

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 and religiously mixed 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 examines the effects of collective strain using data from two waves of the Zurich Project on the Social Development of Children and Youth. This study uses ordinary least squares procedures to regress violent extremist attitudes at age 17 on strain, moral and legal constraints, and control variables measured at ages 15-17. Conditional effects were examined using an interaction term for collective strain and moral disengagement and legal cynicism, respectively.

Results: The results show that vicarious collective strain does not have a direct effect on violent extremist attitudes once other variables are controlled. However, the degree to which individuals neutralize moral and legal constraints amplifies the impact of collective strain on violent extremist attitudes.

Conclusions: This study shows that those who already espouse justifications for violence and rule-breaking are more vulnerable to extremist violent pathways, particularly when exposed to conditions of collective social and economic strife, conflict, and repression.

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 paper 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 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; Ribeaud and Eisner 2010; Nivette et al. 2015; Rattner and Yagil 2004). 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 paper 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. Also, it 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

Violent extremist attitudes are defined here as beliefs and attitudes that condone the use of violence to achieve collective goals on behalf of a national, ethnic, political or religious group. This is close the definition used, for example, by the International Association of Chiefs of Police [IACP], which defines violent extremists as “those who encourage, endorse, condone, justify, or support the commission of a violent criminal act to achieve political, ideological, religious, social, or economic goals” (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). 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 in press). 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 paper 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 1938). Agnew's (1992) revised General Strain Theory [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.

General strain theory 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; 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 increases 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., in press). 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 et al. 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. Vicarious collective strains may be particularly salient for second generation immigrant adolescents, who may feel “culturally homeless” during a key stage in identity discovery and 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, Loseman, and van den Bos 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; Slotman 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 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; Slotman 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 (Sampson and Bartusch 1998; Nivette et al. 2015). 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; Sampson and Bartusch 1998; Reisig, Wolfe, and Holtfreter 2011).

Legal cynicism has also been linked to the use of extra-legal 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, amongst 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 paper 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 2009; Hagan et al. 2016; Mazerolle and Maahs 2000; Rattner and Yagil 2004; Sloodman 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 of a cohort of children that entered 1 of 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 over-sampled disadvantaged school districts, resulting in 1,675 children from 56 primary schools (Eisner and Ribeaud 2005). This study comprises seven waves of child interviews at ages 7, 8, 9, 11, 13, 15, and 17. In wave 5 (age 13), the participating youths were legally old enough to give the active consent to participate on their own, while their parents received an information letter that allowed them to proscribe their child's participation (passive consent procedure).

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 1214 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 2009/10 UK Citizenship Survey, attitudes towards 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 towards 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 out of the four questions limit 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” (ICAP 2014) . Four items were 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 4-point Likert scale that ranged from “fully untrue” (1) to “fully true” (4). The reliability was good with a Cronbach’s alpha 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 scale for each item.

[Table 1 about here]

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 State Index (Fund for Peace [FFP], 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, as well as 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 healthcare, 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 Fragile States Index score according to adolescents' parents' country of origin. In cases where participants had parents from two different countries, we kept the highest score. Scores ranged from 22.6 (Switzerland) to 113.9 (Somalia). Figure 1 displays the distribution of Fragile States Index 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, 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 Fragile States Index indicates greater and more varied vicarious exposure to collective strain.

[Figure 1 – distribution of FSI scores]

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 15-17. 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/disengagement. Moral disengagement or neutralization reflects cognitive processes and distortions by which deviant beliefs and behaviors become justifiable within one's moral landscape (Ribeaud and Eisner, 2010). Moral disengagement is measured using a 18-item scale derived from overlapping theoretical sources, including moral disengagement (Bandura et al., 1996), neutralization theory (Sykes and Matza 1957; Huizinga et al. 2003), 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 4 point Likert scale. Moral neutralization was measured in wave 6 (age 15; alpha=.89)

Legal cynicism. Legal cynicism is measured using six items derived from Karstedt and Farrall (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 4 point Likert 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 et al. 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.¹ 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 4 point Likert-type scale. The scale was measured at wave 6 (age 15). The reliability was good with a Cronbach's alpha 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 e.g. "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 4 items. Agreement is

¹ Available online at http://www.worldvaluessurvey.org/index_html.

measured on a 5-point Likert 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/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 socio-demographic characteristics: gender, socio-economic 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 4-point Likert 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 were provided on a five point Likert 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; Tremblay et al., 1992). Overall aggression was measured at age 15, and has good reliability with a Cronbach’s alpha 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 non-deviant 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 et al. 2007) Questions were answered on a 7-point Likert scale ranging from 1 (never) to 7 (daily). Violent media consumption was measured at age 15, and has good reliability (Chronbach’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). 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 (Ganzenboom, 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 non-religious 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 non-religious 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%, 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

Tables 2 and 3 present the descriptive characteristics and bivariate correlations for all study variables, respectively. The bivariate relationship between collective strain and support for violent extremism is moderate ($r = .13, p < .001$). The strongest correlates of

support for violent extremism is moral disengagement ($r = .43, p < .001$), consumption of violent media ($r = .34, p < .001$), and aggressive behavior ($r = .31, p < .001$). Exposure to collective strain is, albeit weakly, associated with higher moral disengagement ($r = .18, p < .001$), lower generalized trust ($r = -.10, p < .001$), lower parental involvement ($r = -.22, p < .001$), lower coping skills ($r = -.09, p < .01$), and higher levels of aggressive behavior ($r = .17, p < .001$).

[Tables 2 and 3 here]

In order to examine direct effects, we estimated three regression models. Table 4 presents the standardized coefficients (β), t values, and significance levels for each coefficient. The first model estimates the relationship between personal and collective strain and support for violent extremism, excluding all other study variables. Model 2 incorporates moral and legal neutralization variables, and Model 3 estimates the effects of key variables independent of social, dispositional, and socio-demographic factors.

Model 1 shows that both personal ($\beta = .13, p < .001$) and collective strain ($\beta = .12, p < .001$) are associated with significantly higher support for violent extremism. However the proportion of variance explained is small at 3 percent. In Model 2, adolescents who espouse high levels of moral disengagement ($\beta = .36, p < .001$) and legal cynicism ($\beta = .09, p < .01$) were significantly more likely to support violent extremism. With the addition of moral and legal neutralization, the model explained 19 percent of the variance in violent extremist attitudes. When controls were added in Model 3, the relationship between collective strain and violent extremist attitudes dropped to non-significance, whereas the strongest predictor remained moral disengagement ($\beta = .25, p < .001$). However, most social, dispositional, and socio-demographic characteristics were not significantly related to violent extremist attitudes. Notably, those who reported competent coping skills were less likely to support violent extremism ($\beta = -.09, p < .01$) and, in line with broader research on violence, males were more likely than females to support violent extremism ($\beta = .15, p < .001$). The full model explained 24 percent of the variance.

[Table 4 here]

Next, we examined the conditioning influences of moral and legal constraints on the relationship between collective strain and support for violent extremism. Table 5 presents the results separately for each interaction term. Model 4 tests the conditional influence of moral disengagement on collective strain. The significant interaction term indicates that the effect of collective strain depends on the degree to which adolescents employ cognitive techniques to neutralize moral constraints against the use of violence ($\beta = .07, p < .05$). To interpret the effect, we estimated the marginal means for support for violent extremism by exposure to collective strain and level of moral neutralization holding all other variables at their means, and plotted the values (see Figure 2). Figure 2 illustrates that the effect of collective strain is highest at high levels of moral neutralization: the estimate of the slope under conditions of high collective strain is $.39 (p < .001)$, and $.26 (p < .001)$ under conditions of low collective strain.

[Table 5 here]

[Figure 2 here]

Model 5 shows that legal cynicism conditions the effect of collective strain on violent extremist attitudes ($\beta = .09, p < .05$). Again, we explored the marginal means for support for violent extremism by the interaction variables while holding all other variables at their means. Figure 3 shows that at low levels of legal cynicism, there is little difference in attitudes about violent extremism between adolescents exposed to high or low levels of collective strain. However, high levels of legal cynicism amplify the effect of collective strain on support for violent extremism. That is, adolescents exposed to high collective strain and who hold cynical attitudes towards the law are more susceptible to violent extremist attitudes than those who have not experienced such strain, but who are comparably cynical. The estimate of the slope under conditions of high collective strain is significant and positive at $.21 (p < .001)$, whereas the slope for low collective strain is non-significant at $.06 (p = .28)$.

[Figure 3 here]

In order to assess whether the results were affected by listwise deletion, values for SES were imputed using the remaining variables in the analysis and the regression-based multiple imputation technique. The full models (models 3, 4, and 5) were reestimated using imputed values for SES ($n=1,249$). Substantive results (not shown, but available from the authors by request) for Models 3 (direct effects) and 5 (conditional effects of legal cynicism) remained the same. However, upon reestimation using imputed values for Model 4 (conditional effects of moral disengagement), the coefficient for the interaction term dropped to non-significance ($b = .13$, $p = .057$). This suggests that results for conditional effects regarding moral disengagement were sensitive to the inclusion of cases for which SES information was missing.

DISCUSSION

Strain perspectives have long been considered important to our understanding of violent extremism and terrorism, yet few studies have empirically examined this relationship. Drawing on research by Agnew (2010) as well as terrorism and extremism research more broadly, this study aimed to examine the direct and conditional influences of strain on support for violent extremism among an ethnically and religiously mixed sample of Swiss adolescents. According to Agnew (2010), the type of strain most likely to influence support for collective violence is collective strain, particularly if it is high in magnitude, considered unjust, and inflicted by more powerful “others.” Collective strain is expected to foster negative emotions, such as anger, which in turn encourage corrective action to reduce, escape, or seek revenge on the source of the strain. In order to capture vicarious exposure to collective strain, we used an average of the 2010-2015 Fragile States Index scores which reflects the degree to which residents of a country are exposed to social, political, and economic strife, including discrimination, repression, exclusion, and conflict. Children whose parents are from countries with high levels of ongoing strife were

expected to be experiencing vicarious collective strain. The results show that collective strain is associated with a marginal increase in support for violent extremism, however this effect disappears when other social and individual variables are included in the model. Males, those with high levels of moral and legal disengagement or neutralization, and those with poor coping skills are more likely to support violent extremism. The results for conditioning influences suggest that the degree to which individuals neutralize moral and legal constraints amplifies the impact of collective strain on violent extremist attitudes. However, the results for the conditioning influence of moral disengagement were not robust.

Specifically, our results shed light on the direct, indirect, and conditional effects of strain on support for violent extremism among adolescents, as well as predictors of support more broadly. First, vicarious collective strain does not have a direct effect on support for violent extremism once other variables are controlled. This is generally in line with previous research that has found small direct or only indirect effects of strain on crime (see Agnew, 2006). Agnew (2006) argues that, in addition to generating negative emotions, exposure to strain can impact social, developmental, and situational variables that in turn affect deviant attitudes and behaviors. In line with this, we find that at age 15, exposure to collective strain was associated with higher moral disengagement, lower trust and parental involvement, and poor coping skills. High levels of collective strain may therefore weaken internal moral controls, social bonds, and attachments and encourage adolescents to seek out negative peer relations or media. Prior research on radicalization processes and extremism has documented how collective, external experiences can affect family and social bonds and motivate extremist sympathy and activity (Pape 2005; Weine et al. 2009, but see Bhui et al. 2014).

It is important to note that the impact of vicarious strain on negative emotions and coping responses depends on several factors, including proximity to the source of the strain, whether or not the strain has been resolved, and perceived contagiousness of the strain (Agnew 2002). In relation to collective strain, the most important factor is perhaps the degree to which individuals identify with the affected collectivity. In other words, adolescents who do not readily identify with their parents' ethnic or national background are unlikely to be adversely affected by the ongoing civil strife. Given that we were not

able to include a measure of self-perceived ethnic or national identity, the average effect of collective strain may be underestimated. Further research is needed to determine the extent to which self-identification moderates the relationship between collective strain and support for violent extremism.

In addition, the results revealed that support for violent extremism is strongly associated with low moral and legal constraints. Adolescents who justify the use of violence more generally and who dismiss the “bindingness” and legitimacy of the law are more likely to support the use of violence to achieve political, social, or other ideological goals. This finding contributes to the growing body of theoretical and empirical research suggesting that disengagement from moral and legal norms is an important social-psychological process that precedes and facilitates the adoption of extremist beliefs (Aly et al. 2014; Bandura 1986; Kruglanski and Fishman 2006; LaFree and Ackerman 2009; Pauwels and De Waele 2014; Schils and Pauwels 2014; Slootman and Tille 2006). We argue that such processes are cognitive “tools” used by actors to overcome conventional moral standards on the use of violence and legitimacy of legal institutions. As such, criminological knowledge on moral and legal disengagement more generally as part of a process of moral and legal socialization can contribute to our understanding of support for violent extremism (Fagan and Tyler 2005).

For example, social learning perspectives can shed light on the mechanisms by which individuals acquire deviant and violent extremist beliefs (Akers and Silverman 2004; Hagan et al. 1995; Huesmann et al. in press). Applying social learning theory to terrorism, Akers and Silverman (2004: 27) state:

As part of their subcultural identities, terrorists learn an ideology that the ends justify the means; violence for political ends is accepted and rewarded. These function as definitions favorable to violence. [...] In essence, the “framing” of the conflict teaches the terrorists definitions of the situation and when, where, and how often, it is morally right or justified to engage in political violence.

In addition, social media is considered to be a source in which these learning mechanisms operate in regard to both traditional crime and violent extremism (Decker and Pyrooz 2011; Pauwels and Schils 2016). Notably, research on radicalization and pathways into violent extremism reveal that political or ideological motivations are not necessarily prerequisites for differential association with extremist groups and the adoption of pro-violent beliefs (Gill et al. 2014; Simi et al. 2016). Simi and colleagues (2016: 15) found that “the importance of ideology primarily follows rather than precedes entry” into violent extremist groups, and that initial contact and involvement was based on existing informal (nonideological) criminal networks (see also Freilich et al. 1999; Horgan 2009; McGilloway et al. 2015; Schafer et al. 2014: 176). Thus, while we did not find a direct effect of belonging to a deviant peer group or violent media consumption on support for violent extremism, it is likely that these factors work indirectly to influence the justification of violence and neutralization of legal norms more generally.

Finally, a key tenant of GST states that not all of those who experience strain respond with anger and violence, and that there are certain conditions under which violence is more likely to result from experiences of strain (Mazerolle and Piquero 1997). In particular, an individual’s internal controls are important to regulating responses to strain and shaping the pathways with which to cope (Wikström and Bouhana in press). Consistent with this perspective (Angew et al. 2002; Mazerolle and Maahs 2000; Mazerolle and Piquero 1997), we find that low moral and legal constraints, as operationalized here by moral disengagement and legal cynicism, condition the effect of collective strain on support for violent extremism. In other words, adolescents who employed cognitive distortions to neutralize their moral beliefs and deny the “bindingness” of the law were more likely to respond to collective strain with violent extremist attitudes. Those who already espouse justifications for violence and rule-breaking are more vulnerable to extremist violent pathways, particularly when vicariously exposed to conditions of collective social and economic strife, conflict, and repression.

Furthermore, Kirk and Matsuda (2011; see also Kirk and Papachristos 2011) argue that legal cynicism stems from social alienation, perceived injustice, and experiences of misconduct and harassment by criminal justice agents. Thus we may interpret the result as an indication that an individual’s perceived embeddedness and attachment to

social and legal institutions can buffer the negative effects of collective strain and prevent the adoption of violent extremist attitudes. As adolescents encounter persistent injustices their cynicism increases and perceptions of the legitimacy of the law diminish, subsequently increasing susceptibility to violent extremist attitudes. This risk is particularly heightened for those experiencing collective strain.

Limitations and Future Research

There are notable strengths to this study. First, it is one of few studies on violent extremism that examines theoretically relevant putative mechanisms predictive of extremist pro-violence attitudes using a representative sample of adolescents. This study includes a wide range of indicators from relevant theoretical frameworks such as social bonds and control, personality characteristics and predispositions, and social learning perspectives. Second, to our best knowledge this is currently the only study that uses prospective longitudinal data to examine support for violent extremism, allowing for the plausible distinction of temporal order between predictors and the outcome.

This study also has several limitations. First, while the Fragile States Index is a reflection of the cumulative exposure to ongoing collective strife in a parent's country of birth and therefore a plausible proxy for vicarious strain, the validity of this claim relies on the assumptions that adolescents are first knowledgeable about the presence of collective strain and second identify with their affected ethnic or national background. In order to address these limitations, future studies should include a measure of self-identification, and adapt Agnew's (2002) measures of experienced, vicarious, and anticipated victimization to capture subjective and objective exposure to collective strains, such as group discrimination, repression, injustice, and physical victimization.

Second, this study did not formally analyze the mediating mechanisms according to GST (Agnew 2006), and therefore provides only suggestive evidence that collective strain indirectly affects support for violent extremism. Most notably, we were not able to assess the mediating role of negative emotions, in particular anger, in generating support for extremist violence. Previous research suggests that anger is a strong justification and

motivator for violence (Agnew 1992; Mazerolle and Piquero 1997; Mazerolle et al. 2003). Collective strain may affect negative emotions like anger on two dimensions: prolonged exposure to collective strain can lead to the development of negative emotional traits, which reflect one's propensity to react to stressful situations in a negative way, and/or exposure to collective strain can generate negative emotional states, which reflects the experience of an emotion (Agnew 2006). For example, collective strain such as exposure to conflict has been shown to adversely affect a child's emotional traits and coping skills both directly (e.g. by increasing anxiety, stress, and normalizing violence) and indirectly (e.g. by generating family stress and poor maternal health, increasing the risk of child psychological and behavioral problems) (Merrilees et al. 2011; Muldoon 2013). In order to distinguish the mediating effects of negative emotional traits compared to emotional states, Agnew (2006) recommends the use of vignettes. Vignettes can portray a range of potential situations and sources of collective strain while measuring respondents' emotional reactions and subsequent responses to cope with the strain.

Finally, the measure of support for violent extremism used here was designed to measure a general support for violence to achieve political, ideological, religious, social, or economic goals. It did not measure support for specific violent ideologies or the extent to which subjects may personally consider engaging in extremist activities. Future studies should incorporate items that measure support for specific extremist movements as well as measures of action intent.

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Table 1 – Percentage of respondents agreeing with statements supporting violent extremism

Item	Fully untrue	Somewhat untrue	Somewhat true	Fully true
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%

Table 2 – Means and standard deviations for all variables in the analysis (n=1,214).

Variables	Mean	SD
1 Violent extremist attitudes	1.81	0.67
2 Personal strain	0.83	0.99
3 Collective strain	0.48	0.50
4 Moral disengagement	2.06	0.51
5 Legal cynicism	2.19	0.55
6 Generalized trust	2.43	0.58
7 Parental involvement	3.02	0.62
8 Coping skills	3.37	0.80
9 Low self-control	2.27	0.43
10 Aggression	1.67	0.54
11 Deviant peer group	0.21	0.41
12 Violent media consumption	2.30	1.19
13 Gender	0.50	0.50
14 SES	49.82	19.17
15 Religion	0.19	0.39

Note. SD = Standard deviation

Table 3 – Bivariate correlations between variables included in the analyses (n = 1,214).

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Violent extremist attitudes	1														
2 Personal strain	.13***	1													
3 Collective strain	.13***	.06*	1												
4 Moral disengagement	.43***	.19***	.18***	1											
5 Legal cynicism	.30***	.18***	.05	.53***	1										
6 Generalized trust	-.08**	-.16***	-.10***	-.18***	-.16***	1									
7 Parental involvement	-.18***	-.09**	-.22***	-.29***	-.26***	.17***	1								
8 Coping skills	-.22***	-.09**	-.09**	-.31***	-.26***	.14***	.22***	1							
9 Low self-control	.21***	.22***	.02	.49***	.51***	-.20***	-.23***	-.38***	1						
10 Aggression	.31***	.20***	.17***	.60***	.41***	-.17***	-.27***	-.35***	.49***	1					
11 Deviant peer group	.17***	.20***	-.05	.24***	.29***	-.05	-.07*	-.10***	.25***	.26***	1				
12 Violent media consumption	.34***	.23***	.10***	.51***	.31***	-.15***	-.18***	-.23***	.32***	.45***	.30***	1			
13 Gender	.29***	.08**	-.03	.34***	.11***	.03	-.10***	-.09**	.08**	.21***	.15***	.62***	1		
14 SES	-.11***	-.01	-.37***	-.14***	-.04	.04	.23***	.16***	-.04	-.15***	.09**	-.12***	.05	1	
15 Religion	.09**	-.06*	.49***	.15***	.00	-.09***	-.13***	-.05	.04	.13***	-.06*	.06*	-.05	-.33***	1

Notes. *p<.05; **p<.01; ***p<.001

Table 4 – Ordinary least squares regression of support for violent extremism (age 17) on strain, moral and legal neutralization, and control variables (ages 15-17) (n = 1,214).

	Model 1		Model 2		Model 3	
	β	<i>t</i> -value	β	<i>t</i> -value	β	<i>t</i> -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 disengagement			.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	

Notes. All models are estimated using robust standard errors. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 5 – Conditional effects of moral and legal constraints on the effect of collective strain (n=1,214).

	Model 4		Model 5	
	β	<i>t</i> -value	β	<i>t</i> -value
Personal strain	.03	1.20	.04	1.24
Collective strain (1 = High)	.04	1.38	.04	1.26
Moral disengagement	.20***	4.36	.25***	6.30
Legal cynicism	.11**	3.10	.05	1.09
Collective strain x Moral disengagement	.07*	1.99		
Collective strain x 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	

Notes. All models are estimated using robust standard errors. Moral disengagement and legal cynicism are mean centered. * $p < .05$; ** $p < .01$; *** $p < .001$.

Figure 1 – Frequency of Fragile States Index (2015) scores matched to parent country of origin

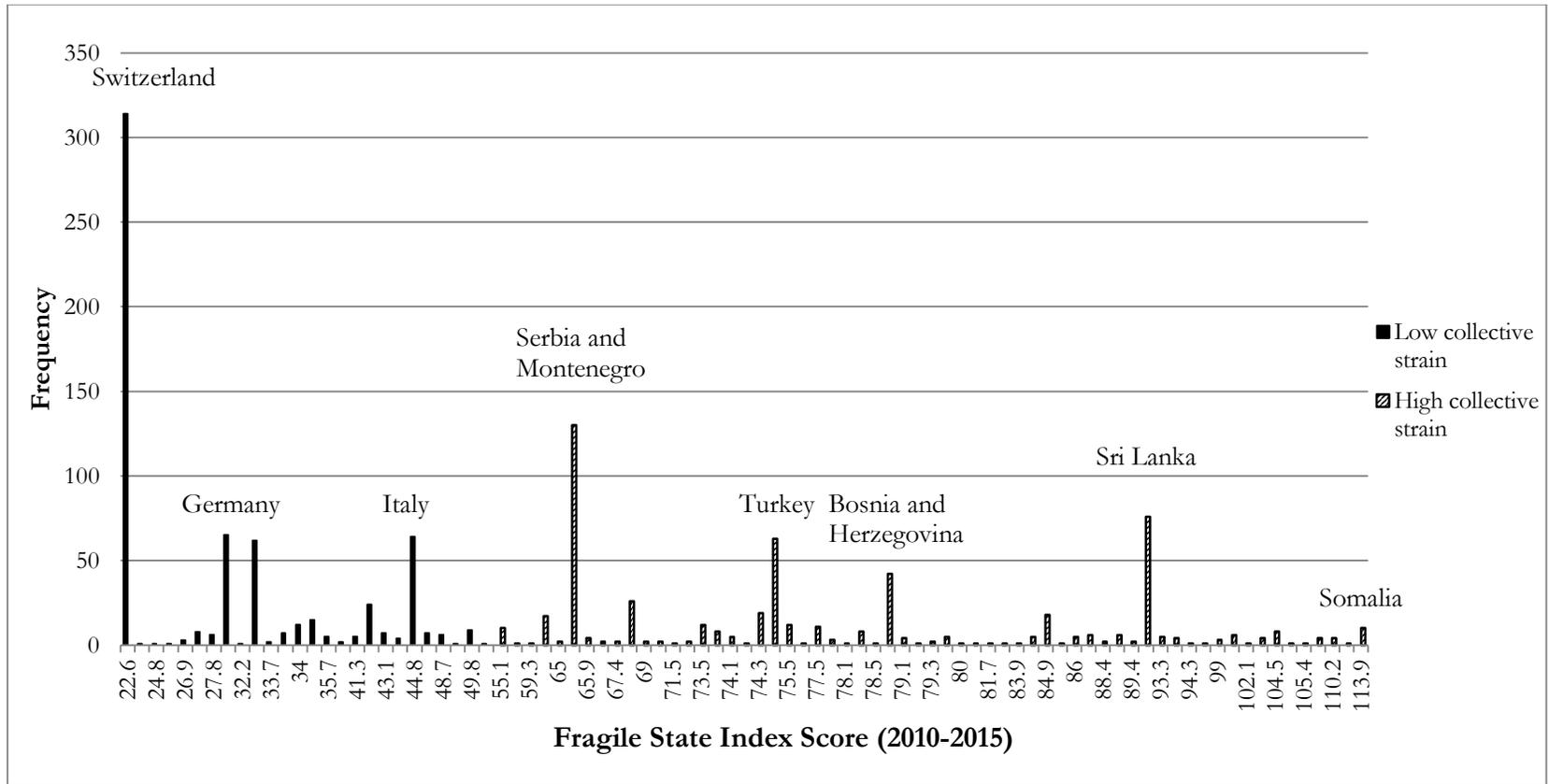


Figure 2 – Estimated support for violent extremism by level of moral neutralization and exposure to collective strain

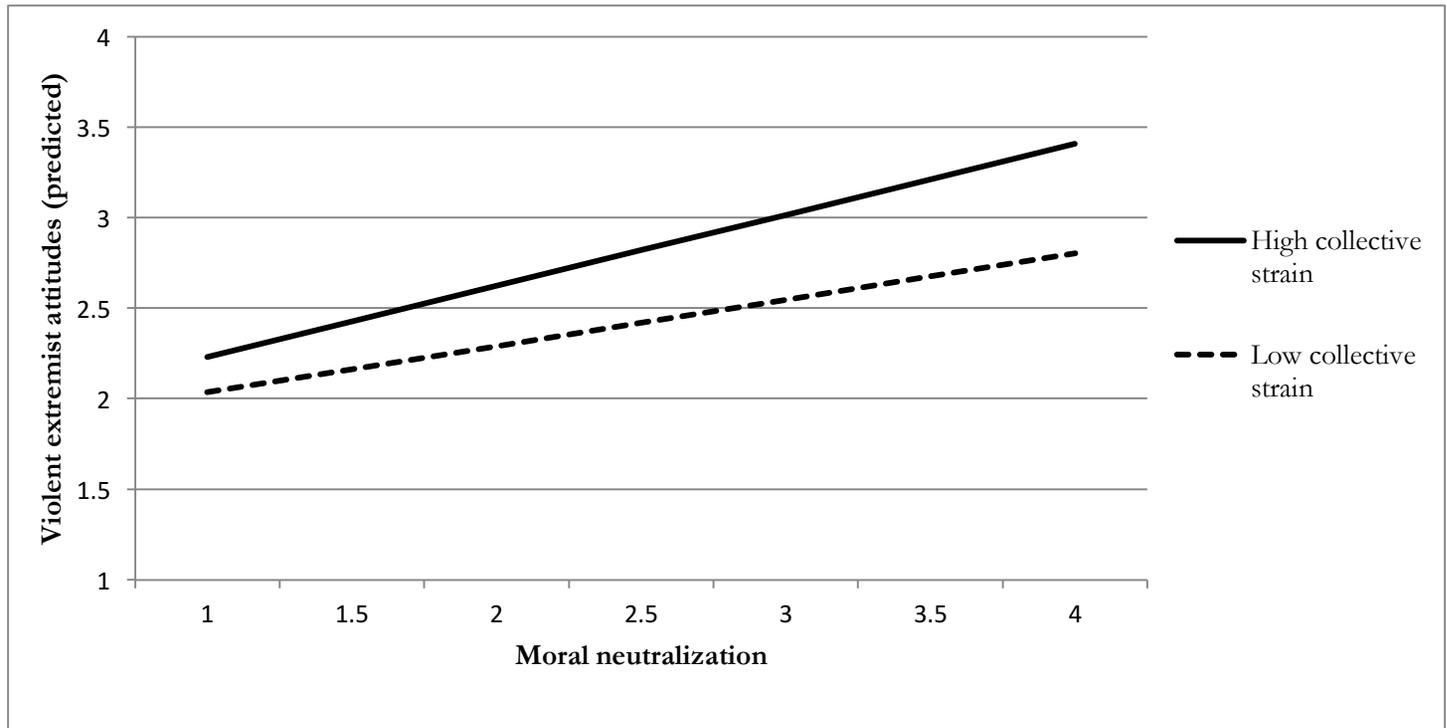


Figure 3 – Estimated support for violent extremism by level of legal cynicism and exposure to collective strain

