



**Adolescent Delinquency, Substance Abuse, Gang Membership and Violent Extremism in
the US and Europe**

A comparative evaluation of risk and protective factors

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Abstract

The following investigation evaluates the similarities between youth delinquency, Adolescent Substance Abuse (ASA), youth involvement in gang behavior, and youth involvement in violent extremist organizations in the United States and select European countries. Current scholarship in a myriad of disciplines (i.e. law enforcement studies and adolescent psychiatry) acknowledge a persisting relationship between the four aforementioned research camps, often citing involvement in one activity as potentially predictive for involvement in another. However, scholarship has not evaluated the similarities/differences among risk and protective factors that inform youth's decisions to participate in anti-social activities. Subsequently, this project investigated the relationship among the aforementioned antisocial behaviors in adolescent youth populations by identifying shared risk and protective factors. Through a systematic review of 200 articles from Web of Science, this project found that several key risk and protective factors (i.e. individual disposition and functioning, family functioning, social networks, environmental context) were shared among youth populations involved in each antisocial behavior. By understanding and targeting these factors (reducing exposures to risk and increasing exposures to protective factors), policy-writers and activists may potentially be successful in reducing youth involvement in all of the antisocial behaviors studied.

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Helga Orozco Klass and Ivana Kohut

1 SECTION I: Introduction

Antisocial or problem behaviors, notably delinquency, substance abuse, involvement in gangs through violent activities, and participation in violent extremist groups, that can emerge in adolescence pose various challenges to both participating youth and their larger societies. Therefore, the prevention and treatment of these behaviors has been heavily prioritized by both domestic governments and international organizations, such as the UNODC. Upon considering these behaviors in relation to policy, it becomes evident that if nations and organizations are to most efficaciously diminish/eradicate these problem behaviors among youth, policies must be informed by sound evidence-based research. Correspondingly, this publication aims to illuminate the respective mechanisms and conditions that either increase or decrease youth's proclivity towards these behaviors. By doing so, this publication furthermore intends to provide policy-writers with a general understanding of the relevant contexts in an effort to facilitate evidence-informed policy all based on the current (1995-present) literature.

Adolescence is a crucial neuro-developmental period "marked by significant psychosocial transformations that occur amid rapid pubertal growth including identity formation, individuation from parents, and the establishment of intimate friendships" (Gerard and Buehler 2004: 1832). Generally, adolescents experience independence, transitions (into higher education or the workforce), neurological growth, and increased involvement with peer groups simultaneously, which presents "opportunities for enhanced development, but also [...] challenges that invoke vulnerabilities" (Buehler and Gerard 2013: 905). Attempting to reconcile these changes often psychosocially and emotionally pressures youth to adjust by finding in-group belonging (Lerner and Galambos 1998) and can also pose risks of maladjustment to change (Gerard and Buehler 2004). Maladjustment in turn can manifest through externalizing problem or antisocial behaviors (Gerard and Buehler 2004) associated with noncompliance, aggression, destructiveness, and delinquency in addition to substance abuse (McMahon 1994 and Hatoum et al. 2018). This study evaluates the factors that motivate adolescent maladjustment external problem behaviors notably delinquency, substance abuse, involvement in violent gangs, and participation in violent extremism.

Definitions

More specifically, external problem or antisocial behaviors are defined as a "constellation of behaviors characterized by noncompliance, aggression, destructiveness, [...] and 'delinquent' types of behavior" (McMahon 1994: 901). These behaviors ultimately affect all aspects of an adolescent's life, from physical health to emotional wellbeing to professional opportunity. For

example, substance abuse--defined as the illicit use of pharmaceuticals and/or recreational drugs like cannabis--can lead to dependency/addiction and even mortality (Choi et al. 2005) in addition to dysfunctions that can prevent an individual from certain opportunities such as career advancement. Conduct disorder--or a range of antisocial behaviors like aggression and delinquency--have also been correlated with a lower probability of entering “higher education, attain[ing] and keep[ing] employment, and [...] early fatherhood” (Capaldi and Stoolmiller 1999: 78). Similarly, juvenile delinquency--defined as acts committed by a juvenile for which an adult could be held legally responsible in court (Fite 2012)--has been associated with high school dropout, lower rates of advanced-degree seeking, welfare dependency and risky sexual behaviors (Makarios et al. 2017). Likewise, adolescent gang membership--defined as a “durable, street-oriented youth group whose involvement in illegal activity is part of their group identity” (Weerman et al. 2009: 20) involving violent acts as requisite activities--has been found to “increase[...] the likelihood of arrest, never graduating high school, and severe anxious and depressive symptomatology” (Connolly and Jackson 2019: 18)¹. Overall, problem behaviors can “encourag[e] life failure in emerging adulthood” (Makarios et al. 2017: 684f) as disadvantages resulting from problem behaviors accumulate over time. Beyond that, these behaviors can reinforce destructive dynamics that affect youth, their parents, and the societies they live in (Capaldi and Stoolmiller 1999).

By drawing on the academic literature to date (1995-present), this study aims to evaluate the psychosocial contexts that increase/decrease an adolescent’s likelihood of participating in substance abuse, delinquency and delinquent gang membership, and violent extremism. We specifically intend to comparatively identify the mechanisms and conditions that explain why youth participate in each of these behaviors as formulated in the following inquiry: what are the (shared) risk and protective factors² that make youth vulnerable or resilient to substance abuse, delinquency, and recruitment into gangs or recruitment into violent extremism, respectively? Structurally, we have organized our response to this inquiry into a series of sections and subsections. The first includes the theoretical framework implemented when conducting and evaluating the research, followed by a clear explanation of our methodology. The findings proceed and are divided into four subsections in which the risk and protective factors identified for each individual problem behavior are identified. The subsequent discussion section compares the risk factors (previously described in isolation) across each behavior and includes our suggestions for policy.

2 SECTION II: Theoretical Framework

Socio-ecological developmental psychopathology informs our perspective on adolescent problem or antisocial behaviors. This genre of psychopathology is sensitive to developmental

¹ Literature concerning significant statistical or randomized clinical trials on violent extremism continues to be sparse which is why statistics were not mentioned here. However, some potential risk factors found from the relatively small body of literature will be discussed later in the Results section in a comparative way to the other problem behaviors.

² Explained in Section II

demands and processes in an individual's life course and aims "to understand the processes that lead to developmental success or dysfunction" (Sameroff and MacKenzie 2003: 613) by explaining "maladaptive, psychopathological, and resilient outcomes" (Chicetti and Curtis 2007: 627) involved in individuals' developmental adjustment(s). Hence, socio-ecological developmental psychopathology does not only acknowledge adaptional failures leading to maladjustment and psychopathological condition onset, but also attempts to understand why "our predictions of disorder [...] go awry" (Garmezy et al. 1984: 109) within the context of "significant adversity" (Luthar et al. 2000: 543).

Such developmental outcomes result from interactive processes between the individual and context (Sameroff and MacKenzie 2003) which shape an individual's development over time (Rutter et al. 1985). Accordingly, an individual's dispositions and behavior and his/her environmental context are assumed to mutually affect and reinforce each other (Sameroff and MacKenzie 2003). Neither individual characteristics nor a particular experiential context are considered to be exhaustive when explaining developmental (mal)adjustment (e.g. Sameroff and MacKenzie 2003; Chicetti and Curtis 2007; Gerard and Buehler 2004; Sameroff et al. 1998). Instead, there are "multiple domains of variables both within and outside the developing person" (Chicetti and Curtis 2007: 627) that are considered relevant.

A strictly ecological perspective (Bronfenbrenner 1979) understands an adolescent in "various socialization contexts" (Gerard and Buehler 2004b: 703) embedded in "families, schools, neighborhoods and nations" (Atkins et al. 2016: 5). Risk and protective factors for maladjustment exist within the interaction between an individual and his/her socialization process. Risk factors are the factors that promote adjustment difficulties whereas protective factors include factors that foster successful adjustment despite risk exposure in a "buffering capacity" (Gerard & Buehler 2004: 1833). By extension, the most salient implication underlying risk and protective factors is that a greater number of high quality protective factors can both compensate and counter negative risk factors (Stouthamer-Loeber et al. 2002; van der Laan et al. 2010) ; conversely, the greater the amount/degree of negative risk factors the more likely an adolescent is to participate in antisocial behaviors (Sameroff et al. 1998; Gerard and Buehler 2004a; Gerard and Buehler 2004b).

By using a socio-ecological developmental psychopathology, this project squarely places adolescents within their social and environmental contexts, as tangibly evidenced by our decision to use the theory of risk and protective factors when analyzing why youth participate in certain problem behaviors and can therefore generate a foundation upon which policy-writers can create targeted (thus effective) interventions. Moreover, identifying shared underlying mechanisms driving or impeding problem behaviors can also potentially indicate integrated, multi-factorial interventions that can successfully target and diminish several problem behaviors simultaneously.

3 SECTION III: Research Design and Strategy

Given our research question and our aim to identify and compare/contrast risk and protective factors across four distinct problem behaviors, a systematic literature review of randomized clinical control (RTC), meta-analyses, and quantitative studies seemed most fitting. To date, the volume of research concerning substance (ab)use behaviors, delinquency, and gang involvement proves to be quite extensive with a myriad of different statistically powerful studies. And although the research on youth involvement in violent extremism as previously defined remains in its infancy, several studies have begun a discourse by identifying potentially relevant explanations as to why youth may join such organizations. That said, generally the volume of information is not only great but growing for each of these problem behaviors and correspondingly provide peer-reviewed and accepted datasets capable of capturing the contexts and realities informing youth's decisions to participate or refrain from such behaviors. It is also important to note that although our main methodology consists of a literature review, this study adds to the current volume of research by cross-comparing the four problem or antisocial behaviors. For instance, in reviewing the literature, rarely did studies evaluate the risk and protective factors between all of these problem behaviors (some, however, cross evaluated two such as substance abuse and delinquency). By cross comparing the relevant risk and protective factors between these four salient problem behaviors this study not only adds to the current volume of literature, but will also maintain the importance of integrated review of problem behaviors as a whole.

We highly prioritized defining and following a strict systematology pre-determined prior to researching the literature (i.e. approaching the large volume of literature in a methodical and intentional fashion). Most studies and research articles selected for this review came from the Web of Science database³. We selected Web of Science because it contains one of the largest stores of academic articles and studies and provides quick/immediate access to the articles in listings. Prior to searching for studies and articles, an inclusion criteria was defined as follows:

- a. Quantitative studies including but not limited to Randomized Clinical/Control Trials, RCTs
- b. Studies conducted in the United States and/or Europe (further restricted to studies that collected data in the Netherlands, Belgium, England, Norway, Sweden, Germany, Italy, considering that these countries had a consistently high yield of peer reviewed research articles published in various journals)
- c. Studies conducted with adolescent youths (data samples consisting of youth aged anywhere within the spectrum of 13-21 years of age)
- d. Studies conducted with adolescent males (males specified because traditionally these risk and protective factors have been studied first and at large with male samples compared to female)

³ 11 articles on violent extremism were found outside of the Web of Science database because only 2 relevant articles on violent extremism were registered in Web of Science.

- e. Studies concerning either adolescent substance abuse, involvement in delinquent behavior, recruitment into gangs, recruitment into violent extremist organizations, or several of these
- f. Studies published in 1995 and later

After specifying study inclusion criteria, search terms to be inputted into Web of Science were generated⁴. Each of the search terms were intentionally designed to be as broad in nature so as to eliminate researcher's bias thus better enabling an openness to risk/protective factors that would lie beyond the scope of our pre-research preconceptions. Articles generated in the search were perused for relevance as dictated in the inclusion criteria through a two-pass system that involved first reading titles, abstracts, introductions, and conclusions to determine relevance. If after a second-pass, or complete perusal of the articles, a given study was found to be irrelevant, it was promptly dismissed. In the event of doubts concerning relevance, the researchers discussed the articles internally and reached an agreement of inclusion through discussion. Once a study was determined to be relevant, it was categorized based on the risk/protective factors presented⁵.

4 SECTION IV: Results

4.1 Adolescent Delinquency Risk and Protective Factors

A review of 71 studies on Web of Science, yielded a series of 25 relevant risk and protective factors. Each of these factors can be boxed into one of four categories: individual-related factors (i.e. mental health, personality and behavior, physical health, genetics), familial factors (i.e. parental involvement, monitoring, maternal figures, family religiosity), social factors (i.e. involvement with delinquent peers, prosocial vocabulary), and environmental factors (i.e. income-level and neighborhood context, academic engagement, and polyvictimization due to minority ethnicity or race.). As this section demonstrates, many factors exist enmeshed within a myriad of socio-ecological developmental psychopathological complexities. And although factors have been divided into categories, it is important to acknowledge that many of these factors compound each other and thus interrelate in their effects on youth.

Individual

Poor mental health, specifically depression, was noted as a potential risk factor for juvenile delinquency (e.g. Vaughn et al. 2018; Fite et al. 2012; Cisler et al. 2012; Kofler et al. 2011; Frazer et al. 2016; Reynolds & Crea 2015). Kofler et al. (2011) noted a significant depression-delinquency co-variation where “initial levels of depression significantly predicted

⁴ See Appendix for all the listings of search terms.

⁵ Note: It was also our intention to conduct expert interviews with several academics, such as Dr. Stevan Weine. However, after having made initial contact and sharing a rough draft of this project with the expert upon request, further discussion did not occur.

both initial delinquency ($B = .39$) and age-related changes in delinquency ($B = .30$)” ultimately demonstrating that “higher levels of depression at age 12 are predictive of age-related increases in delinquent behavior” (464). Cisler et al. (2012) expanded these findings by contextualizing depression within the broader context of interpersonal violence (IPV; defined as sexual assault, physical assault, and being witness to extreme acts of violence) where, interestingly, the authors found that exposure to non-IPV traumatic events did not generally yield the same degree of risk as PTSD or untreated, systemic depression: “it has been posited that exposure to [traumatic stress] alters cognitive appraisals, leading youth to overexaggerate the emotionality of situations and therefore leading to a behavioral reaction consistent with behavioral dysregulation (Rossman & Ho, 2000)” (Cisler et al. 2012: 39). That is, acts of delinquency become a phenotype of depression prompted by the IPV event. In addition, IPV events can be further specified as part of an Adverse Childhood Experience, especially if the interpersonal violence takes the form of child-based maltreatment and neglect. ACEs, particularly childhood maltreatment as explored by Barret and Katsiyannis (2017), are often interrelated with other factors (e.g. low socioeconomic status, poor academics, etc.) that can propagate depression thus increasing the likelihood of youth delinquency.

Depression can also stem from a less violent root (beyond IPV events), such as from acculturation dissonance or low-quality parental relationships (e.g. Frazer et al. 2016; Rubens et al. 2014; Rubens et al. 2017). Frazer et al. (2017) noted that the connective factor between cultural dissonance and delinquency was depression with “males report[ing] greater acculturation dissonance and delinquency” (Frazer et al. 2017: 26). Delinquency correspondingly became interpreted as a destructive manifestation of an acculturation-dependent depressive syndrome. Secondly, poor or low-quality parental relationships could also prompt depression. Reynolds and Crea (2015) found that “both ego [...] and alter depression [...] were associated with higher odds of youth delinquency” alongside low self-esteem (89). The interconnected relationship between parents and children, adolescent depression and self-esteem, and delinquency suggests that depression-induced delinquency surpasses strictly IPV events.

Despite this identified relationship, Schneiderman et al. (2016) did not statistically confirm the aforementioned findings⁶. Instead, “being male” was associated with person and property delinquency, and marijuana use. This finding of “the male gender as a risk factor” is consistent with other studies of maltreated adolescents and adolescents without documented maltreatment (e.g. Ryan & Testa 2005; Wong et al. 2013; Fagan et al. 2007). In response to this gendered trend, Sanders (2011) postulates that for working-class males, substance use and delinquency are perceived of as forms of “doing masculinity” or “protest masculinity” rather than manifestations of depression.

An individual youth’s personality and behavioral attributes, such as low self-esteem (e.g. Reynolds & Crea 2015), aggression (e.g. Veltri et al. 2013; Lynne-Landsman et al. 2010), impulsivity/self-control (e.g. Walters & Espelage 2018; Chen & Jacobson 2013; Howard et al.

⁶ The study had a sample size less than 300 and might have lacked statistical power.

2015; Veltri et al. 2013; Fine et al. 2016; Fine et al. 2016; Oesterle et al. 2012; Guo 2018; Mann et al. 2015; Mann et al. 2016; Lanza et al. 2014; Bechtold et al. 2013; Kim 2016; Oesterle et al. 2012), and Attention Deficit Hyperactivity Disorder (ADHD) (e.g. Harty et al. 2013; Walther et al. 2012; Howard et al. 2015; Falk et al. 2015) were additional individual-related risk factors. Low self-esteem and high aggression are positively correlated with delinquency. That said, the more significant correlates consisted of impulsivity (synonymous with low self-control) and ADHD. “Impulsive and non-impulsive youth may not only differ in their levels of problem behaviors, but may also differ in the degree to which they are affected by environmental influences” (Chen & Jacobson 2013: 1133). Thus, impulsive youth are dually at risk for delinquency because they are impulse-prone and susceptible to environment (in-group socialization). ADHD, conceptualized as a more severe form of adolescent impulsivity, merely augments the risk. That acknowledged, several nuances were identified. Firstly, “ADHD, in the presence of anxiety, may be associated with less aggression but not less delinquency” (Falk et al. 2017: 1537). Secondly, as discussed by Walther et al. (2012), for children struggling with clinically diagnosed ADHD, positive parenting techniques that combined parental knowledge and monitoring with a keen understanding of how ADHD places adolescents at acutely higher risks for delinquency can be particularly successful in protecting youth.

An individual’s physiological health, such as exposure to exercise and an adequate sleep schedule, moreover proved relevant albeit with some counterintuitive effects (e.g. Roman et al. 2012; Rubens et al. 2014; Rubens et al. 2017). In a study conducted by Roman et al. (2012), “more frequent outdoor recreation was associated with higher levels of delinquency [...] for boys [...] It could be that the types of outdoor recreation in which the adolescents engaged [...] were primarily unorganized, unstructured activities [...] more conducive to delinquent behavior [...] than] team sports” (S157). Therefore, specifically supervised recreational activities were determined to be protective. Likewise, sleep was found to be protective (e.g. Rubens et al. 2014) considering that insufficient sleep was associated with externalizing problem behaviors such as aggression, substance use, and delinquency among youth, all by impairing decision making and increasing impulsivity among youth populations.

Finally, some scholars noted a relationship between an individual’s genetics and delinquency (e.g. Newsome & Sullivan 2014; Schlomer et al. 2018; Mann et al. 2015; Mann et al. 2016; Fine et al. 2016; Fine et al. 2016; Warren et al. 2016) and have thus proposed an integrated socio-genomic evaluation of delinquency. “Behavioral genetic research has found evidence for gene x peer deviance interaction events [...] findings suggest the effect of peer groups on delinquent behavior may be intensified when genetic risk for delinquency--including risk conferred by high sensation-seeking--is present” (Mann et al. 2015: 130)⁷. In other words, genotype may be implicated in predicting youth’s susceptibility to environment where some have found that “there is strong evidence to suggest that GABRA2, as indexed by rs279845 conveys differential susceptibility to environmental influences” (Schlomer et al. 2018: 80). To clarify,

⁷ Note: Genetic risk for delinquency is also believed to be potentially related to genetic risk of substance abuse.

this does not mean that certain adolescents can carry a “delinquency gene.” Instead, these findings suggest that: a) youth’s degree of susceptibility to socio-environmental influences can vary and b) there is a “time-limited period of sensitivity” whereby interventions for delinquency and even substance abuse is most impactful for adolescents given their specific genotype (Schlomer et al. 2018: 82). Ultimately, integrating age and genomic considerations may thus be impactful when studying both delinquency and substance abuse among adolescents.

Familial

Parental involvement and influence in monitoring (i.e. being informed of youth’s social activities and peer groups and being able to successfully uphold certain monitoring measures such as curfews), parental self-control, and parental affection were similarly noted as significantly affecting adolescent risk of delinquency (e.g. Vaughn et al. 2018; Walther et al. 2012; Chen & Jacobson 2013; Barr et al. 2011; Brauer 2016; Deutsch et al. 2012; Hoffmann & Dufur 2018; Low et al. 2012; Keijsers et al. 2011; Oesterle et al. 2012; Harris-Mckoy 2016; Harris-Mckoy & Cui 2012; Henneberger et al. 2012; Lippold et al. 2018; Bendezú et al. 2016; Guo 2018; Quinn et al. 2018; Meldrum et al. 2016; Nakawaki & Crano 2014; Reynolds & Crea 2015; Mann et al. 2015; Mann et al. 2016; Abar et al. 2014; Scheuerman et al. 2018; Lanza et al. 2014; Sabatine et al. 2017; Vanassche et al. 2013; Wang et al. 2011). It was found that as parental involvement increased (i.e. being informed of whereabouts, imposing curfews, imposing sanctions in response to delinquent actions), the probability of delinquency decreased. Only two studies, however, identified parental involvement as non-linear. Harris-McKoy (2016) regressed delinquency on parental control. Odds ratios (ORs) illustrated that “delinquency was high when parental control was either high or low” (2083). Scheuerman et al. (2018) corroborated this curvilinear relationship upon discovery of two critical results: “1) adolescent and parent perceptions of parental knowledge impact delinquency jointly rather than independently and 2) the protective effect of adolescent perceptions weakens as parent perceptions increase” (703). Considering all articles in sum, parental involvement and monitoring subsequently can be described by an inverse parabolic relationship in which monitoring is most effective in deterring youth delinquency if it is active enough to be effective but flexible enough to prevent adolescents from perceiving parental monitoring as a hostile control leading to rebelliousness. Secondly, parental self-control was found to be a protective factor since adolescents often mimic psychosocial behaviors presented to them by close friends or family members, like parents. For instance, Quinn et al. (2018) found that parental substance abuse or incarceration were risk factors since these normalized antisocial behaviors, including delinquency. Upon extension, Brauer (2016) specifically identified the importance of understanding parental control as an affector to inducing adolescent self-control. If parental monitoring is presented as a behavioral control then adolescents are at less of a risk for delinquency partly because such parental monitoring can foster adolescents’ self-control (measured by impulsivity, risk-taking, and prosocial compliance). That said, monitoring systems without parental affection were also found by some scholars to be positively associated with delinquency. Chen and Jacobson (2013) and

Hoffman and Dufur (2018) specified this nuance by finding that family warmth was a positive moderating factor against impulsivity thus delinquency. Their findings suggest that parental warmth can generate a positive psychosocial environment in which youth trust that adults involved in their lives are capable of assuming their perspective and of respecting them as individuals--even in the face of mistakes. Hoffman and Dufur (2018) likewise analogized parental warmth to “family social capital,” which “elaborates family social bonds by bringing to the forefront the mutual roles of affection and communication necessary for effective norm transmission from parents to children [...and] accommodate[s] the idea of bonds themselves as a desirable good” (Hoffman and Dufur 2018: 1538). Correspondingly, in addition to a curvilinear association, parental monitoring is most effective when infused with warmth or family social capital more formally.

Family structural dynamics and present maternal figures who are in tuned with adolescent’s actions, moreover demonstrated a tangible effect (e.g. Vaughn et al. 2018; Chen & Jacobson 2013; Barr et al. 2011; Vanassche et al. 2013; Simmons et al. 2018; Bechtold et al. 2013; Deutsch et al. 2012). Five studies evaluated the significance of non-intact family units on adolescent delinquency. Absent fathers, as explored by Simmons et al. (2017), positively contributed to juvenile delinquency, although the presence of a father did not confer automatic protection. For instance, “Youth with harsh fathers reported engaging in more offending behaviors [...] than youth with absent fathers” (2017: 14). In addition, the presence of a receptive maternal figure in family units was identified as a significant factor related to delinquency. For example, Bechtold et al. (2014) and Deutsch et al. (2012) found that specifically maternal social support (i.e. if mothers were able to notice emotional risks such as depression or impulsivity in their child(ren) and support their child(ren) through a period of difficult emotionality) was negatively correlated with delinquency. Bechtold et al. (2014) also found that mothers could be protective since mothers tended to correctly identify their child’s impulsivity levels which could thus be used to gauge a child’s likeliness of participating in delinquency.

Lastly, an individual’s degree of family religiosity was also found to hold potentially protective power in part due to pro-social community-level messaging. Two studies, Salas-Wright et al. (2012) and Guo (2018), explicitly found that religion can offer protective multidimensional benefits because religious involvement is often co-associated with: a) parental self-control, b) the teaching of self-control to adolescents and children, c) constructive mechanisms for resolving inter-parental conflict that can then be used as teaching opportunities for children, and d) parental involvement and monitoring in an adolescent’s personal life. Even so, these effects are *indirect* in that these create rippling consequences in other discussed factors by decreasing the personal significance of the risk factors for teens.

Social

The effect of peers, both of siblings and non-related peers, was correlated as yet another relevant factor (e.g. Low et al. 2012; Whiteman et al. 2013; Vaughn et al. 2018; Monahan et al. 2013; Sittner & Hautala 2015; Fite et al. 2012; Cotter & Smokowski 2015; Deutsch et al. 2012;

Keijsers et al. 2011; Oesterle et al. 2012; Henneberger et al. 2012; Nakawaki & Crano 2014; Tompsett et al. 2016; Mann et al. 2015; Mann et al. 2016; Lanza et al. 2014). Since adolescents mirror behaviors presented to them, when parental involvement is low and exposure to delinquent peers is high, youth are at greater risks of participating in delinquency, as Keijsers et al. (2012: 659) summarized visually in Graphic I (see Appendix). Hennenberg et al. (2012) also identified that “peer popularity” (especially among “deviant” or “delinquent” peer groups) was positive with low parental involvement. Therefore, close contact with both siblings and peers involved in delinquent behaviors tends to induce delinquent behavior also in other adolescents who may join not only because they perceive such behaviors as an acceptable or age-appropriate norm by those immediately involved in their lives, but also because they wish to find a sense of in-group belonging or popularity.

Environmental

Low-income households (i.e. a familial income below the national poverty line) significantly correlated with an increase in juvenile delinquency as well (e.g. Vaughn et al. 2018; Sittner & Hautala 2015; Fite et al. 2012; Kim 2016; Low et al. 2012; Nakawaki & Crano 2014). The authors identified family economic strain as a risk factor for delinquency since often, in low-income households, parents find employment in fields that require long hours or may need to assume several different employment options simultaneously (e.g. numerous shifts or jobs). This lack of parental involvement due to occupation can create neglect and a lack of monitoring--which places youth at risk for delinquency (discussed previously). Low parental involvement can also cause augmented risk in households with siblings. For instance, lack of parental involvement due to occupation can place older siblings at risk for delinquent behavior (i.e. attention-seeking or neglect) and/or prompt association with delinquent peers--unmonitored by parents. Younger siblings are then influenced by older siblings since younger siblings tend to assume their older sibling's positive perceptions/attitudes towards delinquent behaviors as an acceptable norm especially if parental monitoring is absent. Correspondingly, “for economically strained families, [...] younger siblings experienced a ‘double whammy’ effect whereby parents and siblings are reinforcing social interaction dynamics” (Low et al. 2012: 582).

Neighborhood context was also determined to be significant (e.g. Fite et al. 2012; Chen & Jacobson 2013; Barr et al. 2011; Deutsch et al. 2012; Kim 2016; Quinn et al. 2018; Rubens et al. 2014; Rubens et al. 2017; Tompsett et al. 2016; Reynolds & Crea 2015). The studies largely indicated that poor neighborhood context, characterized by low socioeconomics or a high crime rate, were positive predictors for delinquency. However, neighborhood context also was found to be potentially protective due to collective efficacy, or “the ability of neighborhood residents to come together to informally control the behaviors of groups of adolescents [...] in public spaces (Sampson & Groves, 1989; Sampson et al., 1997)” (Tompsett et al. 2016: 268). Correspondingly, if collective efficacy elucidates pro-social adolescent behavior over delinquency, the neighborhood context could be positively harnessed against delinquency per these findings.

Learning prosocial vocabulary (e.g. Lahey et al. 2014) and demonstrating substantial academic engagement in school institutions (e.g. Vaughn et al. 2018; Sittner & Hautala 2015; Chen & Jacobson 2013; Dipierro et al. 2015; Kim 2016; Oesterle et al. 2012; Lahey et al. 2014; Quinn et al. 2018; Nakawaki & Crano 2014; Reynolds & Crea 2015; Lanza et al. 2014; Li et al. 2011; Sabatine et al. 2017) moreover were cited as significant factors. Lahey et al. (2014) found that early deficits in language development were correlated with antisocial behavior most likely because children with such deficits had less developed cognitive and language capabilities which in turn translated into a higher risk for adolescent delinquency by inducing lower socialization (due to challenges with emotional and verbal self-expression), a reduction in opportunity (a reduced verbal ability moreover could be translated into a lack of opportunities to succeed in prosocial ways), and a decrease in adaptive decision making paired with a decrease in inhibitory reward-seeking behavior. Contextualizing the Lahey et al. (2014) study with other studies that laid an associative claim between school and reduced delinquency, can further explain the protective quality of academic engagement through expanding a child's socially receptive language verbal abilities. Furthermore, academic engagement (which teaches children the benefits of prosocial behaviors related to education, i.e. quality of life, stability, etc.) can endow students the desire to pursue pro-social opportunities such as attending university or finding stable employment (which would be challenged by delinquency), thus serving as a protective factor.

That said, academic engagement does not provide an ubiquitous magic-bullet panacea against delinquency. For example, Quinn et al. (2019) and Walters & Espelage (2019) found that if students felt physically unsafe in their learning environments (ranging from bullying to attending school in a dangerous neighborhood), this perception could place children at risk of delinquency.

Finally, polyvictimization stemming from a minority's ethnicity and/or race furthermore presented enhanced risk due to a comprehensive and all-encompassing form of polyvictimization, defined as having been subject to multiple different kinds of injustices (e.g. Barrett & Katsiyannis 2015; Barrett & Katsiyannis 2017; Fite et al. 2012; Deutsch et al. 2012; Kang & Burton 2014; Garcia et al. 2015; Barrett et al. 2013; Cudmore et al. 2015; Martin et al. 2010; Wang et al. 2011). Racial or ethnic minorities were found to be at higher risk of delinquency because often these minorities exist at the intersection of various structural disadvantages (i.e. living below the poverty line, having poor access to academic opportunities due to red-lining, being undiagnosed/untreated for certain disorders such as ADHD, etc.). Correspondingly, being of a minority ethnicity or race can confer polyvictimization, which increased the odds ratio of participating in delinquency by 53% (Cudmore et al. 2017). Per Cudmore et al. (2017), the main effect of polyvictimization is anger leading to delinquent activities. Thus race and ethnicity's implications must be acknowledged in the discourse.

4.2 Adolescent Substance Use Risk and Protective Factors

The Web of Science search for adolescent substance use yielded more than 300 relevant research articles. The research field of adolescent substance use has been established for decades and comprises a very extensive body of literature. Current research was profound and voluminous. In order to manage the data, we decided to draw on the chronologically most recent research outputs that build on and refine well-established findings from the late 90s and early 2000s. 84 research articles have thus been selected and assessed for risk and protective factors concerning adolescent substance use.

Individual

Firstly, poor mental health and undiagnosed ADHD have both been found to positively increase youth's risk of trying and abusing substances. Symptoms of depression (e.g. Day et al. 2017; Duprey et al. 2017; Bertocci et al. 2017; Franco and Grattet 2019; Khoddam et al. 2016; Mason et al. 2019; Stone et al. 2016), ADHD (e.g. Thompson et al. 1996; Jensen et al. 2018), and conduct problems or disorders (Khoddam and Leventhal 2016; Gattamorta et al. 2017; Otten et al. 2019; Stone et al. 2016) augmented risks.

Impulsivity and risk-taking more generally (beyond the sphere of clinical disorders and respective symptomatology) can furthermore pose risks for substance use. For instance, sensation-seeking behavior is positively associated (e.g. Charles et al. 2017; Jensen et al. 2017; Burdzvovic Andreas and Watson 2016) with substance abuse, while discipline and self-regulatory control (e.g. Lee et al. 2017; Martz et al. 2018; Nguyen-Louie 2017, Trucco et al. 2016; Otten et al. 2019) and problem solving skills (e.g. Dunne et al. 2019) are negatively associated with adolescent substance usage.

Furthermore, personal views and perceptions about the safety or “normalization” concerning illicit substances can also increase an adolescents' proneness to substance use. Adolescents who were found to believe in and uphold conventional prosocial values (e.g. Borca et al. 2017) and/or who held anti-drug views (e.g. Goings et al. 2018) did not tend to participate in substance use nor abuse. Any adolescents who believed substance use to be risky were also less likely to participate (e.g. Day et al. 2017). These findings therefore suggest that involving oneself with peer groups or organizations who hold positive perceptions on drug use or who believe its consequences to be low are at an increased risk of participating in substance use and abuse.

Conversely, holding positive future life aspirations have a protective effect. For example, religiousness (e.g. Holmes and Kim-Spoon 2017; Franco and Grattet 2019; Debnam et al. 2018), the desire to prepare oneself for the future and secure a good quality of life (e.g. Holmes and Kim-Spoon 2017), and hope (particularly experiencing feelings of excitement about the future and/or of actualizing certain life goals) (e.g. Brooks et al. 2016), have been found to be protective against adolescent substance use. The protective role of aspirations indicates how school attachment and engagement in organized activity may promote resilience against substance use seeing as adolescents become inspired to pursue prosocial thus protective social

goals (e.g. Meisel and Colder 2017). Likewise, this points to how economic disadvantage and community disadvantage may promote substance use by negatively affecting perceived social and economic opportunities because youth may feel they do have restricted opportunity to realize their aspirations and become disheartened.

Finally, self-perception and identity both hold a protective and promotive role. Self-esteem is generally protective (e.g. Fisher et al. 2017; Kelley et al. 2019). Similarly, identity confusion (in terms of race or ethnicity) especially within the context of acculturation is found to be a risk factor for adolescent substance use (e.g. Grigsby et al. 2017). Furthermore, belonging to a sexual minority (e.g. Mereish et al. 2017; Dermody et al. 2016) and having a transgender gender identity (e.g. Day et al. 2017) are positively associated with adolescent substance use. The role of identity points to the relevance of adolescents' experiences of perceived discrimination and/or victimization (verbal, physical, sexual) in the peer context, or in the school or community context. In sum, these findings suggest that dissonance surrounding feelings of belonging within the context of identity can generate risks.

Familial

As regards the familial sphere, family functioning (e.g. Martinez et al. 2017; Su et al. 2018) offers significant protection against adolescent substance use. Family functioning implies a variety of interactions within the family which create protective family cohesion (Lardier jr. et al. 2018) and parental involvement (Su et al. 2018).

To elaborate, one extremely significant protective benefit of family cohesion and parental family involvement with youth, includes parental affection and warmth (e.g. Lee et al. 2017). A lack thereof (e.g. Weymouth et al. 2017), or instability in parental warmth or hostility (e.g. Lippold et al. 2018), has been found to promote substance use. Parental support, which not only comprises parental warmth but also aspects like parental responsiveness to adolescents' emotional states and engagement with his/her needs, is equally found to be protective (e.g. Fisher et al. 2019; Borca et al. 2017; Gordon et al. 2019; Ayers et al. 2019). Hence, depending on warmth, support, or stability, the quality of the relationship between adolescents and their parents poses a risk or protective factor (e.g. Yoon et al. 2018; Mason et al. 2016; Weymouth et al. 2017) where high quality confers the most protection.

Furthermore, openness in parent-child communication (e.g. Kim et al. 2016) has similarly been found to be protective. In turn, negative communication, no communication or rejection of communication between parents and adolescents (e.g. Otten et al. 2019), and a lack of adolescent disclosure pose a risk for substance use (Kliewer et al. 2018).

Strongly related to positive parent-child communication, parental knowledge about an adolescent's schedule, whereabouts, peer group, and more is a protective factor against substance use (e.g. Walther et al. 2012; Pereyra and Bean 2017). Parental knowledge, in turn, facilitates parental monitoring of adolescents' actions, whereabouts and peers, amongst other things. Parental monitoring has been established as an important protective factor against substance use (e.g. Pereyra and Bean 2017; Schofield et al. 2015; Johnson et al. 2019; Schofield et al. 2017;

Wen 2017). Beyond parental knowledge and monitoring, the execution of parental control over adolescents' behavior (e.g. Borca et al. 2017), e.g. by the establishment of family rules (e.g. Johnson et al. 2019) such as curfew restrictions (e.g. Johnson et al. 2019), are protective against substance use. Additionally, consistently enforcing discipline (e.g. Schofield et al. 2017) and imposing consequences upon discovering adolescents' illicit substance use (e.g. Su and Supple 2016; Su et al. 2018) are protective. On the contrary, parental autonomy granting is positively associated with substance use (e.g. Russell and Gordon 2017). In summary, the protective effects of positive/open parent-child communication, parental knowledge, parental monitoring, and parental control indicate that parents' understanding of their children's activities outside the house is relevant for guiding and effectively intervening in a child's life if needed.

In accordance with this protective role of the family, more time spent within the family as a unit is negatively associated with substance use (e.g. Barnes et al. 2007). Parental non-standard work schedules, in turn, are positively associated with adolescent substance use (e.g. Kim et al. 2016). This points to how less time spent together within the family may constrain parental capacity to bond with, talk about, know about, monitor, and potentially discipline an adolescent's activity. The relevance of time may also be one of the reasons why single-parent family structures pose risks for adolescent substance use (e.g. Areba et al. 2016; Russell and Gordon 2017; Wen 2017), as capacity for parental activities in a single-headed household may be negatively affected by work schedules and other aspects.

Nonetheless, the family can also place youth at risk of substance abuse. Negative life events such as the loss of a parental figure or divorce have been found to increase risk for adolescent substance use (e.g. Otten et al. 2019; McNeil Smith and Taylor 2015). Early environmental unpredictability alongside changes in residence (i.e. constantly moving homes) create added risk (e.g. Doom et al. 2016). Parental incarceration (e.g. Johnson et al. 2019; Quinn et al. 2019), another variant of a negative life event, is furthermore positively associated with substance use.

Apart from changes in the familiar setting that pose risks, childhood maltreatment like physical abuse (e.g. Yoon et al. 2018; Yampolskaya et al. 2019), sexual abuse (e.g. Skinner et al. 2016), and childhood parental neglect (e.g. Kobulsky et al. 2018; Lalayants and Prince 2016; Duprey et al. 2017), are all positively associated with substance use. Although maltreatment and abuse do indeed increase risk, when such abuse is performed by a perpetrator who is familiar or even related to the youth, risk of substance use and abuse runs dangerously high (e.g. Augustyn et al. 2019; Franco and Grattet 2019).

Furthermore, mental disorders among youth's immediate family members are positively associated with adolescent substance use (e.g. Hulvershorn et al. 2017; Ali et al. 2016) as they can negatively impede family functioning. Moreover, parental substance use (e.g. Ayers et al. 2019; Nadel and Thornberry 2017; Peviani et al. 2019; Quinn et al. 2019; Otten et al. 2019; Ali et al. 2016), including parental open drug use (e.g. Quinn et al. 2019), pose risk factors for adolescent substance use. Substance use of siblings was similarly found to be a risk factor (e.g. Rowan 2016; Yurasek 2019; Schuler et al. 2019). Finally, parental tolerance of adolescents using

drugs in front of them poses a risk (e.g. Quinn et al. 2019; Pereyra and Bean 2017). In these environments, especially as pertains to parental or sibling use of substances, youth can be at increased risk because their perceptions about substance use may become skewed to be more positive, while exposure to substance using networks may be increased.

In summary, research on the familial sphere suggests that family functioning has protective effects against adolescent substance use while family dysfunction poses risk factors for adolescent substance use.

Peer context

The peer context poses particularly high risks for adolescent substance use. Time spent with peers is positively associated with substance use (e.g. Barnes et al. 2007; Lee et al. 2015). Youth who are victimized by their peers due to verbal, physical, or sexual abuse on a peer:peer level show increased tendencies towards substance use (e.g. Day et al. 2017; Dermody et al. 2017; Diaz and Fite 2019). In addition, being a bully and a bully-victim (a bully who was also at once point bullied themselves) is also positively associated with substance use (e.g. Sangalang et al. 2016; Stone and Carlisle 2017). Here, the risk can partly be explained by the finding that bullies tended to have lower self-esteem (especially bully-victims), and therefore lacked a key protective factor against substance use.

The research additionally indicated a powerful relationship between exposure to pro-drug peer networks and substance abuse. An adolescent's best friend's substance use is positively associated with an adolescent's substance use (e.g. Schuler et al. 2019; Rowan 2016; de Water et al. 2016). Most importantly, adolescents' involvement with substance-using peers (e.g. Pereyra and Bean 2017; Schofield et al. 2015, Mereish et al. 2017; Mason et al. 2017; Lee et al. 2017; Dermody et al. 2016; Peviani et al. 2019; Kliwer et al. 2018; Mason et al. 2016; Su and Supple 2016; Goings et al. 2019; Evans et al. 2016; Su et al. 2018; Ayers et al. 2019; Yurasek 2019) has been established as a highly relevant risk factor for substance use. In sum, a potential victimization in the peer context and a potential enmeshment with substance using peers explain why more time spent with peers poses a risk factor for adolescent substance use. This also indicates why the developmental stage of adolescence, a period in which individuals typically spend less time in the familial context and increased time in the peer context, creates particular vulnerabilities to substance use.

Environmental

School attachment, specifically emotional attachment to school and a commitment to engaging in academic material and performing well in school, is negatively associated with substance use (e.g. Martinez et al. 2017; Meisel and Colder 2017; Franco and Grattet 2019). Accordingly, measures such as school commitment and amount of time spent on homework were protective (e.g. Barnes et al. 2007; Franco and Grattet 2019; Li et al. 2011). The protective role of school attachment and commitment may partly be explained by the abovementioned role of social goals and trust in one's future in protecting against substance use. These may be strengthened by school attachment and commitment. Furthermore, teacher support is negatively

associated with substance use (e.g. Fisher et al. 2019; Lardier jr. et al 2018; Kelley et al. 2019) indicating that teachers may complement and/or even compensate parental support. Thus, if educators show warmth, responsiveness to student adolescent's needs, and become involved/invested in their lives they may be able to confer protective benefits. In addition to the student-teacher relationship, some scholars found that school-level institutional disapproval and sanctioning against substances can reduce the probability of substance use (e.g. Fisher et al. 2019; Su and Supple 2016). That is, schools can complement parents in order to market anti-drug views and monitor adolescents' behaviors. Conversely, academic stress and poor academic performance are positively associated with substance use (e.g. Goings et al. 2019; Debnam et al. 2018; Debnam et al. 2016) in addition to low school safety (e.g. Quinn et al. 2019) and bullying or sexual harassment by peers (e.g. Franco and Grattet 2019).

In addition to the school environment, religious communities and environments can also hold an effect. For example, regular religious service attendance (e.g. Salas-Wright et al. 2012), religious social support (e.g. Peviani et al. 2019), and being involved in a religious organized activity (e.g. Eisman et al. 2018) have been found to be protective against substance use. This protective effect may be linked to these activities' role in creating aspirations and the protective role of social support networks (e.g. Lardier jr. et al 2018; Kelley et al. 2019).

The neighborhood context, or circumstances stemming from physical neighborhood environment, was also identified as significant. Neighbourhood disadvantage, defined as a geographical accumulation of economic and social disadvantage (i.e. joblessness, welfare dependency, disrupted families) (e.g. Mennis et al. 2016; Russell and Gordon 2017), is positively associated with substance use. Again, this effect may be partly induced by demeaning adolescents' aspirations. Furthermore, neighbourhood disorder can cause "weak social connections within the neighborhood [...] [and] low levels of informal social control" (e.g. Chung and Steinberg 2006: 2) therefore posing a risk for substance use. Neighbourhood crime (e.g. Evans et al. 2016) and perceived neighbourhood risk (observed drug deals, gangs, presence of drugs) (e.g. Burdzovic Andreas and Watson 2016) also pose risks for substance use. Together these findings illustrate that the community sphere is another context in which adolescents may potentially be exposed to and get involved with deviant, e.g. delinquent and/or substance using networks. Additionally, witnessing violence (e.g. Beharie et al. 2017; Zinzow et al. 2009) and experiencing violence (e.g. Minnes et al. 2017; Beharie et al. 2017) within the community context are additional risk factors. More simply, the community context can create trauma. Community belonging in context of community disorder in turn creates disadvantage and compounds feelings of disorder for youth all of which propagates additional risks (e.g. Gordon et al. 2019; Russell and Gordon 2017).

Lastly, perceptions of racial/ethnic discrimination (e.g. Unger et al. 2016; Zapolski et al. 2019; McNeil Smith and Taylor 2015) are positively associated with substance use. In the case of adolescents belonging to an ethnic group, perceived lack of social and economic opportunities and hostility towards immigrant groups from a dominant non-minority group (e.g. Grigsby et al. 2017) are positively associated with substance use. This may partly result from identity

confusion, and severe negative effects on youth's goal-setting and trust in their ability to secure future opportunities.

In sum, adolescents' environments can potentially offer protective effects against substance use by providing support, monitoring and control beyond the familial sphere. Yet they can also pose risk factors for substance use by potentially exposing adolescents to substance using networks, trauma and identity conflict.

4.3 Adolescent Gang Membership Risk and Protective Factors

A review of 32 studies on Web of Sciences yielded a series of risk and protective factors that can each be categorized as pertaining to the individual sphere (i.e. adolescent mental wellbeing, behaviors and personality, identity, and beliefs), the family sphere (i.e. family functioning, capacity for ensuring family functioning, Adverse Childhood Experiences [ACEs] including physical and sexual trauma), the social sphere (i.e. involvement with gang-participating peers), and the environmental sphere (i.e. perceived racial or ethnic discrimination, academic engagement, and neighborhood context).

Individual

Adolescent mental health status, notably feelings of sadness/loneliness (e.g. Garduno and Brancale 2017), symptoms of clinical depression (e.g. Hautala et al. 2016), and suicide attempts (e.g. Yoder et al. 2003), were found to be significant risk factors for joining and participating in a gang. Upon reviewing these articles, gang involvement and membership seems to: a) attract youth who are experiencing depression, loneliness, or sadness and/or b) be perceived by youth as a solution to personal mental health symptoms through the form of a distraction or opportunity to create an in-group identity and sense of purpose.

Certain behaviors, notably hyperactivity (e.g. Hautala et al. 2016), impulsivity and risk-seeking (e.g. Hautala et al. 2016; Ryan et al. 2007; Alleyne & Wood 2010; Hennigan et al. 2015), aggressive behavior (e.g. Kubik et al. 2019; Alleyne & Wood 2010; Lenzi et al. 2014; Anderson & Keitner 2002; Scott 2014; Mallion & Wood 2018), weapons-carrying (e.g. Kubik et al. 2019), psychopathic tendencies such as low prosociality (e.g. Dupéré et al. 2007), poor coping skills (e.g. McDaniel 2011), substance use (e.g. Ryan et al. 2007; McDaniel 2011), substance use paired with a copious amount of risky sexual encounters (e.g. Voisin 2004; Voisin & Neilands 2010), early delinquency (e.g. Hautala et al. 2016), and current delinquent behavior (e.g. McDaniel 2011; O'Brien et al. 2013; Alleyne & Wood 2010; Barrett et al. 2013; Fischer et al. 2008; Garduno & Brancale 2017; Hennigan et al. 2015; Herrmann et al. 1997; Scott 2014; Scott 2018; Yoder et al. 2003), likewise increased youth's risk of gang involvement. These behaviors were often found to place youth at risk for gang involvement considering that each of the aforementioned factors involves some antisocial undertone. For example, undiagnosed/untreated hyperactivity can give rise to aggressive behaviors (subconsciously or consciously) which can in turn put youth at risk for joining an organization that would normalize such behavior. More

precisely, when an individual experiences antisocial behaviors, they are at risk of joining an organization that normalizes such behaviors (especially when joining a group such as a gang which often has delinquency, substance use, weapons carrying, etcetera as a requisite).

Similarly, a low self-esteem among youth (e.g. Alleyne & Wood 2010; Garduno & Brancale 2017; Scott 2018) or an adolescent's perceived discrimination⁸ against self constituted two conditions for increased risk. "To illustrate, a young person with low self-esteem could look toward a gang for support and, consequently, as the group esteem goes up (owing to success in delinquent and antisocial activities) that individual's esteem parallels. [Similarly], if ever a gang member wants to leave the gang, it would require a high self-esteem in order to resist the pressure from the gang" (Alleyne & Wood 2010: 425), thus generating a cycle. Considering the relationship between self-esteem, support and inclusion, one may likewise surmise a relationship between discrimination, acculturation stress, and poor self-esteem, in which a youth's perceptions about social exclusion may evolve negative conceptions about self-worth and catalyze the social need to find in-group identity with *some* group--even in potentially antisocial ones.

Certain individual beliefs could also either be harmful or protective. Beliefs about moral disengagement (e.g. Alleyne & Wood 2010), not being "smart enough" to have high academic aspirations (e.g. Hill et al. 1999) and/or of graduating from high school (e.g. Garduno and Brancale 2017), believing in antisocial messaging (e.g. Hill et al. 1999; Dishion et al. 2005), and holding beliefs that justify/condone delinquent behaviors, notably violence (e.g. O'Brien et al. 2013), all placed youth at risk of joining a gang. Similarly, an anti-authority mentality (e.g. Alleyne & Wood 2010; O'Brien et al. 2013) in which youth explicitly expressed resentment/anger towards centralized institutions like governments or police forces were risk factors specifically associated with violent *gang* involvement (e.g. Alleyne & Wood 2010; O'Brien et al. 2013). Nevertheless, individuals who believed that they should treat others with empathy were less likely to join a gang (Lenzi et al. 2015). For instance, "many youth declare that being part of a gang provides them opportunities for companionship and support and makes them feel that they can rely on other[s]" (Lenzi et al. 2015: 388). Correspondingly, empathetic youth who believed in forming positive relationships with others rooted in positive social skills (such as empathy) ultimately fulfilled their psychological need for companionship and support without turning to non-conventional communities such as violent gangs.

Familial

A supportive family with a set of parents or guardians who invest themselves in their adolescent children's lives was found to be a salient protective factor. For example, parental investment in which children felt supported in various prosocial activities (such as obtaining an education), or in which children acknowledged and respected their parents for having at the very minimum "tr[ie]d their best to raise me right" were found to significantly discourage youth

⁸ Including but not limited to racial discrimination and the resulting acculturation stress following discrimination and group exclusion (e.g. Barrett et al. 2013; Garduno & Brancale 2017; Scott 2018).

involvement in gang organizations (e.g. Quinn et al. 2019). Part of the success generated by the family unit includes the guardians' capacities to provide support to adolescents (e.g. Lenzi et al. 2015; Hautala et al. 2016; McDaniel 2011; Quinn et al. 2019; O'Brien et al. 2013), ranging from financial support, emotional support, and physical protection where adolescents could learn to thrive beginning with the support of a safe home environment.

While a functional family can be protective, a dysfunctional family poses risks. Hill et al. (1999) found that youth living in single-parent households, households without an adult present, or homes with an extremely low income placed youth at risk of participating in a gang. Similarly, youth who lived in families where criminality ran high (e.g. Alleyne & Wood 2010; Barrett et al. 2013; Yoder et al. 2003) among guardian-like figures (including but not limited to parents) and/or if guardian-like figures were involved in gangs (e.g. Alleyne & Wood 2010; Barrett et al. 2013; Berdychevsky et al. 2019; Garduno & Brancale 2017; Thornberry et al. 2018) were more likely to join a gang themselves.

Thirdly, trauma such as Adverse Childhood Experiences (ACEs) referred to more generally as negative life events (e.g. Hautala et al. 2016; O'Brien et al. 2013) were found to significantly increase an adolescent's risk of joining a gang. Pertinent specific examples of such traumas and adverse experiences include incarceration of a parent (e.g. Quinn et al. 2019) and sexual and physical maltreatment (e.g. Thompson and Braaten-Antrim 1998).

Social

A myriad of risk factors also existed in the social sphere in which peer involvement in a gang was strongly associated with non-involved youth's eventual recruitment (e.g. O'Brien et al. 2013; Alleyne & Wood 2010; Barrett et al. 2013; Dishion et al. 2005; Garduno & Brancale 2017; Hennigan et al. 2015; Lenzi et al. 2014; Thornberry et al. 2018; Yoder et al. 2003). More specifically, the desire for peer acceptance (e.g. Dishion et al. 2005), a fear of peer rejection (e.g. Dishion et al. 2005), early dating (e.g. Hautala et al. 2016), and socializing with peers who participated in antisocial behaviors (including delinquency and substance abuse) (e.g. Hautala et al. 2016; Lenzi et al. 2015) were all implicated as risk factors in the literature. More simply, recruitment--being the target of gang marketing through peers--was also a salient risk factor (e.g. Garduno & Brancale 2017).

Furthermore, Shelley and Peterson (2018) discovered that bullying can play a decisive role in an adolescent's decision to pursue gang involvement. This particular study found that "as hypothesized, logistic regression analyses confirmed that males and females involved in bullying as perpetrators, victims, or both had statistically significantly greater odds of joining a gang in the subsequent year than non-involved; [...] bullies (not bully-victims) had the greatest odds of gang joining, followed by bully-victims, then victims" (402). Therefore, reducing bullying incidents may also reduce gang involvement especially for perpetrators.

Environmental

Poor academic performance characterized by students' belief of scholastic capacity and/or low engagement with the presented material (e.g. O'Brien et al. 2013; Barrett et al. 2013; Dishion et al. 2005; Garduno & Brancale 2017; Lenzi et al. 2014; Lenzi et al. 2015; Quinn et al. 2019; Shelley & Peterson 2018; Hautala et al. 2016; Hill et al. 1999) was also identified a risk factor for gang involvement. In addition, low perceived school safety (e.g. Lenzi et al. 2015; Quinn et al. 2019) was a relevant risk factor.

Secondly, neighborhood context--especially in impoverished areas--placed youth-residents at an increased risk of joining gangs than wealthier suburban areas. To specify particular factors, neighborhood disorder characterized by a lack of community (e.g. Quinn et al. 2019), neighborhood residential instability characterized by a high percentage of families run by a single parent residing in renter-occupied homes with leases or duration of stay approximating five years of residence, further placed youth at risk of joining a gang (e.g. Hill et al. 1999). Moreover, environments that were known to be highly drug trafficked were at a greater risk of having youth involved in gangs

4.4 Adolescent Involvement in Violent Extremist Organizations Risk and Protective Factors

Empirical quantitative research on violent extremism, especially in psychiatry, continues to develop. The Web of Science search revealed 2 relevant studies matching our criteria, namely the studies by Frounfelker et al. (2019) and Pedersen et al. (2018). The authors decided to complement these studies with additional relevant empirical studies on recruitment into violent extremism. As empirical studies concerning violent extremism are ongoing, we assess all available evidence that we could find access to. The additional 11 articles reviewed in this subsection were collected through Google Scholar and following cross-referencing citations between articles. Currently, three genres of empirical research on violent extremism exist: a) studies assessing participants' openness to and support of violent extremism (e.g. Ellis et al. 2015; Bhui et al. 2019; Pedersen et al. 2018; Feddes et al. 2015; Frounfelker et al. 2019; Nivette et al. 2017), b) studies analyzing samples of people that have already been identified as radical violent extremists by authorities and who have, in some cases, already engaged in acts of violent extremism (e.g. Corner and Gill 2014; Weenink 2015; Rolling and Corduan 2018; Bazex et al. 2017; Koshrokavar 2014; Moyano and Trujillo 2014), and c) a literature review by Campelo et al. (2018). The second genre of studies largely consists of studies that reviewed police file case-studies on radicalized individuals (e.g. Weenink 2015), samples of radicalized individuals in custody (e.g. Bazex et al. 2017), or samples of youth receiving psychiatric treatment (e.g. Rolling and Corduan 2018). While this second type of study lacks a control group, and is largely descriptive in nature, they still offer some insights into the socio-ecological contexts that inform individuals' decision to join a violent extremist group.

Individual

Clinical psychiatric or psychological pathology is prevalent among radicalized youth described in police files (e.g. Weenink 2015), among radicalized youth in custody (Bazex et al. 2017), and among lone-actor terrorists (e.g. Corner and Gill 2014). Of the cases studies, youth who were radicalized into violent extremist groups tended to present with psychotic disorders (e.g. Roling and Corduan 2018; Weenink 2015) and schizophrenia (e.g. Weenink 2015). Depressive symptoms and depressive disorders were also linked to openness towards violent extremism (e.g. Weenink 2015; Campelo et al. 2018; Bhui et al. 2019). Furthermore, many of the youth described in police files presented with ADHD (e.g. Weenink 2015) and had been receiving or had received psychiatric treatment at some point (e.g. Rolling and Corduan 2018). Conduct problems (Pedersen et al. 2018; Weenink et al. 2015). Conduct disorders (e.g. Rolling and Corduan 2018) were similarly associated with openness towards violent extremism. In a case-study assessment of radicalized youth receiving psychiatric treatment in Strasbourg, France, Rolling and Corduan (2018) furthermore identified childhood trauma among various radicalized patients as a risk factor. Similarly, Ellis et al. (2015) found that among Somali refugee immigrants in the USA, trauma was positively associated with openness to violent extremism: “increased trauma [is] associated with increased openness to illegal and violent activism” (Ellis et al. 2015: 872). In accordance with this, clinically diagnosed post-traumatic stress disorder (PTSD) is strongly related to openness to violent extremism (e.g. Ellis et al. 2015, Roling and Corduan 2018; Weenink 2015). Finally, narcissistic symptoms (e.g. Rolling and Corduan 2018; Weenink 2015) are also found to be statistically significant risk factors.

With regard to behaviors, poor coping skills are positively associated with support for violent extremism (e.g. Nivette et al. 2017). Violent extremism can be seen to co-occur with delinquency (e.g. Bazex et al. 2017; Weenink 2015) and with previous substance use (e.g. Campelo et al. 2018) seeing as “some subjects reported that the positive and rewarding effect of religious commitment allowed them to get rid of an addiction to a substance” (Campelo et al. 2018: 7).

Antisocial traits, like anger and hatred, can be witnessed among radicalized youth in custody (e.g. Bazex et al. 2017). Fear of loneliness has also been reported to place youth at risk for violent extremism (e.g. Campelo et al. 2018), while empathy is shown to be largely protective (e.g. Feddes et al. 2015). As regards fear of loneliness, “for some adolescents, [...] finding one’s own identity [can] bring a loss of security and sometimes a fear of loneliness and of being abandoned. Belonging to a radical community conveys a sense of belonging, [...] meaning, [...] comfort” (e.g. Campelo et al. 2018: 8). By implication, such fear creates a heightened urge to discover an in-group meaning and belonging.

Before discussing familial influences, we would like to further elucidate the critical role of identity conflict to engaging in violent extremism (e.g. Ludot et al. 2016; Campelo et al. 2018). Identity conflict, is a central theme among the literature concerning radicalized youth (e.g. Bazex et al. 2017; Koshrokavar 2014; Ellis et al. 2015: 874). For instance, Ellis et al. (2015) note that with regard to their findings “a sense of belonging to either the Somali community or the

U.S. community appeared to be protective; [...] [while] the perception of rejection from both communities was associated with greater openness to illegal and violent activism” (874). This suggests that “youth who show low levels of identification with both their own ethnic group and their community of resettlement are worse off” (Ellis et al. 2015: 874) and become more vulnerable to violent extremism.

Familial

In cases where youth have been radicalized into violent extremist groups, the families of these youth tend to have low degrees of family cohesion and community. Among radicalized youth in psychiatric treatment (e.g. Rolling and Corduan 2018) and radicalized youth described in police files (e.g. Weenink 2015) dysfunctional inner-family relationships have been consistently reported. Cases of radicalized youth have also been linked to family disorganization (e.g. Koshrokar 2014), failure to create support and control within the familial context, and dysfunctional parental figures (e.g. Rolling and Corduan 2018).

More specifically, parental dysfunction has been associated with poor parental mental health. Parental mental disorder (e.g. Rolling and Corduan 2018; Weenink 2015; Campelo et al. 2018), such as parental depression (e.g. Rolling and Corduan 2018; Campelo et al. 2018) has been identified as a risk factor shared among radicalized youth. Furthermore, maternal disability (e.g. Bazex et al. 2017), paternal absence (e.g. Bazex et al. 2017), and a large family size (e.g. Bazex et al. 2017) have been reported as prevalent in radicalized youth’s familial context. Precarity was similarly found to be significant (e.g. Bazex et al. 2017). Each of these parental dysfunctions may have impaired family unit functionality and affected familial capacity to effectively support, monitor, and dissuade an adolescent from participating in violent extremism.

Lastly, potential sources of family-rooted traumatic stress, such as early childhood loss of a parental figure (e.g. Bazex et al. 2017; Weenink 2015), parental divorce (e.g. Corner and Gill 2014), perceiving fragility within the family structure (e.g. Campelo et al. 2018) pose risks, and early exposure to violence either within or outside the family (e.g. Pedersen et al. 2018) can also augment risk.

Peer context

In the social or peer context, involvement with radicalized peers (e.g. Campelo et al. 2018), involvement with delinquent peers (e.g. Bazex et al. 2017), and/or a romantic partner’s involvement in radicalized networks (e.g. Corner and Gill 2014) have all been reported as co-occurring with an individual’s participation in violent extremism. In terms of how this peer:peer engagement is shared and encouraged, social media and posts related to violent extremism that have been made by an individual’s social networks can also place individuals at risk of not only following such social networks but of eventually joining them (e.g. Pedersen et al. 2018).

Environmental

School environment, notably having fewer friendships in school or perceiving discrimination within the school setting (e.g. Frounfelker et al. 2019; Moyano and Trujillo 2014), can negatively impact an adolescent and increase their potential risk for joining a violent extremist organization. Low school bonding (e.g. Campelo et al. 2018) and low educational achievement (e.g. Weenink 2015; Pedersen et al. 2018; Bazex et al. 2017) have been particularly associated with an openness towards violent extremism.

That said, high degrees of social bonds, especially along ethnic lines can offer protection against violent extremism. In their study on Somalian refugees in the USA Ellis et al. (2015), strong social bonds to the ethnic community and to society as a whole, were found to be protective against violent extremism. Furthermore, the authors concluded that if youth experience community rejection (especially from their own ethnic or otherwise perceived home communities), they are at increased risk for openness to violent extremism (e.g. Ellis et al. 2015). Moreover, in the case of lone-actor terrorism, low social bonding and high social isolation has been found to co-occur with radicalization into violent extremism (e.g. Corner and Gill 2014).

5 SECTION V: Discussion

Upon reviewing the literature related to adolescent delinquency, substance abuse, gang involvement, and activity in violent extremism, several shared themes emerge across each of these antisocial behaviors. The role of individual disposition and mental health, family functioning, exposure to antisocial social networks, and environmental context notably socioeconomic status and a poor neighborhood context are all relevant when understanding risks and protective factors for youth. We suggest that if organizations are to address these behaviors among adolescents that they prioritize addressing these shared factors through policies or program-development.

Individual disposition and mental health disorders seem to be a significant risk factor that can prompt youth to participate in delinquent behavior, substance abuse, gangs, or violent extremism. Firstly, individual disposition was found to be a consistent risk factor considering that impulsivity and/or poor self-control, low self-esteem, and aggression heightened a youth's probability of partaking in antisocial behaviors. These individual dispositions can damage how an individual perceives reality and functions within this reality; therefore, if psychotherapeutic interventions could intervene to modify adolescents' beliefs about themselves and their environment alongside their behavioral patterns, then youth may be less likely to engage in antisocial activities. More specifically, via psychosocial interventions, dysfunctional behaviors associated with the aforementioned individual dispositions can be replaced by more functional behaviors or coping strategies. For instance, if someone with an aggressive disposition can learn through psychotherapeutic interventions how to recognize their increasing aggressions and either

remove themselves from the provocative stimuli or learn to constructively respond to feelings of aggression, they may be less likely to participate in antisocial activities (such as delinquency). Secondly, mental health disorders, notably depression, conduct disorders, and hyperactivity or ADHD were found to significantly increase an adolescent's risk of participating in antisocial activities, by similarly altering perceptions of reality and functionality. Therefore, if policy writers and activists target potentially detrimental individual dispositions and improve youth's mental health (both promoting positive coping skills in youth and creating more accessible structures when finding and receiving mental health treatment) youth's risk of participating in antisocial behaviors can be reduced.

Family functioning (influenced by parental knowledge, monitoring, and affection/warmth, as some examples) were also found to consistently affect youth. In our assessment, family was found to have a significant protective role against antisocial behaviors. For instance, parental knowledge about their children's whereabouts and activities, active monitoring of such, asserting parental control through rule-setting, and imposing sanctions in the event such rules are violated are protective against antisocial behaviors. Additionally, parental warmth/affection and support offer protective benefits. These factors can prospectively increase parental knowledge, guidance, and intervention in adolescents' activities, thus protecting against anti-social behavior. Conversely, family dysfunction can pose a variety of risks. For example, when parents are habitually not demonstrating warmth, not being informed about children's whereabouts, not monitoring their children's behaviors, and not asserting parental control via rule-setting and subsequent sanctions, then children become increasingly at risk for antisocial behaviors. Depending on the family, in some cases these habits can be a specific result of: a) parental mental health disorders (i.e. depression) and b) single-headed households in which parents hold exogenous family commitments (such as holding multiple occupations due to poor socioeconomic status⁹) that can impede their ability to habitually practice the previously listed behaviors. In addition to family dysfunction, family can pose additional risks when associated with Adverse Childhood Experiences (ACEs) including but not limited to physical abuse, sexual abuse, childhood neglect/abandonment, parental loss (e.g. death and incarceration), and divorce. Another risk related to families concerns parental or sibling normalization of antisocial behaviors. Given the protective role of functional families and risk-inducing role of dysfunctional families, improving family functioning while diminishing dysfunction should be highly prioritized. Concretely, family-based psychosocial interventions hold promise because they can, for instance: a) engender family-rooted changes such as enhancing parental receptiveness, b) increase understanding, empathy and affection for an adolescent, and c) support a family through family crisis (as in the cases of ACEs¹⁰). Ultimately, the most salient consequence of these changes is that parenting techniques are positively modified to increase

⁹ See subsequent paragraph discussing socioeconomic effects.

¹⁰ In some cases, depending on the individual and family, a more individual-based intervention such as one:one psychotherapy or longitudinal psychological/psychiatric care may be required to assist youth in developing positive coping skills and behaviors.

protective benefits and decrease risky ones. That said, the family-based psychosocial interventions may not be suited in all cases as in situations where parents do not wish to participate, in which case interventions targeting other spheres (like individual, environmental, and social) may be particularly crucial.

Considering that the literature in all four camps strongly established a relationship between the effect of peer networks on the antisocial behaviors studied, policies should incorporate socially-oriented interventions. All of these antisocial behaviors can be spread from peer-to-peer through exposure to antisocial networks in which antisocial norms become codified. Peer pressure, desires for popularity, in-group belonging can all contribute to the codification process of antisocial norms as “positive.” One potential policy initiative could be to offer youth an opportunity to engage with each other through organized prosocial social activities (i.e. supervised sports classes, art classes, music rehearsals, theater). Organized leisure activities offer supervision by adults, who ensure the prosociality of the interactions taking place. We also suggest that researchers and policy writers investigate bottom-up, youth-informed activities and their effects in either reducing peer-related risk factors or augmenting protective factors. More specifically, it might be interesting to evaluate if giving youth the opportunity to create or at least provide input as far as *which* leisure activities should be made available to them (i.e. more specific leisure opportunities beyond generic opportunities currently made available), then maybe youth would be more likely to spend leisure time pursuing these vocalized/documented interests with other similarly minded peers instead of spending leisure time with antisocial peers, participating in substance abuse, etcetera. More than just the peer-to-peer effect of codifying antisocial behaviors, peers can also be implicated in heightening risk via bullying and peer interpersonal violence. Correspondingly, one potential suggestion is to increase parental, faculty, and extra-curricular supervisor knowledge about and monitoring of peer-to-peer interactions therefore increasing the opportunity to constructively identify and resolve bullying interactions.

Lastly, because environmental context was implicated as significant, policies should address the associated risk and protective factors. Neighborhood context in particular can be risky or protective. Risks include neighborhood disorder, exposure to substance use networks, delinquency or gangs, witnessing community violence, poor socioeconomic infrastructures (similar in effect to single-parent multi-occupation households of low socioeconomic status), and so on¹¹. As regards protective factors, collective efficacy was cited as influential. For instance, if a community was able to establish a series of socially encouraged and, by contrast, impermissible behaviors in addition to upholding youth and citizens at large to these standards, then a neighborhood could regulate adolescent antisocial behavior. This acknowledged, of all the factors, we recognize both the importance of environmental context but also acknowledge the degree of difficulty that would be associated with strengthening under-developed neighborhoods. However, given the importance of environmental context on youth and given the fact that

¹¹ Note: If a school is physically located within a risky neighborhood context, the physical location can increase the risk for youth due to exposure to antisocial norms or inconducive situations.

neighborhoods have a cyclical effect on youth (in other words, a poor neighborhood context or a family with low socioeconomic status can increase the risk of an adolescent to participate in these problem behaviors and in turn perpetuate a cycle of risk for others considering that having more youth participating in antisocial behaviors merely entrenches a home or neighborhood further within a risky context), time, energy, and money should be invested into financially and socially struggling communities. When doing so, race and minority status should also be considered since typically a risky environmental context overlaps the boundaries of minority communities. Given this sensitive relationship, any efforts to grow or develop these communities should be significantly informed by the populations inhabiting them so that their development can be owned by the people living in the targeted households, communities, and neighborhoods instead of being perceived as an effort to gentrify. Race and minority characteristics must be carefully considered as well, especially since a neighborhood context can be in part defined by a racial or ethnic status and changes to the neighborhood from the outside-in could create identity conflict(s) within youth. By using a bottom-up and grassroots approach to ameliorate communities, youth will moreover be given the opportunity to inform the direction in which their communities can grow; their active involvement in such a project may even be able to further decrease/mitigate the effect of risk factors. However, more structural deficiencies (such as a lack of advancement opportunities, poverty) need to be addressed on a more societal level apart from fixing a neighborhood from within so as to remedy the systemic origins of the context.

In light of these themes and suggestions, we believe that an evidence-based intersectional approach to problem behaviors should be implemented. More explicitly, because each of these problem behaviors is the result of a menagerie of factors, antisocial or problem behaviors should be conceived of and addressed as the integrated sum of a multiplicity of related factors. This is to say that single-targeted one-dimensional policy or program solutions (i.e. a single policy for environment, a single policy for family, etcetera) would most likely not be efficacious nor sustainable. Instead, an interactional approach in which activists or policy-writers consider how different factors affect each behavior in turn and create reforms that can address multiple risk and protective factors at once may be extremely promising--especially when targeting violent extremism which, despite the limited nature of current research, seems to share many of the same risk and protective factors as the other behaviors and indicate an intersectional nature of a multiplicity of different unique factors. Furthermore, the strong degree of overlap between the risk and protective factors across the four research camps, suggests a transferrability of interventions across these different problem behaviors. Thus, an intervention found to be effective in preventing or combating one of these problem behaviors holds a high potential in being effective in confronting other problem behaviors as well. Policymakers and activists could thus draw on rich insights and experiences gained from confronting one problem behaviour and make use of them in addressing the others.

If we were to recommend policymakers specific psychosocial interventions, we would suggest to particularly promote access to Multi-Dimensional Family Therapies or Ecological Family Therapies. As these psychosocial interventions consider and address adolescents'

embeddedness in all of their environments - ranging from the familial context to the school - they are capable of addressing a variety of risk and protective factors in adolescents' lives. Therefore, they hold a distinctly high potential in being effective in confronting these problem behaviors. Importantly, beyond offering adolescents and their families assistance through counselling or therapies, it is equally crucial to battle discrimination, poverty, or neighbourhood disadvantage on a societal level in order to successfully prevent the onset of these problem behaviors .

6 SECTION VI: Conclusion

Problem or antisocial behaviors, specifically delinquency, substance use and abuse, gang involvement, and violent extremism, have unfortunately become widespread among adolescent populations in the United States and Europe. Addressing the reasons why youth decide to participate in these behaviors so as to devise successful strategies to deter their involvement has correspondingly become ever-important. Through a systematic literature review of the current research, the investigation at hand aimed to identify the respective risk and protective factors involved in each of these problem or antisocial behaviors to correspondingly determine if there were any similarities that could in turn be targeted by policies, non-profit activities, etcetera. By our assessment we found that individual disposition and mental health, family functioning, exposure to certain social networks, and environmental context are all relevant when understanding risk and protective factors for youth, and have made suggestions according to these shared themes. Although we have provided an extensive discussion on these factors, we would also like to acknowledge limitations and suggestions for similar reviews. It is important to recognize that although we have attempted to regiment different risk and protective factors and create policy suggestions based on these, the factors and policies cannot be so cleanly delineated. For example, consider academic engagement. Academic engagement is in of itself a protective factor. However, to stimulate the protective benefits of academic engagement, policy writers and implementers should reflect on how individual self-esteem, individual beliefs, individual mental health, family-functioning (in terms that a complicated family situation can disengage youth at school), neighborhood context, etcetera can negatively affect academic engagement. Thus, the work must be studied from multiple inflections simultaneously which can prove challenging. Secondly, if the study were to be repeated, statistical criteria should be set (notably only including studies with a pre-set, large sample size or a pre-set beta value to ensure inclusion of only high power studies). Thirdly, we suggest that this study be repeated in a decade or two when the body of literature on violent extremism becomes more robust. In the meantime, however, we hope that future studies and that the actions of policy-writers and activists today value and forefront the intersectionality of factors when studying these behaviors among adolescents.

Appendix

Tables

Table One. Advanced Coded Search Terms for Youth Delinquency

Search Term	Restrictions Added	Results
<p>Set #1: TI=(juvenile OR adolescents OR teenagers OR youth) Set #2: TI=(delinquency) Set #3: #1 AND #2</p>	<p>You searched for: #1 AND #2 Refined by: PUBLICATION YEARS: (2019 OR 2018 OR 2017 OR 2016 OR 2015 OR 2014 OR 2013 OR 2012 OR 2011 OR 2010 OR 2009 OR 2008 OR 2007 OR 2006 OR 2005 OR 2004 OR 2003 OR 2002 OR 2001 OR 2000 OR 1999 OR 1998 OR 1997 OR 1996 OR 1995) AND WEB OF SCIENCE CATEGORIES: (PSYCHOLOGY DEVELOPMENTAL OR PSYCHIATRY OR PSYCHOLOGY MULTIDISCIPLINARY OR PSYCHOLOGY CLINICAL OR PSYCHOLOGY SOCIAL OR SUBSTANCE ABUSE OR PSYCHOLOGY APPLIED OR PSYCHOLOGY OR PEDIATRICS OR PSYCHOLOGY EXPERIMENTAL OR PSYCHOLOGY EDUCATIONAL OR BEHAVIORAL SCIENCES) AND DOCUMENT TYPES: (ARTICLE) AND COUNTRIES/REGIONS: (USA) AND COUNTRIES/REGIONS: (USA OR ENGLAND OR GERMANY OR NETHERLANDS OR BELGIUM OR SWEDEN) Timespan: 1995-2019. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.</p>	<p>Initial: 2399 articles Refined: 271 articles</p>
<p>TI=(juvenile AND delinquency AND risk factors) [identical to making three different sets]</p>	<p>You searched for: TI=(juvenile AND delinquency AND risk factors) Refined by: PUBLICATION YEARS: (2019 OR 2014 OR 2010 OR 2017 OR 2013 OR 2008 OR 2012) AND COUNTRIES/REGIONS: (USA, Belgium, Netherlands, Sweden, Norway, Germany, England, Italy) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.</p>	<p>Initial: 12 articles Refined: 1 article</p>
<p>TI= (juvenile AND delinquency risk factors) [Different from above because refined differently]</p>	<p>You searched for: TI=(juvenile AND delinquency AND risk factors) Refined by: PUBLICATION YEARS: (2019 OR 2014 OR 2010 OR 2017 OR 2013 OR 2008 OR 2012) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.</p>	<p>9 articles</p>

Table Two. Advanced Coded Search Terms for Adolescent Substance Abuse

Search Term	Restrictions Added	Results
<p>Set #1: TI=(Substance Use Or Substance Abuse OR Substance Addiction OR Adolescent Substance Abuse Disorder OR ASA Disorder)</p> <p>Set #2: TI=(adolescents OR youth OR teenagers OR juvenile)</p> <p>Set #3: #22 AND #21</p>	<p>You searched for: #22 AND #21</p> <p>Refined by: [excluding] PUBLICATION YEARS: (1986 OR 1985 OR 1984 OR 1994 OR 1983 OR 1993 OR 1982 OR 1992 OR 1981 OR 1991 OR 1980 OR 1990 OR 1979 OR 1989 OR 1978 OR 1988 OR 1974 OR 1987 OR 1968) AND WEB OF SCIENCE CATEGORIES: (SUBSTANCE ABUSE OR PSYCHOLOGY APPLIED OR PSYCHIATRY OR PSYCHOLOGY DEVELOPMENTAL OR PSYCHOLOGY CLINICAL OR PEDIATRICS OR PSYCHOLOGY OR PSYCHOLOGY MULTIDISCIPLINARY OR FAMILY STUDIES OR PSYCHOLOGY EDUCATIONAL OR REHABILITATION) AND DOCUMENT TYPES: (ARTICLE) AND COUNTRIES/REGIONS: (USA, Belgium, Netherlands, Sweden, Norway, Germany, England, Italy)</p> <p>Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.</p>	<p>Initial: 4,210</p> <p>Refined: 1,852</p>
<p>Set #1: #22 AND #21 (from set above)</p> <p>Set #2: (Risk factors)</p> <p>Set #3: #1 AND #2</p>	<p>You searched for: #28 AND #27</p> <p>Refined by: WEB OF SCIENCE CATEGORIES: (SUBSTANCE ABUSE OR PSYCHOLOGY OR PSYCHOLOGY DEVELOPMENTAL OR PSYCHOLOGY APPLIED OR PSYCHIATRY OR FAMILY STUDIES OR PEDIATRICS OR REHABILITATION OR PSYCHOLOGY CLINICAL) AND DOCUMENT TYPES: (ARTICLE) AND COUNTRIES/REGIONS: (USA, Belgium, Netherlands, Sweden, Norway, Germany, England, Italy)</p> <p>Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.</p>	<p>Initial: 74 articles</p> <p>Refined: 68 articles</p>

Table Three. Advanced Coded Search Terms for Gangs

Search Term	Restrictions Added	Results
<p>Set #1: TI=(teenagers OR youth OR adolescents OR juvenile)</p> <p>Set #2: TI=(gangs)</p> <p>Set #3: #1 AND #2</p>	<p>You searched for: #1 AND #2</p> <p>Refined by: PUBLICATION YEARS: (2019 OR 2018 OR 2017 OR 2016 OR 2015 OR 2014 OR 2013 OR 2012 OR 2011 OR 2010 OR 2009 OR 2008 OR 2007 OR 2006 OR 2005 OR 2004 OR 2003 OR 2002 OR 2001 OR 2000 OR 1999 OR 1998 OR 1997 OR 1996 OR 1995) AND WEB OF SCIENCE CATEGORIES: (CRIMINOLOGY PENOLOGY, FAMILY STUDIES, PSYCHOLOGY DEVELOPMENTAL, PSYCHOLOGY MULTIDISCIPLINARY, PSYCHOLOGY CLINICAL, PSYCHIATR, PSYCHOLOGY APPLIED, PSYCHOLOGY SOCIAL, SUBSTANCE ABUSE, PSYCHOLOGY, BEHAVIORAL SCIENCES, PEDIATRICS)</p>	<p>Initial: 493</p> <p>Refined: 32</p>

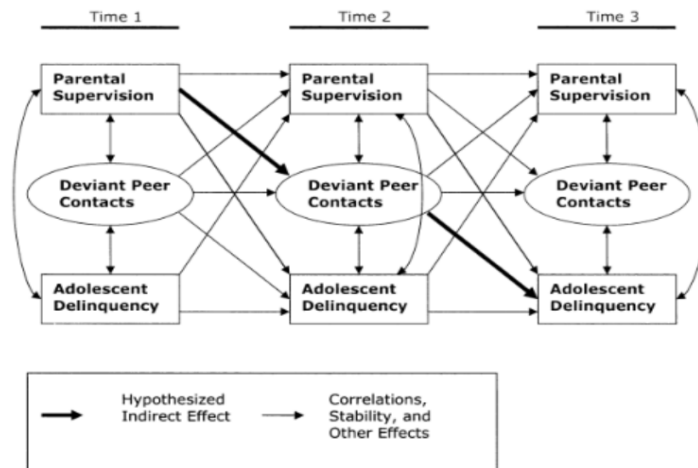
	<p>AND DOCUMENT TYPES: (ARTICLE) AND COUNTRIES/REGIONS: (USA, ENGLAND, NETHERLANDS, GERMANY, ITALY) Timespan: All years. Indexes: SCI- EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.</p>	
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Table Four. Advanced Coded Search Terms for Recruitment into Violent Extremism

Search Term	Restrictions Added	Results
<p>Set #1: TI=(teenagers OR youth OR adolescents OR juvenile)</p> <p>Set #2: TI=(violent AND extremism) OR TI=(terrorism OR radicalization)</p> <p>SET #3: #1 AND #2</p>	<p>You searched for: #1 AND #2 Refined by: PUBLICATION YEARS: (2019 OR 2018 OR 2017 OR 2016 OR 2015 OR 2014 OR 2013 OR 2012 OR 2011 OR 2010 OR 2009 OR 2008 OR 2007 OR 2006 OR 2005 OR 2004 OR 2003 OR 2002 OR 2001 OR 2000 OR 1999 OR 1998 OR 1997 OR 1996 OR 1995) AND WEB OF SCIENCE CATEGORIES: (PSYCHIATRY, PSYCHOLOGY DEVELOPMENTAL, PSYCHOLOGY MULTIDISCIPLINARY, PSYCHOLOGY CLINICAL, CRIMINOLOGY PENOLOGY, PEDIATRICS, PSYCHOLOGY SOCIAL, CLINICAL NEUROLOGY, PSYCHOLOGY, SUBSTANCE ABUSE) AND DOCUMENT TYPES: (ARTICLE) AND COUNTRIES/REGIONS: (USA, ENGLAND, NETHERLANDS, BELGIUM, NORWAY, GERMANY, ITALY) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.</p>	<p>Initial: 81 Refined: 22</p>

Graphic

Graphic One



(Keijsers et al. 2012:

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