Article

Developmental Predictors of Violent Extremist Attitudes: A Test of General Strain Theory

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Abstract

Objectives: This study examines the influence of collective strain on support for violent extremism among an ethnically diverse sample of Swiss adolescents. This study explores two claims derived from general strain theory: (1) Exposure to collective strain is associated with higher support for violent extremism and (2) the effect of collective strain is conditional on perceptions of moral and legal constraints. *Methods:* This study uses data from two waves of the Zurich Project on the Social Development of Children and Youth. We use ordinary least squares procedures to regress violent extremist attitudes at age 17 on strain, moral and legal constraints, and control variables measured at ages 15 to 17. Conditional effects were examined using an interaction term for collective strain and moral neutralization and legal cynicism, respectively.

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Research on violent extremism has produced a wide array of risk factors in psychological, social, and political domains (Bhui, Warfa, and Jones 2014; Borum 2011a, 2011b; Dalgaard-Nielsen 2010; Gill, Horgan, and Deckert 2014; LaFree and Ackerman 2009; McGilloway, Ghosh, and Bhui 2015). These include psychological characteristics (e.g., low self-control), social context features (e.g., alienation), and political processes (e.g., exclusion from politics). LaFree and Ackerman (2009) argue that part of the difficulty in synthesizing information on extremist violence is due to the breadth of attitudinal, behavioral, and group-based outcomes examined under one conceptual umbrella. In addition, studies differ in their analytical approach, including for instance analyses of risk factors using survey samples and individual interviews (Doosje, Loseman, and van den Bos 2013; Goli and Rezaei 2010; Pauwels and De Waele 2014), or retrospective life history analyses of known terrorists (Gill et al. 2014). As a result of this diversity in theoretical domains, outcomes, and analytical approaches, empirical findings on the causes and correlates of violent extremist beliefs and behaviors are understandably mixed.

In light of this, Freilich and LaFree (2015) call for a better integration of terrorism and extremism research into broader criminological theory and analysis (see also Agnew 2010; Schils and Pauwels 2014). Following this call, the present article examines the interplay between two potentially fruitful theoretical approaches to violent extremism, namely, strain theories and neutralization theories. Strain theories such as Agnew's general strain theory (GST) predict that support for violent extremism is more likely when collective strain is experienced, such as perceived discrimination against a group one identifies with, feelings of injustice, or vicarious or direct trauma from war and civil strife (Agnew 2010; Bhui et al. 2014; Dalgaard-Nielsen

2010; Hagan, Merkens, and Boehnke 1995; LaFree and Ackerman 2009; Pauwels and De Waele 2014; Weine et al. 2009). Neutralization theories predict that support for violent extremism is higher when actors morally disengage from ethical standards that prohibit violence or when they legally disengage from the obligation to comply with the law (Bandura 1986; Nivette et al. 2015; Rattner and Yagil 2004; Ribeaud and Eisner 2010). These theories are not mutually exclusive. Rather, collective strain as a structural feature and neutralization as a psychological process may mutually reinforce each other (Mazerolle and Maahs 2000). This article therefore examines a core prediction of strain theory, namely, that support for violent extremism should be particularly high when experiences of collective strain are coupled with psychological mechanisms of moral and legal neutralization.

We investigate these hypotheses with data from the Zurich Project on the Social Development of Children and Youth (z-proso). This is a cohort study of an ethnically and religiously mixed sample of adolescents in Zurich, Switzerland, where support for violent extremism was measured at age 17. A large proportion of study participants' parents immigrated from fragile and conflict-torn societies, making the sample particularly relevant for examining the stipulated mechanisms. Z-proso is one of very few studies worldwide that can prospectively examine the developmental mechanisms associated with the formation of violent extremist attitudes during late adolescence. Furthermore, at the time of the data collection (2013/2014), Switzerland's level of exposure to terrorism was estimated to be roughly in line with that of other Western societies. According to the 2013 Global Terrorism Index Report, Switzerland was ranked 72 among 162 countries, comparable to the Netherlands, Spain, Belgium, Germany, or Canada, but lower than the United States (ranked 33).[1] The annual reports by the Swiss National Intelligence Service suggest a small group of fundamentalist Islamic actors, with a total of approximately 80 fighters who joined the Islamic State of Iraq and Syria (ISIS) over the past decade. The reports also note about 130 incidents of violent acts committed by left-wing or right-wing extremists per year, with a declining tendency since 2011 (Nachrichtendienst des Bundes 2016).

Violent extremist attitudes are defined here as attitudes that "encourage, endorse, condone, justify, or support the commission of a violent criminal act to achieve political, ideological, religious, social, or economic goals" (International Association of Chiefs of Police [IACP] 2014). We note that the relationship between extremist beliefs and actual terrorist activities is poorly understood. A number of conceptualizations of the extremist value-

acquisition process portray the pathways to violent extremist behaviors in a stepwise fashion (see Borum's [2011a] review). In these models, pro-extremist attitudes are typically acquired in the "early" stages among a wider sample of the population, whereas engaging in extremist acts occurs among a much smaller proportion of those with favorable attitudes at a "later" stage (McCauley and Moskalenko 2008). Robust evidence in delinquency research demonstrates the substantial link between attitudes, behavioral intentions, and behaviors as suggested by Fishbein and Aizen (1975). More specifically, delinquent attitudes have been shown to be longitudinally predictive of delinquent behavior intentions, although behavior also affects subsequent attitudes (Rebellon et al. 2014; Thornberry et al. 1994; Zhang, Loeber, and Southamer-Loeber 1997). However, the relationship is complex as some violent extremists and terrorists have been found to have limited "radical beliefs" (e.g., Simi, Sporer, and Bubolz 2016), and actors with high levels of support for violent political strategies may never engage in violence themselves (Wikström and Bouhana 2016). As such, only a tiny fraction of those with extremist attitudes engage in politically motivated violence, and researchers have documented a wide range of potential mechanisms that mobilize individuals or groups from belief to action (McCauley and Moskalenko 2008; Simi et al. 2016). Therefore, it is likely that the development of beliefs and attitudes that justify violent political action and involvement in terrorist activities are partly influenced by different mechanisms. In this article, we focus exclusively on risk factors for individual differences in extremist, violence-condoning attitudes.

Theoretical Background

General Strain Theory

Generally, strain theories explain criminal attitudes and behaviors as manifestations of negative coping in response to adverse events, conditions, or treatment (Agnew 1992, 2006; Merton 1968). Agnew's (1992) revised GST aimed to improve upon earlier versions of strain theory by expanding the types of negative relationships that produce strain, explicating the social–psychological mechanisms that underlie the relationship between strain and crime, and examining the conditions under which effects of strain may be buffered or amplified (Agnew et al. 2002).

Agnew (1992) outlined three types of strain, resulting from negative relationships with others. First, strain can result when individuals are prevented from achieving their goals, which includes relationships or

interactions that are perceived as unjust or inequitable (Agnew 1992). The second type arises when positively valued stimuli are removed, such as the loss of a parent, romantic partner, or employment. Third, strain can result from noxious stimuli such as victimization, child abuse, and negative experiences with parents, peers, police, and employers (Agnew 1992; Kalmakis and Chandler 2015). Exposure to these strains can produce negative emotions like anger and frustration, which demand corrective action (Agnew et al. 2002). According to GST, crime is a type of corrective action that seeks to injure, damage, or seek revenge on the presumed sources of the strain.

GST offers a theoretical framework to conceptualize the effects of strain on support for violent extremism. In particular, it outlines the types of strain that are most relevant for extremist violence, and conditional influences likely to amplify or buffer the effects of strain (Agnew 2010). Thus, Agnew (2010) criticizes the broad conceptualization of strain used in much terrorism and extremism research. Such approaches fail to account for the specific motivations for violent extremism as opposed to ordinary crime or deviance. Specifically, he argues that extremist violence is typically inflicted on behalf of a social, religious, or political group or ideology. In order to endorse violence on behalf of a group or ideology, one must experience collective strain (Agnew 2010; Piazza 2012). Types of collective strain likely to facilitate the adoption of violent extremist beliefs are high in magnitude, considered highly unjust, and caused by more powerful political, social, or religious groups (Agnew 2010:136).

Prior studies have highlighted a range of strains as potential sources of extremist beliefs and behaviors, including adverse childhood experiences (Simi et al. 2016), discrimination and feelings of injustice (Goli and Rezaei 2010; Pauwels and De Waele 2014; Pauwels and Schils 2016; Piazza 2012), vicarious or direct trauma from war (Bhui et al. 2014; Weine et al. 2009), and relative deprivation (Freilich et al. 2015). More specifically, one key source of collective strain that is often high in magnitude, considered unjust, and inflicted by powerful "others" is exposure to political violence such as conflict, terrorism, and war (Canetti et al. 2013; Gill et al. 2014; Hirsch-Hoefler et al. 2014; Muldoon 2013; Pedersen 2002; Simi et al. 2016). Prolonged exposure to political violence can act as a stressor that leads to anger, anxiety, and depression (Garbarino and Kostelny 1996). Studies examining the effect of the Israeli–Palestinian conflict on support for extremism find that both direct and indirect exposure to conflict increase negative emotions and feelings that an individual or group is under threat from the other or out-group (Heath et al. 2013; Hirsch-Hoefler et al. 2014;

Hobfoll et al. 2009; Huesmann et al. 2017). Hirsch-Hoefler et al. (2014) found that Israelis and Palestinians exposed to political violence were more likely to report psychological distress, perceive group threat, and less likely to support peaceful means of political conflict resolution.

Exposure to collective strain need not be direct in order to induce negative emotions and corrective action (Agnew 2002; Comer and Kendall 2007). Agnew (2002:609) argues that vicarious strains can cause distress, increasing the likelihood that individuals will seek to "prevent further harm to those they care about, to seek revenge against those they believe are responsible for the harm, and/or to alleviate their negative feelings." According to Agnew, vicarious collective strains are more likely to lead to negative coping strategies when they are high in magnitude and considered unjust, when they affect closely related others, when they are directly witnessed or experienced by the individual, when they are unresolved, and seen to be likely to affect the individual. Research generally supports the link between vicarious strain—in particular physical victimization—and offending behavior (Baron 2009; Lin, Cochran, and Mieczkowski 2011; Zavala and Spohn 2013).

Vicarious collective strains, including indirect exposure to collective physical violence, may be particularly salient for second-generation immigrant adolescents who may feel "culturally homeless" during a key stage in identity formation and consequently seek out groups that offer a clear identity and a sense of significance (Lyons-Padilla et al. 2015:2). In a review of research on violent radicalization among Muslims in Europe, Dalgaard-Nielson (2010) finds that identity seeking and lack of societal trust increase susceptibility to radical or extremist beliefs (see also Doosje et al. 2013; LaFree and Ackerman 2009; cf. McGilloway et al. 2015).

Moral and Legal Neutralization of Violence

Scholarship on violent extremism has documented extensively how those who support or engage in violent extremism and terrorism disengage from moral, legal, and religious standards in order to justify the use of violence against civilians (Aly, Taylor, and Karnovsky 2014; Kruglanski and Fishman 2006; LaFree and Ackerman 2009; Pauwels and De Waele 2014; Schils and Pauwels 2014; Slootman and Tille 2006). Psychologically, these mechanisms serve to overcome barriers to harming others and present an internal moral justification for violence. In criminology, such mechanisms are known as neutralization processes or cognitive distortions (Ribeaud and Eisner 2010; Sykes and Matza 1957).

Two such neutralization mechanisms are particularly relevant here, namely, moral neutralization and legal neutralization. The best-known version of moral neutralization theory is moral disengagement theory by Albert Bandura. Bandura (1986, 1999) developed a theory to explain engagement in and support for atrocities and violence on behalf of a group. The theory predicts that engagement in harmful behavior requires disengagement from moral self-sanctions against harmful behavior against others. Disengagement processes may "center on redefining harmful conduct as honourable by moral justification, exonerating social comparison and sanitising language" (Bandura 2002:102). Substantial empirical evidence supports the link between moral disengagement or neutralization and aggressive behavior more generally (Fritsche 2005; Gini, Pozzoli, and Hymel 2014; Ribeaud and Eisner 2015) as well as between moral disengagement and support for political extremism (see Aly et al. 2014; Hafez 2006; Pauwels and De Waele 2014; Schils and Pauwels 2014; Slootman and Tille 2006).

A related but conceptually distinct mechanism refers to the disengagement from the inner obligation to comply with the law, or what Sampson and Bartusch (1998) called "legal cynicism." Legal cynicism refers to attitudes that deny the binding nature of laws and that ratify acting in ways that are "outside" of law and social norms (Nivette et al. 2015; Sampson and Bartusch 1998). Legal cynicism researchers argue that these attitudes arise as an adaptation to persistent experiences of injustice, disadvantage, and alienation (Kirk and Papachristos 2011; Sampson and Bartusch 1998). This cynicism "frames" the way individuals interpret the law (Kirk and Papachristos 2011) and on the individual level can act as a justification for rule-breaking behavior or *legal neutralization* (Nivette et al. 2015). Similar to moral disengagement processes, legal cynicism thus serves as a mechanism to delegitimize legal sanctions against violent behaviors. Indeed, there is evidence to suggest that legal cynicism is correlated with crime and violence (Fagan and Piquero 2007; Jackson et al. 2012; Kirk and Papachristos 2011; Nivette et al. 2015; Reisig, Wolfe, and Holtfreter 2011; Sampson and Bartusch 1998).

Legal cynicism has also been linked to the use of extralegal violence to support political and ideological goals (Hagan, Kaiser, and Hanson 2016; Rattner and Yagil 2004). Hagan et al. (2016) explored the role of legal cynicism in justifying the use of violent attacks against state and U.S./ coalition forces in post-invasion Iraq. They argue that "cynicism can amplify group experiences and beliefs" which "can lead groups to form violent responses to the dilemmas imposed by defeats—whether, for example, these defeats follow from concentrated poverty, state repression, or

both" (Hagan et al. 2016:319). Controlling for other forms of violence, they find that legal cynicism was directly related to the use of violence among Arab Sunnis against U.S./Coalition and Iraqi state forces.

The interaction between strain and the moral and legal neutralization of violence. Not all who experience strain cope with crime. Rather, GST specifies several factors that condition the effect of strain on criminal coping. This includes, among others, mechanisms of inner control such as perceived moral and legal restraints or personality characteristics such as self-control (Agnew et al. 2002; Hagan et al. 1995; Hobfoll et al. 2009; Mazerolle and Maahs 2000). For example, Mazerolle and Maahs (2000) found that the effects of strain were stronger among individuals with more delinquent peers, high propensity to commit crime, and low moral beliefs (see also Agnew and White 1992). Similarly, Agnew et al. (2002:64) found support for the notion that negative emotionality and low constraint condition the impact of strain on criminal behavior. An individual's moral constraints and perceptions of legal boundaries and legitimacy can act as internal controls to buffer the effects of collective strain and prevent the adoption of extremist attitudes. Conversely, mechanisms of moral and legal neutralization may work to minimize internal controls and amplify the effects of strain.

The Current Study

This article seeks to examine the effects of vicarious exposure to collective strain on support for violent extremism. Research suggests that collective strain generates negative emotions, such as anger, which in turn fosters support for violence used to alleviate the strain or "right" the perceived wrong. Although Agnew (2010) has outlined a clear theoretical framework, no study has yet empirically tested the direct and conditional effects of collective strain on support for violent extremism. This study begins to fill this gap by investigating the impact of vicarious collective strain on adolescents' violent extremist attitudes in Zurich, Switzerland. Specifically, we explore two theoretical claims made by Agnew (2010): First, we examine the proposition that exposure to collective strain is associated with higher support for violent extremism. Given our current sample of native and second-generation immigrant adolescents in Zurich, we focus on the impact of vicarious collective strain on extremist beliefs. Second, we test the extent to which the effect of collective strain is conditional on inner controls, namely, one's perceptions of moral and legal constraints. While there are other possible conditional factors (e.g., disposition, personality, delinquent

peers), we focus our study on moral and legal conditional effects based on the apparent importance of these factors in prior research on both crime and extremism (Aly et al. 2014; Bandura 1999; Hafez 2006; Hagan et al. 2016; Mazerolle and Maahs 2000; Rattner and Yagil 2004; Slootman and Tille 2006).

Data and Methods

This study examines the direct and conditional effects of collective strain on adolescent support for violent extremism using data from two waves of the Zurich Project on the Social Development of Children and Youths (z-proso), an ongoing prospective longitudinal study on the development of aggressive and other problem behavior based on a cohort of children who entered 1 of the 56 primary schools in the City of Zurich in 2004 (see Eisner, Malti, and Ribeaud 2011). The initial sample of schools was randomly selected using a stratified random sampling procedure that slightly oversampled school districts with a lower socio-economic status (SES), resulting in 1,675 children from 56 primary schools (Eisner and Ribeaud 2005). This study comprises seven waves of child and youth interviews at ages 7, 8, 9, 11, 13, 15, and 17. Until age 11, active parent consent was required. From wave 5 (age 13) on, the participating youths were legally old enough to give the active consent to participate on their own, while their parents had the option to proscribe their child's participation (passive consent). Also, at ages 13 and 15, the study team was entitled to recontact the entire initial target sample. This allowed the team to increase the overall participation rate, specifically also among low-SES participants with an immigration background.

Despite the slight overrepresentation of lower SES school districts, the study population is largely representative of the youth population of the city (but not of the country), with a very large proportion of youths with a migration background. Of all, 48.3 percent of the participants have two parents born abroad, 27.9 percent have one parent born in Switzerland and the other born abroad, and 23.8 percent have two parents born in Switzerland. With regard to the mother's country of birth, 38.1 percent were born in Switzerland, 16.2 percent in former Yugoslavia, 6.0 percent were born in Sri Lanka, most of whom originating from the Tamil minority, 5.4 percent were born in Portugal, 5.4 percent in Germany, and 4.3 percent in Turkey. Among the remainder of the mothers, 8.1 percent were born in other Western countries (e.g., Italy, Spain, the United States), 5.9 percent in other Asian countries (other than the former Union of Soviet Socialist

Republics [USSR]), 4.9 percent were born in Latin America, 3.5 percent in Africa, and 2.3 percent in other East-European countries (including the former USSR). The distribution of the fathers' country of birth is similar. As to the participants' religious affiliation, 25.1 percent are Roman Catholic, 21.6 percent are Protestant, 20.0 percent are Muslim, 18.9 percent have no religious affiliation, 7.6 percent are Christian Orthodox, 5.2 percent are Hindu, and 1.7 percent have another religious affiliation.

The data used in the present article were collected at ages 15 and 17 based on paper-and-pencil surveys that were carried out in public school classrooms during the participants' leisure time. The survey sessions were guided by trained study staff and lasted for 90 minutes on average. The participants received incentive worth $US50 and $US60, respectively.

Support for violent extremism was measured in wave 7 (age 17), whereas explanatory variables are drawn from wave 6 (age 15) or are retrospectively measured in wave 7 (ages 16–17) to distinguish the temporal order between predictors and outcome. The sample was restricted to all who participated in waves 6 and 7 ($n = 1,288$) and for whom complete information was available, resulting in 1,214 respondents.

Measures

Violent extremist attitudes scale. There is no consensus on how to best measure attitudes in support for violent extremism. Some studies have attempted to measure support for violent extremism with one single item, while other scales are developed to measure support for a particular extremist ideology or group. For example, in the 2009/2010 UK Citizenship Survey, attitudes toward violent extremism were measured with four items, wherein each item measured approval of the use of violence for one specific political motivation such as "using violence to protect animals," "encourage violence toward different ethnic groups," or use "violent extremism, in the name of religion, to protest or achieve a goal" (Department for Communities and Local Government and Ipsos MORI 2011). In our view, the selective presentation of some but not other motivations to use violence as well as the use of the term "violent extremism" in two of the four questions limits the utility of the instrument.

In light of these limitations, a new scale was developed for this study. The instrument aims to measure generic support for violent extremism defined as attitudes that "encourage, endorse, condone, justify, or support the commission of a violent criminal act to achieve political, ideological, religious, social, or economic goals" (IACP 2014). Four items were

Table 1. Percentage of Respondents Agreeing with Statements Supporting Violent Extremism.

Items	Fully Untrue (Percent)	Somewhat Untrue (Percent)	Somewhat True (Percent)	Fully True (Percent)
It's sometimes necessary to use violence to fight against things that are very unjust	29.5	36.3	27.8	6.3
Sometimes people have to resort to violence to defend their values, convictions, or religious beliefs	44.0	31.5	19.8	4.8
It's OK to support groups that use violence to fight injustices	43.0	33.1	19.7	4.2
It's sometimes necessary to use violence, commit attacks, or kidnap people to fight for a better world	65.2	22.8	9.7	2.3

constructed so that each measures a different aspect of using violence for collective goals. This includes using violence to fight against injustice; to defend the values, convictions, or religious beliefs of a group; to support groups that use violence; and to fight for a better world by using violence, committing attacks, or kidnapping people.

Responses were given on a four-point Likert-type scale that ranged from "fully untrue" (1) to "fully true" (4). The reliability was good with a Cronbach's α of .80. The scale has a positive skew (.618) reflecting that a minority of young people endorse violent extremist attitudes. Table 1 reports the breakdown of responses on the Likert-type scale for each item.

Independent variables

Collective strain. There are many potential sources of collective strain, including political, cultural, and economic discrimination; systematic exclusion; and exposure to war and conflict. Notably, Agnew (2006, 2010) argues that strain (collective or individual) is likely to have the highest impact when it is high in magnitude, unjust, and chronic or persistent. Thus, we operationalized collective strain in a way that aims to capture all of these characteristics, so as to maximize the likelihood of detecting an effect. An adolescent's experience of collective strain was measured using an average of the 2010 to 2015 Fragile States Index (FSI; Fund for Peace

2016), a composite score reflecting a country's stability on 12 political, social, and economic indicators. The average index covers events and data for the years 2009 to 2014. To construct each indicator, a "mixed method" approach is used to collect, triangulate, and integrate data from online documents, quantitative databases, and qualitative input (Messner et al. 2015:16). Social indicators include demographic pressures (e.g., natural disasters, population growth, water scarcity), refugees and internally displaced persons (e.g., displacement, refugee camps), group grievances (e.g., discrimination, powerlessness, ethnic, communal, or religious violence), and human flight and brain drain (e.g., migration per capita, emigration). Economic indicators include uneven economic development (e.g., Gini coefficient, slum population) and poverty and economic decline (e.g., economic deficit, unemployment, inflation). Political and military indicators include state legitimacy (e.g., corruption, government effectiveness, political participation), public services (e.g., provision of policing, education, and health care, criminality, literacy), human rights and rule of law (e.g., civil liberties, political freedoms, religious persecution, torture), security apparatus (e.g., internal conflict, riots and protests, coups, fatalities from conflict), factionalized elites (e.g., power struggles, flawed elections), and external intervention (e.g., presence of peacekeepers, foreign military intervention, sanctions). Taken together, the overall index reflects the degree to which residents of a country are exposed to significant collective strain, including discrimination, repression, exclusion, and conflict.

Second-generation immigrants may experience vicarious strain due to ongoing strife in their parent's country of birth due to the magnitude, unjust nature, and often protracted length of the conflict or instability (Agnew 2002). In addition, collective strains are likely to affect these adolescents through their sense of shared identity with their national or ethnic background. As such, we assigned the relevant FSI score according to adolescents' parents' country of origin. In cases where participants had parents from two different countries, we kept the highest score. This method ensures that we capture the highest possible exposure to collective strain. Scores ranged from 22.6 (Switzerland) to 113.9 (Somalia). Figure 1 displays the distribution of FSI scores according to parental background. Given that the index is highly positively skewed, we constructed a binary variable to distinguish adolescents experiencing high levels of collective strain. Adolescents with a score equaling the median (55.1) or above are exposed to high levels of collective strain and are coded as 1. All others are coded as 0. Countries with scores over the median reflect a range of countries with histories of protracted conflict and civil war (e.g., Bosnia and Herzegovina,
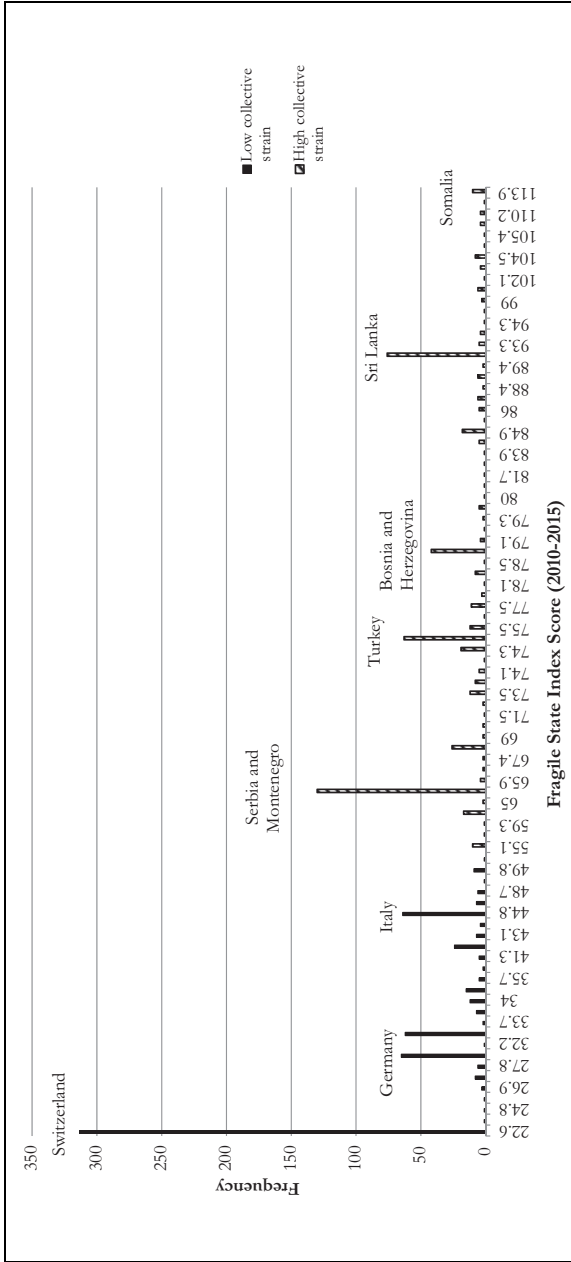
Figure 1. Frequency of Fragile States Index (2015) scores matched to parent country of origin.

Serbia and Montenegro, Sri Lanka) as well as countries vulnerable to instability, group conflicts, or insecurity (e.g., Turkey, Angola, Morocco). We expect that a higher score on the FSI indicates greater and more varied vicarious exposure to collective strain.

Personal strain. In addition to collective strain, we include a composite measure of personal strain. In contrast to collective strain, personal strains are experienced on the individual level. According to Agnew (2006), these strains can include negative school experiences, negative encounters with the criminal justice system, violent victimization, death in the family, or family instability. Personal strain was measured using a summary score of negative life events measured retrospectively at wave 7, covering ages 15 to 17. The scale includes 10 events similar to those identified by Agnew as significant individual stressors (2006): received censure or punishment at school, repeated a grade, broke up with a significant other, parent lost their job, parent died, sibling died, stayed at a mental hospital, violent victimization, and negative encounter with police. The scale ranged from 0 to 6 events.

Moral neutralization. Moral neutralization or disengagement reflects cognitive processes and distortions by which deviant beliefs and behaviors become justifiable within one's moral landscape (Ribeaud and Eisner 2010). Moral neutralization is measured using an 18-item scale derived from overlapping theoretical sources, including moral disengagement (Bandura et al. 1996), neutralization theory (Huizinga et al. 2003; Sykes and Matza 1957), and self-serving cognitive distortions (Barriga and Gibbs 1996). Four mechanisms of moral disengagement and neutralization are included in the scale: cognitive restructuring (8 items), blaming the victim (3 items), distorting negative impact (3 items), assuming the worst (2 items), and minimizing own agency (2 items). Agreement with each item is measured using a four-point Likert-type scale. Moral neutralization was measured in wave 6 (age 15; $\alpha = .89$).

Legal cynicism. Legal neutralization is measured using six legal cynicism items derived from Karstedt and Farrall's (2006) and Sampson and Bartusch's (1998) original scale. Items include "It is okay to do whatever you want as long as you don't hurt anyone," "laws were made to be broken," and "sometimes it's necessary to ignore rules and laws to do what you want." Agreement with each item is measured using a four-point Likert-type scale. Legal cynicism was measured in wave 6 (age 15) and is reliable ($\alpha = .72$).

Generalized trust. Generalized trust refers to the perception that unfamiliar others in society can be relied upon (Delhey, Newton, and Welzel 2011; Smith 2010). An adolescent who generally trusts others is expected to be more attached and embedded in wider societal norms and relations. Generalized trust is measured using three items adapted from the World Values Survey Questionnaires (available online at http://www.worldvaluessurvey.org/index_html). Participants were asked whether they agreed with the statements, "most people can be trusted," "people usually try to help other people," and "most people try to be fair" using a four-point Likert-type scale. The scale was measured at wave 6 (age 15). The reliability was good with a Cronbach's α of .78.

Parental involvement. Parental involvement reflects the extent to which parents are involved in an adolescent's everyday life. Parenting items were adapted from the Alabama Parenting Questionnaire (Shelton, Frick, and Wootton 1996) and the Parenting Scale from the Criminological Research Institute of Lower Saxony (KFN). The scale consists of six items, measuring how often a child's parents engage with them and help with their problems on a scale from 1 = "never" to 5 = "very often." Items include, for example, "your parents show interest in what you do" and "when you have problems, you can go to your parents." Parental involvement was measured in wave 6 (age 15) and is reliable ($\alpha = .76$).

Conflict coping skills. Individuals who are able to competently cope with conflict and negative encounters or situations are less likely to be affected by collective or personal strain (Agnew 2006, 2010). Conflict coping skills is measured using four items. Agreement is measured on a five-point Likert-type scale ranging from "never" to "very often." Items include "I listen very carefully so that there are no misunderstandings," "I try to put myself in the position of the other person, to try and understand him or her," and "I try to control my anger." Conflict coping skills were measured in wave 6 (age 15, $\alpha = .71$).

Additional Measures

We include a range of additional variables that bear on theoretically relevant domains including personality and dispositional characteristics and social learning perspectives. Personality and dispositional characteristics, such as low self-control and prior aggression, reflect latent tendencies to support rule-breaking and antisocial behavior, including violent extremism (Gottfredson and Hirschi 1990; Simi et al. 2016). Social learning

perspectives contend that support for violent extremism and related behaviors must be learned from peers, family, or the media (Akers and Silverman 2004). Thus, we include two sources from which adolescents can be exposed to crime and violence for imitation and adoption of beliefs: belonging to a deviant peer group and consumption of violent media. In addition, we control for three key sociodemographic characteristics: gender, socioeconomic status, and religious denomination.

Low self-control. Low self-control is measured using 10 items adapted from Grasmick et al. (1993), incorporating five subdimensions of self-control: impulsivity, self-centeredness, risk seeking, preference for physical activities, and short temper. Agreement was coded on a four-point Likert-type scale and is reliable ($\alpha = .75$). Low self-control was measured in wave 6 (age 15).

Aggression. Aggression was measured using the relevant subscales of the Social Behavior Questionnaire (SBQ; Tremblay et al. 1991). Three items refer to physical aggression (e.g., "you kicked, bit, or hit other people"), three items refer to proactive/instrumental aggression (e.g., "you threatened other people to get something from them"), and three items refer to reactive aggression (e.g., "you got very angry when someone teased or irritated you"). Item response was provided on a five-point Likert-type scale from never to very often. The reliability and validity of the SBQ has been supported in previous research (e.g., Tremblay et al. 1991, 1992). Overall aggression was measured at age 15 and has good reliability with a Cronbach's α of .83.

Deviant peer group. An adolescent's exposure to deviant norms and delinquent peers was measured using a binary variable, indicating whether or not an individual is a member of a deviant peer group in wave 6 (age 15). Those who identified as part of a deviant peer group were coded as 1, whereas those who identified as part of a nondeviant peer group or were not part of a group were coded as 0 (mean = .21).

Violent media consumption. Participants' violent media consumption was measured with five items, including "watching horror movies suitable for ages 18 and older (18+)," "watching thriller or action movies 18+," "searching for, and watching violent content on the internet, watching videos with violent content on your cell phone, and sharing them with friends," and "playing action-packed 18+ computer or video games, which

contain intense and/or realistic portrayals of violence and killing (e.g., first-person shooters)." These items were derived from a scale developed by the KFN (Mössle, Kleimann, and Rehbein 2007). Questions were answered on a seven-point Likert-type scale ranging from 1 (never) to 7 (daily). Violent media consumption was measured at age 15 and has good reliability (Cronbach's $\alpha = .80$).

Sociodemographic background. Three sociodemographic variables were included: gender, SES, and religious denomination. Gender was coded 0 for females and 1 for males (mean = .50). An SES was measured based on the primary caregiver's current occupation, and the codes were transformed into an International Socioeconomic Index of occupational status (ISEI) score (Ganzeboom, de Graaf, and Treiman 1992). The ISEI scores reflect the relationship between education and income, with higher scores indicating higher SES. An adolescent's SES score was based on the highest ISEI recorded for each household. If information from wave 6 was missing, we used the most recent high score from previous waves (mean = 49.82). Given the attention on Islamic violent extremism in recent years, we created a dummy variable for adolescents who identify as Muslim to examine whether this particular religious background is associated with higher support for violent extremism compared to other religious or nonreligious backgrounds. Individuals who identified as Muslim (Sunni, Shiite, Alevi, Alawi) in wave 5 or 6 (age 13/15) were coded as 1, whereas all other religious or nonreligious backgrounds (i.e., Christian [Protestant, Catholic, or Orthodox], Jewish, Buddhist, Hindu, none) were coded as 0 (mean = .19).

Analytical Procedure

This study uses ordinary least squares regression to examine the direct and conditional effects of collective strain on support for violent extremism. The analysis was conducted in two parts. First, we examined direct effects by regressing support for violent extremism on strain, moral and legal restraint variables, as well as additional and control measures. Second, conditional effects were tested by creating an interaction term for collective strain and moral disengagement and legal cynicism, respectively. Interactions were estimated and reported separately. Continuous interaction variables were centered at their means in order to facilitate the interpretation of the main effects. Due to heteroscedasticity, all models were estimated using robust standard errors.

The percentage of missing values among the variables was low, with the highest number of missing values found for SES (3 percent, $n = 40$). As such, all primary analyses were conducted using listwise deletion. As a robustness check, full models were reestimated using multiple imputation (see Results section).

Results

Table 2. Means and Standard Deviations for All Variables in the Analysis.

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Violent extremist attitudes	1.81	0.67	1														
2 Personal strain	0.83	0.99	.13***	1													
3 Collective strain (1 = high)	0.48	0.50	.13***	.06*	1												
4 Moral neutralization	2.06	0.51	.43***	.19***	.18***	1											
5 Legal cynicism	2.19	0.55	.30***	.18***	.05	.53***	1										
6 Generalized trust	2.43	0.58	−.08**	−.16***	−.10***	−.18***	−.16***	1									
7 Parental involvement	3.02	0.62	−.18***	−.09**	−.22***	−.29***	−.26***	.17***	1								
8 Coping skills	3.37	0.80	−.22***	−.09**	−.09**	−.31***	−.26***	.14***	.22***	1							
9 Low self-control	2.27	0.43	.21***	.22***	.02	.49***	.51***	−.20***	−.23***	−.38***	1						
10 Aggression	1.67	0.54	.31***	.20***	.17***	.60***	.41***	−.17***	−.27***	−.35***	.49***	1					
11 Deviant peer group (1 = yes)	0.21	0.41	.17***	.20***	−.05	.24***	.29***	−.05	−.07*	−.10***	.25***	.26***	1				
12 Violent media consumption	2.30	1.19	.34***	.23***	.10***	.51***	.31***	−.15***	−.18***	−.23***	.32***	.45***	.30***	1			
13 Gender (1 = male)	0.50	0.50	.29***	.08**	−.03	.34***	.11***	.03	−.10***	−.09**	.08**	.21***	.15***	.62***	1		
14 SES	49.82	19.17	−.11***	−.01	−.37***	−.14***	−.04	.04	.23***	.16***	−.04	−.15***	.09**	−.12***	.05	1	
15 Religion (1 = Muslim)	0.19	0.39	.09**	−.06*	.49***	.15***	.00	−.09**	−.13***	−.05	.04	.13***	−.06*	.06*	−.05	−.33***	1

Note: n = 1,214. SD = standard deviation.
*$p < .05$. **$p < .01$. ***$p < .001$.*

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Table 3. Ordinary Least Squares Regression of Support for Violent Extremism (Age 17) on Strain, Moral and Legal Neutralization, and Control Variables (Ages 15–17).

Variables	Model 1		Model 2		Model 3	
	β	*t* value	β	*t* value	β	*t* value
Personal strain	.13***	4.09	.04	1.55	.04	1.21
Collective strain (1 = high)	.12***	4.31	.06*	2.19	.04	1.31
Moral neutralization			.36***	10.64	.25***	6.25
Legal cynicism			.09**	2.82	.11**	3.04
Generalized trust					.01	0.29
Parental involvement					−.02	−0.78
Coping skills					−.09**	−2.97
Low self-control					−.06	−1.74
Aggression					.03	0.78
Deviant peer group (1 = yes)					.04	1.33
Violent media consumption					.04	0.94
Gender (1 = male)					.15***	4.42
SES					−.04	−1.30
Religion (1 = Muslim)					.02	0.59
Constant	1.66***	58.64	0.53***	6.41	1.16***	4.99
F value	19.47***		67.28***		27.08***	
R^2	.03		.19		.24	

Note: n = 1,214. All models are estimated using robust standard errors.
*p < .05. **p < .01. ***p < .001.

Table 4. Conditional Effects of Moral and Legal Constraints on the Effect of Collective Strain.

Variables	Model 4		Model 5	
	β	*t* value	β	*t* value
Personal strain	.03	1.20	.04	1.24
Collective strain (1 = high)	.04	1.38	.04	1.26
Moral neutralization	.20***	4.36	.25***	6.30
Legal cynicism	.11**	3.10	.05	1.09
Collective strain × moral neutralization	.07*	1.99		
Collective strain × legal cynicism			.09*	2.35
Generalized trust	.01	0.25	.004	0.15
Parental involvement	−.02	−0.78	−.02	−0.83
Coping skills	−.09**	−3.05	−.09**	−3.06
Low self-control	−.06	−1.75	−.07	−1.83
Aggression	.03	0.67	.02	0.56
Deviant peer group (1 = yes)	.04	1.48	.04	1.51
Violent media consumption	.04	0.89	.04	0.87
Gender (1 = male)	.15***	4.55	.15***	4.48
SES	−.04	−1.38	−.04	−1.31
Religion (1 = Muslim)	.02	0.48	.02	0.70
Constant	1.85***	7.63	1.49***	6.25
F value	25.63***		25.59***	
R^2	.24		.24	

Note: $n = 1,214$. All models are estimated using robust standard errors. Moral neutralization and legal cynicism are mean centered.
*$p < .05$. **$p < .01$. ***$p < .001$.

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1. The 2013 Global Terrorism Index is available at http://162.243.170.40/#page/indexes/terrorism-index/2013.

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