

Severe Youth Violence:
Developmental Perspectives

Tina Malti¹ and Margit Averdijk²

¹ University of Toronto

² Swiss Federal Institute of Technology (ETH Zurich)

Author Note

Tina Malti, Department of Psychology, University of Toronto, Margit Averdijk, Swiss Federal Institute of Technology (ETH Zurich). We thank Tyler Colasante, University of Toronto, for his editorial assistance with the manuscript. The first author was funded, in part, by a New Investigator Award from the Canadian Institutes of Health Research (CIHR).

Correspondence concerning this article should be addressed to Tina Malti, Department of Psychology, University of Toronto, 3359 Mississauga Road North, Mississauga, ON, L5L 1C6, Canada. Electronic mail may be sent to tina.malti@utoronto.ca

This is the peer-reviewed version of the following article: Malti, T., & Averdijk, M. (2017). Severe youth violence: Developmental perspectives. Special section. *Child Development*, 88, 5-15. doi:10.1111/cdev.12694, which has been published by Wiley. The publication is available in its final form at: <https://doi.org/10.1111/cdev.12694>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Self-Archiving: <http://olabout.wiley.com/WileyCDA/Section/id-820227.html>

Abstract

In this article, the authors introduce the special section on severe youth violence (SYV). As severe violence has significant negative consequences and youth commit more violence than other age groups, a developmental science approach is important to (a) understand pathways to SYV, (b) guide attempts to screen and assess SYV risk, and c) inform novel, developmentally sensitive practices and policies to prevent and reduce SYV. The authors establish the theoretical and empirical contexts for the articles in this special section and explain how this developmental research on SYV can inform new lines of theoretical and empirical inquiry and innovative approaches to detect and respond to the risk of SYV.

Keywords: Severe youth violence, developmental science framework, risk and resilience factors, early detection, intervention

Severe Youth Violence: Developmental Perspectives

Severe youth violence (SYV) is a serious concern in contemporary society. Although youth violence has declined, youth nonetheless commit more violence than other age groups (Blumstein & Wallman, 2006; for an age-crime curve, see Farrington, 1986; Ward, 2015). As the long-term consequences of SYV can be devastating for youth themselves, their potential victims, and society as a whole, research is necessary to inform its early detection, prevention, and intervention.

According to the World Health Organization (WHO; 2002), violence involves the intentional use of physical force or power against oneself or another person, group, or community that results in—or has a high likelihood of resulting in—psychological harm, maldevelopment, deprivation, injury, or death (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). For the sake of clarity, we refer to a working definition of SYV as including aggravated assault, rape, murder, and robbery committed by adolescents (see Federal Bureau of Investigation, 2014).

But why do adolescents become severely violent? The flu is sometimes used as a metaphor to explain the spread of violence in humans. Similar to the flu, violence can be highly contagious in adolescence (e.g., through mechanisms of deviant peer contagion, with adolescents affiliating themselves with similar peers and reinforcing each other's deviant behavior; see Dodge, Dishion, & Lansford, 2006). Some public health experts have therefore called to treat violence like an infectious disease (Slutkin, 2013). But how do we identify causes, precursors, and symptoms to inform prevention strategies for SYV in the same manner that we have created public health prevention programs for the flu?

These are the core questions of this special section. They are timely, significant, and pressing because severe violence among adolescents is a major concern around the world.

Data show that over 200,000 homicides occur among 15- to 29-year-olds annually worldwide, making homicide the fourth leading cause of death in this age group (WHO, 2014a). Homicides among youths comprise 43% of all homicides (UNODC, 2014). But those who are killed represent only a fraction of all youths suffering from violence (WHO, 2014b). For example, in the United States alone, 33,713 under-18-year-olds were arrested for murder, negligent manslaughter, rape, robbery, or aggravated assault in 2013 (Federal Bureau of Investigation, 2014). This figure likely represents only the tip of the iceberg, as many violent crimes go unreported to the police (see Bureau of Justice Statistics, 2012).

While prevalence rates of SYV vary across countries, it is a global public health concern, not only because of the substantial negative physical and mental health consequences for targets, but also because of the various negative outcomes for its agents, communities, and societies at large (Dahlberg & Krug, 2002). To name a few examples, SYV can cause substantial injury, trauma, reduced life expectancy, and retaliatory cycles of violence (e.g., Redelings, Lieb, & Sorvillo, 2010). In addition, highly publicized instances of SYV can lead to public outrage and high levels of fear among potential victims (Frymer, 2009). As one example, the school and college campus shootings that have taken place since the tragic incidents at Columbine High School in 1999 remain an issue of high public concern in the United States (Borum, Cornell, Modzeleski, & Jimerson, 2010). Furthermore, SYV results in billions of dollars in societal costs, including criminal justice system and victim expenses, and wasted productivity of incarcerated offenders (Welsh & Farrington, 2011). US policymakers have responded by passing several laws to increase penalties for serious juvenile offenders (Miller & Applegate, 2015). Although it constitutes only a small percentage of all crime, violent youth crime is particularly worrisome, as it may pave the way for extensive violent careers (Frymer, 2009).

What Is SYV?

SYV is a multifaceted phenomenon. Here, we refer to a working definition of SYV as including aggravated assault, rape, murder, and robbery committed by adolescents (Federal Bureau of Investigation, 2014). Because SYV has been studied across multiple disciplines that rely on different theoretical frameworks and methodological approaches, it has been defined, operationalized, and measured differently. However, among approaches that focus on behavioral definitions of SYV, there is substantial overlap between the manifestation of SYV and the much more commonly studied concept of aggression. Specifically, aggressive behavior has been defined as behavior that intentionally causes physical or psychological harm to others (Krahé, 2013). This may include confrontational conflicts (e.g., arguing, quarrelling), physical attacks, and inflicting reputational losses (Eisner & Malti, 2015). In contrast, violence typically concerns a subset of aggressive behaviors that are against the law (Howells, 2010).

Despite substantial agreement on the definitions of aggression and violence, there is much less agreement on how to conceptualize and assess SYV. This is in part due to the fact that severity can be classified by several criteria, such as violent consequences (e.g., victim's injury), legal classification (e.g., maximum sentence), associated sentencing practices, financial costs, and public opinion, the offender's intentionality and criminal history, and other related factors (e.g., Sweeten, 2012). Some have viewed high crime frequency as indicative of high crime severity. There is some research supporting this, as the most persistent offenders have an early onset (DeLisi & Piquero, 2011) and the highest risk of escalation in crime seriousness (Liu, Francis, & Soothill, 2010). Others have classified violence using psychometrics, showing that severity is associated with the level of injury and presence or absence of weapon use (Michie & Cooke, 2006). Still, others have ranked offenses by their perceived severity in terms of public opinion or by estimating its costs or the public's willingness to pay for crime control.

Our working definition of SYV adheres to the strategy developed in a recent study by Torok and colleagues (2015). Based on an examination of risk profiles across distinct subgroups according to the severity of violent offending, the authors found that aggravated assault was a useful cut-off for defining high severity. This is partly in line with the Uniform Crime Reports, which comprise the official nationwide crime data in the US and define four types of serious violent crime: Aggravated assault (for the purpose of inflicting severe or aggravated injury), forcible rape, murder, and robbery (Federal Bureau of Investigation, 2014). The papers included in this special section reflect our approach, but some include less severe forms of violence due to low prevalence rates in their samples or them taking a broader conceptual approach. We view these differing definitions and measurement approaches as the product of a research field in which there is overlap between disciplines but many gray areas remain (e.g., **Shulman et al., this section; Yablon, this section**). As such, we believe the following papers and the conceptual and measurement issues that they tackle provide important input for a productive discussion that will advance the study of SYV.

Developmental Pathways

This special section aims to generate new information on select causes and developmental pathways to SYV. The seeds for serious violence later in life may be sown in early childhood, all the while affecting intermediate developmental outcomes. Past studies have shown a developmental progression in crime severity, with an early onset of antisocial behavior in childhood and, later, violence among youths contributing to escalating crime severity and chronicity over time (Piquero, Farrington, & Blumstein, 2007). In a nationally representative survey of US adolescents, the most severe 5% of youth with elevated levels of substance use, delinquency, and violence accounted for between 14% and 70% of externalizing behaviors (Vaughn, Sala-Wright, DeLisi, & Maynard, 2014). It may come as no surprise that the life course persistent antisocial behavior of this small group of individuals has been termed the most important pediatric mental health problem (Eme, 2010).

Obviously, not all adolescents who engage in severe violence are characterized by early emotional, cognitive, behavioral, and associated neurobiological differences. Rather, there are different subgroups of adolescents characterized by distinct developmental deficits and trajectories. According to Moffitt's dual pathway developmental theory (Moffitt, 1993), there are two groups of adolescents who commit offenses: a group that starts early in life and persists into adulthood and a group of adolescence-limited offenders. And while the early-starter group is characterized by a wide range of genetic, neurobiological, and social risk factors, the antisocial behavior of the latter group might be more associated with the specific sensitivity of the developmental period of adolescence, maturation therein, and its associated psychological stressors, structural and functional brain changes, and extended relationships and social affiliations, which make it a time of heightened vulnerability (Steinberg, 2008).

As such, some adolescents are more prone to engage in violence than others, and of those, we might again be able to identify different clusters, such as adolescents who might occasionally engage in such behaviors (e.g., because of social isolation and/or ostracism and revenge) and those who engage in more enduring patterns of violent behavior (Docherty, Boxer, Huesmann, O'Brien, & Bushman, 2016). It is likely that both situational factors, such as intense peer pressure, and adolescence-specific developmental challenges, such as dating and establishing and maintaining close relationships, trigger severe violence in these clusters differentially (see Dahlberg & Potter, 2001).

Thus, understanding the developmental pathways, mechanisms, and circumstances that contribute to SYV is important for prevention and early intervention efforts. And while various biological, psychological, and social causes and antecedents of youth violence, as well as their complex interplay, have been studied in the past (e.g., Dodge & Pettit, 2003; Moffitt, 2005; Raine, 2013; see Beauchaine & Hinshaw, 2016), there are still significant gaps in the developmental literature.

Gaps and Challenges in the Developmental Literature

The literature on causes and antecedents of violence and SYV has identified a range of biological, psychological, and social risk factors, such as neurobiological vulnerabilities affecting self regulation, school failure, hailing from a disadvantaged neighborhood, and harsh parenting (e.g., Dodge, Greenberg, Malone, & Conduct Prevention Research group, 2008). More recently, researchers have also begun to identify prominent protective factors. While less attention has been paid to this area of research, some protective factors that have been identified include low impulsivity, high resting heart rate, and academic achievement. Not surprisingly, the probability of violence appears to decrease as the number of protective factors increases (Loesel & Farrington, 2012).

Nevertheless, what is missing in this literature is the identification of protective developmental processes that are particularly helpful at specific times in development and that are focused on SYV. For instance, many of the risk and protective factors might apply to one group of adolescents who start early in life and tend to show persistent behavior problems. Yet, much less is known about potential risk and resilience factors for adolescents without a well-known history of aggression and violence beyond the normative risk factors associated with the multifaceted changes that come along during the period of adolescence.

In addition, relatively little is known about how these developmental protective factors operate to prevent and decrease SYV, how specific risk and protective factors interact with each other in predicting SYV, if there are unique risk and protective factors for SYV, and if and how they differ across ages, ethnic groups, and genders. The factors that keep adolescents from following a violent pathway are also less clear (Walker, Bowen, & Brown, 2013). Lastly, there are relatively few longitudinal studies that comprehensively study risk and protective factors over long periods of time with multiple measures and informants, and with cross-national comparisons.

In this special section, we begin with a selected set of developmental risk and protective factors: some that may be unique to SYV and others that are shared with related

behavioral outcomes, namely aggression and less severe violence. The articles in this special section aim to contribute to a growing body of developmental literature on our understanding of causes of SYV, pathways to SYV, and, ultimately, innovation in risk assessment, identification, and developmental intervention.

Developmental Risk and Resilience Factors

Developmental models have already identified social-cognitive and social-emotional risk and resilience factors related to youth aggression and violence. One well-known model is Dodge's (1986) social information-processing (SIP) model, which has shown that biases in the processing of social information contribute to the development of aggression in adolescence. Given the conceptual overlaps between aggression and violence, this model reveals information about the kinds of social knowledge that contribute to behavioral differences. Social-cognitive processing biases pertain to selective attention to social cues, attribution of intent, generation of goals, accessing of behavioral scripts from memory, decision making, and behavioral enactment.

The first manuscript in this special section by **Shulman and colleagues (this section)** examined how decision-making was associated with violent offending—and vice versa—over a period of 7 years. Using a large sample of male juvenile offenders ages 14 to 17 at baseline, the study indicated that the anticipated benefits of crime (e.g., social rewards, thrill) were more robustly predictive of offending than the anticipated costs (social costs, risk of punishment), both for within-individual change over time and between-person differences. The anticipated thrill of crime was positively associated with offending six months later and vice versa. The findings point to a heightened focus on anticipated benefits/perceived rewards of crime, suggesting that prevention efforts should focus on decreasing the perceived rewards of crime rather than highlighting its costs. This is particularly relevant for the developmental period of adolescence, which is characterized by normative changes in social-emotional

development and associated brain functioning, leading to increased reward-seeking and a decreased capacity to regulate and control spontaneous impulses (Steinberg, 2008).

Other, related approaches have focused on the social-emotional causes and antecedents of youth violence and aggression. Conceptually, youths' evaluations of, and emotions associated with, peer conflict in everyday life may guide their decision-making about their prosocial or antisocial behavior in peer conflict situations, such as violent conflicts. Indeed, this work has shown that how adolescents respond emotionally to conflicts and transgressions involving peers—as perpetrators, targets, and observers—plays an important role in the development of aggression and violence (Malti, 2016; see Killen & Malti, 2015). An absence of moral emotions, such as guilt, and the use of reasoning to justify (or rationalize) moral norm violations, such as denial of responsibility, have been found to underlie a range of maladaptive social behaviors, including aggression, antisocial activities, and offending (e.g., Wikström, Oberwittler, Treiber, & Hardie, 2012). With a meta-analysis of 42 studies, Malti and Krettenauer (2013) investigated the relation between guilt and aggression from early childhood to late adolescence and documented a moderate effect size of $d = 0.39$, thereby confirming that low guilt is associated with increased aggression across these age groups. Similarly, developmental research has shown that anger—and its regulation—is strongly associated with aggression and problem behavior in children and adolescents (Lochman et al., 2010).

Developmental research has also identified the protective role of other-oriented emotional responses (e.g., empathy/sympathy with victims) and self-evaluative emotions (e.g., guilt following one's own wrongdoing or observing others' harmful behavior) in the genesis of aggression and violence. Vice versa, lower levels of sympathy have been related to higher levels of aggression in adolescence (Arsenio, 2014). Furthermore, callous unemotional (CU) traits, including low guilt, low emotion expression, and low empathy/sympathy, have been identified as important factors in youth violence (Frick, Ray, Thornton, & Kahn, 2014).

CU traits seem to be involved in the distinct causal processes associated with the most severe, aggressive, and chronic antisocial behaviors displayed by youth, as well as early onset conduct problems and delinquency, and thus figure importantly into the taxonomies of antisocial youth. CU traits have also been found to be associated with later severe violence and antisocial behaviour (McMahon, Witkiewitz, & Kotler, 2010).

Developmental research has shown that another core dimension of social-emotional development—the ability to regulate emotions and impulses appropriately to one’s age and context—plays an important role in behavioral (mal)adaptation in childhood and adolescence (Malti & Noam, in press). The next paper in our special section by **Sitnick and colleagues (this section)** identifies unique early childhood risk factors from ages 18 to 42 months that are associated with adolescents’ subsequent violent behavior, as indexed by juvenile petitions (i.e., juvenile court records obtained from ages 15 to 18, petitions for violent acts being filings after an arrest, but prior to court proceedings). One of these psychological risk factors is low emotion regulation capacity (see Calkins & Perry, 2016), which is in line with the literature on the role of emotional development in aggression and violence, including regulatory capacities (e.g., Eisenberg et al., 2009). The authors followed a cohort of 310 low-income males living in an urban community in the US prospectively from 18 months through adolescence. However, the findings of this study with low income urban males documented that family income was the only factor to discriminate those with no arrest record from those with nonviolent arrests.

This clearly shows the importance of social inequality in understanding the development of severe violence in youth. Importantly, rejecting parenting, oppositional behavior, emotion regulation, and minority status during the toddler period all contributed unique variance in distinguishing adolescent males arrested for violent behavior from those never arrested and/or arrested for nonviolent behavior. The authors conclude that the findings speak to the benefits of targeting families living in poverty and those with children who

exhibit problem behavior, as well as to the importance of strategies to improve parenting and children's emotion regulation skills in the early years to reduce future violence.

Yet another factor that has been investigated in relation to SYV is gender. It is well established that the majority of cases of severe violence occur at the hands of male adolescents (see Office of the Surgeon General, 2001), and the majority of research has focused on males (**e.g., Cauffman and colleagues, this section**). Investigating female trajectories of violence is important, however, because to date, it remains unclear if the risk and protective factors for females are similar or different from males. That is why the study by **Cauffman and colleagues (this section)**, which investigated the developmental pathways to persistent female offending, is so important. The study identified trajectories of female offending from ages 14-25 and found that there was great heterogeneity in criminal behavior patterns among females (i.e., engagement in different types of violent acts and different violent trajectory groups). This is similar to males, which indicates that the pathways to SYV seem to be, in this respect, relatively similar for males and females. Interestingly, however, fewer females persist in violence (25%) in comparison to males (46%). Importantly, females who develop control over their impulses are more likely to desist from violence compared to females who do not develop such impulse control. This finding is important because it shows that changes in the ability to control impulses may underlie desistance. In addition, females who desist from violent crime are more likely to be employed, supporting the argument that employment can guide individuals away from a life of violence and crime (e.g., Laub & Sampson, 2006).

In summary, the articles in our special section discuss the roles of selected, central risk and resilience factors in the genesis and development of SYV. Taken together, they indicate that several central psychological factors contribute to the emergence and development of SYV. These are: Decision-making tendencies that focus on positive consequences of aggressive behaviors, low regulatory capacities from early on, and early mental health

problems. Evidence from past developmental literature also suggests that hostile attributions of intent (Dodge, 2006), low other-oriented and self-evaluative emotional responses (e.g., empathy/sympathy and guilt; Malti, 2016; Malti & Krettenauer, 2013) are important antecedents of aggression and violence.

In addition, pressing social factors, including child maltreatment, rejecting parenting, social inequality, ensuing low (access to) resources, youth unemployment, and experiences of discrimination as a member of a minority group, contribute to aggression and violence (e.g., Gershoff & Grogan-Kaylor, 2016; Guerra, 2013). Of course, there are also various (neuro)biological differences involved in the genesis, development, and maintenance of youth violence that, in part, reflect its cognitive, affective, and behavioral expressions (see Blair, 2013; Dodge & Pettit, 2003; Raine, 2013). Biopsychological and social risk and resilience factors, along with situational cues and triggers (such as provocative events or critical negative life experiences), are central to our understanding of SYV and—importantly—its intervention.

This special section provides a good selection of central risk and resilience factors that play essential roles in this search. It is clear there is no single profile that characterizes violent youths. Rather, various psychological, social, and biological factors (and their interactions) need to be considered in search of profiles that may be used to identify adolescents at-risk for, or already engaging in, SYV. And any of these factors and any combination thereof are inevitably embedded in larger societal structures. For example, processes of rapid and radical social change, which are all too often accompanied by high rates of youth unemployment, economic deprivation, lower social security, and discrimination (see Durkheim, 1968), can create alienation, feelings of humiliation, as well as envy and anger toward potential competitors in an ever-increasing competition for perceived scarce resources. This, in turn, may critically shape adolescents' identity development and create a fragile self (Edelstein, 2005). Obviously, not all pathways to SYV are characterized by fragile identities, but this

pattern is important because it is likely associated with a life-long, persistent pattern of violence (see Moffitt, 1993).

Detection of SYV Risk

Detecting SYV risk and reducing youth violence has been the goal of prevention and early intervention efforts. This special section describes promising avenues that have the potential to be translated into useful tools and innovative practices to help detect, prevent, and reduce SYV. Besides focusing on developmental risk and resilience factors, a promising approach to early detection has been to focus on events or life experiences that may set off a chain of violence. One example of this is to identify patterns of violence and aggression in adolescent peer groups (Hamburger, Basile, & Vivolo, 2011). And while the development of strong screening tools for detecting severe violence risk in peer groups is still in the early stages and often not focused on SYV in particular, such tools are potentially important and effective because research indicates that victimization is a very common experience in adolescence and is related to offending. For example, 28% of 12- to 18-year-olds reported that they had been bullied at school during the school year (Espelage, 2014, p. 7). Across 40 countries, 16% of adolescents reported that they had been victimized at least twice during the previous 2 months (Craig et al., 2009). Moreover, it is well-known that there is a considerable overlap between violent victimization and offending (Lauritsen & Laub, 2007). In many, though not all, school shootings, acute or chronic peer rejection and victimization appear to be present in the offender (Borum et al., 2010). Developmental researchers have argued that traumatic peer relations, such as being frequently excluded and/or severely victimized, may evoke serious mental health problems, which are potentially associated with subsequent severe violence and aggression (Killen & Malti, 2015).

Thus, there is much evidence that experiences of victimization, humiliation, and exposure to violence in childhood and adolescence are powerful predictors of subsequent crisis and violence, all too often creating vicious cycles of bullying, rejection, violence, and

aggression (Averdijk, Malti, Eisner, Ribeaud, & Farrington, 2016; Salmivalli, 2010; see; **Yablon, this section; Leuschner and colleagues, this section**).

The links from peer victimization and bullying to aggression and SYV are well-supported conceptually, as these experiences may deprive youths of the social resources needed for adaptive behaviors and induce a readiness to respond in a defensive, frustrated, or angry manner to provocation (Lamarche et al., 2007). While there is some research that has linked peer victimization and SYV, more research on the detection of different types of violence in adolescence (e.g., perpetration and victimization) is needed.

Yablon (this section) introduces a novel approach to the early detection of violence in 12- to 16-year-olds. His study shows that high percentages of both victimized children and perpetrators are not identified by teachers. However, students often know these victims and perpetrators. As such, collecting information from victims can be a valuable source to detect violence risk in their peers. In summary, Yablon's study stresses factors that explain students' willingness to report to or seek help from their teachers. The findings show that the most powerful among these factors appears to be the existence of a strong, positive student-teacher relationship. In addition, the study highlights the role of victimized children as a source of information regarding perpetrators, suggesting a new perspective for early identification of incidences of violence in school settings.

Prevention and Intervention of SYV

Although much research has been devoted to our understanding of how we can successfully prevent and reduce SYV, no year in America and in other countries passes without shootings and other incidences of severe violence that involve youth. As such, innovation in practice approaches is necessary. One issue we note is that intervention approaches are not systematically linked to assessments and early identification approaches that utilize informants from various sources (e.g., peers, teachers; see Malti & Rubin, 2017). Moreover, developing and implementing screening and detection tools early (e.g., early in the

school year) can help understand the social dynamics in a school and contribute to the implementation of appropriate preventative strategies.

An example of a promising approach to prevent SYV is presented in the last paper of our special section by **Leuschner and colleagues (this section)**. This article introduces the results of a large-scale quasi-experimental evaluation of an evidence-based prevention program that combines a threat assessment approach with a general model to prevent crisis situations in schools. Conceptually, the approach combines an early intervention approach to student crisis with teacher trainings to help them recognize early warning signs of targeted youth violence in schools. The findings showed increases in teachers' abilities to identify students at risk for, or displaying, crisis, and also positive effects on students' feelings of safety and student-teacher interactions. This approach emphasizes that an understanding of each student's development and psychological well-being is key to prevent behavior problems and SYV.

In addition to the importance of preventing individual crises, this study also points to the urgent need to provide education about SYV and related training opportunities to teachers and practitioners to increase their understanding of, and ability to detect, psychological and developmental challenges and strengths accurately. Lastly, it is important to help teachers and practitioners intervene quickly (when necessary) and develop the sensitivities to understand the social challenges adolescents often have to deal with, such as the absence of reliable adult role models or vocational opportunities, which may exacerbate psychological problems. However, given the scope of SYV and its multifaceted nature, it is clear that this and similar approaches will not be sufficient to prevent SYV.

Rather, reducing SYV calls for a broad portfolio of approaches with particular attention to the context that it is situated in (for an example of a collaborative network of research and organizations to stop the violence caused by bullying, see the Promoting Relationships and Eliminating Violence Network at www.PREVNet.ca). More importantly,

there is an urgent need for the further development of social policies to prioritize and coordinate existing efforts to address the risk factors for SYV, as well as to detect and implement new, comprehensive strategies to address large-scale SYV prevention.

Conclusion and Future Directions

This special section brings together novel approaches to the study of psychological and social causes and antecedents of SYV from a developmental perspective. It also provides examples of new approaches to the detection and prevention/early intervention of SYV. Much progress has been made to close the research-practice gap for SYV, including the research in this section, such as longitudinal evidence for low regulatory capacities, poor emotional development, and low economic resources throughout childhood as central psychological and social risk factors (**see Sitnick and colleagues, this section**). The identification of protective factors to prevent children and youth from taking a violent trajectory, and to help them overcome an existing path and desist from violence at different ages and based on their differential developmental needs, seems especially promising.

While much interdisciplinary research on this topic exists, we have also shown that the existing research lacks conceptual clarity and is characterized by low agreement on how to understand and define SYV. This absence of a common conceptualization of SYV is reflected in measurement discrepancies to assess SYV, which makes it more complicated to study its causes and antecedents comprehensively. Although each of the existing conceptual approaches and associated classification methods has advantages, we urge the use of a unified developmental framework to define SYV and its core components, as it could provide a much more consistent (and comprehensive) measurement of SYV, as well as inform our understanding of the factors that underlie, predict, and uniquely differentiate it from other types of violence and aggression in adolescence. As a consequence, a more coherent approach to the conceptualization of SYV could increase precision and standardization of screening and assessment tools, and as such further inform the design of successful treatment.

Our special section gives a selected overview of contemporary research in this area and its application. While it shows that much research has focused on identifying the causes, antecedents, and consequences of youth violence, one vital direction for future research is to improve our ability to predict SYV using a developmental framework. We have information on significant risk factors from prior research, and we also know of important protective factors. However, what is lacking is an integrative conceptual approach that uses well-known risk and protective factors, that can be used to measure and predict future risk of SYV, and that potentially differentiates adolescents that engage in SYV from those who engage in less severe forms of violence and aggression.

Longitudinal studies are particularly important in this context as they can comprehensively identify these factors and their explanatory power over and above the stability of behavior and mental health problems that have been well documented in the literature. Future studies that focus on the interaction of unique risk and protective factors across development are also promising. For example, do feelings of empathy, guilt, and emotion regulation capacities protect children with well-known risk factors, such as experiences of serious peer victimization, from developing SYV? And can we design interventions to promote the development of these psychological characteristics in high-risk environments?

Another important finding relates to the understudied population of females in relation to SYV. This special section explores trajectories of SYV in females and shows that there is great heterogeneity in their criminal behavior, similar to males. Extending this important line of research, it will be interesting to understand if early protective and risk factors similarly predict gendered trajectories of SYV, or if there are distinct factors for females versus males. Exploring such questions can help us further understand how we can best predict the occurrence of SYV in diverse populations, which informs its detection and prevention.

The findings of these studies also point to the need to discuss current approaches to the

early identification, assessment, and treatment of SYV. Because detection of SYV risk, protective factors and developmental needs, and early identification of SYV can help improve intervention efforts substantially, more work is needed to identify adolescents who are likely to engage in SYV and understand what their social-emotional, academic, and relational needs are. One example from our special section points to the need to utilize supportive, close teacher-child relationships, which can help children open up and report incidences and perpetrators of SYV (see **Yablon, this section**).

The difficulty in accurately predicting who will and who will not embark or continue on a pathway towards severe violence is a concern and there is a pressing need for increasingly precise assessment tools to guide and support intervention strategies. This includes an identification of the associated developmental, biological, and social risks and protective factors (i.e., a core set; see Loeber & Farrington, 2000 for a review of core factors underlying early onset delinquency), as well as a multiple-informant approach. The work included in this section points to the beneficial effects of including reports of peers and victimized targets in early identification efforts, as they may shed more light on issues of SYV than adults can. There is also evidence that the inclusion of central protective factors, such as emotion regulation skills or close, supportive relationships with adults, in assessment tools that traditionally focus on violence and associated psychopathology is important (Malti & Noam, in press). This information allows practitioners to work with strengths to address and overcome challenges. In addition to improving identification tools, it seems pressing to complement this approach with testable models to prevent the general likelihood of SYV and crime.

The last central focus of this special section is on the prevention and intervention of SYV. From a public policy perspective, developmental prevention programs can be quite effective and efficient, as their initial costs are often much less than the costs of later serious offending and they have monetary benefits beyond crimes reduced. Indeed, recent benefit-cost

analyses of developmental prevention programs have revealed developmental prevention as a valuable strategy to save money and improve long-term positive gains (Welsh, Farrington, & Raffan Gowar, 2015). For future work, this focus calls for more replication of existing developmental intervention efforts, roll-out and dissemination, and the adoption of a developmentally informed public health approach to SYV.

This includes questions regarding if and how much adaptation is required to implement evidence-based approaches to remain effective in diverse populations of youth and/or across contextual settings, and if it is possible to identify common intervention principles that are the most effective in intervening in SYV (see Malti, Noam, Beelmann, & Sommer, in press). Throughout this special section and in the recent literature, much knowledge about child and youth development and psychopathology has been collected, and we are now ready to generate a core set of intervention principles and strategies that is based on sound developmental research and may contribute to faster, developmentally and contextually tailored, and more effective approaches to address SYV. Similarly, collaborative efforts are needed to integrate new initiatives into existing systems and improve dissemination of evidence-based practices on a large scale with a national strategy. While the field has made promising progress in this regard, much more needs to be done to understand what makes collaborative approaches effective over longer periods of time and on a larger scale (Bradshaw, 2015; Malti et al., in press).

Ultimately, we will also need to ask ourselves how to raise inclusive, caring, and morally courageous children and adolescents (see Staub, 2011). Helping children and adolescents become caring toward others may be among the most powerful protective factors for SYV. The socialization of children at home and in schools with a focus on the societal practices, values, and policies that facilitate the development of caring persons, including respect, cooperation, and inclusion among groups, is central to create a climate that is less susceptible to violence and aggression. Now is the moment to call urgently for the better

understanding, identification, and prevention of SYV, and the promotion of caring young people. In addition, helping youth deal with situational provocations by improving their regulatory resources and offering help-seeking resources may shift their focus to alternative, more productive, behavioral options. Resources, structures, and collaborations are necessary to promote resilience in families and institutions, create more equity in the distribution of resources and services for children and families in need of them, and cooperate in this important endeavor that can ultimately contribute to fairness, diverse models, and just intervention approaches.

To conclude, severe violence continues to be a devastating problem among adolescents. Research has contributed to our understanding of the emergence and development of SYV over the past decades. Yet, we need to identify profiles more accurately that may help explain why some adolescents engage in this behavior and others who are exposed to the same risk factors do not. We need to develop ways to detect at-risk adolescents early and effectively. Only by generating more knowledge in each of these areas can we create effective and sustainable prevention and intervention efforts for SYV.

References

- Arsenio, W. (2014). Moral emotion attributions and aggression. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (2nd ed., pp. 235-256). New York, NY: Psychology Press.
- Averdijk, M., Malti, T., Ribeaud, D., Eisner, M.P., & Farrington, D. (2016). A vicious circle of peer victimization? Problem behavior mediates stability in peer victimization over time. *Journal of Developmental and Life-Course Criminology*. Early online publication, 30 January, 2016. doi: 10.1007/s40865-016-0024-7
- Beauchaine, T.P., & Hinshaw, S.P. (Eds.) (2016). *The Oxford handbook of externalizing spectrum disorders*. New York: Oxford University Press.
- Blair, R.J.R. (2013). Psychopathy: cognitive and neural dysfunction. *Dialogues in Clinical Neuroscience*, 15(2), 181-190.
- Blumstein, A., & Wallman, J. (Eds.) (2006). *The crime drop in America*. Cambridge, England: Cambridge University Press.
- Borum, R., Cornell, D. G., Modzeleski, W., & Jimerson, S. R. (2010). What can be done about school shootings? A review of the evidence. *Educational Researcher*, 39(1), 27-37.
- Office of the Surgeon General (2001). *Youth violence: A report of the Surgeon General*. Available from <http://www.ncbi.nlm.nih.gov/books/NBK44297/>.
- Bureau of Justice Statistics (2012). *National crime victimization survey: Victimization not reported to the police, 2006-2010*. Available from <http://www.bjs.gov/content/pub/press/vnrp0610pr.cfm>
- Bradshaw, C.P. (2015). Translating research to practice in bullying prevention. *American Psychologist*, 70(4), 322-332. doi: 10.1037/a0039114

- Calkins, S.D., & Perry, N.B. (2016). The development of emotion regulation: Implications for child adjustment. In D. Cicchetti (Ed.), *Developmental psychopathology, Volume 3* (pp. 1-56). New York: Wiley.
- Cauffman, E. (this section). Trajectories of violent behavior among females and males. *Child Development*.
- Craig, W., Harel-Fisch, Y., Fogel-Grinvald, H., Dostaler, S., Hetland, J., Simons-Morton, B., ... & Pickett, W. (2009). A cross-national profile of bullying and victimization among adolescents in 40 countries. *International Journal of Public Health, 54*(2), 216-224.
doi:10.1007/s00038-009-5413-9
- Dahlberg, L.L., & Krug, E.G. (2002). Violence – a global public health problem. In E.G. Krug, L.L. Dahlberg, J.A. Mercy, A.B. Zwi, and R. Lozano (Eds.), *World report on violence and health* (pp. 1-22). Geneva, Switzerland: World Health Organization.
- Dahlberg, L.L., & Potter, L.B. (2001). Youth violence: developmental pathways and prevention challenges. *American Journal of Preventive Medicine, 20*, 3-14.
- DeLisi, M., & Piquero, A. R. (2011). New frontiers in criminal careers research, 2000–2011: A state-of-the-art review. *Journal of Criminal Justice, 39*(4), 289-301.
doi:10.1016/j.jcrimjus.2011.05.001
- Docherty, M., Boxer, P., Huesmann, L.R., O'Brien, M., & Bushman, B.J. (2016). Exploring primary and secondary variants of psychopathy in adolescents in detention and in the community. *Journal of Clinical Child and Adolescent Psychology, 45*(5), 564-578.
<http://dx.doi.org/10.1080/15374416.2014.979934>
- Dodge, K.A. (1986). A social information processing model of social competence in children. In M. Perlmutter (Ed.), *Minnesota symposium in child psychology, Vol. 18* (pp. 77-125). Hillsdale, NJ: Erlbaum.

- Dodge, K. A. (2006). Translational science in action: Hostile attributional style and the development of aggressive behavior problems. *Development and Psychopathology*, *18*(3), 791-814. doi:10.1017/S0954579406060391
- Dodge, K.A., Dishion, T.J., & Lansford, J. (2006). Deviant peer influences in intervention and public policy for youth. *Social Policy Report*, *1*.
- Dodge, K. A., Greenberg, M. T., Malone, P. S., & Conduct Problems Prevention Research Group (2008). Testing an idealized dynamic cascade model of the development of serious violence in adolescence. *Child Development*, *79*(6), 1907-1927. doi:10.1111/j.1467-8624.2008.01233.x
- Dodge, K. A., & Pettit, G. S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology*, *39*(2), 349-371. doi:10.1037//0012-1649.39.2.349
- Durkheim, E. (1968). *The division of labor in society*. New York: Free Press.
- Edelstein, W. (2005). The rise of right-wing culture in German youth: The effects of social transformation, identity construction, and context. In D.B. Pillemer & S.H. White (Eds.), *Developmental psychology and social change* (pp. 314-351). Cambridge, UK: Cambridge University Press.
- Eisenberg, N., Valiente, C., Spinrad, T. L., Cumberland, A., Liew, J., Reiser, M., ... Losoya, S. H. (2009). Longitudinal relations of children's effortful control, impulsivity, and negative emotionality to their externalizing, internalizing, and co-occurring behavior problems. *Developmental Psychology*, *45*(4), 988-1008. doi:10.1037/a0016213
- Eisner, M.P., & Malti, T. (2015). Aggressive and violent behavior. In M. E. Lamb (Vol. Ed.) and R.M. Lerner (Series Ed.), *Handbook of child psychology and developmental science, Vol. 3: Social, emotional and personality development (7th edition, pp. 795-884)*. New York: Wiley.

- Eme, R. (2010). Male life-course-persistent antisocial behavior: The most important pediatric mental health problem. *Archives of Pediatrics & Adolescent Medicine*, 164(5), 486-487. doi:10.1001/archpediatrics.2010.44
- Espelage, D.L. (2014). Using NCES Surveys to understand school violence and bullying. Retrieved from www.naeducation.org/cs/groups/naedsite/documents/.../naed_160696.pdf.
- Farrington, D. P. (1986). Age and crime. *Crime and Justice*, 7, 189-250. doi:10.1086/449114
- Federal Bureau of Investigation (2014). *Crime in the United States 2013*. https://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2013/crime-in-the-u.s.-2013/tables/table-36/table_36_current_year_over_previous_year_arrest_trends_totals_2013.xls
- Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Annual research review: A developmental psychopathology approach to understanding callous-unemotional traits in children and adolescents with serious conduct problems. *Journal of Child Psychology and Psychiatry*, 55(6), 532-548. doi:10.1111/jcpp.12152
- Frymer, B. (2009). The media spectacle of Columbine: Alienated youth as an object of fear. *American Behavioral Scientist*, 52, 1387-1404. doi: 10.1177/0002764209332554
- Gershoff, E.T., & Grogan-Kaylor, A. (2016). Spanking and child outcomes: Old controversies and new meta-analyses. *Journal of Family Psychology*, 30(4), 453-469.
- Guerra, N. (2013). Macroeconomic factors, youth violence, and the developing child. In R. Rosenfeld, M. Edberg, X. Fang, and C.S. Florence (Eds.), *Economics and youth violence: Crime, disadvantage, and community* (pp. 255-277). New York: New York University Press.
- Hamburger, M.E., Basile, K.C., & Vivolo, A.M. (2011). *Measuring bullying victimization, perpetration, and bystander experiences: A compendium of assessment tools*. Atlanta,

- GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.
- Killen, M., & Malti, T. (2015). Moral judgments and emotions in contexts of peer exclusion and victimization. *Advances in Child Development and Behavior*, 48, 249-276. doi: 10.1016/bs.acdb.2014.11.007
- Krahé, B. (2013). *The social psychology of aggression*. Hove, England: Psychology Press.
- Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., & Lozano, R. (2002). *World report on violence and health*. Geneva, Switzerland: World Health Organization.
- Lamarche, V., Brendgen, M., Boivin, M., Vitaro, F., Dionne, G., & Pérusse, D. (2007). Do friends' characteristics moderate the prospective links between peer victimization and reactive and proactive aggression? *Journal of Abnormal Child Psychology*, 35(4), 665-680. doi:10.1007/s10802-007-9122-7
- Laub, J. H., & Sampson, R. J. (2006). *Shared beginnings, divergent lives: Delinquent boys to age 70*. Harvard University Press.
- Lauritsen, J.L., & Laub, J.H. (2007). Understanding the link between victimization and offending: New reflections on an old idea. In M. Hough & M. Maxfield (Eds.), *From surveying crime in the 21st century* (pp. 55-75).
- Leuschner, V., Scheithauer, H., Schultze, M., Scholl, J., Fiedler, N., Sommer, F., Goebel, K., & Ahlig, N. (this section). Prevention of targeted school violence by responding to students' psychosocial crises: The NETWASS program. *Child Development*.
- Liu, J., Francis, B., & Soothill, K. (2011). A longitudinal study of escalation in crime seriousness. *Journal of Quantitative Criminology*, 27(2), 175-196. doi:10.1007/s10940-010-9102-x
- Lochman, J. E., Barry, T., Powell, N., & Young, L. (2010). Anger and aggression. In D. W. Nangle, D. J. Hansen, C. A. Erdley, & P. J. Norton (Eds.), *Practitioner's guide to empirically based measures of social skills* (pp. 155–166). New York, NY: Springer.

- Loeber, R., & Farrington, D. P. (2000). Young children who commit crime: Epidemiology, developmental origins, risk factors, early interventions, and policy implications. *Development and Psychopathology, 12*(4), 737-762. doi:10.1017/S0954579400004107
- Loesel, F., & Farrington, D. (2012). Direct protective and buffering protective factors in the development of youth violence. *American Journal of Preventive Medicine, 43*, S8-S23.
- Malti, T. (2016). Toward an integrated clinical-developmental model of guilt. *Developmental Review, 39*, 16-36. doi:10.1016/j.dr.2015.11.001
- Malti, T., & Krettenauer, T. (2013). The relation of moral emotion attributions to prosocial and antisocial behavior: A meta-analysis. *Child Development, 84*(2), 397-412. doi:10.1111/j.1467-8624.2012.01851.x
- Malti, T., & Noam, G.G. (in press). Social-emotional development: From theory to practice. *European Journal of Developmental Psychology.*
- Malti, T., Noam, G.G., Beelmann, A., & Sommer, S. (in press). Toward dynamic adaptation of psychological interventions for child and adolescent development and mental health. *Journal of Clinical Child and Adolescent Psychology.*
- Malti, T., & Rubin, K.H. (Eds.) (forthcoming, 2017). *Handbook of child and adolescent aggression: Emergence, development, and intervention.* New York: Guilford Press.
- McMahon, R. J., Witkiewitz, K., Kotler, J. S., & the Conduct Problems Prevention Research Group. (2010). Predictive validity of callous-unemotional traits measured in early adolescence with respect to multiple antisocial outcomes. *Journal of Abnormal Psychology, 119*(4), 752-763. doi:10.1037/a0020796
- Michie, C., & Cooke, D. J. (2006). The structure of violent behavior: A hierarchical model. *Criminal Justice and Behavior, 33*(6), 706-737.
- Miller, R. N., & Applegate, B. K. (2015). Adult crime, adult time? Benchmarking public views on punishing serious juvenile felons. *Criminal Justice Review, 40*(2), 151-168. doi:10.1177/0734016814546039

- Moffitt, T.E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, *100*, 674–701. doi:10.1037/0012-1649.22.5.604
- Moffitt, T. E. (2005). The new look of behavioral genetics in developmental psychopathology: Gene-environment interplay in antisocial behaviors. *Psychological Bulletin*, *131*(4), 533–554. doi:10.1037/0033-2909.131.4.533
- Office of the Surgeon General (2001). *Youth violence: A report of the Surgeon General*. Available from <http://www.ncbi.nlm.nih.gov/books/NBK44297/>.
- Piquero, A. R., Farrington, D. P., & Blumstein, A. (2007). *Key issues in criminal career research: New analyses of the Cambridge study in delinquent development*. Cambridge University Press.
- Raine, A. (2013). *The anatomy of violence: The biological roots of crime*. New York, NY: Pantheon.
- Redelings, M., Lieb, L., & Sorvillo, F. (2010). Years off your life? The effects of homicide on life expectancy by neighborhood and race/ethnicity in Los Angeles County. *Journal of Urban Health*, *87*(4), 670-676. doi:10.1007/s11524-010-9470-4
- Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior*, *15*(2), 112-120. doi:10.1016/j.avb.2009.08.007
- Shulman, E.P., Monahan, K., & Steinberg, L. (this section). Severe violence during adolescence and early adulthood and its relation to anticipated rewards and costs. *Child Development*.
- Sitnick, S., Shaw, D., Weaver, C., Shelleby, E., Reuben, J., Gilliam, M., & Taraban, L. (this section). Early childhood predictors of severe youth violence in low-income males. *Child Development*.
- Slutkin, G. (Apr. 2013). “Let’s treat violence like a contagious disease.” *TEDMED 2013*.

- Staub, E. (2011). *Overcoming evil. Genocide, violent conflict, and terrorism*. New York: Oxford University Press.
- Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review, 28*(1), 78-106. doi: 10.1016/j.dr.2007.08.002
- Sweeten, G. (2012). Scaling criminal offending. *Journal of Quantitative Criminology, 28*(3), 533-557. doi:10.1007/s10940-011-9160-8
- Torok, M., Darke, S., Kaye, S., & Shand, F. (2015). The association of early-life and substance use risks to violent offending among injecting drug users. *Drug and Alcohol Review, 34*(1), 10-7. doi: 10.1111/dar.12126
- UNODC (2014). *Global study on homicide 2013*. Vienna: United Nations.
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Maynard, B. R. (2014). Violence and externalizing behavior among youth in the United States: Is there a severe 5%? *Youth Violence and Juvenile Justice, 12*(1), 3-21. doi:10.1177/1541204013478973
- Walker, K., Bowen, E., & Brown, S. (2013). Psychological and criminological factors associated with desistance from violence: a review of the literature. *Aggression and Violent Behavior, 18*, 286-299.
- Ward, C.L. (2015). Youth violence. In P.D. Donnelly and C.L. Ward (Eds.), *Oxford textbook of violence prevention* (pp. 27-34). Oxford: Oxford University Press.
- Welsh, B.C., & Farrington, D.P. (2011). Evidence-based crime policy. In M. Tonry (Ed.), *The Oxford handbook on crime and criminal justice*. New York: Oxford University Press.
- Welsh, B. C., Farrington, D. P., & Raffan Gowar, B. (2015). Benefit-cost analysis of crime prevention programs. *Crime and Justice, 44*(1), 447-516.
- World Health Organization (WHO) (2014a). *Injuries and violence: The facts 2014*. Geneva, Switzerland: World Health Organization.
- World Health Organization (WHO) (2014b). *Global status report on violence prevention 2014*. Geneva, Switzerland: World Health Organization.

Yablon, Y.B. (this section). Students' reports of severe violence in school as a tool for early detection and prevention. *Child Development*.