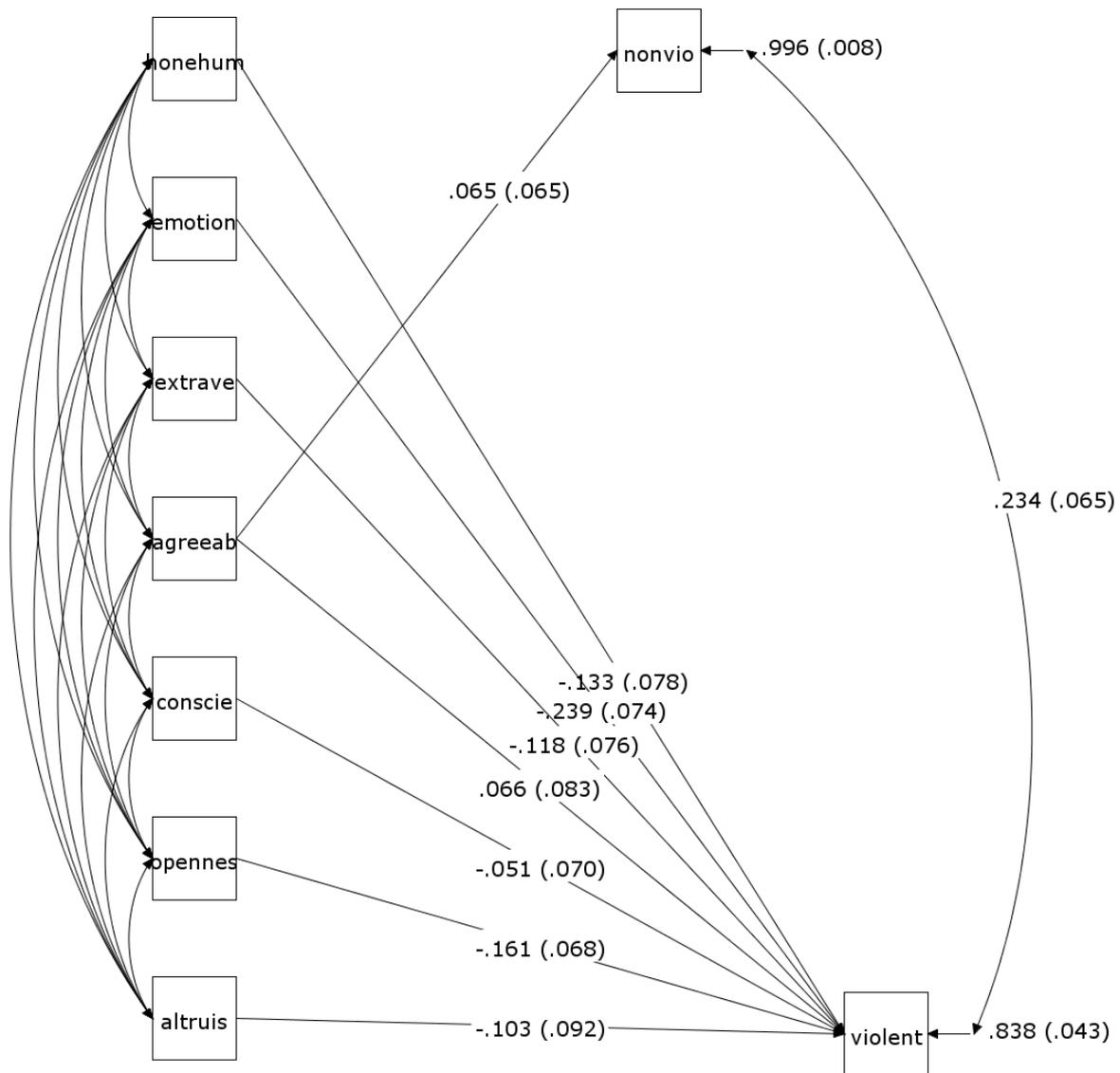


Figure S9. Path diagram and standardized path coefficients (standard errors) with HEXACO factors and Altruism predicting violent intentions and Agreeableness predicting non-violent intentions ($\beta = 0.065, p = .32$) in Study 1 (Denmark).

Regression Analyses with Demographic Covariates (Gender and Age)

In the following preset robustness checks of our results with demographic covariates age and gender.

Study 1 (Denmark). With the addition of age and gender, the personality effects were at least on par with the original model, with a couple exceptions – the path coefficient of emotionality on violence dropped in strength and turned nonsignificant ($p = .15$, two tailed).

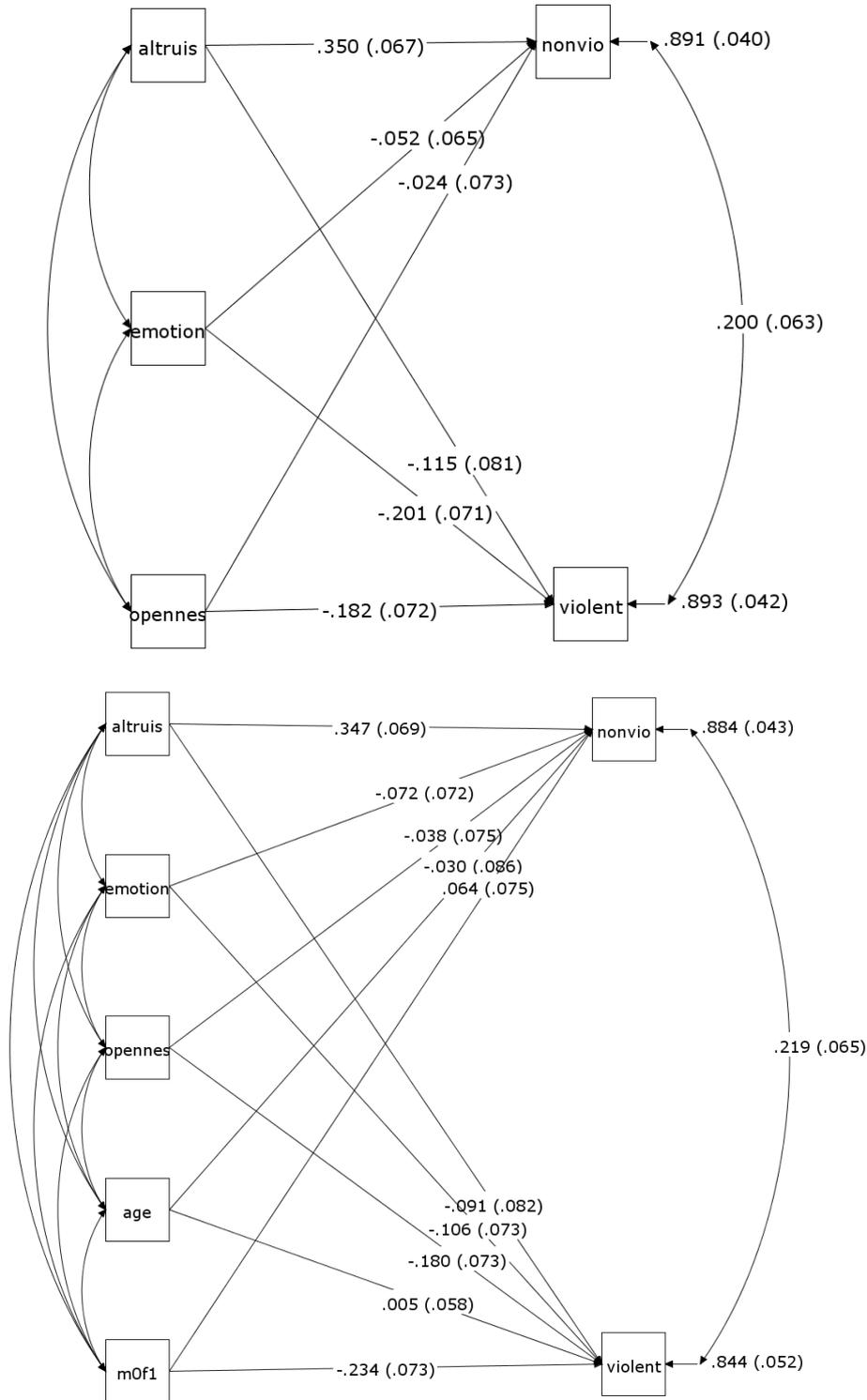


Figure S10. Path diagram and standardized path coefficients (standard errors) with personality factors predicting violent and non-violent intentions without with gender (m0f1) and age as covariates.

Study 2 (Afghanistan, Non-Mujahideen). With the addition of age and gender, the personality effects were at least on par with the original model, with a couple exceptions – the emotionality-violence and the openness-violence paths dropped in strength. Importantly, these paths remained significant ($p < .05$).

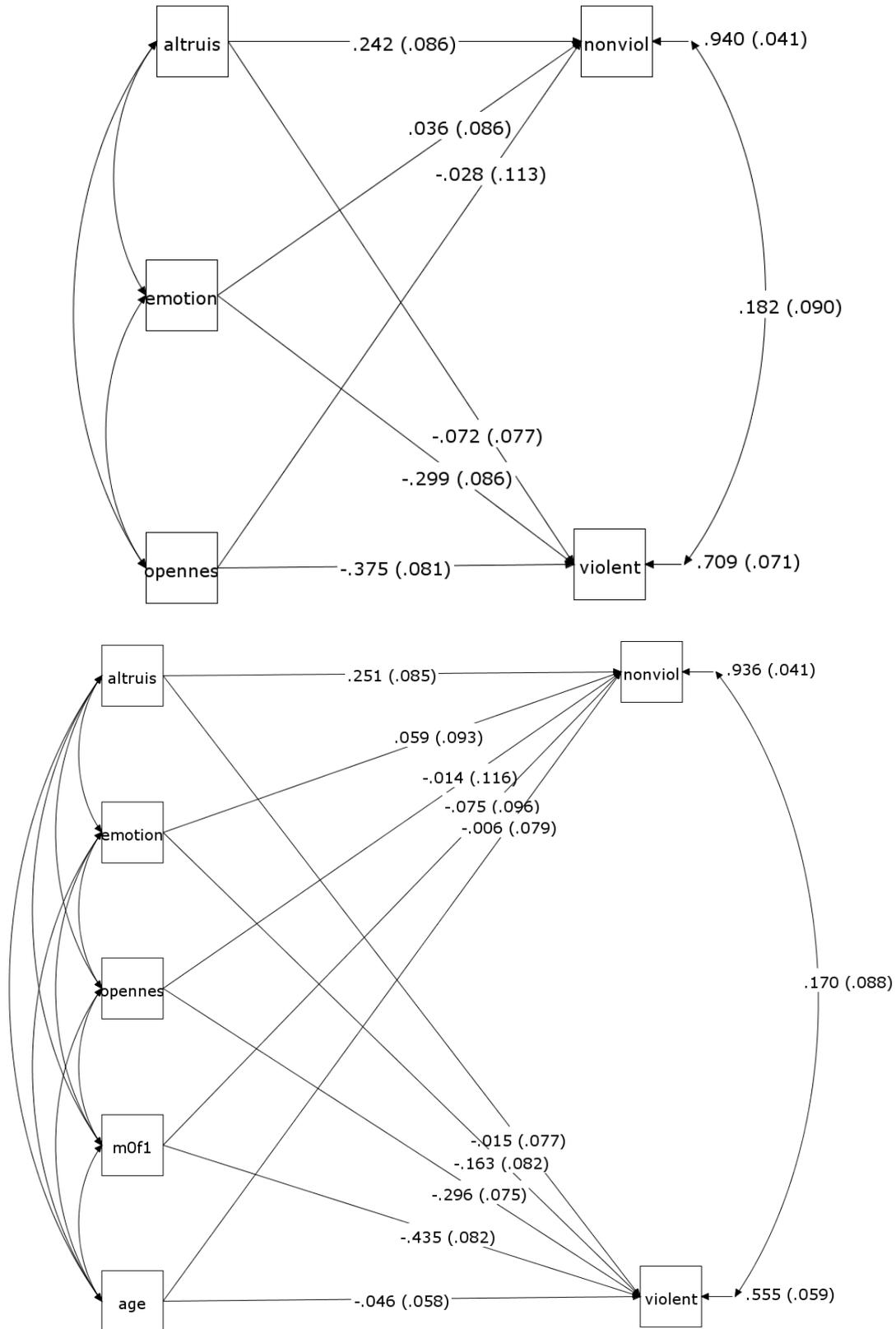


Figure S11. Path diagram and standardized path coefficients (standard errors) with personality factors predicting violent and non-violent intentions without/with gender (m0f1) and age as covariates.

Study 3 (Afghanistan, Mujahideen). As there were no females in the Mujahideen sample, we could only add age as covariates. The results showed that the personality effects were similar to these in the original model.

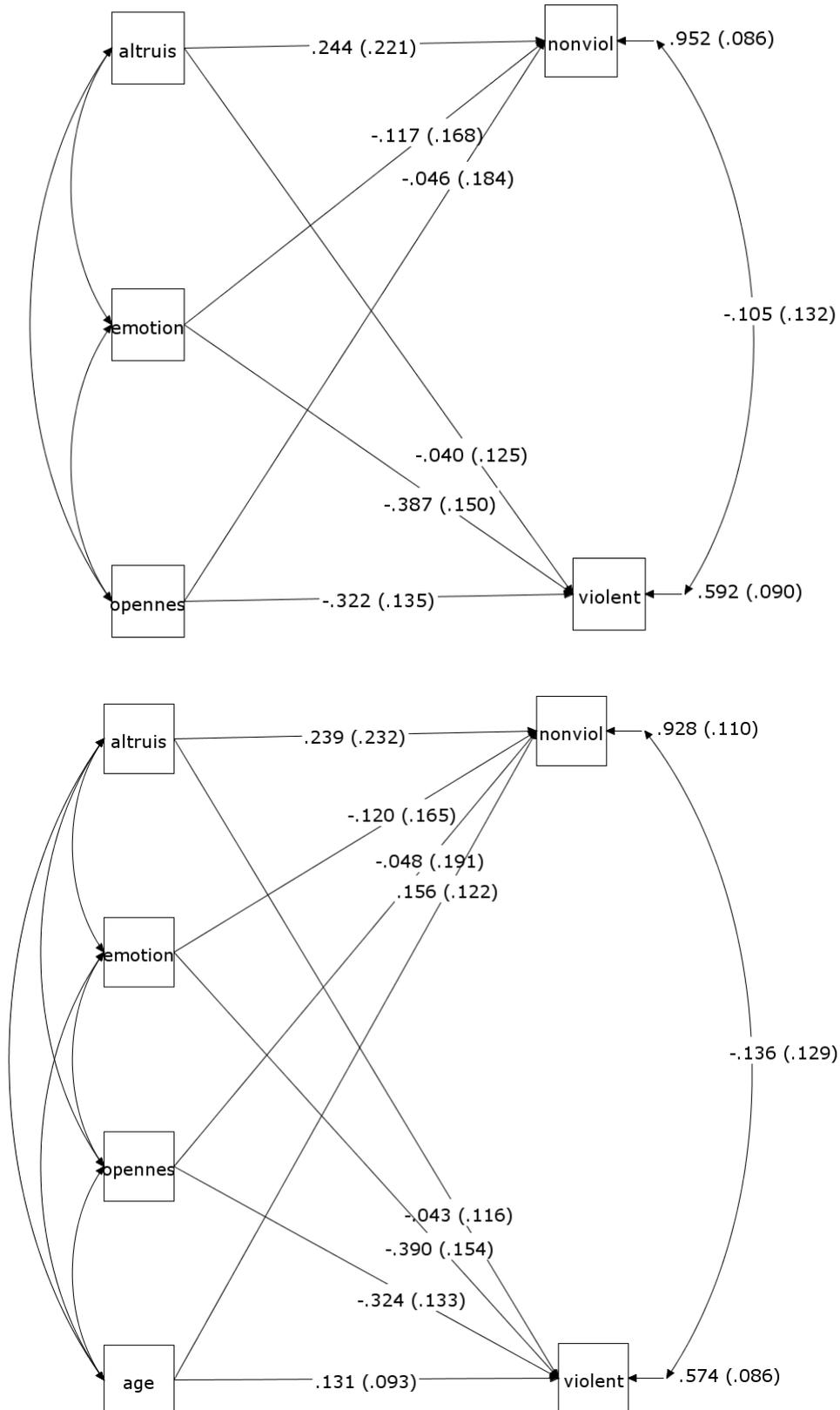


Figure S12. Path diagram and standardized path coefficients (standard errors) with personality factors predicting violent and non-violent intentions without/with age as covariates.

Study 4 (Belgium). With the addition of age and gender, the personality effects were similar to these in the original model.

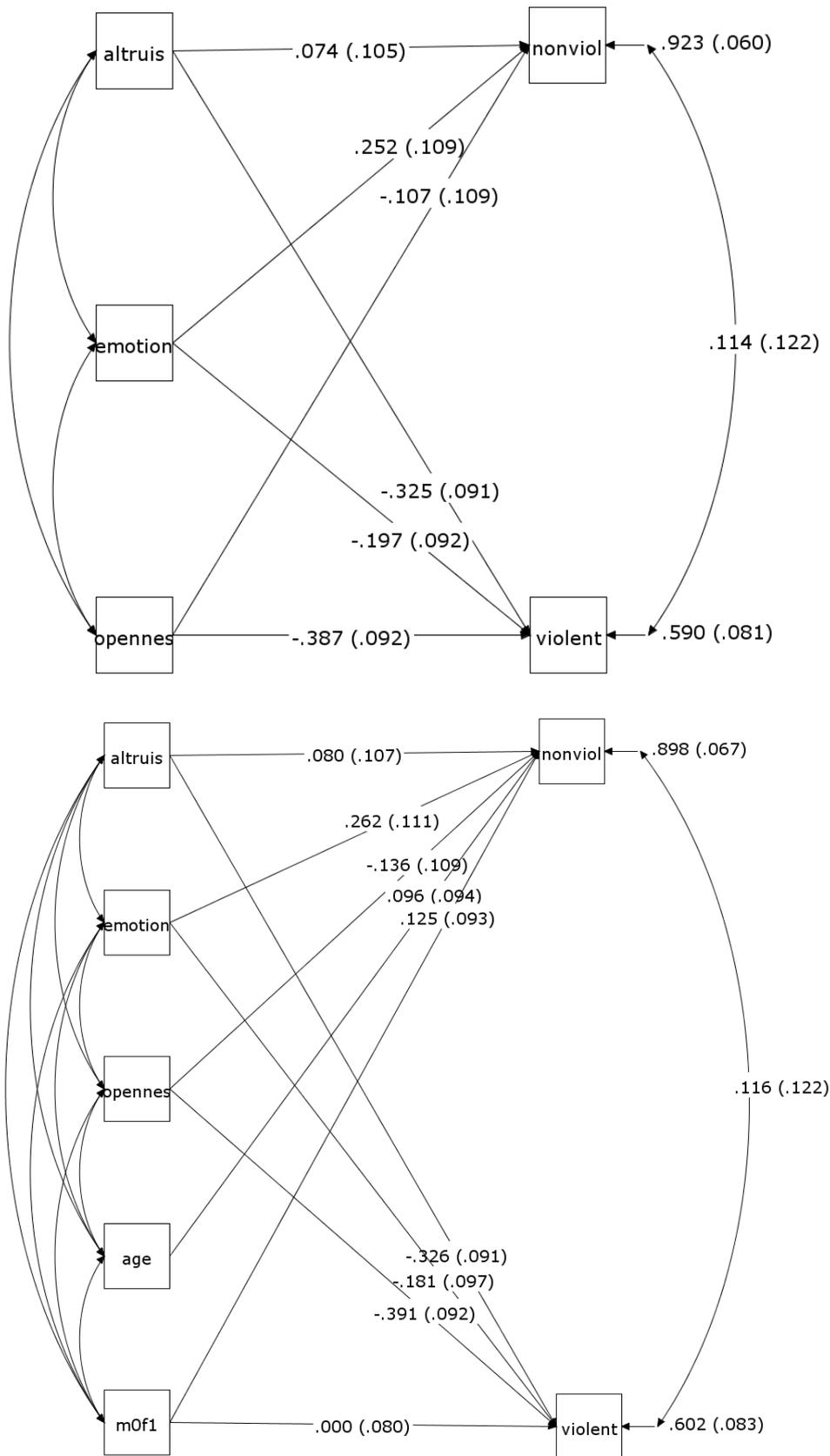


Figure S13. Path diagram and standardized path coefficients (standard errors) with personality factors predicting violent and non-violent intentions without/with gender (m0f1) and age as covariates.

Study 5 (Sweden). With the addition of age and gender, the personality effects were similar to these in the original model.

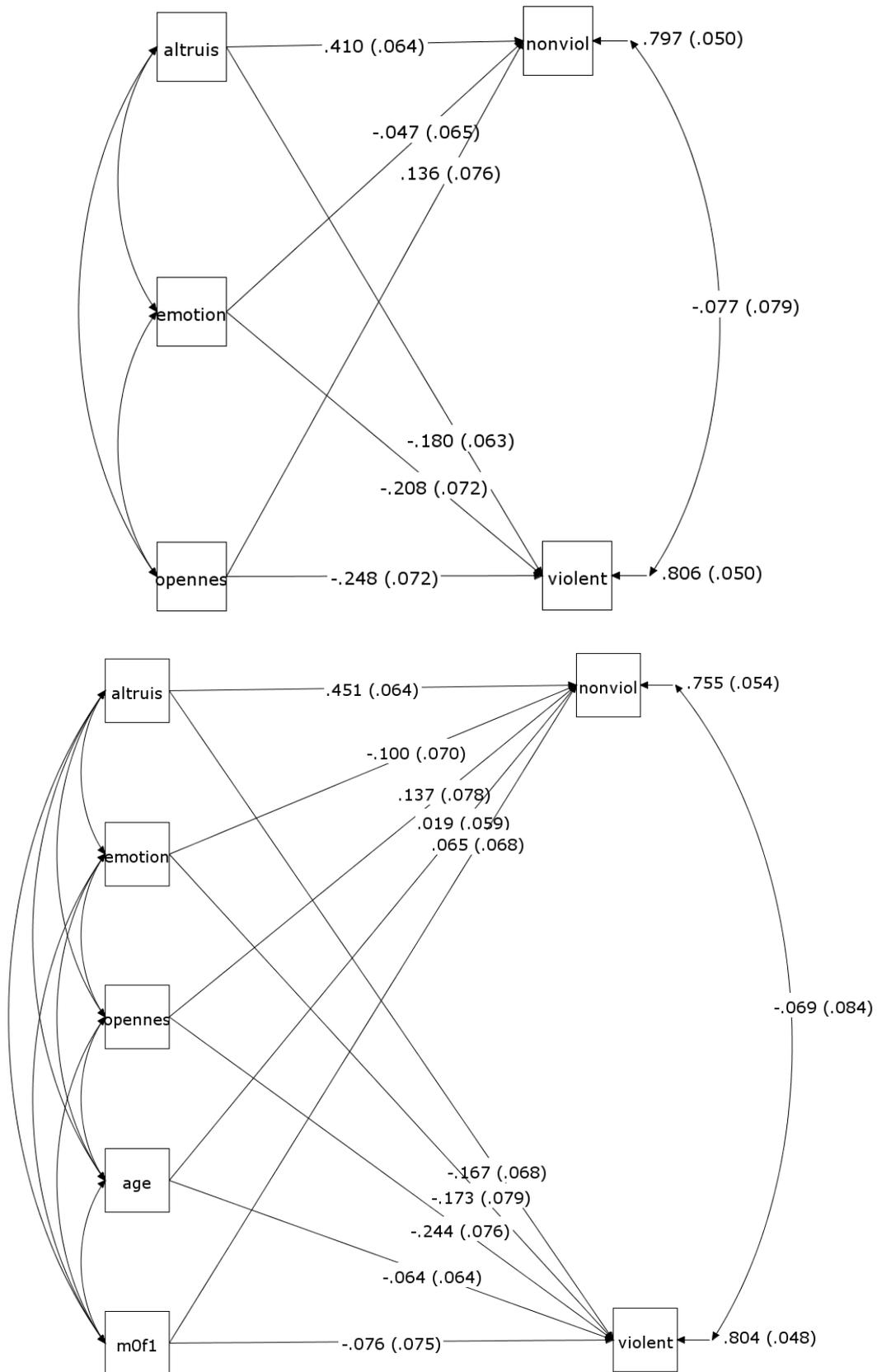


Figure S14. Path diagram and standardized path coefficients (standard errors) with personality factors predicting violent and non-violent intentions without/with gender (m0f1) and age as covariates.