Can social bonds and social learning theories help explain radical violent extremism?

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**ABSTRACT**
Radical violent extremism is a growing concern for the Nordic countries. In this interest, we examine how traditional criminological theories can help to explain the difference between violent and non-violent radical extremist individuals. We analyse the Profiles of Individuals Radicalized in the United States (PIRUS) dataset, with information on 2148 radical criminals in the United States, using a logistic regression, wherein violence was the dependent variable. The independent variables corresponded to aspects of social bonds and social learning. Results indicate that social bond theory has little predictive value for violence among radical criminals. Social learning perspectives were somewhat more predictive, with radical peers having a significant positive effect on the likelihood of radical violence. Socio-economic status, ideology and criminal history had significant positive effects as well. We conclude by exploring theoretical explanations, further research implications and discuss a Nordic version of a database.

**Introduction**

Terrorist attacks in Europe have greatly declined since the 1970s, but the number of incidents has increased in the last decade (Statista Research Department, 2019). Consequently, public concern with radical violent extremism has risen in the Nordic countries. This concern typically follows from highly publicized violent attacks (Dinesen & Jaeger, 2013), such as the Stockholm vehicle ramming, and Breivik’s attack (Berntzen & Sandberg, 2014; Miller & Hayward, 2018). Furthermore, there is a growing realization that these may be less ‘lone wolf’ actors, and more social movement-related, than previously thought. This concern also covers the foreign fighters that travelled from Nordic countries to the ISIS caliphate, as they elucidated how the criminal and jihadi worlds increasingly merge in a crime–terror nexus (Ilan & Sandberg, 2019; Rostami et al., 2020). Lastly, the prevalence of deadly attacks by the far right is higher in Sweden than in the rest of Western Europe (Malkki et al., 2018). While the numbers of terror attacks in the Nordic countries is low compared to other Western states, the academic focus on radical violent extremism is even lower. Consequently, tools for rigorous scientific research on violent radicalism are more prevalent in other Western countries. Specifically, the National Consortium for the Study of Terrorism and Responses to Terrorism (START) has developed...
one such tool – a database comprised the characteristics of over 2000 persons who have committed radically motivated crimes in the U.S.

In this study, we examine differences between violent and non-violent radical extremist individuals from the perspective of social bonds and social learning theory. Specifically, we apply social bonds and social learning theory to the most recent version of the PIRUS dataset (n = 2148). In the interest of improving our understanding of what separates violent and non-violent radical crime we pose the research question as follows: How do social bonds and social learning influence the likelihood of violent radical crime among radicalized persons in the United States?

This article deals exclusively with domestic radicalization in the U.S., as everyone included in the dataset was radicalized here – the results will therefore not be generalized to the Nordic region. Rather, we argue that our findings can be used to develop areas for cross-contextual research and demonstrate what quantitative studies of violent radicalism could look like in the Nordics. A database similar to PIRUS but with Nordic data, could enable and promote further quantitative analysis of violent radicalization. Lastly, note that we do not compare radical violent criminals with the general populace.

Internationally, research into radicalization that leads to violent extremism has made steady strides in the last several years. This progress has been facilitated by EU funding and the availability of large datasets on individual-level radicalism (LaFree et al., 2020). Europe-specific databases, such as Terrorism in Western Europe: Event Data (TWEED) and the Global Terrorism Database (GTD), focus on macro data, events, locations, and broad statistics on terrorism. Internationally, the National Consortium for the Study of Terrorism and Responses to Terrorism (START), Profiles of Individuals Radicalized in the United States (PIRUS), and the German Institute on Radicalization and De-radicalization Studies (GIRDS), have contributed to recent quantitative research into radical violent extremism. At present, much of the individual-level studies rely on qualitative interviews, documents, and ethnographic fieldwork (Bartlett & Miller, 2012; Blee, 2007; Larsen, 2020; Sandberg et al., 2014; Simi & Futrell, 2015) or reviews (Björgo, 2011; Crone, 2016; Khalil, 2014; McCauley & Moskalenko, 2008). This research has found that the individual-level mechanisms relate to socialization, a desire for significance, and political and personal grievances, in combination with socioeconomic mechanisms, and perceived deprivation. When it comes to the role of absolute socioeconomic status and education, the results are inconclusive (see Krueger and Malečková, 2003 for socioeconomic role) and these mechanisms may operate through grievances politicization (Lee, 2011; McCauley & Moskalenko, 2008; Borum, 2011).

The field of research into radicalization and violent extremism emerged from political science, social psychology and national security arenas, but lacks criminological focus (Safer-Lichtenstein et al., 2017), which is perplexing, given that terrorism is a form of crime (Clarke & Newman, 2006). Waele and Pauwels (2016) noted that radicalization research could benefit from social bonds and social learning theories because they provide new insights into the social dynamics, attachments, and societal involvement (Akers, 2009; Alston et al., 1995; Ilan & Sandberg, 2019; Sunde et al., 2020). A criminological focus can address the lack of distinction between violent and non-violent radicalism, which is currently a central issue in the radicalization field. This distinction has gained attention with many researchers noting that the pathways to, and corresponding tactics for fighting radical violent extremism, may not be the same as those for general radicalization, or at
least that it is a linear process form ideology to violence (see e.g. Bartlett & Miller, 2012; Crone, 2016; Khalil, 2014; Lee, 2011). As Borum (2011, p. 6) stated, ‘to focus narrowly on ideological radicalization risks implying that radical beliefs are a proxy – or at least a necessary precursor – for terrorism, though we know this not to be true … radicalization – and more specifically, involvement in terrorism – might best be viewed as a set of diverse processes’.

A recent study by Jensen et al. (2020) analysed the question of separating violent and non-violent radicalism by creating life-course narratives of 56 individuals. They found that a sense of group persecution, and cognitive framework changes, were necessary for violence. Specifically, community grievance may differentiate violent from non-violent extremists. Jasko et al. (2017) found economic failure, social detachment, ties to radical peers, and a history of personal abuse were significant predictors of violence. LaFree et al. (2018) analysed the PIRUS dataset in 2016 (n = 1473), and found a lack of stable employment, presence of radical peers, mental illness and criminal history had significant, robust effects on the likelihood of violence among extremists. Becker (2019) analysed an earlier version of PIRUS and examined the relationship between social learning and social control with violent or non-violent forms of extremism (n = 1757). The findings indicated that weaker social control and stronger social learning were associated with violent more than non-violent extremism. Of the social control variables, marriage was significant and negative. A more developed set of radical beliefs was positively significantly associated, and being a student was marginally negatively associated. For social learning, gang affiliation was positively associated with violence but extremist group membership was only marginally positively significant. In contrast to LaFree et al. (2018), he found no significant support for employment variables.

Borum (2011) recommended moving away from the focus on ideological radicalization and towards a broader analysis of diverse social processes. Social bonds and social learning theory hold particular relevance for the analysis of radical violent extremism with their focus on social connections, inclusion, and values. While these are central theoretical perspectives in criminology, they have rarely been applied to radical crime (Becker, 2019; LaFree et al., 2018).

In his social bond theory, Hirschi (1969) argued that one’s connections to others and to conventional society discourage delinquency (Alston et al., 1995). These bonds fall into four categories: attachment, or one’s bonds with other persons such as family and peers; involvement, meaning one’s participation in conventional activities such as stable employment and education; commitment, or one’s goals and aspirations as related to conventional society and their actualization; and beliefs/shared values, indicating one’s belief in conventional values and systems in agreement with society at large. Laub and Sampson (1993) developed this as part of life-course theories of crime, arguing that ‘turning points’ can function similarly to social bonds in delinquency deterrence, i.e. marriage, the loss of a family member, education.

The social learning perspective holds that peer and group interactions and communication are the strongest mechanisms of criminal behaviour (Akers, 2009). This is an individual-level operationalization of a greater issue, referred to as ‘normative conflict,’ in which groups of people in society disagree on the normative assumptions regarding rule of law and central values (Matsueda, 1988). Differential association is the means by which the individual learns how to be a criminal, both in practical skills, and more importantly, values,
attitudes, and rationalizations regarding rule breaking. This theory has relevance to radicalization mechanisms, rationalization, and social dynamics, which appear often in radicalism and terrorism research (e.g. Bartlett & Miller, 2012; McCauley & Moskalenko, 2008).

While these theories are meant to describe and predict offending in general, several studies have found relationships between social bonds, social learning, and physical violence (see, for social bond theories and violent offences, Lackey & Williams, 1995; Menard & Grotipeter, 2011; Fajnzylber et al., 2002; Wintemute, 1998; for peer influence, see Henry et al., 2001; Menard & Grotipeter, 2011). Because of this research, and the limited research on violent versus non-violent radicalism, we found these theories to be an interesting area of criminology-radicalism research crossover with a focus on violence versus non-violence.

Data and methods

PIRUS is an initiative of the National Consortium for the Study of Terrorism and Responses to Terrorism (START). The dataset is compiled from open-source information, court documents, newspaper archives and online news articles, and includes persons espousing far-right, far-left, Islamic and single-issue ideologies which motivated illegal acts, both violent and non-violent. As of October 2018, the dataset includes 2148 individuals radicalized in the United States between 1948 and 2017, 58% of which were recorded as violent. 112 items total are recorded in the dataset.

Only individuals are included in the dataset, regardless of whether they are part of a group. Further, to be included, it must appear from the open sources that the offender espoused ideological motives in their decision to engage in illegal behaviour. This does not mean that ideology is the key motivating factor, but rather, that the offenders themselves claim or associate their beliefs or ideology with their choice to engage. The individual must have been radicalized in the United States and meet at least one of the following first five criteria, and all of the final three (PIRUS Codebook, 2018, pp. 3–6):

1. the individual was arrested,
2. the individual was indicted of a crime,
3. the individual was killed as a result of his or her ideological activities,
4. the individual is/was a member of a designated terrorist organization,
5. the individual was associated with an extremist organization whose leader(s) or founder(s) has/have been indicted of an ideologically motivated violent offense.

In addition, each individual must have (1) been radicalized in the United States, (2) have espoused or currently espouse ideological motives, and (3) show evidence that his or her behaviors are/were linked to the ideological motives he or she espoused/espouses.

Measures

Marital Status is a primary attachment dimension of social bond theory (Alston et al., 1995) and is remarkably consistent in its negative effect on general offending (Sampson et al., 2006). The effect of marriage on violent extremism is less clear. Russell and Miller (1977), studying profiles of terrorists from 18 countries, concluded the typical offender is an unmarried male. However, Bakker (2006) found strong evidence suggesting Islamic terrorists are disproportionately more likely to be married, and Shapiro (2013) found it might actually be beneficial for terrorists to marry women associated with the terrorist group. With the exception of the review by Borum (2011), however, these texts had
focussed on terrorists, rather than various radicalization theories. Nonetheless, attributes and phenomena within terrorism may indeed separate terrorists from non-terrorist radicals, rather than simply from the general non-radical public. We examine whether marital status affects the likelihood of violent extremism.

Other interpersonal attachments are less rigorously tested but are theorized to function in the same manner. Allen et al. (2005) found peer success discourages deviance from peer norms, and Menard and Grot彼得 (2011) found that peer influence relates to aggression. However, as with marital status, we lack further information to predict that these bonds will reduce violent forms of extremism, so we examine variables for platonic success, relationship success, and family closeness on violent extremism.

Education level is negatively correlated with crime (Alston et al., 1995; Lochner & Moretti, 2004). Across 39 countries, educational attainment was an effective violent crime reducer in that it contributed to better income (Fajnzylber et al., 2002), but Grogger (1998) found no relationship after controlling for income. While we will be measuring attainment levels, attainment coincides with various amounts of time spent in school, which is a key factor of education in social bond theory (Alston et al., 1995). With respect to radical violent extremism, indications are less clear, or even point to a positive relationship between education and terrorism. Several studies found terrorists, on average, are more educated than the general public (Berrebi, 2007; Sageman, 2004).

In terms of the difference between violent and non-violent extremists, Lee’s (2011) study, which measured education as part of socio-economic status of Bengali extremists, found that socio-economic status was lower among violent radicals, but higher in both groups than the general public. This would be consistent with those findings that indicated low socio-economic status as unimportant to terrorism when measured against the general public. With this differentiation in mind, we examine if education level has an effect on the likelihood of violent extremism.

Employment, in social bond theory, also falls under the involvement dimension (Alston et al., 1995). The relationship between employment and crime is generally negative, but some research has found mixed results when age is taken into account (Uggen, 2000). Specific to violent extremism, though not necessarily the split between violent and non-violent, Islamists and Ku Klux Klan members have been found to hold a variety of mid- and high-level jobs (Sageman, 2004) and the relationship between employment and terrorism has been nebulous in other research as well (Russell & Miller, 1977). Therefore, we will examine if employment status and stable work history have an effect on the likelihood of radical violent extremism.

This dataset includes no direct measure of the social bond dimension of shared values. However, a previous criminal background could represent adherence to shared values (Alston et al., 1995). Criminal records is one of the strongest indicators of future criminality (Blumstein et al., 1988) and violent criminality, specifically (Wintermute, 1998). LaFree et al. (2018) found that a criminal record strongly increased the likelihood of violent radicalism, among about 1500 individuals even when their previous criminal history was non-violent. Radicalization researchers have also theorized that association with some forms of violence may actually precede radicalization, and not the other way around (Crone, 2016). We therefore examine if criminal records increase the likelihood of radical violence.
In accordance with social learning theory, delinquent peers have a strong positive effect on criminal behaviour (Loeb & Farrington, 2000). Studies such as Henry et al. (2001) found that peer violence also influences the likelihood of violent offending and general delinquency in youths, as do family types. Bartlett and Miller (2012) in their vast qualitative field study of radical and violent Islamic groups, in the West, found one of several key differences between radical violent and non-violent persons was whether they had spent extensive time in radical groups with radical peers. Offline associations can also mediate responses of youths to radical groups (Pauwels & Schils, 2016). The delinquent peer’s effect may not be limited to peer group interactions. Researchers have regularly found that criminal parents are associated with child criminality and aggressive, potentially violent behaviour (Besemer & Farrington, 2012). McCauley and Moskalenko (2008, p. 421) model of radicalization claims ‘power of love’ mechanisms are particularly important in radical recruiting, noting how ‘the pull of romantic and comradely love can be as strong as politics in moving individuals into an underground group’. We examine if any of the three radical associations (friends, family, significant others) influence the likelihood of violence.

Much current radicalization research suggests that ideology itself is far less important than other factors (see e.g. Bartlett & Miller, 2012; Borum, 2011). The four groups of extremists in our dataset – far-right, far-left, Islamic and single-issue – will nonetheless be used as control variables to assure that results for the overall dataset are valid. Socio-economic status will be controlled for in connection to commitment variables. Krueger and Maleckova (2003) found that socio-economic status is unimportant for terrorism and radical violence, however previously discussed findings, and the aforementioned analysis by Lee (2011), indicate that terrorists sometimes have middle to high socio-economic status (e.g. Sageman, 2004). Lastly, we control for age. Age usually has a negative statistical influence on violence likelihood, in that studies have shown that young people more often commit radical crime (Bartlett & Miller, 2012; Berrebi, 2007).

Variable coding
We selected variables to be used based on our review of the research and their relationship to the relevant theories. When applicable, we recoded the original variables. The original and changed coding can be found in Table 1. Table 2 shows the mean, standard deviations and percentage of missing cases for each variable. Note that the ordinal coding of the variable radical peers, radical family, and radical partner, ranged from no radical behaviour to radical and violent behaviour. Whereas all entries into this dataset must have committed an illegal act, entries for radical peers can include legal radical behaviours (PIRUS codebook, 2018, p. 40). Radical behaviour is defined as being illegal or violent, whereas activist behaviour is defined as legal and non-violent (Moskalenko & McCauley, 2009). Radical but legal and non-violent behaviours, coded as 1, are understood here as indicating behaviours which might be called activism – for example, attending rallies or legal protests, or simply espousing extreme ideologies without taking illegal pathways of action (Bartlett & Miller, 2012).

Missing data
We excluded variables that were not relevant for our theme or for our theoretical perspectives. Only two variables that were relevant for our theme and theories were excluded due to missing cases, corresponding to a ratio of 13%. All of the variables
| Variable | Revised Coding | Original Coding |
|----------|----------------|----------------|
| Violence | 0 = not violent, 1 = violent. | 0 = No, 1 = Yes. |
| Marital status | 0 = unmarried, 1 = married. | 1 = Single (never married), 2 = Married (religious or civil marriage qualifies), 3 = Divorced or Separated, 4 = Widowed, −99 = Unknown. |
| Relationship Success, Platonic Success and Family Closeness | 0 = troubled, 1 = untroubled (not close and close, for family closeness). | 0 = No, 1 = Yes, −99 = Unknown |
| Employment Status | 1 = unemployed, 2 = retired, 3 = employed. | 1 = Employed, 2 = Self-employed, 3 = Unemployed, looking for work, 4 = Unemployed, not looking for work, 5 = Student, 6 = Retired, −99 = Unknown. |
| Employment History | 1 = long term unemployed, 2 = underemployed, 3 = serially employed, 4 = long term/conventionally employed. | 1 = Employed, 2 = Self-employed, 3 = Unemployed, looking for work, 4 = Unemployed, not looking for work, 5 = Student, 6 = Retired, −99 = Unknown. |
| Education | 0 = high school incomplete, 1 = high school complete, 2 = some college/vocational training, 3 = college or vocational degree, 4 = some or completed master’s level education, 5 = some or completed PhD or professional studies. | 1 = Did not attempt high school, 2 = Some High school, 3 = High school diploma, 4 = Some College, 5 = College degree, 6 = Some Vocational school, 7 = Vocational school degree, 8 = Some Master’s school, 9 = Master’s degree, 10 = Some Doctoral/Professional degree, 11 = Doctoral/Professional degree, −99 = Unknown. |
| Radical Peers, Radical Family and Radical Partner (significant other) | 0 = none, 1 = radical but legal activity, 2 = radical, illegal but non-violent activity, 3 = radical violent activity. | 0 = No, 1 = Yes, in legal activities, 2 = Yes, non-violent illegal activities, 3 = Yes, extremist violence, −99 = Unknown. |
| Criminal History | 0 = no crime, 1 = minor crime, 2 = serious, non-violent crime, 3 = violent crime. | 0 = None, 1 = Previous (non-violent) minor crime (misdemeanour), 2 = Previous (non-violent) serious crime (felony crime), 3 = Previous violent crime, −99 = Unknown. |
| SES in Adulthood | 1 = low, 2 = middle, 3 = high. Age: in years (continuous). | 1 = Low, 2 = Middle, 3 = High, −99 = Unknown, −88 = Not Applicable (if exposure occurred before the individual turned 18 years old). Age: numerical whole numbers, −99 = Unknown. |
| Islamic, Far-Right, Far-Left and Single Issue Ideologies | 0 = no, 1 = yes. | 0 = No, 1 = Yes, −99 = Unknown. |
used in our study are missing less than 75% of cases. We examined bivariate correlations to check for multicollinearity. We found no correlations in the range of .70 – .90, and deemed the remaining items appropriate for use in the main logistic regression. We used a regression-based multiple imputation method to handle missing cases, common in open source datasets (Jasko et al., 2017; Jensen et al., 2020; LaFree et al., 2018). We set the number of imputations at 25, with the pooled result used in the final regression model. This is well above the 5–10 imputations typically considered sufficient given the amount of missing data (Graham et al., 2007). After imputations, we again examined bivariate correlations to gauge the effectiveness of the imputation process, and to examine any shifts in correlation direction, check for multicollinearity. We found the pre- and post-imputation correlations to be reasonably similar, and we ran the regression analysis with the imputed dataset. The bivariate correlations for the original data and the pooled imputed data are available upon request.

**Analysis**

The logistic regression was based on the independent variable of violence, 11 independent variables and 6 control variables, in order to discover the changes in the likelihood of violence. The model for the regression was organized into blocks which correspond to the different aspects of social bonds and social learning: Block 1 = variables corresponding to attachment; Block 2 = variables corresponding to involvement; Block 3 = variable corresponding to shared values; Block 4 = variable corresponding with social learning and radical ties; and Block 5, control variables.

Table 2. Descriptive statistics (pre-imputation).

| Variables               | Mean  | Std. dev. | Min/Max | N     | Missing, percent |
|-------------------------|-------|-----------|---------|-------|------------------|
| Dependent variable      |       |           |         |       |                  |
| Violent                 | 0.58  | 0.49      | 0/1     | 2148  | 0.2              |
| Independent variables   |       |           |         |       |                  |
| Attachment              |       |           |         |       |                  |
| Marital status          | 0.37  | 0.48      | 0/1     | 1301  | 39.6             |
| Relationship success    | 0.77  | 0.42      | 0/1     | 661   | 69.3             |
| Platonic success        | 0.85  | 0.36      | 0/1     | 668   | 69.0             |
| Family closeness        | 0.84  | 0.37      | 0/1     | 586   | 72.8             |
| Involvement             |       |           |         |       |                  |
| Employment success      | 2.56  | 0.82      | 1/3     | 883   | 59.0             |
| Employment history      | 3.35  | 0.99      | 1/4     | 833   | 61.3             |
| Education               | 2.14  | 1.21      | 1/5     | 882   | 59.0             |
| Social learning         |       |           |         |       |                  |
| Radical peers           | 2.09  | 1.08      | 0/3     | 1225  | 43.1             |
| Radical family          | 0.85  | 1.12      | 0/3     | 734   | 65.9             |
| Radical significant other| 0.60 | 1.06      | 0/3     | 916   | 57.5             |
| Shared values           |       |           |         |       |                  |
| Criminal history        | 0.89  | 1.22      | 0/3     | 1254  | 41.8             |
| Control variables       |       |           |         |       |                  |
| SES adulthood           | 1.87  | 0.59      | 1/3     | 1025  | 52.4             |
| Age                     | 33.86 | 13.32     | 10/88   | 2062  | 4.2              |
| Ideology                | N/A   | N/A       | 0/1     | 2148  | 0.2              |
| Islamic                 | 0.23  | 0.42      | ^       | 496 (23%) | ^ |
| Far right               | 0.42  | 0.50      | ^       | 922 (43%) | ^ |
| Far left                | 0.17  | 0.38      | ^       | 366 (17%) | ^ |
| Single issue            | 0.17  | 0.38      | ^       | 364 (16%) | ^ |
Table 3. Model summaries.

| Model # | –2 Log Likelihood | Cox & Snell R2 |
|---------|-------------------|---------------|
|         | Min. | Max. | Mean | Min. | Max. | Mean |
| 1 Attachment | 2428.4 | 2682.6 | 2569.4 | 0.013 | 0.048 | 0.030 |
| 2 Involvement | 2350.7 | 2676.2 | 2549.2 | 0.023 | 0.067 | 0.040 |
| 3 Shared values | 2323.9 | 2624.3 | 2513.3 | 0.037 | 0.088 | 0.058 |
| 4 Radical ties | 2291.8 | 2590.0 | 2489.9 | 0.050 | 0.100 | 0.070 |
| 5 Control items | 2144.6 | 2425.8 | 2324.3 | 0.126 | 0.164 | 0.146 |

Results

In this section, we first present brief notes on bivariate correlations between all independent variables and the dependent variable, pre- and post-imputation. Next, we present the summaries of the five models, and the results of the logistic regression, using the pooled data across imputations.

Bivariate correlations

The correlations for the independent variables and dependent variable, violence, are in the expected direction in most cases, for both the imputed and pre-imputed data (values in parenthesis). Radical family ($r = -.134^{**}$; $-.075^*$), radical significant other ($r = -.140^{**}$; $-.080^*$), and marital status ($r = .110^{**}$; $100^{**}$) are the only variables not in the direction expected. Note that the two listed values refer to the original data and the imputed data, respectively, and the significance indicators are $^*P \leq .05$, $^{**}P \leq .001$. In the original data, all correlations are significant at the $p < .05$ level, save for family closeness. In the imputed version, education level, employment status, platonic success and family closeness are all insignificant. Additionally, no independent variables were correlated above 0.68 (original data). The standard for assessing multicollinearity is typically between .70 and .90, and we therefore proceed with our analysis.

Model summaries

Table 3 shows the model summary for each block in the overall model. The strengths and explanatory values are represented with a $–2$ Log Likelihood value and Cox & Snell $R^2$ value. As seen, the mean $–2$ Log Likelihood value for the models decreases from 2569.4 for model 1, to 2324.3 for model 5, and the Cox & Snell $R^2$ value increases from .03 to .146.

The overall model improves with each added block, indicating that each block contains some added explanatory value for the overall model. Blocks 1 and 2 show little improvement to the overall model. The third block adds the single shared values variable criminal history; this improves the model slightly more than the change between blocks 1 and 2, showing the second largest improvement. Block 4 adds the radical ties variables, causes a smaller but similarly notable improvement in the overall model. Block 5, consisting of the control variables, demonstrates the largest improvement, bringing the $–2$ Log Likelihood down from 2489.9 to 2324.3, and raising the mean $R^2$ value from .07 to .146. Overall, the addition of further variables in each block causes a slow but steady increase in
Table 4. Pooled coefficient results.

| Variable                  | Model 1     | Model 2     | Model 3     | Model 4     | Model 5     |
|---------------------------|-------------|-------------|-------------|-------------|-------------|
| Marital status            | 0.404*      | 0.349*      | 0.420*      | 0.379*      | 0.348       |
| β                         | 1.497       | 1.418       | 1.521       | 1.461       | 1.416       |
| 95% CI                    | 1.15–1.94   | 1.07–1.87   | 1.15–2.01   | 1.08–1.98   | 0.98–2.05   |
| Relationship success      | −0.245      | −0.212      | −0.085      | −0.107      | −0.166      |
| β                         | 0.783       | 0.809       | 0.919       | 0.898       | 0.847       |
| 95% CI                    | 0.46–1.32   | 0.47–1.39   | 0.54–1.57   | 0.53–1.53   | 0.45–1.60   |
| Platonic success          | −0.393      | −0.397      | −0.358      | −0.445      | −0.439      |
| β                         | 0.675       | 0.672       | 0.699       | 0.641       | 0.645       |
| 95% CI                    | 0.28–1.65   | 0.27–1.67   | 0.28–1.74   | 0.25–1.62   | 0.23–1.80   |
| Family closeness          | −0.095      | −0.074      | −0.007      | 0.063       | 0.041       |
| β                         | 0.910       | 0.929       | 0.993       | 1.065       | 1.042       |
| 95% CI                    | 0.54–1.52   | 0.55–1.56   | 0.59–1.67   | 0.63–1.80   | 0.61–1.78   |
| Employment status         | 0.003       | 0.020       | 0.011       | 0.018       |
| β                         | 1.003       | 1.020       | 1.011       | 1.018       |
| 95% CI                    | 0.77–1.30   | 0.78–1.34   | 0.76–1.34   | 0.75–1.38   |
| Work history              | −0.106      | −0.085      | −0.087      | −0.066      |
| β                         | 0.899       | 0.919       | 0.916       | 0.936       |
| 95% CI                    | 0.74–1.09   | 0.76–1.12   | 0.75–1.12   | 0.76–1.15   |
| Education                 | −0.092      | −0.091      | −0.090      | −0.039      |
| β                         | 0.912       | 0.913       | 0.913       | 0.962       |
| 95% CI                    | 0.79–1.06   | 0.79–1.06   | 0.79–1.06   | 0.83–1.12   |
| Criminal History          | 0.245**     | 0.244**     | 0.212**     |
| β                         | 1.278       | 1.276       | 1.236       |
| 95% CI                    | 1.14–1.44   | 1.13–1.44   | 1.09–1.40   |
| Radical peers             | 0.186*      | 0.214*      |
| β                         | 1.205       | 1.239       |
| 95% CI                    | 1.04–1.40   | 1.04–1.47   |
| Radical family            | −0.093      | −0.095      |
| β                         | 0.911       | 0.909       |
| 95% CI                    | 0.78–1.06   | 0.79–1.05   |
| Radical significant other | −0.070      | 0.077       |
| β                         | 0.932       | 1.080       |
| 95% CI                    | 0.79–1.10   | 0.89–1.30   |
| SES                       | −0.293*     |
| β                         | 0.746       |
| 95% CI                    | 0.56–0.99   |
| Age                       | −0.014*     |
| β                         | 0.988       |
| 95% CI                    | 0.98–1.00   |
| Islamic ideology          | 0.929**     |
| β                         | 2.532       |
| 95% CI                    | 1.73–3.70   |
| Far-right ideology        | 0.377*      |
| β                         | 1.387       |
| 95% CI                    | 1.02–1.89   |

(Continued)
Table 4. (Continued).

| Variable                  | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---------------------------|---------|---------|---------|---------|---------|
| β                         |         |         |         | −1.054**|         |
| Exp(B)                    |         |         |         | 0.349   |         |
| 95% CI                    |         |         |         | 0.23–0.52|         |
| Single-issue ideology     |         |         |         | x       |         |
| β                         |         |         |         | x       |         |
| Exp(B)                    |         |         |         | x       |         |
| 95% CI                    |         |         |         | x       |         |

explanatory value. The explanatory value of the overall model is somewhat weak, with an $R^2$ explanatory value of about 15% averaged across imputations (Weisburd & Piquero, 2008).

**Logistic regression**

Turning to the coefficients, $\beta$ values and odds ratio (Exp[β]), we can see the effects of the individual variables on the likelihood of violence. Table 4 presents the pooled coefficients of the variables in each block.

Table 4 compares violent and non-violent extremists. The odds ratio expresses the probability of radical violence, compared to those already radicalized but not violent, and not in comparison with the public in general.

The attachment variables from social bonds theory, marital success and platonic success, were both insignificant. The involvement variables, education and work history, are insignificant in the final model, indicating that any effect on the likelihood of violence shown by these variables could be due to chance. Previous criminal activity is significant at the $p = .001$ level and increases the likelihood of violence by 24%. The social learning variables: Radical friends, significant at $p = .015$, increases the likelihood of violence by nearly 24%. Radical family members are not significant.

The control variable, socio-economic status in adulthood is significant at the .05 level, and for every unit of socio-economic status one moves up, the likelihood of violence decreases about 25%. Age is significant and the correlation is negative, indicating, as expected, that younger persons are typically responsible for violent radical crime. However, an increase of a year does not significantly decrease the likelihood of violence, indicating that age does not always increase violence as it lowers. Far-right and Islamic ideologies significantly increase the likelihood of violence, with Islamic ideology increasing the likelihood at a rate of about 2.5, and far-right at a rate of about 1.4. Far-left ideology decreases the likelihood of violence to .35.

**Discussion and conclusion**

In this article, we examined the applicability of criminological theories in radical violent and non-violent behaviours. We discuss the details of our findings, and describe our contribution to the existing research, and lastly, we argue for a similar Nordic database. We will first briefly summarize our findings, before moving to the discussion.
In the final model of the regression analysis, only previous criminal history (social bonds – shared values) and radical peers (social learning) were significant from the theory-driven variables, both increasing the likelihood of violence. No involvement or attachment variables from social bond theory were significant. We also found that age and SES were significant, with younger people tending to commit radical violence and higher SES in adulthood decreasing the likelihood of violence. Ideological group was also important. Both Islamic and Far-Right ideologies were positively associated with the risk of violence, whereas Far-Left and single issue had a negative association. Overall, the addition of new variables consistently improved the models, but the biggest improvement was in model 5 that included the control variables. Social learning retained important explanatory value, while social bonds showed a weaker value. Overall, the final model explains 15% of violence.

Our results indicate that social bond theory has a weak explanatory value in predicting violence, given that criminal background is not a typical measure of shared beliefs, and marital status was not significant. This is not inconsistent with previous research on Islamic terrorism, given that prior studies did not distinguish the marital statuses of violent and non-violent radicals (Bakker, 2006; Shapiro, 2013). It is possible that marital status is still relevant to radical criminals, but does not differ significantly between violent and non-violent individuals. Becker’s (2019) findings indicated more support for social bond theory than did ours. He found a significant, and importantly, negative relationship between marriage and violence. Additionally, he did not find evidence that radicalizing alongside peers was associated with violence.

Consistent with the correlations on marriage and non-peer radical ties, we can see from the correlation on attachment that the role of family, platonic and intimate relationships in preventing violence among radical criminals is not significant. This is inconsistent with social bond theory (Laub & Sampson, 1993; Menard & Grottpeter, 2011) but there are only indirect findings on radicalization and terrorism in this regard (see McCauley & Moskalenko, 2008) and these mainly relate to radicalization in general, rather than specifically to violence likelihood among radical criminals. Out of three social learning variables, only radical peers were a significant predictor. This is a promising result to explore in future Nordic research on the crime-terror nexus (Ilan & Sandberg, 2019; Rostami et al., 2020). Social bond theory, and indeed some aspects of social learning, are very broad theories that aim to predict and describe general offending (Akers, 2009; Alston et al., 1995). In contrast, radical crime is an extreme form of criminality, especially violent terrorism. If criminologists should seek to tackle ideological crime, these theories could benefit from refining.

Violence, though, is an operative term here – that is to say, we cannot see whether social attachment mechanisms are influential in radicalization prevention in general. In the bivariate analysis, platonic success and radical friends were positively correlated, and therefore one explanation could be that outsiders finding platonic success in radical groups were likely enough to commit violence, bolstered by group dynamics and this muddled the regression analysis. This would be an interesting question for further studies, especially given the importance of peer relations in radical group violence found in qualitative studies (Bartlett & Miller, 2012). None of the involvement variables (work history, employment status, and education level) were significantly correlated with violence, which is consistent with previous research on terrorism (Sageman, 2004).
Although social bond theory research has shown mainly steady results with regard to these variables on normal and violent crime, the influence of socioeconomic status may complicate this association (Grogger, 1998). LaFree et al. (2018) found that stable employment was negatively related to the likelihood of violence. These differing results on the PIRUS dataset could be due to the fact that our updated version of the dataset has 675 more entries. The characteristics of the recent entries may be different enough that new patterns emerged. The correlations we found, we believe, open up for interesting examinations, such as the role of relative socio-economic status among radical criminals in Nordic welfare states. The role of peer groups in encouraging violence and the social dynamics of radicalization influence violent extremism, and this differs from the peer groups of individuals who do not become physically violent (Sandberg & Colvin, 2020). Related questions concern the role of criminal history. Is it neutralization, social bonding or other theoretical mechanisms, that encourage violence? Which came first, the violence or the ideology?

The shared values variable, criminal history, was significant and positively correlated with violence, consistent with findings on social bonds and crime (Blumstein et al., 1988). More serious and more violent criminal history increased the violence likelihood. This could also be explained by other theories. For example, neutralization theory could be very relevant (Sykes & Matza, 1957; see Borum, 2011). Several of the ideological groups in this dataset, particularly far-right and Islamic extremists, often reject the government based on religion, by appealing to a higher authority, or a lack of shared values represented by condemning those in authority. A rejection of the rule of law and societal values, reflected by previous criminal activity, could theoretically create fertile breeding ground for future dissociations once radicalized, or associations with violence may come before radicalization and contribute to future violence (Crone, 2016).

Of the results for radical ties, only radical peers were significant. Both social learning perspectives and radicalization theories emphasize the role of peer groups (Bartlett & Miller, 2012; Svensson & Oberwittler, 2010), and so this correlation may in fact support social learning theories. Peer dynamics and time spent in radical groups have been theorized to distinguish violent from non-violent radicals even if the time spent is leisure-related (Simi & Futrell, 2015). Similarly, delinquent peers have emerged in criminology to be strong predictors of violent crime (Loeber & Farrington, 2000). It is possible that this mechanism relates to status- or significance-seeking (Jasko et al., 2017), in-group and out-group thinking (Borum, 2011), normalization of radical behaviours (Simi & Futrell, 2015) or a combination of these.

Recent work on related questions have highlighted the Nordic relevance of these issues. The overlap between street crime, violence and terrorism, requires an interdisciplinary approach that includes political science, religious studies, and criminology (Sandberg & Colvin, 2020; Sunde et al., 2020). Does the Nordic context, with its encompassing welfare states, strengthen social bonds and conventional behaviour, or is the marginalization of ethnic minorities simply different from the US? While people with loose bonds to conventional society have always been part of the recruitment pool for political violence, they seem to have become more central in recent years (Rostami et al., 2020), and thus these questions maintain relevance. In recent years, Western Europe has experienced a sharp increase in the lethality of attacks motivated by anti-immigration beliefs (LaFree et al., 2020). Not only this is an urgent social problem which warrants thorough
examination of how bonds in the Nordics affect radical violence, but it may also further the perception of marginalization among some groups, fuelling a negative spiral.

Next, we found that age has a negative effect on violence, which is expected (Berrebi, 2007; LaFree et al., 2018). Upon split-file analysis, we specified that the most violent age group is people in their early 20s. When we examine socio-economic status and ideology, we encounter some interesting correlations. Although sometimes contested, socio-economic status is often found to be a predictor of crime (see Buonanno, 2003 for review). However, it is a poor predictor of extremism (Krueger & Maleckova, 2003; Lee, 2011; Sageman, 2004). Our strong correlation is less perplexing when we recall that this study focuses on the split between violent and non-violent radicals. While Lee (2011) found that extremism is not significantly influenced by socio-economic status, he notes that this influence may be relative within the extremist populations, rather than with regard to the general public. Lee (2011) found that political activists, both terrorist and non-terrorist, were significantly richer than the general public, but that the violent activist group had lower socio-economic status than the non-violent activists. Those who are educated and middle-high socio-economic status comparatively to other politically active persons have more to lose. Lee (2011, p. 210) theorized a sliding notion of applicability as the threshold for political participation will vary: ‘In a rich society … the participation threshold is thus at the middle or even the lower end of the income distribution. Above the threshold, of course, opportunity costs should lead to a negative correlation between social status and violence’.

But why are these areas of research valuable, especially when they only tell us the differences between violent and non-violent radical criminals? We hold that studying this difference can inform policy and further research leading to policy in important ways. Namely, if violent and non-violent radical criminals have characteristic differences, it follows that prevention efforts, as well as identification of risk factors, will need to be informed by these differences. If we aim to identify risk factors of violent extremism, for example, but differences such as relative socio-economic status only manifest when we compare violent and non-violent radicals, comparisons of extremists and the public could miss the role of socio-economic status. Additionally, political activity and political extremity should be differentiated, and therefore this analysis may not be wholly applicable, especially considering that all in this dataset committed a radical crime, self-imposing some sort of risk to their own socioeconomic standing.

Ideology also emerged as significant in our analysis, with the far-left and single-issue ideologies having a negative effect on the likelihood of violence, Islamic ideology having the strongest overall and positive effect, and far-right also having a strong positive effect. As noted above, previous research contends that ideology itself is not a predictor of violence (Bartlett & Miller, 2012; Borum, 2011; Crone, 2016), and our results do not necessarily indicate the opposite. Findings on Islamists by Bartlett and Miller (2012), for example, have found that strength and depth, and even extremity of ideology does not a terrorist make – rather, it appears to be the dynamics of the social group and mechanisms therein which contribute to the choice of violence. While the findings show some groups are typically more likely to engage in violence than others once radicalized, this does not necessarily speak to ideology’s direct impact on violence. Islamists and far-right extremists are both relatively large groups, and it is possible that the size and level of organization in these groups makes the violence more likely. Alternatively, ideology itself may influence
violence in that it tends towards neutralizing tactics, rather than that it is itself a more violent way of viewing the world. Ideology can lend itself to effective neutralization through several mechanisms, two of which are appealing to a higher power and condemning those in authority (Borum, 2011). Lastly, the choice for violence may depend on differing goals as related to the ideology, rather than because of the ideology’s direct influence on violence. If a group’s ideology involves hate towards specific and accessible persons, such as white nationalists against non-whites in their community, violent radical hate crime may make more sense for them than for environmental extremists, who cannot so easily enact violence against governmental foes.

PIRUS being an open source dataset, there are several limitations to our study. Firstly, the share of missing data is potentially problematic (Safer-Lichtenstein et al., 2017), but other studies have applied similar imputation methods as ours (Becker, 2019; LaFree et al., 2018). Ideally, the variables in the PIRUS dataset should be tested alongside other potentially mediating variables. The variables we have tested are measured in ways specific to this dataset and the available source material. Clearly, generalizations cannot be drawn until further demographic and cross-contextual analyses are conducted, particularly examining race and gender perspectives. Lastly, there may be biasing in data entry, since the dataset comes from open-source information including court documents and news stories. These publicly available documents may tend to focus on sensational cases.

Our study contributes to the existing research based on the PIRUS dataset by using the most recent version. Our independent variables, informed by social bonds and social learning, add new perspectives to the theoretical contributions of criminological theories to the research on radical violent extremism. The only variables testing social bonds in our study and existing research are close family ties, marital status, and work history. Our choice of variables to elucidate social learning have been tested in some, but not all previous PIRUS research (LaFree et al., 2018), and not while regressed with our other variables. We additionally applied criminal history as a theoretically informed variable and not only for control.

In a broader sense, the article aimed to demonstrate the usefulness of a dataset such as PIRUS to inform this potential area of study in the Nordic region. We hope to encourage further Nordic research, both quantitative and qualitative, by spurting discussion around our findings. While further statistical research on extremist crime is needed to grow the field, we also hold that these questions call for further qualitative and ethnographic research, and that qualitative researchers can use studies such as ours as a starting point for deeper analysis. Incident-level and characteristic information on radical violent extremism could contribute to culturally-inspired analyses as well. As Sandberg et al. (2014, p. 291) noted, ‘action can be seen as telling a story’. Cultural criminology insists on reading crimes ‘in terms of the meanings they carry’. This ties back to the public concerns noted in the introduction: Lone wolves attacking children and gang members that travel to the caliphate and fight Western military forces pose important questions for the Nordic welfare states.

Future research projects should consider the value of establishing a similar database for Nordic radical crime and compare any results with other national and international datasets. A Nordic database requires funding for researchers. It is a labour-intensive task to ascertain whether individuals meet all the inclusion requirements. The PIRUS dataset is coded using only open-source material, including newspaper articles, websites (e.g.
government, terrorist group), secondary datasets, peer-reviewed academic articles, documentaries, court records, police reports, and information credited to the individual being researched (verified personal websites, autobiographies, social media accounts).

PIRUS contains thousands of entries, and a Nordic version would be much smaller to begin with. There is precedent for smaller datasets with similar qualitative information, created for specific research purposes. A source of inspiration is Lee (2011), who created a dataset of historical information on Bengali political suspects from the 1915 edition of the Intelligence Bureau’s ‘Red Book’. Using historical information could be helpful in understanding who has been involved movements such as white nationalism or Nazism in previous eras. A database of contemporary incidents could focus on individuals arrested for hate crimes and radical political crimes, or those who have disengaged from violent extremism by way of exit programmes. The former allows for the study of extremism with the benefit of hindsight, while the latter re-centres disengagement, potentially contributing to an understanding of violence prevention.

Lastly, the Nordic countries can derive interesting and potentially policy-relevant areas of further research from, and in comparison to studies such as ours. This study, we believe, has demonstrated the usefulness and relevance of statistical examinations of extremism, and while the results may be context-specific, the value of this type of research is not. Further research should seek to build upon this type of statistical research with quantitative and qualitative studies in different contexts. Statistical comparisons of individual characteristics help to converge criminology’s theories and methods with radicalism research and aid in the growth of the terrorism field, but this is a very new area of research in all contexts, and nearly impossible in the Nordic context due to the non-existence of tools comparable to PIRUS. Therefore, the construction of a similar dataset for the Nordic region would be highly valuable, and further research should seek to construct such a tool.

Note

1. PIRUS is publicly available for download. Retrieved 20 January 2019, from https://www.start.umd.edu/webform/pirus-download-full-dataset.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Akers, R. L. (2009). Social learning and social structure: A general theory of crime and deviance. Transaction Publishers.
Allen, J. P., Porter, M. R., McFarland, F. C., Marsh, P., & McElhaney, K. B. (2005). The two faces of adolescents’ success with peers: Adolescent popularity, social adaptation, and deviant behavior. Child Development, 76(3), 747–760. https://doi.org/10.1111/j.1467-8624.2005.00875.x
Alston, R. J., Harley, D., & Lenhoff, K. (1995). Hirschi’s social control theory: A sociological perspective on drug abuse among persons with disabilities. Journal of Rehabilitation, 61(4), 31–35. https://search.proquest.com/docview/236317102?accountid=12249
Bakker, E. (2006). Jihadi terrorists in Europe, their characteristics and the circumstances in which they joined the jihad: An exploratory study (Clingendael Security Paper, No. 2). The Hague, the Netherlands: Netherlands Institute of International Relations.

Bartlett, J., & Miller, C. (2012). The edge of violence: Towards telling the difference between violent and non-violent radicalization. *Terrorism and Political Violence, 24*(1), 1–21. https://doi.org/10.1080/09546553.2011.594923

Becker, M. (2019). When Extremists Become Violent: Examining the Association Between Social Control, Social Learning, and Engagement in Violent Extremism. *Studies in Conflict & Terrorism*. 1–21. 10.1080/1057610X.2019.1626093

Bernsten, L. E., & Sandberg, S. (2014). The collective nature of lone wolf terrorism: Anders Behring Breivik and the anti-Islamic social movement. *Terrorism and Political Violence, 26*(5), 759–779. https://doi.org/10.1080/09546553.2013.767245

Berrebi, C. (2007). Evidence about the link between education, poverty and terrorism among Palestinians. *Peace Economics, Peace Science and Public Policy, 13*(1), 1–36. https://doi.org/10.2202/1554-8597.1101

Besemer, S., & Farrington, D. P. (2012). Intergenerational transmission of criminal behaviour: Conviction trajectories of fathers and their children. *European Journal of Criminology, 9*(2), 120–141. https://doi.org/10.1177/1477370811422801

Bjørø, T. (2011). Dreams and disillusionment: Engagement in and disengagement from militant extremist groups. *Crime, Law and Social Change, 55*(4), 277–285. https://doi.org/10.1007/s10611-011-9282-9

Blee, K. (2007). The microdynamics of hate violence: Interpretive analysis and implications for responses. *American Behavioral Scientist, 51*(2), 258–270. https://doi.org/10.1177/002764070306058

Blumstein, A., Cohen, J., & Farrington, D. P. (1988). Criminal career research: Its value for criminology. *Criminology, 26*(1), 1–35. https://doi.org/10.1111/j.1745-9125.1988.tb00829.x

Borum, R. (2011). Radicalization into violent extremism: A review of social science theories. *Journal of Strategic Security, 4*(4), 7–36. https://doi.org/10.5038/1944-0472.4.4.1

Buonanno, P. (2003). The socioeconomic determinants of crime: A review of the literature. Working Papers 63, University of Milano-Bicocca, Department of Economics.

Clarke, R. V. G., & Newman, G. (2006). *Outsmarting the terrorists*. Praeger Security International.

Crone, M. (2016). Radicalization revisited: Violence, politics and the skills of the body. *International Affairs, 92*(3), 587–604. https://doi.org/10.1111/1468-2346.12604

Dinesen, P. T., & Jæger, M. M. (2013). The effect of terror on institutional trust: New Evidence from the 3/11 Madrid terrorist attack. *Political Psychology, 34*(6), 917–926. https://doi.org/10.1111/pops.12025

Fajnzylber, P., Lederman, D., & Loayza, N. (2002). Inequality and violent crime. *The Journal of Law and Economics, 45*(1), 1–39. https://doi.org/10.1086/338347

Graham, J. W., Olchowski, A. E., & Gilreath, T. D. (2007). How many imputations are really needed? Some practical clarifications of multiple imputation theory. *Prevention Science, 8*(3), 206–213. https://doi.org/10.1007/s11121-007-0070-9

Groeger, J. (1998). Market wages and youth crime. *Journal of Labor Economics, 16*(4), 756–791. https://doi.org/10.1086/209905

Henry, D. B., Tolan, P. H., & Gorman-Smith, D. (2001). Longitudinal family and peer group effects on violence and nonviolent delinquency. *Journal of Clinical Child & Adolescent Psychology, 30*(2), 172–186. https://doi.org/10.1207/s15374424JCCP3002_5

Hirschi, T. (1969). *Causes of delinquency*. University of California Press.

Ilan, J., & Sandberg, S. (2019). How ‘gangsters’ become jihadists: Bourdieu, criminology and the crime–terrorism nexus. *European Journal of Criminology, 16*(3), 278–294. https://doi.org/10.1177/1477370819828936

Jasko, K., LaFree, G., & Kruglanski, A. (2017). Quest for significance and violent extremism: The case of domestic radicalization. *Political Psychology, 38*(5), 815–831. https://doi.org/10.1111/pops.12376
Jensen, M. A., Seate, A. A., & James, P. A. (2020). Radicalization to violence: A pathway approach to studying extremism. *Terrorism and Political Violence*, 32(5), 1067–1090.1080 https://doi.org/10.1080/09546553.2018

Khalil, J. (2014). Radical beliefs and violent actions are not synonymous: How to place the key disjuncture between attitudes and behaviors at the heart of our research into political violence. *Studies in Conflict & Terrorism*, 37(2), 198–211. https://doi.org/10.1080/1057610X.2014.862902

Krueger, A. B., & Maleckova, J. (2003). Education, poverty and terrorism: Is there a causal connection? *Journal of Economic Perspectives*, 17(4), 119–144. https://doi.org/10.1257/089533003772034925

Lackey, C., & Williams, K. (1995). Social bonding and the cessation of partner violence across generations. *Journal of Marriage and Family*, 57(2), 295–305. https://doi.org/10.2307/353684

LaFree, G., Jensen, M. A., James, P. A., & Safer-Lichtenstein, A. (2018). Correlates of violent political extremism in the United States. *Criminology*, 56(2), 233–268. https://doi.org/10.1111/1745-9125.12169

LaFree, G., Weerman, F., & Bijleveld, C. (2020). Editor’s introduction: Terrorism and violent extremism. *Journal of Quantitative Criminology*, 36(3), 399–405. Early online, 9 September. https://doi.org/10.1007/s10940-020-09475-5

Larsen, J. F. (2020). Talking about radicalization. *Nordic Journal of Criminology*, 21(1), 49–66. https://doi.org/10.1080/2578983X.2019.1685805

Laub, J. H., & Sampson, R. J. (1993). Turning points in the life course: Why change matters to the study of crime. *Criminology*, 31(3), 301–325. https://doi.org/10.1111/j.1745-9125.1993.tb01132.x

Lee, A. (2011). Who becomes a terrorist? Poverty, education, and the origins of political violence. *World Politics*, 63(2), 203–245. https://doi.org/10.1353/wp.2011.0009

Lochner, L., & Moretti, E. (2004). The effect of education on crime: Evidence from prison inmates, arrests, and self-reports. *The American Economic Review*, 94(1), 155–199. https://doi.org/10.1257/000282804322970751

Loeber, R., & Farrington, D. P. (2000). Young children who commit crime: Epidemiological, developmental origins, risk factors, early interventions, and policy implications. *Development and Psychopathology*, 12(4), 737–762. https://doi.org/10.1017/s095457940004107

Malkki, L., Fridlund, M., & Sallamaa, D. (2018). Terrorism and political violence in the Nordic countries. *Terrorism and Political Violence*, 30(5), 761–771. https://doi.org/10.1080/09546553.2018.1447184

Matsueda, R. L. (1988). The current state of differential association theory. *Crime & Delinquency*, 34(3), 277–306. https://doi.org/10.1177/001128788034003005

McCauley, C., & Moskalenko, S. (2008). Mechanisms of political radicalization: Pathways toward terrorism. *Terrorism and Political Violence*, 20(3), 415–433. https://doi.org/10.1080/09546550802073367

Menard, S., & Grotjohan, J. K. (2011). Peer influence, social bonding, physical and relational aggression: Perpetration and victimization in an elementary school sample. *Victims & Offenders*, 6(2), 181–206. https://doi.org/10.1080/15564886.2011.557326

Miller, V., & Hayward, K. J. (2018). ‘I did my bit’: Terrorism, tarde and the vehicle ramming attack as an imitative event. *The British Journal of Criminology*, 59(1), 1–23. https://doi.org/10.1093/bjc/azy017

Moskalenko, S., & McCauley, C. (2009). Measuring political mobilization: The distinction between activism and radicalism. *Terrorism and Political Violence*, 21(2), 239–260. https://doi.org/10.1080/09546550902765508

Pauwels, L., & Schils, N. (2016). Differential online exposure to extremist content and political violence: Testing the relative strength of social learning and competing perspectives. *Terrorism and Political Violence*, 28(1), 1–29. https://doi.org/10.1080/09546553.2013.876414

PIRUS Codebook. (2018, October). *National consortium for the study of terrorism and responses to terrorism*. START. https://www.start.umd.edu/sites/default/files/files/research/PIRUSCodebook.pdf

Rostami, A., Stjurup, J., Mondani, H., Theyselius, P., Sarnecki, J., & Edling, C. (2020). The Swedish Mujahideen: An exploratory study of 41 Swedish foreign fighters deceased in Iraq and Syria. *Studies in Conflict & Terrorism*, 43(5), 382–395. https://doi.org/10.1080/1057610X.2018.1463615

Russell, C. A., & Miller, B. H. (1977). Profile of a terrorist. *Terrorism*, 1(1), 17–34. https://doi.org/10.1080/10576107708435394
Weisburd, D., LaFree, G., & Loughran, T. A. (2017). Studying terrorism empirically: What we know about what we don't know. Journal of Contemporary Criminal Justice, 33(3), 273–291. https://doi.org/10.1177/1043986217697873

Sageman, M. (2004). Understanding terror networks (1st ed.). University of Pennsylvania Press.

Sampson, R. J., Laub, J. H., & Wimer, C. (2006). Does marriage reduce crime? A counterfactual approach to within-individual causal effects. Criminology, 44(3), 465–508. https://doi.org/10.1111/j.1745-9125.2006.00055.x

Sandberg, S., & Colvin, S. (2020). ‘ISIS is not Islam’: Epistemic Injustice, Everyday Religion, and Young Muslims’ Narrative Resistance. The British Journal of Criminology (60)6, 1585–1605. https://doi.org/10.1093/bjc/azaa035

Sandberg, S., Oksanen, A., Berntzen, L. E., & Kiilakoski, T. (2014). Stories in action: The cultural influences of school shootings on the terrorist attacks in Norway. Critical Studies on Terrorism, 7 (2), 277–296. https://doi.org/10.1080/17539153.2014.906984

Shapiro, J. N. (2013). The terrorist’s dilemma: Managing violent covert organizations. Princeton University Press.

Simi, P., & Futrell, R. (2015). American swastika: Inside the white power movement’s hidden spaces of hate (2nd ed.). [Kindle version]. Rowman & Littlefield.

Statista Research Department (2019). Terrorism in the Nordics. https://www.statista.com/topics/3504/terrorism-in-the-nordics/

Sunde, H. M., Ilan, J., & Sandberg, S. (2020). A cultural criminology of “new” jihad: Insights from propaganda magazines. Crime, Media, Culture, 1741659020915509. https://doi.org/10.1177/1741659020915509

Svensson, R., & Oberwittler, D. (2010). It’s not the time they spend, it’s what they do: Findings from two countries. Journal of Criminal Justice, 38(5), 1006–1014. https://doi.org/10.1016/j.jcrimjus.2010.07.002

Sykes, G., & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. American Sociological Review, 22(6), 664–670. https://doi.org/10.2307/2089195

Uggen, C. (2000). Work as a turning point in the life course of criminals: A duration model of age, employment, and recidivism. American Sociological Review, 64(5), 529–546. https://doi.org/10.2307/2657381

De Waele M., Pauwels L. J. R.. (2016). Why do Flemish youth participate in right-wing disruptive groups? In: Maxson C., Esbensen FA. (Eds.), Gang Transitions and Transformations in an International Context, Springer, Cham. https://doi.org/10.1007/978-3-319-29602-9_10

Weisburd, D., & Piquero, A. (2008). How well do criminologists explain crime? Statistical modeling in published studies. Crime and Justice, 37(1), 453–502. https://doi.org/10.1086/524284

Wintemute, G. J. (1998). Prior misdemeanor convictions as a risk factor for later violent and firearm-related criminal activity among authorized purchasers of handguns. JAMA, 280(24), 2083. https://doi.org/10.1001/jama.280.24.2083