

Does violence solve anything?
Conduct disorder as adaptive behaviour

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Abstract

Many teachers and students report that in recent years violence is becoming more prevalent in schools. This paper examines the adaptive component of behaviours associated with a specific disruptive behavioural disorder: conduct disorder. The influence of biology, evolution, and environment on the development of the disorder is considered, and a critical analysis is presented. Conduct disorder is adaptive in certain contexts, particularly among members of communities in which resources and opportunity for conventional success are limited. Implications for research and clinical practice are discussed.

Introduction

Youth violence has become commonplace in many schools, and many students and teachers report being victimized at school and feeling unsafe (Binns & Markow, 1999). Violence and victimization are issues that students have to manage on a regular basis (Aspy et al., 2004; Reid, Peterson, Hughery, & Garcia-Reid, 2006), which can interfere with the learning environment and lead to prolonged absence or school dropout (e.g., Joong & Ridler, 2006; Samdal, Wold, & Bronis, 1999). In 2006, 180,000 young people were implicated in a violation of the Canadian Criminal Code, and approximately 10% of youth crimes occurred on school property (Taylor-Butts & Bressan, 2008). This is likely an underestimate of youth criminality as many crimes are not reported (Besserer & Trainor, 2000).

Disruptive behaviour is frequently perceived by those living in a mainstream culture as resulting in negative life outcomes and is considered to significantly hinder an individual's day-to-day life. However, behaviours that are labelled maladaptive—behaviours that are considered to be counterproductive to an individual's success—in one setting can be adaptive in another (Burack, Blidner, Flores, & Fitch, 2007). For example, Luthar and Burack (2000) argued that aggressive behaviours that lead to social isolation and hinder a person's social, academic and professional development in a mainstream culture can be advantageous in other environments. They stated that these aggressive behaviours frequently have positive social connotations in inner-city culture, whereas goals that are considered positive in a mainstream culture, such as academic success, are denigrated. This paper will evaluate this argument by investigating behaviours associated with a specific disruptive behavioural psychopathology—conduct disorder—and examine the ways in which these acts could be adaptive in contexts other than the mainstream culture. The implications for professionals working with adolescents who exhibit these aggressive types of behaviours will be discussed.

Conduct Disorder

Children with conduct disorder (CD) can be diagnosed based on their marked lack of concern for other people, evidenced by behaviours such as lying, deceit, aggressive acts ranging from verbal attacks to physical harm with or without a weapon, and damaging property (American Psychiatric Association [APA], 2000). Conduct disorder is predominantly diagnosed in males, and has a prevalence rate which varies from region to region in North America, ranging from less than 1% to 10% in the general population, (APA, 2000). The prevalence rate rises among children living in disenfranchised communities. For example, Whitbeck, Yu, Johnson, Hoyt, and Walls (2008) found that Native Americans were twice as likely to be diagnosed with conduct disorder as individuals in the general

population, while U.S.-born Hispanics and African-Americans are significantly more likely to be diagnosed with CD (Debello, Lopez-Larson, Soutullo, & Strakowski, 2001; Turner & Gil, 2002). The prevalence of the disorder could be much higher, as many children exhibiting symptoms of CD are not referred to mental health services.

There is cause for great concern when a child exhibits any number of these behaviours regularly, because the behaviours can persist into adulthood and could lead to negative life outcomes. Indeed, Fazel, Doll, and Langstrom (2008) found that in a sample of over 15,000 individuals who had been incarcerated, over 50% had been diagnosed with CD as children. Fergusson, Horwood, and Ridder, (2005) found that individuals diagnosed with CD are twice as likely to experience depression, and are three times more likely to commit suicide than people in the general population. Individuals in this population are also three times more likely both to experience inter-partner violence, and to abuse substances (Fergusson, Horwood, & Ridder, 2005).

Clearly, conduct disorder has a serious impact on an individual's functioning and may not initially appear to have any positive outcome. Children exhibiting symptoms of CD frequently experience a number of consequences, including being expelled from school, being rejected by peers, and coming into contact with law enforcement. To evaluate the functional aspects of CD, we should explore the diverse and complex risk factors associated with the disorder, specifically both environmental risk factors and the possible genetic and evolutionary components of conduct disorder. We will evaluate the theoretical frameworks and empirical evidence supporting the adaptive components of CD. The limitations of the theory are outlined, and our interpretation in terms of research as well as clinical and classroom interventions concludes the paper.

Sources of Conduct Disorder

Given the severity of the potential outcomes of conduct disorder and its relatively high prevalence, many researchers have attempted to explain the origin of the disorder. Neuropsychologists have argued that the cause of CD is based in the individual's neurology.

In order to demonstrate the presence of organic correlates to CD, Huebner et al. (2008) investigated regional differences in the brains of adolescent boys diagnosed with CD as compared to typical control adolescents. Although the groups did not differ significantly in total brain volume, Huebner et al. found that boys with CD had six percent less gray matter than the comparison adolescents. In particular, they found that the CD group had reduced gray matter in the orbitofrontal region and the temporal lobes, including reduced volume in the limbic areas central to regulating emotional response. Sterzer, Stadler, Krebs, Kleinschmidt, and Poutska (2005) had similar results, finding reduced brain activity in the anterior cingulate cortex—an area implicated in executive functioning, emotion regulation, and problem solving. The authors of these studies argue that the reduction of brain volume or activity in these key decision-making and emotion-controlling areas facilitates the emergence of conduct disorder symptoms.

The organic link between the reduction of specific areas of the brain in terms of volume or activity and CD may be due to genetics. Hicks, Krueger, Iacono, McGue, and Patrick (2004) found a hereditary predisposition toward CD using data from the Minnesota twin studies. In addition, Herpertz et al. (2007) found a strong correlation between fathers' and sons' physiological responses to pictorial stimuli, resulting in more aggressive and impulsive behavioural styles, thereby indicating that the fathers were passing on a disposition for antisocial behaviour.

Neurologists conclude that weaknesses in impulse control and emotion regulation, and therefore greater chances of developing antisocial behaviours, are caused by reduced brain volume and activity. However, these results must be interpreted cautiously, because it is difficult to determine the direction of the causation. That is, it is possible that the brain structures are reduced because they are not used as intensively in those with CD. Also, although biological differences between adolescents diagnosed with CD and typically developing adolescents are important in determining a cause of CD, they may be of limited interest to school professionals, as organic causes may not easily lead to effective intervention. We must therefore evaluate alternative possibilities for explaining the cause of CD.

Conduct Disorder as Evolutionary Strategy

Evolutionary psychologists have argued that the behaviours related to conduct disorder are evolutionarily stable and can provide people with CD who are living in economically disadvantaged communities with an adaptive advantage over people who do not exhibit symptoms of CD. Evolutionary theory states that members of a species will compete for limited resources, and that the individuals who are most fit survive to reproduce and pass on their genes to the next generation, often at the expense of other individuals (Fergusson, Horwood, & Ridder, 2005). Based on this theory, violence and antisocial behaviour can be explained as a response to the need to compete for resources. For example, Barber (2008) argued that aggression and antisocial behaviour are most likely to increase when resources are scarce, and that altruism and cooperation between relatives are most common in societies that have more plentiful resources. When resources are less common, competition is more severe, and the benefits of antisocial behaviour outweigh the risks of injury and social isolation associated with it.

Buss and Shackelford (1997) outlined seven situations in which aggression is an adaptive evolutionary response. These include when one is co-opting other people's resources as one's own, defending against attacks, inflicting harm to same-sex rivals, deterring rivals from future attacks, negotiating status hierarchies, deterring mate infidelity and avoiding expending resources on unrelated offspring. In these situations, the risk associated with aggressive and antisocial behaviour is offset by the potential evolutionary benefits of increased status and resources, and increased reproductive success. It then follows that behaviours associated with conduct disorder, such as stealing, coercion and harming others can, in some situations, be characterized as adaptive evolutionary responses, similar to those outlined Buss and Shackelford. For example, if an adolescent physically assaults a same-sex rival, the rival may avoid talking to the adolescent's girlfriend. In adaptive evolutionary terms, the adolescent is reducing the sexual competition, which may reduce his risk of being attacked by a rival. Reducing the sexual competition may offset the risk of injury.

Although the evolutionary argument is based on an influential scientific paradigm, it is lacking in conclusive evidence. The arguments are necessarily retrospective, and are based on correlational evidence that can be interpreted to fit the theory. For example, Barber (2008) argued that a weak positive correlation between male-on-male violence and divorce rate can be explained by the higher number of available women in the population, which entices men to compete more strenuously. However, a correlation in the opposite direction could be explained by saying that since there are more available potential mates due to higher divorce rates, men do not need to compete as violently with each other. Furthermore, the theory of evolution is meant to explain changes that occur over millennia and does not address proximal causes that can be of interest when considering contextual influences on behaviour. So, although the evolutionary perspective is compelling, it does not account for the more proximal adaptive causes of conduct disorder. A more complete theoretical model must be explored.

Environmental Influence

Both the home and the community have been implicated as environmental influences on the development of conduct disorder. In the home environment, child neglect and abuse have been shown to increase the risk of child(ren) developing conduct disorder, and children with CD are also more likely to have grown up in a household of lower socioeconomic status (SES) (Young et al., 2006). In a study of antisocial behaviour, Heimer (1997) found that children who grew up in lower SES households exhibited more aggression towards others and were more likely to associate with aggressive peers. A child living in a lower SES environment where he or she is a victim of neglect and abuse is likely to have an even greater chance of developing CD. The accumulation of these negative environmental influences in low SES communities can greatly impact a child's behaviour.

Community environment increases the frequency of behaviours associated with CD. To elaborate, individuals who are exposed to community violence are more likely to be violent themselves (Brezina, Agnew, Cullen, & Wright, 2004), and exposure to community violence is associated with increased anti-social behaviour in children (Miller, Wasserman, Neugebauer, Gorman-Smith, & Kamboukas, 1999). Experiencing violence in the community is also associated with the emotional and cognitive problems related to CD (Gorman-Smith & Tolan, 1998; Kuther, 1999).

The link between environmental influences and the development of CD may be particularly important for school psychologists to bear in mind when assessing children with anti-social behavioural problems, as children living in

more violent communities may later be at risk of developing the psychopathology. If the child cannot leave the environment and continues to be exposed to violence against people in his or her area, the psychologist should monitor progression in the child's behaviour. Preventative measures such as recommending family therapy to caregivers, support groups, and sensitivity training for the child should also be a priority.

Likewise, if teachers or other school staff become aware that a child is frequently exposed to violent crime in his or her community—even if the crimes are not committed against the child in question—it may be advantageous to monitor the situation. This may be particularly important if the child comes from a lower-SES family or community.

Contextual Adaptation/Behavioural Theory

To obtain a greater understanding of the influence of environment on the development of CD, it is necessary to consider how an individual's perception of competence and maladjustment is coloured by his or her background and expectations. Luthar and Burack (2000) argued that behaviour considered deviant in one culture can be lauded in others. Luthar and Burack also reviewed literature that demonstrates there are discrepancies between the indices of success valued by people in a mainstream culture and those valued by people in a marginalized subculture. Specifically, disadvantaged adolescents living in inner-city communities devalued academic success—which is frequently an indicator of success in mainstream cultures—and positively regarded aggressive and antisocial behaviour.

Individuals in marginalized communities are likely to become disenchanted by academic study because their experience has been that education does not lead to positive indicators such as success and prestige. On the other hand, the violent and criminal behaviours associated with CD are frequently rewarded, and are frequently not punished. Consistent with behaviorist theory, which argues that behaviours that are rewarded will become associated with reward and are therefore more likely to be repeated (Skinner, 1971), in many marginalized communities violence has become associated with reward. For example, according to behaviourist theory, if a child puts his crayons away after using them and is praised by his teacher, he is more likely to put his crayons away next time. Likewise, if a child steals an mp3 player and is financially rewarded, or assaults another person and is rewarded with praise for his masculinity by his peers, he is more likely to repeat the behaviour. In disadvantaged communities, rule-breaking behaviour and crime are rewarded financially and socially, whereas legitimate work and academic achievement are frequently not rewarded, and may be socially discouraged (Gould, Mustard, & Weinberg, 2002; Lochner, 2004; Luthar & Burack, 2000).

Fagan and Wilkinson (1998) also described antisocial behaviours in an adaptive context, focusing on childhood aggression, robbery, gang violence and dating violence in inner-city communities. In most circumstances, the exhibition of these behaviours can lead to a diagnosis of conduct disorder, but Fagan and Wilkinson described them as functional behaviours that help adolescents in the inner city meet their needs. In disenfranchised communities, these violent actions allow individuals to attain status and resources, and provide control and dominance in relationships.

These social achievements parallel the adaptive elements outlined by Buss and Shackelford (1998) and other evolutionary psychologists, perhaps indicating how a lack of resources in our environment triggers in us today the violent and anti-social response necessary for survival. Perhaps also, the CD behaviours result from sociological workings and a system of reinforcement encouraging violent behaviours. From either perspective, the differences between groups of people from various SESs (and therefore, with varying access to resources) run as deep as differences in ideals, mores, and even morals. Anderson (1999) identified a sociological paradigm unique from that of mainstream society and named it *the code of the street* (“the code”).

The Code of the Street

Based on his longitudinal research regarding inner-city violence, Anderson (1999) described the code as a cultural adaptation to the hopelessness and alienation generated by blocked opportunities. Violent behaviours occur as a type of retaliation against the restricted opportunities available to disadvantaged youths and as a means for obtaining respect in their culture. Anderson argued that individuals living in poor, inner-city communities have fewer opportunities for employment and academic success, and may resort to criminal and violent behaviour in order to maintain respect from others in the community. The residents of these communities frequently believe that acquiring positive self-esteem and social regard may lead them to engage in aggressive and anti-social behaviour (e.g., Anderson, 1999; Baron, Kennedy, & Forde, 2001; Jacobs, 2004; Rich & Grey, 2005). Obtaining respect on the street is essential to maintaining credibility and self-esteem, because there are rarely other opportunities for maintaining regard. Individuals living in inner-city and lower SES communities often cannot refer to school success or prestigious employment (e.g., Brooks-Gunn, Klebanov, & Duncan, 1996; Kutner et al., 2007), because this kind of success is often perceived as being less likely to be attainable (e.g., Harper & Tuckman, 2006; Osbourne, 1997). Therefore, they must rigorously defend their status and esteem by devaluing academic success, often with violence or by defying authority (Graham, Taylor, & Hudley, 1998). So, Anderson argued that exhibiting behaviours that meet criteria for CD is a means of obtaining status and respect in these communities.

The implications of the code for school professionals working in inner-city or marginalized communities are great. The association between crime and success may be deeply rooted in many years of experience, and will not easily be broken through punishment. Rather, the association must be replaced by new learning, by reinforcing desired pro-social behaviours, and by reinforcing the association between positive enterprises and success. Children from these communities perceive success at school as being unattainable or ineffective at satisfying their needs, so it would be necessary to provide these students with a measure of success, and to realistically demonstrate how success at school can lead to desirable outcomes. Finally, since many youths in inner-city communities perceive the prestige associated with crime as their only source of esteem, it is important to provide opportunities for positive regard through pro-social enterprises. Punishing a child by forbidding him or her from participating in sports or music may have a counter-effect, as it may remove another source of positive self-regard that allows the youth to resist engaging in violent or criminal behaviour that is associated with CD.

Violent Acts as Moderator of Cognition and Affect

Violent tendencies, adaptive or not, are commonly assumed to have a detrimental effect on an individual's mood and cognitive ability. The negative effects are clear when we consider that exposure to violence is associated with cognitive and emotional problems including depression, anxiety and post-traumatic-stress disorder (Gorman-Smith & Tolan, 1998; Kutner, 1999). However, this is not the only camp of research on the relationship between violence and psychological wellbeing. Some have argued that aggression can moderate the effect of exposure to violence on internalizing disorders such as depression and anxiety, and can be associated with positive adaptations such as higher self esteem and a positive sense of efficacy.

Latzman and Swisher (2005) hypothesized that acting violently in a situation where violence is perceived as necessary would serve as a protective factor against the depressive symptoms associated with violence. They used data from the National Longitudinal Study of Adolescent Health (NLSAH) identifying factors that may have an impact on adolescents' health-related behaviour to compare the relationship between affect and violence. Three levels of community violence (very violent, somewhat violent, not violent) were identified. Latzman's and Swisher's hypothesis was correct; there was an interaction between mood, living in a very violent community and acting violently—acting violently did in fact serve as a protection against depressive symptoms, especially amongst males aged 15-17—a logical finding considering that males in this age category are traditionally those most interested in keeping up to the expectations of the code. From these results, Latzman and Swisher interpreted that a violent response was adaptive, but only when the actors are frequently exposed to community violence.

In their three-year longitudinal study, Salzinger, Rosario, Feldman, and Ng-Mak (2008) found that exposure to violence was correlated with violent behaviour, but violent and aggressive behaviour was only associated with negative outcomes. However, the participants' perceptions of their behaviour did not match the quantitative results. Those who reported acting aggressively perceived their actions as being adaptive; they believed that the acceptance

of violence as a problem-solving strategy mediated the relationship between exposure to violence and their own aggression. These findings should be interpreted with caution as the sample consisted only of children living in New York's inner city; therefore, the findings do not include a comparison between those living in the inner city and those living in mainstream or suburban communities.

Although Salzinger et al. (2008) did not conclusively demonstrate that violent behaviour moderated the relationship between exposure to violence and internalizing disorders, they as well as Lutzman and Swisher (2005) demonstrate that antisocial and violent behaviour can be perceived as an adaptive solution. However, in order to definitively claim that violent behaviour and rule breaking acts as a moderator for affective disorders, further research is needed.

Conduct Disorder as Adaptation

Across theoretical and empirical research in psychology, sociology, and biology, there is evidence that behaviours meeting criteria for CD can be considered adaptive in certain contexts. Considering the converging evidence taken from multiple fields, we put forth the idea that the aggressive and antisocial behaviours outlined in the DSM-IV criteria for CD can be adaptive for individuals living in disenfranchised communities in which there are few perceived opportunities to achieve the goals that people in the mainstream consider indicative of success.

This notion raises issues that are critical to child and adolescent research. The theoretical explanation of adaptive CD lies in social constructs and may have hereditary influences. As with all risk and resilience research, it remains unclear whether the biological influence on CD-like behaviour determines the environment the individual chooses to be in, or whether the stressful environment changes the biology of the developing child. Here, we argue that environmental risk factors linked to the development of CD influence the expression of biological phenomena. People who are exposed to violence or who are victimized are more likely to develop conduct disorder, which is associated with biological atypicalities such as reduced limbic activity. Individuals living in these dangerous settings exhibit these behaviours because it is functional to do so. Acting violently, lying and stealing allows them to gain status and resources that would not be available to them otherwise, and accepting violence as a valid problem-solving tool may reduce the anxiety and depression they would normally experience from being exposed to so much crime. Therefore, the diagnostic criteria for CD is environmentally biased and hence, questionable. We must consider the functional purpose of the behaviour and the advantages that the individual gains by acting in this fashion before proposing subsequent interventions.

This suggestion has implications for intervention. As the behaviours associated with CD may arise as a response to a perceived absence of opportunity and a reduced expectation of success by mainstream criteria, successful intervention may require changes in social policy. Given the adaptive nature of these violent and disruptive behaviours, tougher youth justice laws proposed to replace the Youth Criminal Justice Act may not adequately act as a deterrent, nor will the threat of school-based punishment. Resources may be more efficiently spent on preventative programs that provide opportunities for adolescents in inner-city communities to obtain success via more pro-social avenues, such as sport, art or community-building programs. Professionals working in schools would also benefit from taking a systemic approach to violence in their school, rather than intervening solely with students who exhibit the aggressive behaviours. Also, after-school programs that focus on students who do not have many opportunities for academic success could be particularly beneficial.

However, at the individual level, functional behavioural analysis (FBA) may be an effective approach. FBA is a process in which psychologists or teachers identify problem behaviours and predict the environmental precedents that elicit and maintain the behaviours. The environmental responses that are reinforcing the behaviour can then be modified. When following these steps, it has been shown that problem behaviours are significantly reduced (Floyd, Phaneuf, & Wilczynski, 2005; McIntosh & Av-Gay, 2007). Implementation of the program can be initiated by teachers or specialty staff, but a team approach is the most effective (Floyd, Phaneuf, & Wilczynski, 2005), and is more effective than non-function-based intervention plans (Ingram, Lewis-Palmer, & Sugai, 2005).

However, we must be cautious when interpreting this research. The results are necessarily correlational, and frequently retrospective, and it is difficult to determine the direction of the relationships. Our interpretation is that there is likely a transaction in which the individual and the environment affect and modify each other that must be considered when evaluating the behaviours and the environment in which they occur. Finally, we must be careful to

avoid perceiving individuals living in disenfranchised communities through the lens of a mainstream community. Many of us live in suburban settings, and do not directly experience the disruption in the environment that those living in inner-city or marginalized communities do.

Future research should focus on more in-depth exploration of context-dependent aggressive and anti-social behaviour, and thus the true nature of psychopathology in children and adolescents. Clinicians' and researchers' increased awareness of the sociological constructs working on an individual would lead to an increase in the understanding of individuals suffering from CD, and a greater understanding of the development of psychopathology as whole.

References

- Anderson, E. (1999). *Code of the street: Decency, violence, and the moral life of the inner city*. New York: W. W. Norton.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*, (4th ed., text revision). Washington, DC: American Psychiatric Association.
- Aspy, C. B., Oman, R. F., Vesely, S. K., McLeroy, K., Rodine, S., & Marshall, L. (2004). Adolescent violence: The protective effects of youth assets. *Journal of Counseling & Development, 82*, 268–276.
- Barber, N. (2008). Evolutionary social science: A new approach to violent crime. *Aggression and Violent Behavior, 13*, 237–250.
- Baron, S. W., Kennedy, L. W., & Forde, D. R. (2001). Male Street Youths' Conflict: The Role of Background, Subcultural, and Situational Factors. *Justice Quarterly, 18*, 759–89.
- Besserer, S. & Trainor, C. (2000). Criminal Victimization in Canada, 1999. *Juristat. Canadian Center for Justice Statistics, 20*(10), 1–27.
- Binns, K. & Markow, D. (1999). *The Metropolitan Life Survey of the American Teacher, 1999: Violence in America's Public Schools-Five Years Later*. New York, NY: Metropolitan Life Insurance Company. Retrieved from the ERIC database. (ED502264)
- Brezina, T., Agnew, R., Cullen, F. T., & Wright, J. P. (2004). The code of the street: A quantitative assessment of Elijah Anderson's subculture of violence thesis and its contribution to youth violence research. *Youth Violence and Juvenile Justice, 2*, 303–328.
- Brooks-Gunn, J., Klebanov, P. K., & Duncan, G. J. (1996). Ethnic differences in children's intelligence test scores: role of economic deprivation, home environment, and maternal characteristics. *Child Development, 67*, 396–408.
- Burack, J., Blidner, A., Flores, H., & Fitch, T. (2007). Constructions and deconstructions of risk, resilience and wellbeing: A model for understanding the development of Aboriginal adolescents. *Australasian Psychiatry, 15*, S18–S23.
- Buss, D., & Shackelford, T. (1997). Human aggression in evolutionary psychological perspective. *Clinical Psychology Review, 17*, 605–619.
- Delbello, M. P. Lopez-Larson, M. P., Soutullo, C. A., & Strakowski, S. M. (2001). Effect of race on psychiatric diagnosis of hospitalized adolescents: A retrospective chart review. *Journal of child and adolescent psychopharmacology, 11*, 95–103.
- Fagan, J. & Wilkinson, D.L. (1998). Social Contexts and Functions of Adolescent Violence. In D.S. Elliott, B. Hamburg, & K.R. Williams (Editors), *Violence in American Schools: A New Perspective*, (pp. 55–93). New York, NY: Cambridge University Press.
- Fazel, S., Doll, H., & Langstrom, N. (2008). Mental disorders among juvenile detention and correctional facilities: A systematic review and meta-regression analysis of 25 surveys. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*, 1010–1019.
- Fergusson, D. M., Horwood, J., & Ridder, E. M. (2005). Show me the child at seven: The consequences of conduct problems in childhood for psychosocial functioning in adulthood. *Journal of Child Psychology and Psychiatry, 46*, 837–849.
- Floyd, R. G., Phaneuf, R. L., & Wilczynski, S. M. (2005). Measurement properties of indirect assessment methods for Functional Behavioral Assessment: A review of research. *School Psychology Review, 34*, 58–73.
- Gould, E., Mustard, D., & Weinberg, B. (2002). Crime rates and local labor market opportunities in the United States: 1977–1997. *Review of Economics and Statistics, 84*, 45–61.
- Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology, 10*, 101–116.
- Graham, S., Taylor, A., & Hudley, C. (1998). Exploring achievement values among racial minority early adolescents. *Journal of Educational Psychology, 90*, 606–620.
- Harper, B. E., & Tuckman, B. W. (2006). Racial identity beliefs and academic achievement: Does being black hold students back? *Social Psychology of Education, 9*, 381–403.
- Heimer, K. (1997). Socioeconomic status, subcultural definitions, and violent delinquency. *Social Forces, 75*, 799–833.
- Herpertz, S. C., Vloet, T. D., Mueller, B., Domes, G., Willmes, K., & Herpertz-Dahlmann, B. (2007). Similar autonomic responsivity in boys with conduct disorder and their fathers. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*, 535–544.

- Hicks, B. M., Krueger, R. F., Iacono, W. G., McGue, M., & Patrick C. J. (2004). Family transmission and heritability of externalizing disorders: A twin-family study. *Archives of General Psychiatry*, *61*, 922–928.
- Huebner, T., Vloet, T. D., Marx, I., Konrad, F., Geron, R., Herpertz, S. C., & Herpertz-Dahlmann, B. (2008). Morphometric brain abnormalities in boys with conduct disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *47*, 540–547.
- Ingram, K., Lewis-Palmer, T., & Sugai, G. (2005). Function-based intervention planning: Comparing the effectiveness of FBA function-based and non-function-based intervention plans. *Journal of Positive Behavior Interventions*, *7*, 224–236.
- Jacobs, B. (2004). A Typology of Street Criminal Retaliation. *Journal of Research in Crime and Delinquency*, *41*, 295–323.
- Joong, P., & Ridler, O. (2006). Teachers' and students' perceptions of school violence and prevention. *Brock Education*, *15*, 65–83.
- Kuther, T.L. (1999). A developmental-contextual perspective on youth covictimization by community violence. *Adolescence*, *34*, 699–714.
- Kutner, M., Greenberg, E., Jin, Y., Boyle, B., Hsu, Y., & Dunleavy, E. (2007) *Literacy in Everyday Life: Results from the 2003 National Assessment of Adult Literacy*. Washington, DC: US Department of Education.
- Latzman, R. D., & Swisher, R. R. (2005). The interactive relationship among adolescent violence, street violence, and depression. *Journal of community psychology*, *33*, 355–371.
- Lochner, L. (2004). Education, work, and crime: A human capital approach. *International Economic Review*, *45*, 811–843.
- Luthar, S. S., & Burack, J. A. (2000). Adolescent wellness: In the eye of the beholder. In D. Cicchetti, J. Rappaport, I. Sandler, & R. Weissberg (Eds.), *The promotion of wellness in children and adolescents* (pp. 29–57). Washington, DC: Child Welfare League of America.
- McIntosh, K., & Av-Gay, H. (2007). Implications of current research on the use of functional behavior assessment and behavior support planning in school systems. *International Journal of Behavior Consultation and Therapy*, *3*, 38–52.
- Miller, L.S., Wasserman, G.A., Neugebauer, R., Gorman-Smith, D., & Kamboukas, D. (1999). Witnessed community violence and anti-social behavior in high-risk-urban boys. *Journal of Clinical Child Psychology*, *28*, 2–11.
- Osborne, J. (1997). Race and academic disidentification. *Journal of Educational Psychology*, *89*, 728–735.
- Reid, R. J., Peterson, N. A., Hughey, J., & Garcia-Reid, P. (2006). School climate and adolescent drug use: Mediating effects of violence victimization in the urban high school context. *The Journal of Primary Prevention*, *27*, 281–292.
- Rich, J. A. & Grey, C. M. (2005). Pathways to Recurrent Trauma among Young Black Men: Traumatic Stress, Substance Use, and the Code of the Street. *American Journal of Public Health*, *95*, 816–824.
- Salzinger, S., Rosario, M., Feldman, R.S., & Ng-Mak, D.S. (2008). Aggressive behavior in response to violence exposure: Is it adaptive for middle-school children. *Journal of Community Psychology*, *36*, 1008–1025.
- Samdal, O, Wold, B., & Bronis, M. (1999). Relationship between students' perceptions of school environment, their satisfaction with school and perceived academic achievement: An international study. *School Effectiveness and School Improvement*, *10*, 296–320.
- Skinner, B.F. (1971). *Beyond Freedom and Dignity*. New York: Knopf.
- Sterzer, P., Stadler, C., Krebs, A., Kleinschmidt, A., & Poutska F. (2005). Abnormal neural responses to emotional visual stimuli in adolescents with conduct disorder. *Biological Psychiatry*, *57*, 7–15.
- Taylor-Butts, A. & Bressan, A. (2008). Youth Crime in Canada, 2006. *Juristat. Canadian Center for Justice Statistics*, *28*(3), 1–16.
- Turner, R. J., & Gil, A. G. (2002). Psychiatric and substance use disorders in south Florida. *Archives of General Psychiatry*, *59*, 43–50.
- Whitbeck, L. B., Yu, M., Johnson, K. D., Hoyt, D. R., & Walls, M. L. (2008). Diagnostic prevalence rates from early to mid-adolescents among indigenous adolescents: First results from a longitudinal study. *Journal of the American Academy of Child & Adolescent Psychiatry*, *47*, 890–900.
- Young, S. E., Smolen, A., Hewitt, J. K., Haberstick, B.C., Stallings, M. C., Corley, R. P., & Crowley, T. J. (2006). Interaction between MAO-A genotype and maltreatment in the risk for conduct disorder: Failure to confirm in adolescent patients. *American Journal of Psychiatry*, *163*, 1019–1025.