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Are Bullying and Crime Distinct Phenomena? How Criminology Can Inform Research on Bullying

by

Chris Esselmont

A THESIS

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ABSTRACT

Bullying is a prevalent threat facing today's youth, and is associated with a number of negative lifelong consequences. Therefore, bullying has attracted a great deal of scholarly attention. Surprisingly however, this body of research tends to treat bullying as a unique phenomenon, despite the criminological literature having highlighted many of the same factors and characteristics predictive of bullying involvement. This suggests that bullying is neither new nor distinct, but simply another manifestation of an underlying propensity towards deviant behavior, and that the vast body of knowledge on crime and deviance should be equally applicable to bullying.

Using data from a nationally representative school-based sample of American adolescents (N = 10,123), three separate analyses were undertaken to highlight the shared etiological roots of bullying and deviance/crime more generally, and the utility of criminological theory to the study of bullying perpetration. First, a latent class analysis of deviant behaviors (property crime, violent crime, other crime, substance abuse, and bullying) revealed four distinct classes of offenders, and bullies did not emerge as a separate class. This supports the argument that bullying is simply another manifestation of criminality. Second, a self-control model was estimated for each of these same deviant behaviors. Generally, the results indicate that lower levels of self-control are associated with an increased likelihood of participation in each outcome, supporting the argument that self-control theory can serve as an explanation of bullying. Third, models based on general strain theory were estimated for each outcome. In general, the results suggest that higher levels of strain lead to increased anger, which in turn leads to increased likelihood of involvement in each outcome, supporting the argument that general strain theory is applicable to the understanding of bullying involvement.

Altogether, these results suggest that bullying is neither new nor distinct, but rather, just another manifestation of a tendency towards deviant behavior, and shares common etiological roots as other forms of misbehavior. This research contributes to both the criminological and bullying literatures by demonstrating the similarities between bullying and other forms of crime/deviance, and by demonstrating the strengths of criminological theories in understanding bullying.

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CHAPTER 1 – INTRODUCTION AND LITERATURE REVIEW

1.1 Introduction

> A student is being bullied or victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other students. It is a negative action when someone intentionally inflicts injury or discomfort upon another – basically what is implied in the definition of aggressive behavior. Negative actions can be carried out by physical contact, by words, or in other ways, such as making faces or mean gestures, and intentional exclusion from a group. In order to use the term bullying, there should also be an imbalance in strength (an asymmetric power relationship): the student who is exposed to the negative actions has difficulty defending him/her and is somewhat helpless against the student or students who harass (Olweus 1996:265; see also Olweus 1993).

Bullying is not a new phenomenon (Olweus 1995), but only in recent decades has it been the target of academic, media, and public scrutiny (Patchin and Hinduja 2011). In the wake of school shootings since the late 1990s, most notably the incident at Columbine High School, new attention was drawn to bullying (Carbone-Lopez, Esbensen, and Brick 2010; Menard and Grotpeter 2011; Spriggs et al. 2007) given the suggestion that victims of bullying may strike back at their tormentors in an extremely violent manner (Seals and Young 2003; Spriggs et al. 2007). Historically, society has deproblematized bullying, viewed it as normative, and minimized its impact (Unnever and Cornell 2003). Today there is growing recognition that, despite its prevalence, bullying should not be considered normative and that treating it as simply another 'normal part of growing up' may seriously underestimate its potential harm and undermine efforts designed to mitigate this harm (Elinoff, Chafouleas, and Sassu 2004; Nansel et al. 2003). Indeed, while violent crime has been decreasing steadily since the 1990s, school

bullying[1] and school violence remain one of the most serious problems facing school-aged children (Menard and Grotpeter 2011; Nansel et al. 2003).

This millennium has seen an extraordinary rise in the attention paid to bullying, with the number of articles published nearly doubling.[2] This has been accompanied by a rapid rise of media and public attention to the issue. For example, an enormous economic investment has been made in trying to prevent bullying (and its consequences), and major bullying awareness and prevention campaigns have been launched in North America, with *Bullying Awareness Week* launched in Canada in November 2003, and *National Bullying Prevention Month* launched in the United States in October 2006 (Wikipedia 2013). This increased attention has resulted in public opinion shifting from the belief that bullying is harmless rite of passage to the acknowledgement that bullying is actually one of the more serious risks faced by youth.

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[1] While the ubiquity of technology has changed social interaction, particularly for adolescents who are 'always-on,' and cyberbullying has expanded the realm of bullying beyond the school (Patchin and Hinduja 2011; Pelfrey and Weber 2013), there is a relative lack of research on the topic of cyberbullying. However, the available evidence suggests that youth are not using new technologies to reach a new audience and expand their connectedness; rather they are using it to virtually mirror their existing social networks (Pelfrey and Weber 2013). Perhaps the most significant impact of cyberbullying is found in that youth are simply connected with their peers for more hours of the day (Pelfrey and Weber 2013). As a consequence, the main impact is likely to be found in an amplification of the consequences of victimization as victims cannot retreat to a safe haven as cyberbullying follows victims from context to context, and that the inability to escape online bullying can lead to feelings of helplessness (Patchin and Hinduja 2011; Pelfrey and Weber 2013). Accordingly, we focus on school bullying.

[2] A Google Scholar search conducted on April 11, 2013 for articles containing the word 'bully' since the year 2000, returned approximately 39,500 results. Prior to this, from 1978 (the year in which Olweus published what is widely considered the first academic study of bullying) until 2000, there were only approximately 22,000 articles published on bullying.

In regards to scholarly research on this topic, the majority of studies tend to treat bullying as a novel and exceptional form of deviance. For example, Swearer and Hymel (2015:344) suggest that bullying is "a unique but complex form of interpersonal aggression."[3] A large part of this is likely due to psychologists having claimed the study of bullying as their own, and largely ignoring the criminological literature.[4] The *American Psychologist* recently published a special issue (May-June 2015) entitled "School Bullying and Victimization." One possible problem with treating bullying as new and different, is that the findings of this research are not unexpected: the psychological literature is simply finding what criminologists already know about deviance (e.g., gender differences in involvement (Carbone-Lopez et al. 2010), the impact of masculine gender norms (Swearer and Hymel 2015), the roles played by impulsivity and insensitivity in the etiology of deviant behavior (Swearer and Hymel 2015), and the curvilinear relationship between deviance and age (Swearer and Hymel 2015)).

This is especially problematic when we[5] consider the apparent similarities in motivation: crime "produces immediate, short-term pleasure or benefit to the actor" (Gottfredson and Hirschi 1990:83), and research on bullying has "concluded that bullies … obtained pleasure from

---

[3] Cyberbullying is typically treated as even more different (e.g., Beckman, Hagquist, and Hellström 2013; Kowalski, Morgan, and Limber 2012; Wade and Beran 2011). We discuss this issue further in section 4.3.

[4] This is not to suggest that criminologists have not been working in this area. There are a number of more recent studies applying criminological knowledge to this topic, focusing on both victimization (e.g., Hay and Meldrum 2010; Hay, Meldrum, and Mann 2010), and perpetration (e.g., Moon and Jang 2014; Patchin and Hinduja 2011).

[5] This manuscript was sole-authored. The choice of plural pronouns is a stylistic choice meant to convey that I did my work for the benefit of the reader and the broader scientific community.

bullying" (Baldry and Farrington 1998:241). At least in regards to motivation, bullying does not appear to be different from other forms of crime and deviance. This is compounded by the striking similarities between deviants and bullies. For example, citing the seminal study on bullies by Olweus (1978), Baldry and Farrington (1998:241), argue that research has "concluded that bullies had an aggressive personality, weak inhibitions against aggression, a strong need to dominate, and that they obtained pleasure from bullying" (see also Björkqvist, Ekman, and Lagerspetz 1982; further, Olweus 1996 also suggests that bullies are characterized by impulsivity). Compare this to the description of deviants employing force and fraud in the pursuit of pleasure: "in sum, people who lack self-control will tend to be impulsive, insensitive, physical (as opposed to mental), risk-taking, short-sighted and nonverbal" (Gottfredson and Hirschi 1990:90-91). The remarkable level of similarity between bullies and deviants evident in these descriptions suggests that common causal factors are at play, both bullies and deviants are driven by aspects of hedonism, and display impulsive and aggressive characteristics.

Given these similarities, the relative dearth of studies linking self-control and bullying; and comparing bullying to other manifestations of low self-control is surprising. Despite arguments that separate explanations for each different manifestation of deviant behavior are unnecessary (e.g., Gottfredson and Hirschi 1990; Hirschi and Gottfredson 1994), there has been a lack of studies applying criminological theory to the topic, and "most of the literature concentrates on bullying as a school phenomenon. Less attention has been given to the relation between school bullying and longer-term criminal or anti-social behavior in the life course" (Bender and Lösel 2011:99-100). These commonalities would seem to suggest that both deviance and bullying may share a common explanation, and that many criminological theories would seem to be readily able to explain bullying. However, as previously mentioned, bullying

research seems to have largely neglected the vast pool of knowledge accumulated by criminologists, and treats bullying as a unique problem.

As a result, the bulk of the literature draws on non-criminological theories of aggression (Brockenbrough, Cornell, and Loper 2002; Dijkstra et al. 2011; Faris and Ennett 2012; Sijtsema et al. 2009a; Sijtsema et al. 2009b), or peer relations and social support (Cowie 2011; De Monchy, Pijl, and Zandberg 2004; Demaray and Malecki 2003; DeRosier and Thomas 2003; Holt and Espelage 2007; Spriggs et al. 2007) to explain bullying. Other bullying research focuses on the impact of bullying or provides descriptions of the correlates and predictors of bullying (e.g., Baldry and Farrington 2000; Carbone-Lopez et al. 2010; Glew et al. 2008; Nansel et al. 2001; Vervoort, Scholte, and Overbeek 2010; Wilson 2004). Further, many of the studies on bullying seek to distinguish between bullies, victims, and bully-victims (bullies who are also victims of other bullies)[6] (Glew et al. 2008; Haynie et al. 2001; Nansel et al. 2001; Olweus 1996; Spriggs et al. 2007; Wang, Iannotti, and Nansel 2009) rather than explaining the origins of the behavior.

In line with a small number of other researchers, we believe that "the discriminant validity of bullying is lacking with respect to aggressive behavior or any of its subtypes, and as a result, findings are ambiguous" (Rodkin, Espelage, and Hanish 2015:315). We argue that there is no empirical basis for regarding bullying as distinct, and that we should seek a criminological understanding of bullying. This would allow us to draw upon decades of extant research,

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[6] However, Sekol and Farrington (2010) examined whether the differences between these groups were primarily differences in degree rather than differences in kind. They concluded that bully-victims are "not in any way unique" (Sekol and Farrington 2010:1766; see also Olweus 1978; Spriggs et al. 2007).

because what has been lost in the current approach of treating bullying as unique, is a basic understanding of the connections between bullying and other forms of deviant behavior. In short, our research is about claiming the intellectual ownership of the alleged "contemporary bullying problem" and re-examining it within the traditional perspective of sociological understandings about the causes of crime.

We argue that bullying shares a common etiology (and thus, a common theoretical explanation) with other deviant (both criminal and non-criminal) acts. We then attempt to demonstrate these connections by employing two major criminological theories, self-control theory and general strain theory, to bullying and other forms of crime and delinquency, and argue that these theories will be able to explain bullying in the same manner that they explain other forms of misbehavior. In the sections that follow, we provide a brief introduction to the control perspective, an overview of self-control theory, general strain theory, and bullying.

1.2 Overview of Dissertation

Given the enormous similarity between different types of deviant behavior (Gottfredson and Hirschi 1990) described above, it is highly unlikely that bullying is in fact a new and distinct phenomenon. This suggests that the majority of bullying research has seriously erred in ignoring the vast body of research on crime and deviance, as the wealth of knowledge we possess on these topics should be equally valuable in understanding bullying. In order to explore this issue, we will begin with a brief note on our epistemological and ontological framework. Following this, we will provide background and empirical research in support of two leading criminological theories: self-control theory (Gottfredson and Hirschi 1990), and general strain theory (Agnew 1992; Agnew 2001), and an overview of scholarly research on bullying. These theories are general theories of criminal and deviant behavior, and do not require specific types of crime or

specific motivations for specific types of misbehavior. If the generality of these perspectives holds, they should be able to account for bullying and other types of deviance, and should explain each specific manifestation in generally the same way.

1.3 Literature Review

1.3.1 The Classical School and the Control Perspective

Rooted in the writings of Enlightenment scholars (notably, Cesare Beccaria, Jeremy Bentham, and Thomas Hobbes),[7] the classical school of criminology holds the view that all behavior, criminal or not, shares a common motive: the pursuit of pleasure and the avoidance of pain (Gottfredson and Hirschi 1990). Further, the classical school argues that humans are rational actors exercising free will, and are therefore responsible for their own behavior. Motivated by simple hedonism, people weigh the costs and benefits of a particular action in the pursuit of their own self-interest. Accordingly, modern perspectives in the classical school do not distinguish between criminal acts and non-criminal acts analogous to crime.[8] Laws change over both time and space, and whether or not there is a legal proscription against a particular behavior has no bearing on its motivation, nor on the ways in which it may be prevented. The control perspective builds on this basic foundation.

The control perspective is a paradigm encompassing theories that focus on factors restraining individuals from crime. Examples of theories falling under this umbrella are self-

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[7] These scholars were attacking prior, often spiritualistic, beliefs regarding the causes of crime (e.g., demonic possession, moral depravity) and the resultant injustice of criminal justice where punishment was inconsistently applied, and often extremely violent (Foucault 1995).

[8] Accordingly, the terms crime, deviance, and delinquency will be used interchangeably throughout this manuscript.

control theory (where crime is restrained by the development of sufficient levels of self-control over one's behavior by way of socialization), social control theory (where valued relationships and bonds with other individuals and institutions would be put at risk by crime), and general strain theory (implicit in the argument that anger/frustration creates pressure towards the use of criminal coping strategies is the idea that non-criminal coping strategies are the default).

Beyond the universal motivation of all human behavior, control theories argue that crime requires no special skills or learning (Gottfredson and Hirschi 1990). Taken together, the fundamental suggestion of the control perspective is that our attention should not be directed at why people commit crime (hedonism), but why they do not. Mechanisms and forces that deter criminal actions are the same as those that deter non-criminal acts: they represent an increase in the costs of socially sanctioned behavior, relative to the benefits. One of the primary constraints against deviance in the control perspective is informal social control – the behavioral constraints arising from an individual's valued social bonds to others and to social institutions (Sampson and Laub 1993; see also Brannigan 1997; Goode 2008a; Gottfredson and Hirschi 1990; Hirschi 2004). Accordingly, prevention strategies should focus on improving levels of informal social control.[9] While there are a number of perspectives that fall under the control paradigm, we have chosen to focus our research on two particular accounts: Section 1.3.2 will address the self-control aspect of the control paradigm, and Section 1.3.3 will address the general strain aspect.

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[9] We will briefly return to these points in section 4.6.

1.3.2 Self-Control

1.3.2.1 Introduction

Gottfredson and Hirschi (1990) set forth an extremely ambitious theory of crime and criminality in their book *A General Theory of Crime*. Rooted in the classical school, the most basic argument of the theory states that people are inherently hedonistic and that crime is pleasurable; the tendency to pursue these hedonistic pleasures can be overridden by self-control; self-control is the result of parents effectively socializing their children; and that crime occurs when individuals are insufficiently restrained (i.e., lack self-control). The authors claim that self-control theory is capable of explaining all crime, in all places, at all times. Further, they devote a great deal of attention to the discussion of, and eventual dismissal of, virtually all existing criminological theories, claiming that self-control will render the effects of other theoretical constructs spurious. These controversial claims attracted large numbers of both critics (e.g., Akers 1991; Geis 2000; Geis 2008; Iovanni and Miller 2008) and proponents (e.g., Bouffard and Rice 2011; LaGrange and Silverman 1999; Piquero 2008; Pratt and Cullen 2000; Vazsonyi et al. 2001). Research on self-control theory generally finds support for the theory, and since publication, self-control theory has garnered so much support, it has been argued that studies of crime that do not account for the effects of self-control risk misspecification. Indeed, support for self-control theory is so robust that some measure of self-control has become almost a requirement in criminological analyses (Evans et al. 1997; Pratt and Cullen 2000). Further, it is one of the strongest predictors of crime, even when controlling for constructs from other theoretical frameworks (Kobayashi et al. 2010; Pratt and Cullen 2000).

Gottfredson and Hirschi (1990) begin with an examination of criminal acts, which they subsequently use to define criminality (the lack of self-control). The authors argue that criminal

acts a) "provide *immediate* gratification of desires;" b) "provide *easy or simple* gratification of desires;" c) "are *exciting, risky, or thrilling*;" d) "provide *few or meager long-term benefits*;" e) "require *little skill or planning*;" and f) "often result in *pain or discomfort for the victim*" (Gottfredson and Hirschi 1990:89, italics in original). Thus, individuals derive pleasure from deviant activities (e.g., the thrill from risk, the pleasure of intoxication, the simplicity of taking the faster/easier way). The reason most people do not participate in deviance is that most individuals are sufficiently constrained from crime by an internalization of belief in, and commitment to conventional social norms (self-control). It is only when self-control is lacking that individuals resort to crime.

As a result they argue that the low self-control actor "will tend to be impulsive, insensitive, physical (as opposed to mental), risk-taking, short-sighted and nonverbal, and they will tend therefore to engage in criminal and analogous acts" (Gottfredson and Hirschi 1990:90).[10] It is important to note here that self-control theory is rooted in the classical school, and low self-control does not require crime: individuals must choose to commit crime as opposed to a non-criminal act, and those with low self-control are simply more likely to so choose – self-control theory is probabilistic, not deterministic (Hirschi and Gottfredson 1993). Further, low

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[10] Hirschi has since redefined self-control as "the tendency to consider the full range of potential costs of a particular act," (Hirschi 2004:543) and there is some evidence to support this new definition (e.g., Piquero 2008). However, the original formulation remains more common in the literature, and there is evidence that both delinquent peers and social bonds can mediate the effects of self-control on deviance, which suggests that the argument put forth by Hirschi (2004) that self-control and social control are the same is tenuous at best. Accordingly, we will restrict our focus to the theory's original formulation.

self-control is best seen as a distal cause, and crime can only result through its interaction with opportunity (a proximal cause) (Goode 2008b; Grasmick et al. 1993).

Gottfredson and Hirschi (1990) argue that low self-control manifests in many ways, in actions both criminal and non-criminal. Given the multiple manifestations of low self-control and the characteristics of the low self-control actor, it is reasonable to expect one such manifestation to be bullying behavior, and indeed, some research has shown low self-control to be predictive of bullying (Björkqvist et al. 1982; Haynie et al. 2001; Unnever and Cornell 2003). However, not all researchers agree. For example, Baldry and Farrington (2000:29) compared pure bullies (bullies who do not engage in other forms of deviance) and pure delinquents (delinquents who do not engage in bullying) on a number of personal and parental characteristics and concluded "that bullying and delinquency are not merely different behavioral manifestations of the same underlying construct." This suggests that more research is required to determine whether bullying and other forms of delinquency are both manifestations of the same underlying propensity – low self-control. Lastly, low self-control will manifest in a number of ways, including criminal acts, non-criminal deviant acts (such as smoking and drinking), and unstable job and relationship histories. In short, criminal and criminally analogous acts will "tend to be short lived, immediately gratifying, easy, simple and exciting" (Gottfredson and Hirschi 1990:14). The authors further argue that since many of these characteristics can be detected very early in life, we should look to the family in order to understand the causes of low self-control (Gottfredson and Hirschi 1990).

1.3.2.2 Family: The Roots of Self-Control

Self-control theory argues that four conditions must be satisfied in order for a child to develop sufficient levels of self-control: parental affection for the child, monitoring of the child's

behavior, recognition of deviant behavior, and punishment of deviant behavior (Gottfredson and Hirschi 1990). Parental affection is seen as a necessary precondition of the remaining conditions, as parents lacking in affection for their child will lack the motivation to monitor, recognize, and punish inappropriate behavior. Monitoring the child's behavior is seen as important for both the prevention of unwanted behavior and for training the child to avoid unwanted behavior on his own. Regardless of the level of supervision, however, the parent must be able to recognize that a particular behavior is inappropriate, a task at which not all parents are equally adept. Lastly, deviant behavior must be effectively punished; the child must be taught that certain behaviors are unacceptable in a manner that is neither too lenient, nor too harsh. When these conditions are not satisfied, a child with low self-control is the default.

Parental practices are well known to predict involvement in crime (e.g., Elliott 1992; Farrington 1995; Hirschi and Gottfredson 1995) and, accordingly, useful theories need to be able to account for the effects of parenting on crime. However, researchers have long criticized Gottfredson and Hirschi's treatment of the role of the family (e.g., Akers 2008; Blackwell and Piquero 2005; Cullen et al. 2008; Phythian, Keane, and Krull 2008), typically arguing that it is simplistic and underdeveloped. Self-control theory's basic argument is that parental affection should predict effective parenting (monitoring, recognizing, and punishing deviant behavior) which should, in turn, predict self-control, which should then fully mediate the effects of parenting on crime and delinquency (Hay 2001).

Hay (2001) tests whether effective parenting (as measured by monitoring and punishing) predicts self-control, and whether self-control fully accounts for the relationship between parental practices and crime. Further, given arguments that self-control theory's treatment of the family is relatively underdeveloped and simplistic, Hay compares the theory's conceptualization

of effective parenting to one of developmental psychology's most prominent theories of the family: the theory of authoritative parenting (Baumrind 1966).

Baumrind (1966) argues that effective parents are both demanding and responsive. Demanding parents try to integrate their children into the family by supervising and disciplining their children, and by demanding maturity from their children. Responsive parents are attuned and supportive, and actively foster individuality and self-regulation (which can be seen as analogous to self-control). She then classifies parents in a two-by-two typology: authoritative parents are both demanding and responsive, authoritarian parents are demanding but not responsive, permissive parents are responsive but not demanding, and rejecting-neglecting parents are neither responsive nor demanding. Children of authoritative parents are expected to have better outcomes than children of other types of parents. The demanding aspect would cover self-control theory's conceptualization of effective parenting, while the responsive aspect is external to the theory.

The results of Hay's analysis indicate that self-control theory's conceptualization of effective parenting does predict self-control, but Baumrind's conceptualization is a superior predictor (Hay 2001). In fact, including measures of both demandingness and responsiveness triples the variance in self-control explained by the model. This suggests that the role of the family as articulated by Gottfredson and Hirschi (1990) is incomplete. Further, regarding the mediation of parental influences on delinquency, self-control only partially mediates this relationship, with approximately 25% of the relationship between parenting and delinquency explained by self-control. In summary, parenting only partly explains self-control, and self-control only partially mediates the relationship between parenting and crime: findings that have

been supported by subsequent studies (Agnew et al. 2011; Blackwell and Piquero 2005; Cullen et al. 2008; Hardwick and Brannigan 2008; Phythian et al. 2008).

Other research into the family and socialization would argue that self-control theory's treatment of the family is relatively underdeveloped, and that additional family factors may play a prominent role. For example, others have suggested that self-control theory could benefit from expanding the role played by parents (e.g., Akers 2008; Cullen et al. 2008). Additionally, Phythian et al. (2008) found that family structure (intact, stepparent, single-parent) remained significant direct predictors of self-control after controlling for parenting factors, and Blackwell and Piquero (2005) found that the level of patriarchy in the household continued to influence the development of self-control (see also Hagan, Simpson, and Gillis 1979; Hagan, Simpson, and Gillis 1987). Drawing on power-control theory (Hagan et al. 1979; Hagan et al. 1987), research has suggested that differences in parenting behaviors towards male and female children influences the development of self-control (Phythian et al. 2008). These findings have been extended in research which demonstrates that these differences in parenting behavior towards boys and girls lead to differences in risk-taking preferences and dominance ideologies (Hadjar et al. 2007); two important elements of self-control. While Gottfredson and Hirschi (1990) do not dismiss the possibility that (some) additional factors could have an influence, they in essence reduce the role played by these other factors to impacting parents' ability to supervise, monitor, and punish inappropriate behavior.

1.3.2.3 Limitations of Self-Control Theory

While Gottfredson and Hirschi adamantly reject the idea of integrating self-control theory with other theoretical perspectives, the evidence seems to suggest that self-control theory is not nearly as independent as they claim. While self-control is, without question, a major predictor of

crime and deviance, self-control models leave much of the variance unexplained, leading some researchers to wonder if the theory is simply another entry in the roster of important, but incomplete theories (Hay 2001). Gottfredson and Hirschi (1990) argue that past the age of 10 (or so) self-control in interaction with opportunity should be the sole predictor of crime. However, the available evidence suggests that family influences continue to have significant direct effects on the likelihood of crime. To understand this, we must move beyond self-control and examine relevant variables from other perspectives. The continuing effects of parental influences on crime are readily explained by other perspectives. For example, social learning theory (Akers et al. 1979) might suggest that by failing to punish misbehavior in adolescents, parents, in effect, reinforce such misbehavior.

Beyond the role of the family, self-control theory leaves many other vital factors underdeveloped either empirically or theoretically (Phythian et al. 2008); suggesting that "reality is more complex than the general theory allows" (Cullen et al. 2008:69). It has been suggested, if only indirectly, that the integration of self-control with other theoretical frameworks would benefit our understanding of crime and delinquency (Akers 2008; Bouffard and Rice 2011; Evans et al. 1997; Grasmick et al. 1993; Greenberg 2008; Longshore et al. 2004; Matsueda 2008; Nakhaie, Silverman, and LaGrange 2000; Piquero and Bouffard 2007; Rosenfeld and Messner 2008; Tittle, Ward, and Grasmick 2003). Self-control theory appears to be highly compatible with a number of other perspectives, and theoretical integration would provide a more comprehensive view of behavior, and could help us to explain prior contradictions (Elliott, Ageton, and Canter 1979).

One major shortcoming of self-control theory lies in its treatment of peer influence, a well-known predictor of crime and deviance. Rather than explain these effects, Gottfredson and

Hirschi (1990) tend to dismiss these effects as the result of the low self-control actor's self-selection into delinquent peer groups (Akers 1991).[11] Despite this, the evidence shows that even after accounting for self-control, delinquent peers continue to have a significant, direct effect on crime (Goode 2008b). Further, social learning variables rival the strength of self-control in predicting crime (Evans et al. 1997; Pratt and Cullen 2000; Pratt et al. 2010), and there is also evidence that self-control and social learning processes could be mutually reinforcing (Evans et al. 1997). Further, social network analysts have demonstrated that both selection and influence effects on deviance are present (Dijkstra et al. 2011; Dijkstra et al. 2010; Faris and Ennett 2012). However, peers are not the only social group in which social learning occurs, and the family may be equally important (Akers 2008).

Building on Sutherland's (1947/1998) theory of differential association, Akers' social learning theory suggests that criminal behavior (as with all other behavior) is learned through interaction with others (Akers et al. 1979; Akers and Sellers 2013; see also Pratt et al. 2010). Social learning theory suggests that individuals vary in their level of exposure to different behavioral and normative patterns through their association with others (*differential association*). These differential associations shape the meanings that individuals attach to a given behavior. These definitions can be either specific to a particular behavior or general to all behaviors; and can be supportive of crime, opposed to crime, or neutral. Further, specific behaviors are differentially rewarded and punished, either by the behaviors themselves, or by social groups

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[11] Social learning theorists are quick to point out that the theory does not deny that 'birds of a feather will flock together,' and argue that while one may self-select into delinquent peer groups, this association will in turn, have an impact on one's subsequent behavior (Akers 2008).

(*differential reinforcement*). Behaviors that are rewarded (reinforced) are more likely to be subsequently repeated, while acts that are punished are more likely to be subsequently avoided. Crime is most likely when an individual possesses more definitions favorable to (or neutralizing of) crime than definitions unfavorable to crime, and is embedded in a social environment where deviance is rewarded.

While a self-control theorist would argue crime results from a lack of self-control, which is the result of ineffective child-rearing; a social learning theorist would argue that crime largely results from an excess of definitions favorable to crime, which is the result of ineffective parenting. These two arguments are not all that different, and given that neither self-control theory nor social-learning theory is capable of fully explaining crime, perhaps an integration of these perspectives could improve our understanding of the causes of crime. Indeed, Akers himself has argued that self-control itself is acquired through social learning processes and social learning theory is highly compatible with self-control theory (Akers 2008).

While self-control theory is one of the most prominent explanations for crime and deviance, as demonstrated, it has a number of shortcomings. Beyond this, by demonstrating that multiple criminological frameworks can explain bullying, a stronger case can be made for the argument that bullying is no different from other forms of deviance. In the following section, general strain theory is discussed as another possible explanation for adolescent involvement in bullying.

1.3.3 General Strain

1.3.3.1 Introduction

Building on earlier theories of anomie and crime (e.g., Cohen 1965; Merton 1938), general strain theory (Agnew 1992) argues that various negative life events (conceptualized as

sources of strain/stress) tend to produce a negative emotional response. These negative emotions create internal pressures for corrective actions and crime may serve as one possible corrective action (e.g., getting revenge on someone who has wronged you can alleviate anger) (Agnew 1992; Agnew 2001). This is a departure from earlier strain theories that linked these negative life events directly to crime and deviance, and provides a much-needed mechanism to explain the link between strain and crime. Further, while previous strain theories focused on goal blockage as the primary (or sole) source of strain, Agnew (1992) examines three sources of strain: the inability to achieve positively valued goals, the loss of positively valued stimuli, and the presentation of negative stimuli. By focusing on these three types of strain, rather than solely upon goal blockage, general strain theory is able to consider a more complete range of negative life events. Additionally, from a general strain perspective crime is not the result of any one specific strain, crime results from the cumulative effect of all strains (Agnew 2001).

That being said, crime is not a direct result of strain: the effects of strain on crime are indirect (Agnew 1992). Strain has an impact on crime through the negative emotional response it creates. These emotional responses typically include disappointment, anger or frustration, depression, fear, guilt, and anxiety (Agnew 1992; Agnew 2001), with anger being the most salient (Agnew 1992; Agnew 2001; Brezina 1998; Broidy 2001). Anger is the primary link between stressful events and crime for a number of reasons. First, anger is an unpleasant emotion and creates a pressure towards corrective action or catharsis; second, anger is typically directed outward; and third, anger makes the consequences of outward directed actions easier to cognitively minimize (Agnew 1992). It is this need for externally directed corrective action that serves as the mechanism through which strain impacts crime (Agnew 1992; Agnew 2001), as evidence suggests that reductions in negative emotional states among those who responded with

delinquency (Brezina 1996; Hay and Evans 2006). Crime can reduce the level of anger by providing a target (e.g., retaliation); it can aid in the achievement of positively valued goals or the retrieval of positive stimuli (e.g., theft); or by allowing escape from negative stimuli (e.g., assault). Others may try to correct the negative emotional state by attempting to replace it with a (perceived) positive emotional state (e.g., intoxication). Still others yet may resort to non-criminal coping strategies, as general strain theory does not require crime or deviance (Agnew 1992; Agnew 2001; Broidy 2001).[12]

However, these emotional responses to negative life events depend upon individual interpretation. While there are objective strains that are disliked by the majority of group members, there are also subjective strains, that is other events/conditions only disliked by some individuals (Agnew 2001). What causes strain for one may not be a source of stress for another; or an event/condition that makes one become very angry may only annoy another. In this way, general strain theory still allows for individual variability. Beyond this, general strain theory allows for even greater variability in the emotional response to negative life events by acknowledging gender differences in the emotional responses to (particularly) subjective strains (Agnew 2001; Broidy and Agnew 1997). These arguments are supported by evidence that while there are gender differences in the types of strains experienced by males and females, both genders tend to respond to strain with anger (Broidy 2001; Broidy and Agnew 1997). However, it is important to note that there are stark gender differences in the experience of anger. For example, female anger is often accompanied by guilt, depression, anxiety, shame, guilt, and self-

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[12] Although it should be noted that non-criminal coping is less likely in the presence of anger/frustration (Agnew 1992).

hostility (suggesting an internalizing quality to the experience of anger);[13] whereas male anger is frequently accompanied by contempt (suggesting an externalizing quality) (Agnew 2001; Broidy and Agnew 1997). These gender differences are important to keep in mind, as this suggests that the male experience of anger should make criminal coping strategies more likely, and the female experience of anger should reduce the probability of criminal coping (Broidy 2001).

1.3.3.2 Criminogenic Strains

In regards to the crime-producing effects of stressors, not all strains are equal. The basic argument is that some strains bear a stronger relationship to crime because they serve goals that are readily achieved by crime (e.g., revenge, or the removal of an irritant), or because they impact an individual's ability to cope with stress and frustration in a non-criminal manner (e.g., by reducing the perceived costs of criminal coping) (Agnew 1992; Agnew 2001; Agnew 2013). In an attempt to refine research on the effects of strain on crime, Agnew (2001:326) argued that such research should focus on the strains most likely to lead to crime: "in brief, it is argued that strains are most likely to result in crime when they (1) are seen as unjust, (2) are seen as high in magnitude, (3) are associated with low social control, and (4) create some pressure or incentive to engage in criminal coping."

Perceptions of injustice apply to all strains, and this perception is more likely to provoke emotions conducive to crime (e.g., anger, which disrupts the cognitive processes that promote non-criminal coping). Strains produced by acts that are seen as voluntary and intentional violations of justice norms are more likely to be perceived as unjust and are more likely to result

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[13] This is supported by evidence that females are more likely to suffer from eating disorders, suicidal ideation, and drug/alcohol addictions as a result of strain (Hay and Evans 2006).

in criminal coping (Agnew 2001). When strains are high in magnitude, individuals have greater difficulty in cognitively minimizing negative emotions, which influences the probability of non-criminal coping. Perceptions of high magnitude are influenced by the stressor's degree, duration, frequency, recency, centrality (does it threaten core or periphery values, identities, needs, or desires), and whether the source of the strain has been resolved. Strains can also be caused by, or associated with, low social control, which reduces the individual's perception of the costs of crime, and also constrains non-criminal coping mechanisms, as low levels of social control usually mean low levels of social support are available. Lastly, strains can create some incentive to commit crime by interacting with beliefs that criminal coping (particularly violence) is the only effective or appropriate means of dealing with the stressor (such as a direct challenge to one's masculinity or status). If any one of these conditions is missing, criminal coping is less likely unless the strain is perceived as highly unjust and very high in magnitude (Agnew 2001).

Just as certain strains are conducive to criminal coping, others will be weakly or unrelated to crime. This occurs if the stressor is not seen as unjust (e.g., it is due to accident or chance, or it is somehow self-inflicted); if it is not seen as high magnitude (e.g., it threatens periphery goals, or it is not evaluated in highly negative way); if it would be hard to achieve legitimate goals (e.g., it is hard to use crime in pursuit of occupational success) or goals based on high social control (e.g., individuals lacking in social control typically do not aspire to academic success); or if the strain is due to personal or cultural values and choices (e.g., caring for a sick relative can be a source of strain, but is unlikely to be negatively evaluated, and further, crime is unlikely to reduce the resultant negative emotionality).

Agnew (2001) then goes on to detail the specific sources of strain most likely to be associated with delinquency in youth and adult crime. For adults, these strains include marital

problems, work in the secondary labor market, unemployment, failure to achieve economic goals, a lack of autonomy, physical and verbal assaults, threats to status, and failure to achieve masculinity goals. For youth these include negative life events, life hassles, negative relations with adults, parental fighting, neighborhood problems, school and peer problems, physical and emotional abuse, victimization, parental divorce, and poor parenting. The last is especially telling, as beyond creating an unpleasant home environment, it could result in ineffective socialization and low levels of both self-control and social control, and therefore be especially likely to result in criminal coping.

1.3.3.3 Additional Factors Influencing the Use of Criminal Coping Strategies

Given that there are many possible methods of coping with strain, of which crime is just one, it has been argued that crime as a corrective action is more likely when an individual possesses characteristics conducive to criminal coping (Agnew 2001). Research has demonstrated that a lack of self-control creates conditions conducive to criminal coping (Hay and Evans 2006). Given that the low self-control actor is temperamental and insensitive (arguably, more likely to perceive strains as unjust), physical as opposed to mental (likely to possess beliefs that violence is an appropriate response to strain), and has difficulty forming social bonds[14] (low social control), it can be easily argued the low self-control actor possesses characteristics conducive to criminal coping. Beyond this, low self-control, like anger and frustration, reduces the perceived costs of crime (Gottfredson and Hirschi 1990; Hirschi 2004).

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[14] Gottfredson and Hirschi (1990) argue that individuals with low self-control are ill suited to the demands placed upon them by various institutions of social control (such as marriage, paid employment, etc.), and are therefore likely to self-select out of involvement in such institutions (see also Evans et al. 1997; Longshore et al. 2004).

In addition to low self-control, it has been suggested that association with deviant peers has an effect on the probability of criminal coping (Baron 2004; Mazerolle et al. 2000; Mazerolle and Maahs 2000). Beliefs that deviance is an effective or appropriate means of dealing with strain make criminal coping strategies more appealing. Association with deviant peers can model and reinforce these beliefs, resulting in higher levels of crime in response to strain.

As mentioned in section 1.3.1, we locate general strain theory in the control paradigm, which focuses on factors that restrain individuals from committing criminal acts. Typically, however, research on general strain theory views the negative emotional state as a factor that promotes crime. However, we believe that our approach can be reconciled with the fundamental tenets of general strain theory. As negative emotional states arising from strain create pressure towards the employment of criminal coping strategies, the implication is that non-criminal coping is the default. Notably lacking in general strain theory is any discussion on the origins of the implicit tendency to rely on non-criminal coping. We argue this default state arises through the process of socialization, and the internalization of non-criminal norms. From this point, locating general strain theory in the control paradigm is relatively straightforward. The internalization of pro-social norms and values becomes the mechanism that restrains individuals from participation in crime and analogous activities. Rather than creating a pressure towards criminal coping, negative emotional states arising from strain simply overcome the restraint

imposed by the internalization of pro-social norms.[15] In the following section, we review the literature as it pertains to bullying.

1.3.4 Bullying

1.3.4.1 Introduction

It has been estimated that acts of bullying occur every seven minutes on elementary school playgrounds (Menard and Grotpeter 2011). Both bullying perpetration and victimization are quite common, with estimates ranging from 4%-20% for bullying and 7%-44% for victimization, most estimates settle within the 10-20% range (Bradshaw, Sawyer, and O'Brennan 2009; Demaray and Malecki 2003; Elinoff et al. 2004; Espelage and Swearer 2003; Fleschler-Peskin, Tortolero, and Markham 2006; Glew et al. 2008; Haynie et al. 2001; Holt and Espelage 2007; Hymel and Swearer 2015; Nansel et al. 2001; Olweus 1978; Olweus 1995; Seals and Young 2003; Spriggs et al. 2007; Wang et al. 2009). Much of the discrepancy in prevalence estimates can be attributed to methodological artifacts relating to a) how bullying is defined (Aalsma and Brown 2008; Esbensen and Carson 2009); b) the minimum frequency used to classify students as bullies or victims (Esbensen and Carson 2009); and c) when in the school year bullying is assessed (Pellegrini and Bartini 2001). However, even the most conservative estimates of bullying involvement are alarming as there is evidence that only around 25% of students report their victimization to someone (Glew et al. 2008), and thus youth may be forced to deal with the negative consequences of victimization without support.

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[15] This reasoning is in line with research that suggests that self-control is a limited resource (Muraven and Baumeister 2000). Exercising self-control leads to its depletion, which overcomes the capability of self-control to restrain an individual from crime (Muraven and Baumeister 2000).

When looking at bullying, most researchers consider the differences between physical and relational bullying, as well as the distinction between direct and indirect bullying. Menard and Grotpeter (2011) suggest that while the etiologies of different types of bullying may be similar, the specific manifestation of bullying may be contingent upon individual and social differences. Physical bullying involves the use of physical violence, while relational bullying uses and manipulates social relationships to harm others (Espelage and Swearer 2003). Direct bullying involves face-to-face interactions between the perpetrator and the victim, while indirect bullying involves a third party (Espelage and Swearer 2003). Examples of direct bullying, which can be physical or relational, include hitting and kicking, as well as name-calling and teasing. Examples of indirect bullying, which are limited to relational acts, include the spreading of rumors and social exclusion.

Many researchers suggest that there are differences in both the correlates and consequences of different types of bullying (Baldry and Farrington 2000; Goldstein, Young, and Boyd 2008; Nansel et al. 2001; Olweus 1996; Wang et al. 2009). Researchers typically find that boys more often use physical and direct forms (Carbone-Lopez et al. 2010; Espelage and Swearer 2003; Olweus 1996; Wang et al. 2009), but there is evidence that direct verbal bullying may be the most common for both boys and girls (Nansel et al. 2001; Seals and Young 2003). While these different forms of bullying do not exactly parallel the distinction between violent and property crime, both are similar in that violent behavior is generally separated from the other types of behavior (with violent behavior typically limited to a subset of offenders), supporting the suggestion of some degree of similarity between delinquency and bullying.

Further, when we examine the characteristics of delinquents and bullies, research suggests that they have a lot in common (Unnever and Cornell 2003).[16] Olweus (1978) found that bullies scored higher on measures of toughness, confidence, and independence, and they endorsed the idea that 'real boys' should be able to 'take a few knocks.' Additionally, other researchers have found that bullies feel a need to dominate, force obedience, and like to be the boss/leader (Cowie 2011; Haynie et al. 2001; Olweus 1978; Olweus 1995); that bullies are tough (Demaray and Malecki 2003; Haynie et al. 2001; Olweus 1995; Sijtsema et al. 2009b); and impulsive (Baldry and Farrington 2000; Olweus 1978; Sijtsema et al. 2009b; Unnever and Cornell 2003); and that they obtained pleasure from bullying (Olweus 1978).

Compare this to perhaps one of the best-known theories of crime: self-control theory. Gottfredson and Hirschi (1990) define crime as the use of force and fraud in the pursuit of self-interest, and describe the low self-control actor (the criminal/delinquent) as impulsive, insensitive, physical as opposed to mental, risk-prone, short-sighted, and non-verbal. Both descriptions include impulsivity, insensitivity (or lack of empathy), physicality (or toughness), risk-taking (or confidence, security, and a lack of anxiety), and the pursuit of self-interest (pleasure from bullying). These parallels would seem to suggest that perhaps bullies and delinquents are not so very different after all.

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[16] The focus here is primarily on male bullies, as males are (perhaps unfortunately) the focus of most criminological theory. Further, research on the characteristics of female bullies is relatively scarce (Baldry and Farrington 2000).

1.3.4.2 Correlates of Bullying

Moving to the correlates of bullying, we see a list that should look familiar to most criminologists. This would imply that bullying is perhaps not a unique class of behavior and might be best understood in a criminological framework. Just as with delinquency, gender is one of the strongest known correlates of bullying (Carbone-Lopez et al. 2010), and like we find in studies of crime and delinquency, bullying perpetration tends to be concentrated among boys (Baldry and Farrington 2000; Carbone-Lopez et al. 2010; Demaray and Malecki 2003; Espelage and Swearer 2003; Haynie et al. 2001; Hymel and Swearer 2015; Olweus 1995; Pellegrini and Long 2002; Wang et al. 2009). Further, just as the gender gap is greater for violent crimes than for property crimes (Baldry and Farrington 2000), there is a greater imbalance in boys' and girls' involvement in physical bullying (Beckman et al. 2013; Carbone-Lopez et al. 2010; Goldstein et al. 2008; Hymel and Swearer 2015; Seals and Young 2003; Wang et al. 2009), with girls typically more involved in indirect, non-physical forms of bullying, although there is some conflicting evidence on this point (Hymel and Swearer 2015).

Age is another strong correlate of both delinquency and bullying. The age-crime relationship follows a well-known pattern where delinquency begins to increase in early adolescence, peaks in late adolescence, and then continues to decline from that point forward (Gottfredson and Hirschi 1990; Kanazawa and Still 2000; Moffitt 1993). While the age-bullying relationship is not quite as clear due to the restricted age range in most bullying research (Haynie et al. 2001), some researchers have suggested that bullying involvement follows a similar pattern (Bradshaw et al. 2009; Espelage and Swearer 2003). The notable difference between the age-crime and age-bullying curves is that the latter is shifted a few years younger and tends to peak in middle school (Seals and Young 2003; Wang et al. 2009), which would suggest that bullying

is an earlier developmental stage of deviant behavior (Baldry and Farrington 2000). However, some scholars have suggested that this may not necessarily represent a decrease in bullying as opposed to bullying becoming more subtle and harder to distinguish from other social interactions (Goldstein et al. 2008; Seals and Young 2003).

The effects of race are also well known to criminologists, with race differences reported for different forms of crime (Esbensen et al. 2010; Greenberg 2008; LaGrange and Silverman 1999; Rebellon and Waldman 2003). However, there is some evidence that these race differences may be a methodological artifact as race differences are often far larger when relying upon official reports as compared to self reports (Esbensen et al. 2010), or that the effects of race may be spurious with neighborhood context or other social factors (Sampson, Morenoff, and Raudenbush 2005). In terms of the relationship between bullying and race, the findings are similarly mixed (Bradshaw et al. 2009; Carbone-Lopez et al. 2010; Demaray and Malecki 2003; Espelage and Swearer 2003; Vervoort et al. 2010). However, some researchers have also suggested that racial composition in schools and subsequent racial dynamics influence the relationship (Carbone-Lopez et al. 2010; Espelage and Swearer 2003), which some authors have found in the study of crime and delinquency (Esbensen et al. 2010).

Bullying and deviance have been found to co-occur (Baldry and Farrington 2000; Carbone-Lopez et al. 2010; Haynie et al. 2001), which has led some authors to suggest that the correlates of deviance could apply equally well to bullying (Haynie et al. 2001). Contrary to this, we believe that this suggests bullying and delinquency share a common cause (a propensity to offend). For example, consistent with criminological theories, researchers have found that impulsivity is related to bullying (Bender and Lösel 2011); that school disadvantage is associated with bullying (Carbone-Lopez et al. 2010); and friendship with bullies and social norms

supportive of bullying (at least within the context of each students social group) increase the likelihood of bullying behavior (Holt and Espelage 2007; Spriggs et al. 2007; Wang et al. 2009). Additionally, as found in studies on crime and delinquency (Brannigan 1997; Farrington 2002; Gottfredson and Hirschi 1990; Hay and Forrest 2006), longitudinal research on bullying has found evidence of stability in involvement in bullying (Bender and Lösel 2011; Olweus 1978). Again, these similarities seem to suggest that treating bullying as distinct from crime and delinquency is unfounded.

1.3.4.3 Suggested Causes of Bullying

Many criminologists locate the origins of criminality in the family, suggesting that it results from parent-child relationships lacking in (among other things) warmth, supervision, and discipline (e.g., Baldry and Farrington 2000; Gottfredson and Hirschi 1990; Hagan et al. 1979). Gottfredson and Hirschi (1990) argue that the minimum requirements for raising non-deviant children are monitoring the child's behavior, recognizing deviant behavior, and punishing inappropriate behavior. Additionally, an emotional bond between parents and children is a necessary precondition of effective socialization (as the parents will be sufficiently motivated to supervise and appropriately punish misbehavior). Similarly, bullying is suggested to originate in the family: bully-parent relationships have been demonstrated to be low in attachment, support, and warmth (Baldry and Farrington 2000; Espelage and Swearer 2003; Haynie et al. 2001; Olweus 1978; Olweus 1995; Spriggs et al. 2007; Wang et al. 2009); lacking in supervision (Espelage and Swearer 2003; Loeber and Hay 1997; Olweus 1996; Spriggs et al. 2007); and to employ inconsistent or punitive discipline (Baldry and Farrington 2000; Espelage and Swearer 2003; Haynie et al. 2001; Loeber and Hay 1997; Olweus 1978; Olweus 1995). Such

commonality in the suggested causes of bullying and delinquency would seem to belie the supposition that they are distinct classes of behaviors.

1.3.4.4 Consequences of Bullying

Turning now to some of the more striking similarities between bullying and crime/deviance, we begin with the consequences of bullying. Victims are not the only ones to suffer the consequences of involvement in bullying, as there is evidence that both perpetrators and victims experience similar negative consequences (Faris and Ennett 2012). These consequences are often long-term and carry into adulthood (Bender and Lösel 2011; McDougall and Vaillancourt 2015; Olweus 1995; Vreeman and Carroll 2007). Further, much of the list of consequences should look familiar to criminologists for many are also consequences of delinquency.

Consequences of bullying (either as victim or perpetrator) include physical and mental health problems (e.g., depression, anxiety, low self-esteem) (Aalsma and Brown 2008; Carbone-Lopez et al. 2010; Elinoff et al. 2004; Faris and Ennett 2012; Fleschler-Peskin et al. 2006; Glew et al. 2008; Haynie et al. 2001; Holt and Espelage 2007; McDougall and Vaillancourt 2015; Olweus 1995; Vreeman and Carroll 2007; Wang et al. 2009); suicidal ideation (Aalsma and Brown 2008; Faris and Ennett 2012; Hay and Meldrum 2010; Haynie et al. 2001; Holt and Espelage 2007); loneliness and social isolation (Aalsma and Brown 2008; Faris and Ennett 2012; Haynie et al. 2001; Holt and Espelage 2007; McDougall and Vaillancourt 2015); poor academic achievement (Aalsma and Brown 2008; Elinoff et al. 2004; Faris and Ennett 2012; Glew et al. 2008; Nansel et al. 2001; Wang et al. 2009); low academic commitment (McDougall and Vaillancourt 2015); substance use and abuse (Carbone-Lopez et al. 2010; Goldstein et al. 2008; Menard and Grotpeter 2011; Nansel et al. 2001); future involvement in violence (Aalsma and

Brown 2008; Bender and Lösel 2011; Carbone-Lopez et al. 2010; Elinoff et al. 2004; Espelage and Swearer 2003; Glew et al. 2008); and future involvement in crime (Baldry and Farrington 2000; Bender and Lösel 2011; Elinoff et al. 2004; Menard and Grotpeter 2011; Olweus 1995). The parallels in the consequences of bullying and delinquency suggest a substantial overlap between these behaviors, and perhaps a common cause (e.g., a propensity towards deviance).

1.4 Current Study

In the previous sections, we highlighted two leading theories of crime that we believe will be able to explain bullying in the same manner they explain other forms of misbehavior. We then summarized the current state of academic research on bullying, and in so doing, highlighted a number of similarities between bullying and other forms of crime and deviance. Given these similarities, we build upon the argument by Gottfredson and Hirschi (1990) that we do not need separate explanations for each manifestation of a propensity towards deviance and argue that bullying researchers have erred in ignoring criminological theories and the vast body of research on crime. Now we turn our attention to the central question of this research: is bullying different from other forms of crime and deviance, or is it simply another manifestation of the same underlying propensity towards crime? We argue that bullying is not a unique form of deviance, and that bullying shares a common etiology with other forms of misbehavior. We therefore expect bullying to co-occur with other deviant acts, and we expect that similar forces will create both bullying and other manifestations of deviance. In order to examine this, we will conduct a series of three interrelated analyses on a nationally representative survey of American adolescents.

First, we will conduct a latent class analysis (LCA) with measures of bullying and other deviant behaviors to identify a typology of participation in deviant activities. If bullies emerge

as a distinct group within this typology, this would serve as evidence that bullying is distinct from other forms of deviance. Conversely, if bullies do not emerge as a distinct group, this would serve as evidence that bullying is simply another manifestation of an underlying propensity towards deviance (regardless of how this propensity is expressed).

Second, we will examine how an empirical model based upon self-control theory explains involvement in bullying, and how this compares to involvement in other forms of deviance. We will do this with a set of logistic regression models examining the influence of self-control as a predictor of bullying and other deviant activities. Examination of the overall pattern of results will shed light on whether bullying appears to be driven by the same factors as other forms of deviance. If the overall pattern is similar across outcomes, this would suggest that bullying can (in part) be explained by a lack of self-control. Alternatively, if the results appear to be discrepant in regards to bullying, this would suggest that the current approach of treating bullying as a unique phenomenon is the correct approach.

Third, we will undertake a similar analysis with models based upon general strain theory. By employing the same approach with a second theoretical perspective, we will be able to provide a clearer answer to the question of whether criminological theories can explain bullying. We feel that this additional analysis is an important step towards triangulation, as simply testing one theoretical perspective cannot fully satisfy whether criminology is useful to the study of bullying, as it is possible that self-control theory is unique in its ability to explain bullying. If the same conclusion is reached with an alternate perspective, this would provide additional support for our argument that criminological theory is relevant to this area. As with the low self-control analysis, a similar pattern of results for bullying and other deviant activities would suggest that

the current approach to the study of bullying is misguided, and that bullying researchers should draw upon the vast body of knowledge amassed by criminologists.

In the following chapters we will demonstrate that bullying does not appear to be unique or distinct from other types of deviant behavior, and that both self-control theory and general strain theory are able to explain bullying, and do so in a manner consistent with how these perspectives handle other forms of crime. Chapter 2 will provide an overview of the data, methods, and analytic strategy employed in this research. Chapter 3 will provide the main results of our analysis. Finally, Chapter 4 will discuss the implications of our findings and suggest that future research on bullying correct the mistake of ignoring criminological knowledge.

CHAPTER 2 – DATA, MEASURES, AND METHODS

2.1 Data

This analysis uses data from the 2001-2004 National Comorbidity Survey Replication Adolescent Supplement (NCS-A). The NCS-A was a nationally representative survey of American adolescents aged 13-17. These data are well-suited for examining the utility of criminological theories in the understanding of bullying due to the wide variety of information collected. The NCS-A conducted computer-assisted face-to-face interviews with adolescents and utilized a dual-frame design (household and school) from 2001–2004 (Merikangas et al. 2009; for complete survey details, see Kessler et al. 2009). Weights included with the data account for unequal probability of selection (only in the household sample) and are poststratified to correct any remaining discrepancies between the sample and the population on a range of census sociodemographic and geographic characteristics. The NCS-A response rate was 85.9% for the household sample and 74.7% for the school sample yielding 10,123 student respondents.[17]

2.2 Measures

2.2.1 Focal Dependent Variables

Bullying. Respondents indicated whether they ever had a time in their lives when they often "bullied," threatened, or frightened people, including smaller or younger children. Responses were coded as "Yes" (1) and "No" (0).

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[17] While these data are cross-sectional, we were unable to find a longitudinal dataset that would allow us to examine our research questions. We will return to the issues surrounding our reliance on cross-sectional data in section 4.5.

Substance Use. In order to keep the results more comparable to the other outcomes, substance use is a composite, dichotomous measure that indicates if the respondent was a daily smoker (smoked at least one cigarette, cigar, or pipe per day), a regular/heavy drinker (consumed alcohol at least 1-2 days per week in the past twelve months), or used drugs (at all within the past twelve months). Responses were coded "Yes" (1) and "No" (0).[18]

Property Crime. A respondent's involvement in property crime was originally assessed via two measures: whether the respondent had ever been arrested for a property crime, such as theft or burglary; and whether the respondent had ever committed a property crime without being caught or arrested. These items were combined to indicate commission of any property crime, regardless of whether they were caught or arrested. Responses were coded as "Yes" (1) and "No" (0).

Violent Crime. Our measure of violent crime is constructed in a similar manner, based on questions regarding the respondent's commission of a violent crime such as assault or armed robbery.

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[18] As research typically focuses on substance abuse or dependence, guidance as to how to measure substance use is lacking. Given that we are using an adolescent sample, it can easily be argued that any use of tobacco, alcohol, or drugs is deviant. However, we feel that there are likely fundamental differences between youth who consume substances on a somewhat regular basis and those who may have just experimented once or twice. This is particularly true given that despite legal sanctions, for adolescents at least some experimentation is most likely normative. Our operationalization of substance use is rooted in these assumptions and intended to capture substance use as a form of deviance (which appears to be supported by the similarity in the prevalence of substance use vis-à-vis other forms of deviance amongst our sample).

Other Crime. Our measure of other crime is similar to the property and violent crime measures, and based on questions as to whether the respondent had ever committed any other type of crime.

2.2.2 Focal Independent Variables

2.2.2.1 Self-Control Analyses

Low Self-Control. There is a great deal of disagreement over how to best measure self-control (e.g., de Riddler et al. 2012; Duckworth and Kern 2011; Longshore, Stein, and Turner 1998; Tittle et al. 2003). However, the evidence suggests that regardless of how self-control is measured, it tends to operate in a similar matter (Holtfreter, Reisig, and Pratt 2008; Pratt and Cullen 2000). A respondent's level of self-control was assessed via a five-item scale, tapping three elements of self-control: impulsivity, risk seeking, and restraint.[19] Respondents were asked how true the following statements were for them: "I am an impulsive person who often acts before thinking," "I often do things without thinking of the consequences," "I like doing things just for the thrill of it," "I sometimes want to do things so much that I can't stop myself no matter how hard I try," and "I have a very hard time resisting temptations." Responses to these items ranged from 1 "Very" to 4 "Not at all." All items were recoded so that higher scores indicated greater levels of low self-control. An exploratory factor analysis[20] of the polychoric/tetrachoric

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[19] Prior research has demonstrated that impulsivity and risk-seeking are the most general elements of self-control and are equally predictive of crime as more complex measures (Esbensen et al. 2010; Longshore, Turner, and Stein 1996; Piquero and Rosay 1998; Winfree Jr. et al. 2006), and scales measuring just these elements are frequently employed (e.g., Hay and Meldrum 2010; Winfree Jr. et al. 2006).

[20] Exploratory factor analysis measures the extent to which an unobserved factor accounts for the covariance between two or more items, and thus can give us an indication as to whether or not the items

correlation matrix[21] suggested that, consistent with prior research, self-control is unidimensional (Arneklev, Grasmick, and Bursik Jr. 1999; Blackwell and Piquero 2005; Grasmick et al. 1993; Piquero and Bouffard 2007), with all five items loading well on one factor (minimum loading = 0.48 and the factor accounts for 38% of the variance in the original items).[22] Subsequently, all items were standardized and averaged to create the low self-control scale (Cronbach's α = 0.69).[23]

2.2.2.2 General Strain Analyses

While Agnew (2001) has questioned the appropriateness of using a composite measure of total strain, this uncertainty is caused by the typical inclusion of specific strains either weakly related or completely unrelated to crime. By limiting our analysis to strains likely to produce criminal coping, and given the argument that crime results from the cumulative effect of all

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belong together in a scale (Kim and Mueller 1978). Although previous studies (e.g., Grasmick et al. 1993) have used principal components analysis, in the present analysis, iterated principal factor analysis will be used for the purpose of scale construction. Principal components analysis assumes that there is no error, systematic or random, in the measures, but given the social nature of this data, this assumption seems untenable.

[21] A polychoric correlation matrix assumes that there is an underlying continuous distribution, and that the ordinal (or dichotomous) measure is just a coarsely categorized representation of this continuum. For all correlations involving dichotomous items, tetrachoric correlations (a special case of polychoric correlations) were used (Finney and DiStefano 2013).

[22] The dimensionality of all factors was determined by visual inspection of the screeplot and the pattern of factor loadings.

[23] Cronbach's alpha is a measure of internal reliability, and internal consistency implies that the items in the scale measure the same construct, as intercorrelations among items imply that a shared common variance (Spector 1992). However, this should not be taken as an implication of validity, for the nature of this construct is open to question.

strains and not any one specific strain (Agnew 2001), we feel that is appropriate to use a composite measure given the exploratory nature of this analysis. Based on these criteria, we created a composite measure of total strain from measures of financial strain, childhood maltreatment, school strain, criminal victimization, relational strain and health strain.

Financial Strain was assessed via a single dichotomous item (coded 1 for "Yes" and 0 for "No") based on two individual questions: whether respondents found it somewhat or very difficult to pay their monthly bills; or the respondent did not eat, or ate less than necessary due to a shortage of money.

Childhood Maltreatment indicates whether the respondent experienced any neglect or abuse by either parent while growing up.[24] Neglect was assessed through a series of five items that indicated how often respondents were made to perform chores too dangerous or difficult for their age; they were left unsupervised when too young to be left alone; they went without necessities because their parents/caregivers spent the money on themselves; their parents/caregivers made respondents go hungry or failed to prepare regular meals; or respondents did not receive proper medical treatment for illness or injury. Respondents were considered to have experienced neglect if they gave any answer but "Never" to any of these items. Abuse was measured with a series of six items measuring how often each parent insulted or swore at, shouted/yelled/screamed at, or threatened to hit the respondent; pushed/grabbed/shoved, or threw something at, or slapped/hit the respondent; or kicked/bit/hit with a fist, beat up, choked, burned/scalded, or threatened the respondent with a weapon. Respondents were considered to have experienced abuse if they responded with anything except "Never" to any of these items.

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[24] Given the serious nature of these items, we chose any abuse or neglect as the cutoff.

These items were summed, and childhood maltreatment was measured with a single dummy variable (coded 1 for "Yes" and 0 for "No") that indicated any abuse or neglect while growing up.

School Strain was assessed via a single dummy (coded 1 for "Yes" and 0 for "No") if respondents answered "Not at all True" or "Not Very True"[25] to the following statements: "Most of my teachers treat(ed) me fairly," "I (like/liked) school," "I (like/liked) my teachers," "I (feel/felt) as if I (don't/didn't) belong at school," "Homework (is/was) a waste of time" (reverse coded), or "Most of the things I learn(ed) in school are unimportant" (reverse coded).

Criminal Victimization is assessed with a single dichotomous measure indicating if the respondent had been mugged, physically assaulted, robbed, sexually attacked, or raped in the past twelve months (coded 1 for "Yes" and 0 for "No").[26]

Relational Strain is measured with a single composite dummy-coded variable (coded 1 for "Yes" and 0 for "No") that indicated whether the respondent had serious ongoing disagreements or problems getting along with a spouse or romantic partner; brother or sister; parent or close relative; or a friend.[27]

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[25] The original items were 4-point scales ranging from "Not at all True" to "Very," and were dichotomized to the midpoint of the original scale.

[26] As criminal victimization is a well-established predictor of crime (Agnew 1992; Agnew 2001; Baron 2004; Esbensen et al. 2010; Gottfredson and Hirschi 1990) and expected control variable in the criminological literature this measure is also used as a control variable in the self-control analyses.

[27] While it can be argued that multiple problematic relationships could be more straining than a single strained relationship, a single-item measure of relationship strain was included for a number of reasons. First, we did not want to differentially weight the different sources of strain in the final composite measure, and including each item separately would give disproportional importance to relational strains.

Health Strain is a single dichotomous measure (coded 1 for "Yes" and 0 for "No") based on two questions regarding overall health. Respondents were asked to rate their overall physical and mental health on a 5-point scale ranging from "Poor" to "Excellent." Respondents who indicated fair or poor[28] physical or mental health were considered to have experienced health strain.

Total Strain is a composite of the sum of the six individual dichotomous strain items.

2.2.3 Mediators

2.2.3.1 General Strain Analyses

Temper was assessed with a three-item scale. Respondents were asked how true each of the following statements was for them: "when I get mad I say ugly things," "I have a very strong temper," and "when people shout at me, I shout back." A 4-point scale ranging from "Not True at all" to "Very True" determined responses, and items were coded such that higher values indicated a stronger temper. An exploratory factor analysis of the polychoric/tetrachoric correlation matrix indicated that all three items loaded well on one factor (minimum loading = 0.70 and the factor accounts for 57% of the variance in the original items), and were averaged to create the temper scale (Cronbach's $\alpha = 0.74$).

Second, in order to create our total strain measure, we needed each of the items to be on the same scale, and given the different scales of the original items, dichotomous was the only option available. Third, as social relationships are not the primary focus of the general strain approach employed in this research, we did not want to overly complicate social relationships with the inclusion of controls for the presence of a romantic partner, siblings, *et cetera*. Fourth, and finally, is the exploratory nature of this work.

[28] The reference category is respondents who indicated good, very good, or excellent health..

Negative Emotions were assessed via a six-item scale based on the K6 distress scale (Kessler et al. 2002). Respondents were asked how often they had each of the following experiences in the past 30 days: "How often did you feel so depressed that nothing could cheer you up," "how often did you feel nervous," "how often did you feel restless or fidgety," "how often did you feel hopeless," "how often did you feel worthless," and "how often did you feel that everything was an effort?" Responses were on a 5-point scale ranging from "None of the Time" to "All of the Time," and all items were coded such that higher values indicated higher levels of negative emotions. An exploratory factor analysis of the polychoric/tetrachoric correlation matrix indicated that all six items loaded well on one factor (minimum loading = 0.55 and the factor accounts for 54% of the variance in the original items), and were averaged to create the negative emotions scale (Cronbach's $\alpha = 0.76$).

2.2.4 Key Criminological Variables

While not the primary focus of this work, each of the variables in this section addresses other leading criminological theories and their effects[29] warrant a brief discussion as they have a well-established impact on deviant outcomes (e.g., Blackwell and Piquero 2005; Bouffard and Rice 2011; Esbensen et al. 2010; Gottfredson and Hirschi 1990; Hardwick and Brannigan 2008; Moffitt 1993; Pratt and Cullen 2000; Pratt et al. 2010; Sampson and Laub 1993), and help overcome some of the weaknesses of the perspectives used in this research (particularly self-control theory). Accordingly, these variables are treated as key criminological variables and fall

[29] As the analyses in this research are conducted on cross-sectional data, the term effect simply refers to an association between the variables, and is not meant to imply causal order.

somewhere between control and focal measures, and while not the focus of this research, are meant as a nod towards other theoretical explanations, and require acknowledgement.

Age was measured in years. To account for the potential curvilinear relationship between age and deviance, a quadratic term for *Age-squared* was included in the models. Age was mean-centered prior to creation of the squared term, and all models include the mean-centered age variable.

Gender was measured with a single dichotomous item, contrasting boys (1) to girls (0).

Race was assessed via a series of dummy variables indicating white, black, Hispanic, and other, with white serving as the reference category.

Deviant Associations. We control for the impact of deviant associations with a four-item scale based on indices of peer, sibling, maternal, and paternal deviance. Peer Deviance was assessed with a nine-item index. Respondents indicated if their friends smoked, did drugs, carried a weapon, got into physical fights, stole, vandalized, failed a grade at school, dropped out of school, or were arrested. The responses to these items were summed to create our indicator of peer deviance (items loaded to one factor[30], minimum loading = 0.60 and the factor accounts for 50% of the variance in the original items; KR-20 = 0.68). A similar item was created for Sibling Deviance (items loaded to one factor, minimum loading = 0.66 and the factor accounts for 60% of the variance in the original items; KR-20 = 0.80). We control for the impact of Maternal Deviance with an eight-item index indicating whether the woman who raised the respondent lied a lot, got into physical fights, was ever involved in criminal activity, was ever arrested,

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[30] Determined via an exploratory factor analysis of the polychoric/tetrachoric correlation matrix. This also applies to other indices in the deviant associations measure.

frequently failed to take care of her family, had trouble holding a job, ever had a drinking problem, or ever had a drug problem. These responses were summed to create our measure of maternal deviance (items loaded to one factor, minimum loading = 0.74 and the factor accounts for 65% of the variance in the original items; KR-20 = 0.68). A similar measure was created to control for the effects of Paternal Deviance (items loaded to one factor, minimum loading = 0.70 and the factor accounts for 62% of the variance in the original items; KR-20 = 0.73). These indices were standardized and averaged to create the deviant associations scale (items loaded to one factor, minimum loading = 0.44 and the factor accounts for 24% of the variance in the four original scales; Cronbach's $\alpha = 0.54$).[31]

Informal social control via social bonds is another dimension that self-control theory fails to adequately address. Research has found that independent of self-control, school commitment is an important predictor of deviant outcomes (Brannigan 1997; Esbensen et al. 2010; Sampson and Laub 1993). In order to address the impact of social bonds, *School Commitment* was measured with a nine-item scale. Respondents indicated how true the following statements were for them: "Most of my teachers treat(ed) me fairly," "I care(d) a lot about what my teachers think/thought of me," "I like(d) school," "Getting good grades is/was important to me," "Homework is/was a waste of time," "I like(d) my teachers," "I try/tried hard at school," I feel/felt as if I don't/didn't belong at school," and "Most of the things I learn(ed) in school are unimportant." Responses ranged from "Very" (1) to "Not at all" (4), and all items were recoded

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[31] While social learning theory argues that both *differential association* and *differential reinforcement* are important to consider, a measure of reinforcement was not available in the NCS-A data. However, many studies employ a measure of differential association alone (see Pratt et al. 2010 for examples).

so that higher values indicated higher school commitment. The items were subsequently averaged to create our measure (an exploratory factor analysis of the polychoric/tetrachoric correlation matrix indicated that all items loaded to one factor, minimum loading = 0.52 and the factor accounts for 40% of the variance in the original items; Cronbach's $\alpha = 0.79$).[32]

2.2.5 Control Variables

As academic performance is a well-established predictor of deviant outcomes (e.g., Gottfredson and Hirschi 1990; Sampson and Laub 1993) *Grades in School* were assessed by a series of dummy variables contrasting self-reported respondents with Low Grades, or respondents with High Grades to respondents who received average grades.[33]

The impact of parenting on deviant outcomes was assessed with a series of dummy variables for parenting styles based on the work of Baumrind (1966). Maternal Responsiveness was measured with a three-item scale. Respondents were asked to indicate how much love and affection they received from the woman who raised them, how much she understood their problems and worries, and how much they could open up and talk to her about things that were bothering them. Responses ranged from "A Lot" (1) to "Not at all" (4). These items were

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[32] Six of these nine items comprise the school-related strain measure in the general strain theory analyses, and this control is not included in the general strain models.

[33] While it could be argued that academic performance could be seen as a proxy for low self-control, the same argument could be made for virtually every other potential cause of crime. For example, low levels of school commitment could reflect the distaste low self-control respondents feel when forced into situations that require high levels of self-control (Gottfredson and Hirschi 1990). As we do not support this argument, we have included other potential causes of crime in our analyses, and expect them to have independent effects on deviant outcomes (e.g., poor school performance could also reflect neuropsychological deficits or birth complications which predict deviant outcomes independently of self-control (e.g., Armstrong et al. 2009; Ratchford and Beaver 2009)).

recoded into dichotomous measures contrasting respondents who answered “A Lot” or “Some” to respondents who answered “A Little” or “Not at all.” These items were summed and recoded such that respondents who scored two or three on the three-item index were considered to have a responsive mother (an exploratory factor analysis of the polychoric/tetrachoric correlation matrix indicated that all items loaded to 1 factor, lowest factor loading = 0.77 and the factor accounts for 76% of the variance in the original items, KR-20 = 0.62).

Maternal Demandingness was assessed with a three-item scale. Respondents indicated how much the woman who raised them stopped them from doing things other children of the same age were allowed to do, how strict she was with her rules for the respondent, and how overprotective she was. Responses ranged from “A lot” (1) to “Not at all” (4). These items were recoded into dichotomous measures contrasting respondents who answered “A Lot” or “Some” to respondents who answered “A Little” or “Not at all.” These items were summed and recoded such that respondents who scored two or three on the three-item index were considered to have a responsive mother (an exploratory factor analysis of the polychoric/tetrachoric correlation matrix indicated that all items loaded to 1 factor, minimum loading = 0.67 and the factor accounts for 46% of the variance in the original items, KR-20 = 0.55).

Similar items were created for Paternal Responsiveness and Paternal Demandingness (minimum loadings = 0.74 and 0.72, explaining 75% and 56% of the variance in the original items, KR-20 = 0.69 and 0.64 respectively). Based on these items, respondents whose mothers who scored 1 on both Maternal Responsiveness and Demandingness were considered to have an *Authoritative Mom*, and respondents whose fathers scored 1 on both Paternal Responsiveness and Demandingness were considered to have an *Authoritative Dad*.

Standard socio-demographic characteristics associated with self-control and crime were included as covariates to minimize the possibility of spurious effects. We also controlled for the respondent's family background. *Parental Education* was assessed with a series of dummy variables indicating the highest level of education received by either parent: less than high school, high school, and more than high school, with high school serving as the reference category. We also include a logged measure of *Parental Income.*

Lastly, *Social Desirability Bias* is an obvious source of concern when studying self-control, bullying, and crime. Social desirability bias is systematic error introduced into self-report measures by respondents' desire to portray themselves in ways that would be deemed desirable and favorable by others (Fisher 1993). To minimize the impact of social desirability bias, we employ a ten-item index of social desirability based on items similar to those found in the Zuckerman-Kuhlman Personality Questionnaire (Zuckerman 2002). Respondents were asked to indicate whether the following statements were true or false to them: "I never met a person I didn't like," "I have always told the truth," "I always win at games," "I have never been bored," "I never get lost, even in places I've never been before," "I never get annoyed when people cut ahead of me in line," "My table manners at home are as good as when I eat out in a restaurant," "I have never lost anything," "No matter how hot or cold it gets, I am always quite comfortable," and "It doesn't bother me if someone takes advantage of me." Responses were recoded such that socially desirable answers received a score of 1, and the items were subsequently summed to create our social desirability index.

2.3 Analytic Strategy

2.3.1 Multiple Imputation

Prior to estimation of the main models, missing data needed to be addressed. There was a large proportion of missing data in each of the three main analyses (17.71% in the latent class analysis, 29.27% in the low self-control analysis, and 35.20% in the general strain theory analysis). To address missing data, we employed multiple imputation with chained equations (MICE), also known as fully conditional specification (FCS) (Royston and White 2011; van Buuren 2007; van Buuren, Boshuizen, and Knook 1999).

The MICE approach involves imputing the data on a variable-by-variable basis, and does not require the pattern of missingness to be monotone (van Buuren 2007).[34] For each variable with missing data, the correct estimation model (e.g., OLS, logistic, or poisson regression) can be specified. MICE begins by filling all the missing values for each variable with simple guesses, and then moves to the imputation phase (Royston and White 2011). The first variable with missing values is estimated using the rest of the variables as predictors, with estimation restricted to cases with observed values on the first variable. The missing values in this variable (which are currently filled with simple guesses) are replaced by values drawn from the posterior predictive distribution. MICE then moves onto the next variable with missing data, and repeats this process (but now, instead of using the simple guesses for the missing values of the first, it uses the imputed values from the first step). The process continues until each variable with missing values has been estimated, and then repeats this process a number of times to stabilize

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[34] A monotone pattern of missingness is one where for each person, all earlier variables are observed if a latter variable is observed (van Buuren 2007).

the results. Finally, this entire process is repeated independently a number of times to create a number of imputed datasets (Royston and White 2011). Following the suggestion that the number of imputed datasets be similar to the percentage of cases with missing values (White, Royston, and Wood 2011), our model estimates are based on 20, 30, and 35 imputations for the latent class, low self-control, and general strain theory analyses respectively. Further, following the advice of von Hippel (2009), all transformed variables (e.g., age-squared, the gender × total strain interaction) are transformed first, and then imputed as opposed to imputing first, and then transforming.[35] Additionally, following the advice of Enders (2010), imputations with implausible values (e.g., a score of 0 on a scale ranging from 1 to 4) were recoded to the nearest plausible value.

At this point, there are a number of individual imputed datasets. After creating the imputed datasets, estimation of multiply imputed data involves estimating the model separately for each imputed dataset, and combining the estimates of interest following the approach outlined by Rubin (1987).[36] Basically, parameter estimates are combined into their arithmetic average, and while the combination of standard errors is more complex, the approach is conceptually similar (Enders 2010). All results presented in the next chapter, unless otherwise noted, are the combined parameter estimates. The multiple imputation for each analysis was conducted using Stata/IC Version 14.0 (StataCorp 2015). In order to preserve the characteristics

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[35] Although this approach can lead to imputed values of transformed variables inconsistent with the original variables (e.g., an imputed age of 16, and an imputed age-squared of 100 instead of 256), regression estimates using the inconsistent values are unbiased, and attempts to fix these inconsistencies introduce bias into the resultant regression estimates.

[36] As this approach is outlined formulaically, we have omitted a detailed discussion of Rubin's rules.

of the sampling design, missing values were imputed separately for each cluster, and included an indicator variable for the strata. The total size of the analytic sample after multiple imputation of missing values is N = 10,123.

2.3.2 Latent Class Analyses

As a first step in determining whether bullying is distinct from other forms of crime and deviance, we employed a latent class analysis (LCA). LCA is a person-oriented approach that attempts to determine the number and composition of homogenous subgroups in the population based on responses to the indicators (Armour, Elklit, and Christoffersen 2014; Collins and Lanza 2010; Nylund et al. 2007). Unlike more familiar latent variable approaches, the underlying latent construct in LCA is categorical, as opposed to continuous (Collins and Lanza 2010; Feingold, Tiberio, and Capaldi 2014). Further, while factor analysis attempts to assess quantitative differences along a continuum, latent class analysis is concerned with assessing both quantitative and qualitative differences between groups of people who exhibit similar response patterns (Collins and Lanza 2010).

By including our measures of deviance as the indicators, LCA will help us identify a typology of participation in deviant activities. If bullies emerge as a distinct group within this typology, this would serve as evidence that bullying is distinct from other forms of deviance. Conversely, if bullies do not emerge as a distinct group, this would serve as evidence that bullying is simply another manifestation of an underlying propensity towards deviance (regardless of how this propensity is expressed).

LCA is an iterative, exploratory approach, with no a priori assumptions regarding the number of distinct groups (Armour et al. 2014). A number of statistical measures of fit are typically employed to determine the optimal number of classes (groups): the log-likelihood, the

Bayesian information criterion (BIC),[37] and the sample-size adjusted BIC. Given that research has identified the BIC as the optimal approach for determining the number of classes (Collins and Lanza 2010) we gave it the most weight in determining the correct solution. However, in latent class analysis, model fit and the selection of the ideal solution need to be judged not just on statistical measures, but on substantive meaning (Armour et al. 2014; Collins and Lanza 2010; Nylund et al. 2007), and we took this into account when choosing the correct number of classes.

Latent class models were examined with covariates included to assist in the prediction of class membership (Collins and Lanza 2010; Vaughn et al. 2011). Including covariates is equivalent to a multinomial regression model regressing the probability of class membership on each covariate. The LCA and multinomial regression models were estimated simultaneously (Vaughn et al. 2011). This simultaneous estimation allows the inclusion of covariates as predictors of class membership, which refines class membership and improves our confidence in the estimated latent class structure. This is particularly salient from a criminological standpoint, as there are well-established sociodemographic differences in participation in deviant activities. As a sensitivity analysis, the latent class models were re-estimated without covariates to determine the stability of class membership (Vaughn et al. 2011). Latent class analyses were conducted using Mplus Version 7.3 (Muthén and Muthén 2014). All models corrected the estimates for the weighting, clustering, and stratification of the original sample design.

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[37] The BIC is a comparative non-parametric indicator of model fit that penalizes improvement in model fit for increases in model complexity, in which a decrease in the coefficient is considered indicative of better fit (Raftery 1995). Examining whether the BIC decreased with each additional group helped to ensure that our improvements in model fit were not based on random chance.

2.3.3 Low Self-Control Analyses

As our dependent variables are dichotomous, we employed a series of non-nested logistic regression models to examine the associations between self-control and the outcome measures (bullying, substance use, property crime, violent crime, and other crime) (Pampel 2000). Each outcome is separately analyzed to determine the effects of self-control, in order to assess the suitability of self-control as a theoretical explanation of bullying. Following this, we will compare the effectiveness of self-control as a predictor of each outcome, and examine the relative importance of various predictors. This will allow us to determine if bullying appears to be a unique phenomenon, or simply another manifestation of crime/deviance, and demonstrate the utility of standard criminological models in the study of bullying. In order to assess the relative importance of the covariates, we fully standardized the logit coefficients. By examining the magnitude of the standardized coefficient, we can determine which predictors have the largest impact on the log-odds of involvement in each deviant outcome, and see if we observe a similar pattern in the relative importance of predictors for bullying as we do for other forms of crime and deviance.

Complex survey designs and multiple imputation render many standard post-estimation commands (such as commands to assess model fit) impossible. In order to assess model fit, two separate measures of fit were calculated: McKelvey and Zavoina's pseudo-R^2, and Tjur's coefficient of discrimination. Both of these measures can be calculated from the predicted values, which are based on the combined results (not calculated separately for each dataset, and then combined). McKelvey and Zavoina's pseudo-R^2 is a measure of variance explained, and can be interpreted similarly to the R^2 in ordinary least-squares regression. Tjur's coefficient of discrimination is the mean difference in the predicted probabilities between respondents who

scored one and respondents who scored zero (Tjur 2009). If a model makes good predictions, the respondents who scored one should have large predicted values while respondents who scored zero should have small predicted values. The better the model is at predicting the outcome, the higher the value of the coefficient of discrimination.[38] Analyses were conducted using Stata/IC Version 14.0 (StataCorp 2015). All self-control models corrected the estimates for the weighting, clustering, and stratification of the original sample design.

2.3.4 General Strain Theory Analyses

To test whether models based on general strain theory can provide a suitable explanation of bullying, statistical analyses were conducted in a number of phases. As general strain theory argues that the effects of strain on deviant outcomes is mediated by temper and negative emotions, in the first phase, ordinary least-squares regression (OLS) was used to separately estimate the effects of strain on both temper and negative emotions. As strain may have different psychological outcomes for boys compared to girls (Broidy and Agnew 1997; Kaufman 2009), with boys being more likely to respond to strain with anger or frustration and girls being more likely to respond with depression or anxiety, we included a strain-by-gender interaction.[39] This will allow us to examine gender differences in the response to strain.

In the second phase, logistic regression was used to estimate the direct effects of strain, and the mediators on each deviance outcome. In the logistic regression models, the strain-by-gender interaction was not included, as general strain theory only hypothesizes gender

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[38] Tjur's coefficient of discrimination ranges between 0 (for a model with no predictive power) to 1 (for a model, which perfectly discriminates between groups.

[39] Both the temper and negative emotion variables were mean-centered prior to the creation of the interaction terms, and all analyses use the mean-centered versions of these variables (Aneshensel 2002).

differences in the psychological responses to strain, and not in the effects of strain on deviant outcomes.[40] The logistic regression models of deviance also include additional controls not present in the OLS regression models of temper and negative emotions: low self-control and deviant associations.

In the third phase, we calculated the indirect effects and tested whether emotional responses mediate the effects of strain on deviance. Mediation is frequently tested using the approach outlined by Baron and Kenny (1986). In this approach, researchers look at a series of models: the outcome regressed on the predictor without the mediator, the mediator regressed on the predictor, and the outcome regressed on the predictor with the mediator in the model. If the effect of the predictor on the mediator is significant (in the second model), researchers look at the difference in the effect of a predictor on the outcome between models with and without the mediator. If mediation is occurring the effect of the predictor will be smaller in the model controlling for the mediator, and the indirect effect will be the difference in these coefficients. However, this approach is not applicable when either the mediator or, as in our case, the outcome is dichotomous (MacKinnon, Fairchild, and Fritz 2007).

The major issue with mediation with a dichotomous outcome is that all three[41] of the necessary models are scaled differently (MacKinnon and Dwyer 1993; MacKinnon et al. 2007). In OLS regression, the total variance of the outcome is fixed and remains constant in both the model with the mediator, and the model without the mediator. This is what allows us to compare

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[40] In fact, general strain theory hypothesizes that there will be no direct effect of strain on deviance once we account for the mediating effects of emotional responses to strain.

[41] These models are the logistic models predicting Y without the mediator, predicting Y with the mediator, and OLS model predicting the mediator.

the size of the effect of our predictor in each of the models. In logistic regression, the total variance of the outcome is not fixed; instead, the error variance is fixed. Therefore, when we add the mediator to the model, the total variance of the outcome changes, and the size of the predictor's effect will differ even when there is no mediation. To solve this problem, we followed the approach laid out by Kenny (2013).[42] This approach entails standardizing all of the equations to the same scale, and once this is accomplished, indirect effects and standard errors can be calculated (Kenny 2013; see also Herr 2006). The indirect effects were tested using the Sobel test (Sobel 1982). The standardization and rescaling, as well as the estimation of the indirect effects and significance testing were performed on the final combined estimates, not separately for each imputed dataset and then combined. Therefore, although we have unbiased slopes and standard errors and our Sobel test should be unbiased, caution is required when looking at the indirect effects and the tests of statistical inference.

For the OLS models, the R^2 was calculated separately on each imputed dataset, and combined via Rubin's rules. Fisher's *z*-transformation (Fisher 1915) was used on the square-root of each R^2, the transformed values were averaged, and then the transformation was reversed to arrive at the final model R^2 (Enders 2010; Van Buuren 2012). As with the low self-control analyses, model fit for the logistic models was assessed with McKelvey and Zavoina's pseudo-R^2, and Tjur's coefficient of discrimination. Analyses were conducted using Stata/IC Version 14.0 (StataCorp 2015). All general strain models corrected the estimates for the weighting, clustering, and stratification of the original sample design. In the following chapter, we will provide an overview of the results of our analyses.

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[42] Unpublished work. Cited with the author's permission.

CHAPTER 3 – RESULTS

3.1 Latent Class Analysis Results

We begin with an examination of the results of the latent class analysis. This will help determine whether there is a distinct group of bullies in the population, or whether bullying co-occurs with other forms of deviant behavior. If bullies are a homogenous subgroup, this would suggest that bullying is a distinct manifestation of deviance and that current criminological theories may not be the best approach to studying this phenomenon, and that a unique approach is necessary. On the other hand, if bullies do not emerge as a distinct group, this would support Gottfredson and Hirschi's (1990) argument that we do not need separate explanations for each different manifestation of deviant and criminal behavior.

3.1.1 Univariate Results

Table 3.1 contains the means, standard errors, and standard deviations of all variables. In the final weighted and multiply imputed sample, approximately 9% of respondents had bullied others. In regards to crime, around 10% of respondents had committed a property crime, approximately 4% had committed a violent crime, and approximately 11% had committed another form of crime. Finally, around 19% of respondents were substance users.[43] From this, we can see that the frequency of bullying is in line with other forms of crime and deviance.

Boys comprised 51% of the sample, and the mean age of respondents was around 15 years (SD = 1.5). Around two-thirds of respondents were white, 15% were black, 14% were Hispanic, and the remainder were members of another ethnic group. Nearly two-thirds of respondents reported having an authoritative mother, while nearly half reported having an

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[43] Responses to deviant activity items are not mutually exclusive.

authoritative father. The modal category of parental education was more than high school, and the average logged parental income was 11.035 (SD = 1.7), suggesting that the majority of respondents came from middle-class backgrounds. Lastly, the mean level of social desirability bias was approximately 1.7 (SD = 1.5), which suggests that respondents were not prone to giving socially desirable responses, and that our results should not be unduly biased.

Table 3.1 – Latent Class Descriptive Statistics

	Total (N=10,123)		
	Mean	S.E.	Std. Dev.
Dependant Variables			
Bullying (0–1)	0.093	0.005	0.291
Substance Use (0–1)	0.185	0.011	0.388
Property Crime (0–1)	0.101	0.006	0.301
Violent Crime (0–1)	0.043	0.007	0.202
Other Crime (0–1)	0.114	0.008	0.318
Key Criminological Variables			
Male (0–1)	0.513	0.009	0.500
Age (13–18)	15.195	0.063	1.468
Black (0–1)	0.151	0.010	0.358
Hispanic (0–1)	0.144	0.012	0.351
Other Race (0–1)	0.050	0.006	0.218
Control Variables			
Authoritative Mom (0–1)	0.650	0.009	0.477
Authoritative Dad (0–1)	0.480	0.012	0.500
Logged Parental Income (0–14.609)	11.035	0.038	1.739
Parents Less than High School Education (0–1)	0.091	0.007	0.288
Parents More than High School Education (0–1)	0.586	0.018	0.492
Social Desirability (0–10)	1.668	0.025	1.523

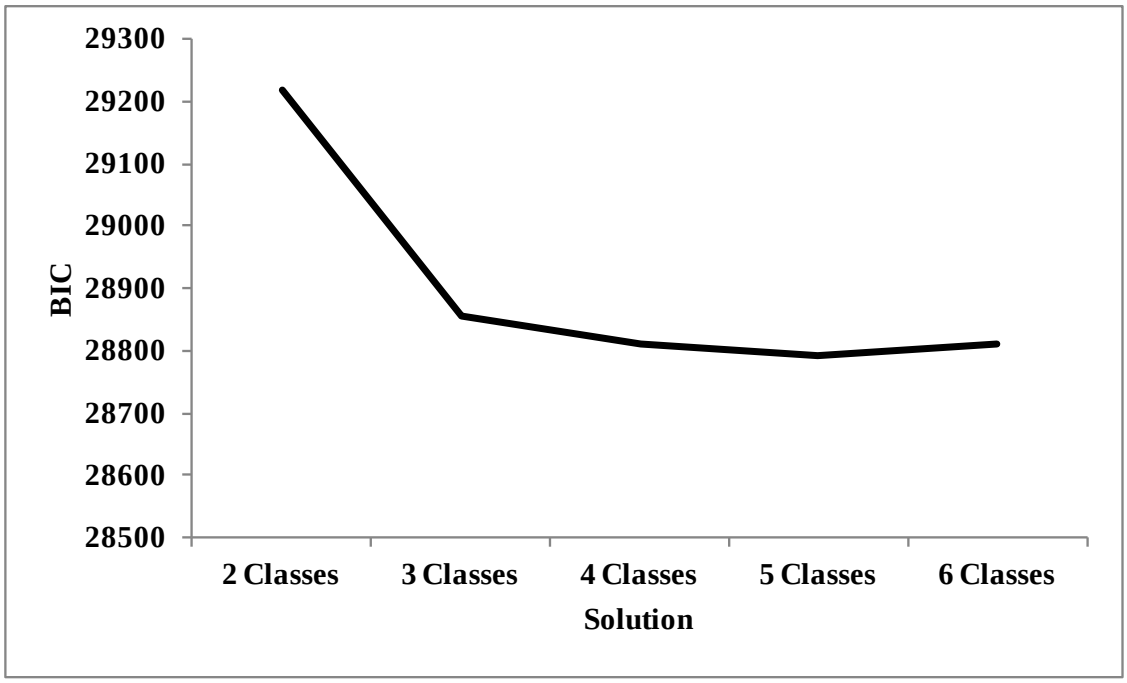
Weighted, imputed results.

3.1.2 Multivariate Results

3.1.2.1 Identification of Latent Classes

We turn our attention to comparative statistics for latent class solutions. Unless otherwise noted, models discussed here estimated the latent class structure with models including covariates. Figure 3.1 plots the BIC across various latent class solutions and shows that the BIC

Figure 3.1 – BIC Values across Latent Class Solutions



continues to decrease as the number of classes increases through the 5-class solution, and inspection of the plot suggests that a 5-class solution is optimal (BIC = 28790.563).[44] However, given that interpretability plays a vital role in choosing the correct number of classes (Armour et al. 2014; Collins and Lanza 2010; Nylund et al. 2007), the 4-class solution (BIC = 28810.034)

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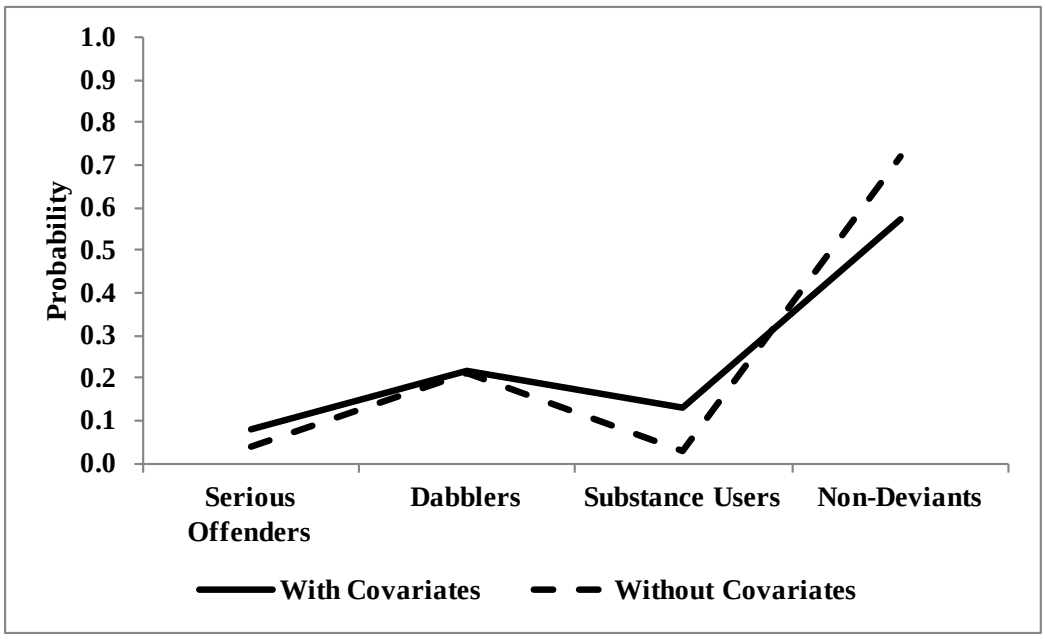
[44] The sample-size adjusted BIC continued to improve with a 6-class solution. However, the results of the 6-class solution do not appear to be trustworthy due to extreme values of the coefficients (see Appendix A).

was selected as the ideal model. The substantive findings are unchanged when looking at the 4-class solution as compared to the 5-class solution indicated by the BIC, and alternate class solutions (including the 5-class solution) are discussed in Appendix A.

As a sensitivity analysis, we compare the 4-class solution to a model without covariates as a test of the validity of our model. In the analyses without covariates, the BIC suggested a 3-class solution was ideal (BIC = 30151.285). However, the results of the 4-class model without covariates (BIC = 30193.517) are substantively similar to the 4-class solution with covariates. To compare the stability of the model we plotted the membership curves across classes for the 4-class solutions with and without covariates. The results, which can be seen in Figure 3.2, are quite similar and suggest that any differences between the models are negligible.

Figure 3.2 – Probability of Class Membership with and Without Covariates



3.1.2.2 Description of Latent Classes

The final 4-class solution is comprised of a class of serious offenders (7.97%)[45], a class of responders who dabble in all forms of deviant behavior (21.62%), a class of substance users (13.09%), and a non-deviant class (57.31%). We assigned the name to each class based upon the overall pattern of involvement in each deviant activity. Bullies did not emerge as a separate subgroup, which suggests that bullying is simply another manifestation of a propensity for deviance. This is further supported by the emergence of a distinct group of substance users, as substance use is not merely a manifestation of an inclination towards deviance, but also a mental health issue (Bruce and Raue 2013).[46]

Figure 3.3 contains the probabilities of involvement in each manifestation of deviance by class membership. For the serious offenders class, we can see that the probability of involvement in substance use is .758; for bullying, the probability is .306; for property crime, the probability is .631; the probability for violent crime is .391; and for involvement in other crime is .728. For this group, bullying involvement seems akin to involvement in violent crime.

For dabblers, involvement in all forms of deviance is relatively low, suggesting only occasional acts of deviance. The probability of substance use is .140; the probability of bullying is .165; for property crime, the probability of involvement is .182; the probability of involvement in violent crime is .045; and for other crime, the probability is .147. For dabblers, involvement in bullying seems consistent with all of the other forms of non-violent deviance.

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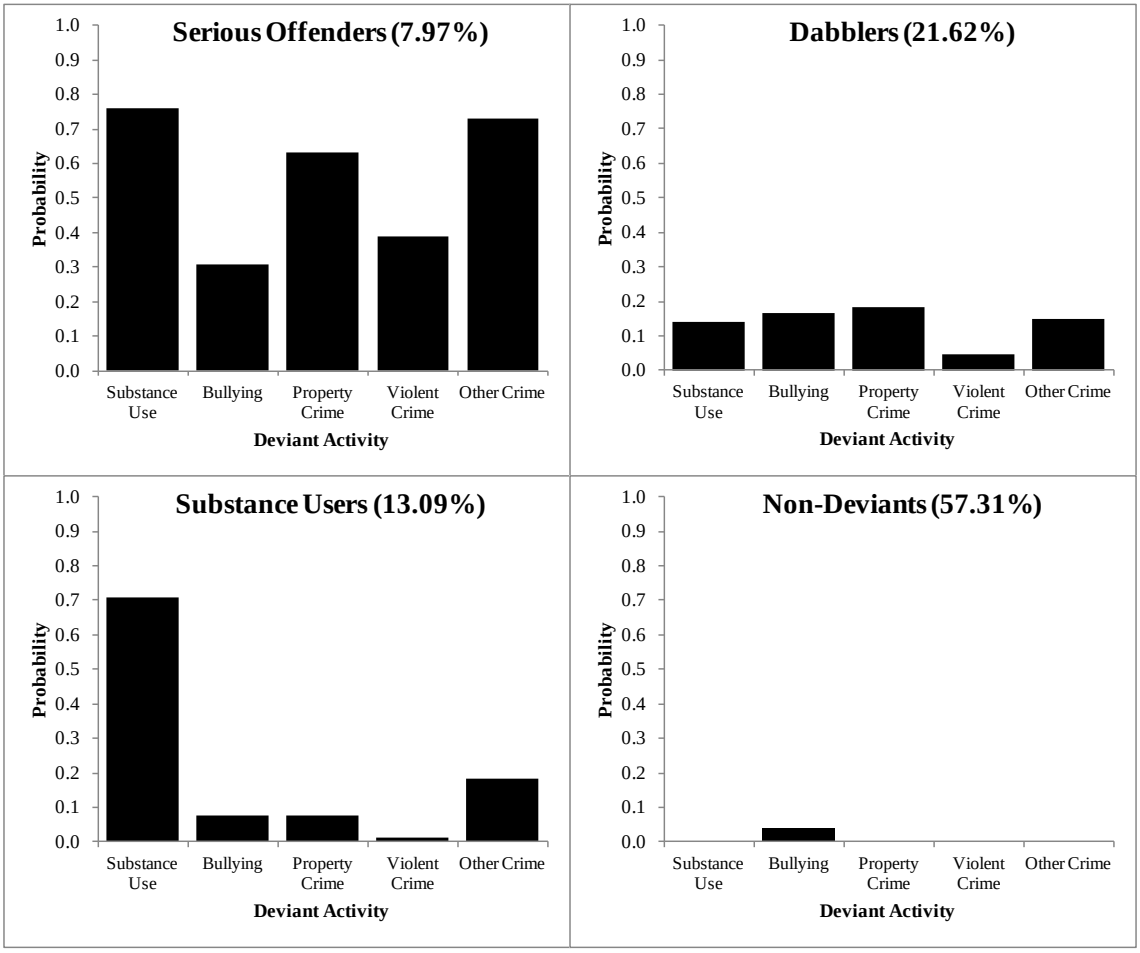
[45] Proportions are based on highest estimated posterior probabilities of class membership.

[46] As previously mentioned, it should be noted that it is typically substance dependence or abuse that is the focus of mental health research, not simply substance use.

For substance users, the primary manifestation of involvement in deviant activity is substance use with a probability of .709. The probabilities of involvement in all other forms of deviance are relatively low: for bullying the probability is .079; for property crime, the probability is .077; the probability of involvement in violent crime is .012; and the probability of other crime is .181.[47] For substance users, bullying seems to be in line with property crime.

Figure 3.3 – Probabilities of Deviance by Latent Classes (4-Class Solution)



[47] The higher probability of involvement in other crime, compared to property and violent crime, and bullying suggests that our measure of other crime is likely capturing drug and alcohol related acts and/or charges, at least for substance users.

Lastly, for the normative non-deviant class, we can see that involvement in all forms of deviance is highly unlikely. The probability of bullying is .039, while the estimated probabilities of all other forms of deviance are .000. For non-deviants, it appears that bullying is not substantively different from other forms of deviance. If bullying were truly different from other forms of deviant activity, we would expect bullies to emerge as a homogenous subgroup within the population, as we saw with substance users.

3.1.2.3 Predictors of Class Membership

Table 3.2 presents the results of the regression of latent class on our predictors.[48] Boys, compared to girls, are approximately six times as likely[49] to be serious offenders, nearly three-and-a-half times as likely to be dabblers, and no more likely to be substance users, as compared to non-deviants. Age has a non-linear effect for both the serious offenders and substance use classes compared to the non-deviant class, but age has no effect for dabblers as compared to non-deviants. Next, we turn our attention to race and ethnicity. Black respondents, as compared to white respondents are 2.8 times as likely to be dabblers than non-deviants, but approximately 25% as likely to be substance users than non-deviants, and no more likely to be a serious offender than non-deviants. Hispanic respondents, compared to white respondents, are around

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[48] As the outcome in a latent class analysis is assumed to be categorical, multinomial logistic regression is employed to estimate the effects of our predictors for each class compared to the reference (non-deviant) class. Multinomial logistic regression compares the log odds of a single reference category to each of the other categories in the variable.

[49] Although this interpretation of odds ratios is not technically correct, this is a stylistic choice to conform to the standards of the literature and ease of reading and interpretability. A more proper interpretation would be that the odds for boys are approximately six times the odds for girls.

Table 3.2 – Correlates of Deviance Latent Classes (4-Class Solution)

	Class 1 (Serious Offenders)			Class 2 (Dabblers)			Class 3 (Substance Users)		
	exp(b)	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*
Key Criminological Variables									
Male	5.824	0.253	***	3.432	0.270	***	0.698	0.324	
Age[1]	2.241	0.126	***	1.102	0.096		2.305	0.142	***
Age-Squared	0.860	0.066	*	1.001	0.042		0.840	0.058	**
Black	1.452	0.358		2.790	0.348	**	0.275	0.582	*
Hispanic	2.050	0.425		2.507	0.311	**	0.435	0.525	
Other Race	0.767	0.377		2.314	0.437		0.365	0.547	
Control Variables									
Authoritative Mom	0.485	0.227	**	0.862	0.202		0.761	0.228	
Authoritative Dad	0.478	0.176	***	0.763	0.199		0.770	0.164	
Logged Parental Income	1.013	0.041		1.009	0.059		1.001	0.053	
Parents Less than High School Education	1.336	0.325		1.204	0.396		1.568	0.370	
Parents More than High School Education	0.596	0.220	*	1.064	0.187		0.597	0.207	*
Social Desirability	0.656	0.060	***	0.817	0.065	**	0.727	0.052	***

Reference Group = Class 4 (Non-Deviant Class)

[1] Mean-Centered

two-and-a-half times as likely to be dabblers as non-deviants, but no more or less likely to be either serious offenders or substance users than to be non-deviants.

In regards to parenting style, we can see that having an authoritative mother and/or an authoritative father reduces the likelihood of a respondent being a serious offender as compared to a non-deviant, by around half. Parenting style has no impact on the likelihood of a respondent's classification as a dabbler or a substance user as compared to a non-deviant. Parental education has a negative effect on how likely a respondent is to be classified as either a serious offender or a substance user compared to a non-deviant (both classifications are approximately 60% as likely), but no impact on the likelihood of classification as a dabbler. Lastly, we see increases in social desirability lead to lower likelihood of classification as a serious offender (66%), a dabbler (82%), or a substance user (73%) as compared to a non-deviant.

Taken together, the results of the latent class analysis suggest that bullying is not qualitatively different from other manifestations of deviance. We demonstrated that there is no distinct group of bullies in the population: bullying co-occurs with other deviant activities, and that the probability of involvement is consistent with other forms of crime and deviance.

3.2 Low Self-Control Analyses

Section 3.1 provided evidence that bullying is not qualitatively different from other manifestations of deviance by demonstrating that there is no distinct group of bullies in the population, and that bullying co-occurs with other deviant activities, and that the probability of involvement is consistent with other forms of crime and deviance. Building on the argument put forth by Gottfredson and Hirschi (1990) that we do not need separate explanations for each manifestation of deviant behavior, this section will address how a leading criminological theory,

low self-control theory (Gottfredson and Hirschi 1990), explains bullying, and whether or not the predictions of self-control theory apply to bullying.

3.2.1 Univariate Results

Table 3.3 – Low Self-Control Descriptive Statistics

	Total (N=10,123)		
	Mean	S.E.	Std. Dev.
Dependant Variables			
Bullying (0–1)	0.093	0.005	0.291
Substance Use (0–1)	0.185	0.011	0.388
Property Crime (0–1)	0.101	0.006	0.301
Violent Crime (0–1)	0.043	0.007	0.202
Other Crime (0–1)	0.114	0.008	0.318
Focal Variables			
Low Self-Control (1–4)	2.336	0.011	0.657
Key Criminological Variables			
Male (0–1)	0.513	0.009	0.500
Age (13–18)	15.195	0.063	1.468
Black (0–1)	0.151	0.010	0.358
Hispanic (0–1)	0.144	0.012	0.351
Other Race (0–1)	0.050	0.006	0.218
Deviant Associations (-2.27–5.07)	-0.023	0.018	0.623
School Commitment (1–4)	3.256	0.007	0.495
Control Variables			
Victimization (0–1)	0.023	0.002	0.150
Low Grades (0–1)	0.064	0.004	0.245
High Grades (0–1)	0.369	0.012	0.482
Authoritative Mom (0–1)	0.650	0.009	0.477
Authoritative Dad (0–1)	0.481	0.012	0.500
Logged Parental Income (0–14.61)	11.035	0.038	1.739
Parents Less than High School Education (0–1)	0.092	0.007	0.288
Parents More than High School Education (0–1)	0.585	0.018	0.493
Social Desirability (0–10)	1.668	0.024	1.522

Weighted, imputed results.

Table 3.3 contains the means, standard errors, and standard deviations of all variables used in the self-control analyses. Given that most of the variables used in the self-control models

were employed in the latent class analysis, we will limit our discussion to the new variables.[50] Respondents' levels of self-control ranged from 1 to 4 with a mean of 2.336 (SD = .657). Roughly 2% of respondents had experienced criminal victimization in the past year. Respondents' mean level of deviant associations was -.023 (SD = .623), and ranged from -2.27 to 5.07, and this skew suggests that there are a handful of respondents with a large number of deviant associations. Approximately 37% of students reported receiving high grades, while around 6% of students reported low grades. Overall, students had a relatively high level of school commitment with a mean of 3.256 on a four point scale (SD = .495).

3.2.2 Multivariate Results

3.2.2.1 Regression Results

Table 3.4 reports the results of our logistic regression analyses of deviant activity on our predictors. While there is some degree of variation, the effects of self-control are relatively consistent across models. Regardless of which deviant outcome we examine, a one-point increase in low self-control results in the odds of participation in that deviant activity approximately doubling (odds ratios range from 1.61 for other crime to 2.01 for bullying). The consistent effects of self-control on deviance suggest that bullying and other forms of deviance share a common etiology.

Turning to gender, we can see that boys, as compared to girls, are more likely to be involved in crime, but at the same time equally likely to be involved in bullying and substance use. In terms of age, the picture is less clear. Age has a minor negative linear effect on bullying involvement, a curvilinear effect on substance use, and a positive linear effect on property crime,

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[50] Although each analysis was separately imputed, the imputed values are consistent across analyses.

Table 3.4 – Low Self-Control Logistic Regression Results

	Bullying			Substance Use			Property Crime			Violent Crime			Other Crime		
	exp(b)	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*
Focal Variables															
Low Self-Control	2.005	0.200	***	1.818	0.120	***	1.951	0.165	***	1.656	0.250	**	1.611	0.152	***
Key Criminological Variables															
Male	1.198	0.120		0.951	0.072		2.919	0.345	***	2.686	0.562	***	2.471	0.243	***
Age[1]	0.921	0.035	*	1.733	0.071	***	1.229	0.070	**	1.276	0.101	**	1.407	0.057	***
Age-Squared	0.995	0.023		0.915	0.024	**	0.960	0.026		0.953	0.039		0.943	0.031	
Black	1.687	0.234	**	0.629	0.073	***	0.992	0.143		3.506	0.821	***	0.995	0.137	
Hispanic	1.124	0.160		0.804	0.124		1.429	0.308		1.938	0.546	*	1.275	0.241	
Other Race	1.032	0.230		0.617	0.126	*	1.336	0.493		1.295	0.414		0.622	0.177	
Deviant Associations	1.863	0.139	***	2.628	0.264	***	2.651	0.267	***	2.981	0.385	***	2.572	0.225	***
School Commitment	0.704	0.081	**	0.513	0.059	***	0.593	0.086	**	0.627	0.118	*	0.554	0.062	***
Control Variables															
Victimization	1.714	0.462		1.787	0.521		1.952	0.576	*	3.947	1.319	***	1.632	0.471	
Low Grades	1.009	0.194		1.717	0.281	**	1.296	0.281		1.186	0.256		1.213	0.247	
High Grades	0.985	0.094		0.817	0.084		0.837	0.101		0.811	0.196		0.942	0.105	
Authoritative Mom	0.911	0.110		0.733	0.104	*	0.707	0.080	**	0.923	0.215		0.773	0.095	*
Authoritative Dad	1.137	0.121		0.933	0.109		0.861	0.106		0.581	0.111	**	0.716	0.074	**
Logged Parental Income	0.991	0.017		1.022	0.037		1.030	0.029		1.007	0.034		1.032	0.033	
Parents Less than High School Education	0.922	0.153		0.920	0.214		0.701	0.189		0.843	0.260		0.955	0.185	
Parents More than High School Education	0.958	0.109		0.938	0.085		1.350	0.262		0.632	0.127	*	1.177	0.142	
Social Desirability	0.919	0.038	*	0.836	0.025	***	0.900	0.040	*	0.870	0.057	*	0.816	0.026	***
Constant	0.053	0.025	***	0.585	0.386		0.043	0.028	***	0.025	0.023	***	0.144	0.067	***
McKelvey & Zavoina's Pseudo-R^2[†]	0.168			0.412			0.343			0.401			0.353		
Tjur's Coefficient of Discrimination[†]	0.083			0.265			0.195			0.199			0.201		
N	10,123			10,123			10,123			10,123			10,123		

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

[1] Mean-centered.

[†] Estimated value.

violent crime, and other crime. Ethnic differences also paint a muddled picture: when compared to white respondents, black respondents are more likely to be involved in both bullying and violent crime, less likely to be substance users, and no different in levels of property and other crime involvement. Hispanic respondents, compared to white respondents, are more likely to be involved in violent crime, but no different in involvement in other forms of deviance. Alternately, respondents from another racial or ethnic background are less likely to be substance users than white respondents, and no different in regards to other deviant activities.

At this point, we want to discuss a few noteworthy similarities and differences in our key criminological variables. Firstly, we can see that associations with deviant others (parents, siblings, and friends) leads to increases in the odds of involvement in all of our deviant outcomes. As was the case with self-control, this suggests that similar factors underlie both bullying and other forms of deviance. Secondly, we can see that social bonds do have a restraining effect on involvement in deviance. As commitment to school increases, the odds of involvement in any of our outcomes decreases. This similarity between bullying and other forms of deviance suggests that these activities are analogous, and the inclusion of key criminogenic factors may aid our understanding of bullying.

3.2.2.2 Assessing the Relative Importance of Predictors

Table 3.5 contains the standardized logistic regression coefficients necessary to assess the relative importance of our predictors.[51] In determining the rank-order of coefficients, significant

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[51] The logistic regression coefficients are fully standardized to estimates of the population standard deviations of x (derived from the multiply imputed data), and y^* – the latent continuum underlying the probability of scoring 1 on y (see Long and Freese 2003; Pampel 2000).

Table 3.5 – Rank Order of *xy-Standardized Low Self-Control Logit Coefficients**

	Bullying		Substance Use		Property Crime		Violent Crime		Other Crime	
	*bStdXY**	*Rank*	*bStdXY**	*Rank*	*bStdXY**	*Rank*	*bStdXY**	*Rank*	*bStdXY**	*Rank*
Focal Variables										
Low Self-Control	**0.230**	**1**	**0.166**	**3**	**0.196**	**3**	**0.141**	**5**	**0.139**	**4**
Key Criminological Variables										
Male	0.045	7	-0.011	17	**0.239**	**2**	**0.211**	**2**	**0.201**	**3**
Age[1]	**-0.061**	**6**	**0.341**	**1**	**0.135**	**4**	**0.153**	**4**	**0.222**	**2**
Age-Squared	-0.006	15	**-0.081**	**6**	-0.039	12	-0.044	12	-0.056	9
Black	**0.094**	**3**	**-0.070**	**7**	-0.001	18	**0.192**	**3**	-0.001	18
Hispanic	0.021	11	-0.032	13	0.056	10	**0.099**	**7**	0.038	11
Other Race	0.003	17	**-0.044**	**10**	0.028	16	0.024	14	-0.046	10
Deviant Associations	**0.195**	**2**	**0.254**	**2**	**0.271**	**1**	**0.290**	**1**	**0.261**	**1**
School Commitment	**-0.087**	**4**	**-0.140**	**4**	**-0.116**	**5**	**-0.099**	**8**	**-0.130**	**6**
Control Variables										
Victimization	0.041	8	0.037	12	**0.045**	**8**	**0.088**	**11**	0.033	13
Low Grades	0.001	18	**0.056**	**9**	**0.028**	15	0.018	16	0.021	15
High Grades	-0.004	16	-0.041	11	-0.038	13	-0.043	13	-0.013	16
Authoritative Mom	-0.022	10	**-0.063**	**8**	-0.074	**6**	-0.016	17	**-0.054**	**8**
Authoritative Dad	0.032	9	-0.015	15	-0.033	14	**-0.116**	**6**	**-0.074**	**7**
Logged Parental Income	-0.008	14	0.016	14	0.023	17	0.005	18	0.024	14
Parents Less than High School Education	-0.012	12	-0.010	18	-0.046	11	-0.021	15	-0.006	17
Parents More than High School Education	-0.011	13	-0.013	16	0.066	9	-0.096	**9**	0.036	12
Social Desirability	**-0.065**	**5**	**-0.116**	**5**	**-0.072**	**7**	**-0.090**	**10**	**-0.137**	**5**

Bold numbers represent significant coefficients.

predictors for each model were ranked first, followed by the remaining non-significant predictors for each model. As the models for each deviant activity have different numbers of significant predictors, we will limit our discussion to the relative importance of the top six predictors for the bullying model (the number of significant predictors in this model).

Self-control ranges from the most important predictor of bullying to the fifth most important predictor of violent crime. This suggests that even after controlling for potentially confounding variables self-control is integral to understanding bullying. Deviant associations is either the most important predictor (property, violent, and other crime) or the second most important predictor (bullying, and substance use). Although the coefficient for black is indicated as third in the rank order of predictors of bullying, it is not appropriate to discuss the effects of a polytomous variable in this manner.[52] School commitment is the fourth most important predictor of bullying, but ranges from the fourth most important cause of substance use, to the eighth most important factor in understanding violent crime. Social desirability ranks as the fifth most important predictor of bullying, and is a significant predictor of all other deviant outcomes. Finally, age is the sixth most important predictor of bullying involvement, but ranges from the most important predictor of substance use to the fourth most important predictor of involvement in property or violent crime. Altogether, these similarities supports our argument that bullying is not generally different from other forms of deviance, and that factors typically accounted for in a criminological framework are at play in the explanation of bullying.

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[52] While the possibility that an uninterpretable single dichotomous variable from a series of dummies representing a polytomous measure can impact the rank-order of coefficients, it is still useful to look at the overall pattern.

3.3 General Strain Theory Analyses

Section 3.2 discussed how self-control theory (Gottfredson and Hirschi 1990) would handle the explanation of bullying and other forms of deviant behavior. We saw that this approach's account of bullying was similar to its accounts of substance use, and property, violent, and other crimes, but there were some discrepancies. In all, our discussion of self-control theory provided additional evidence that bullying is not substantially different from other manifestations of deviance. In this section, we will examine how another leading criminological theory – general strain theory (Agnew 1992) – explains bullying. This will allow us to determine whether or not the predictions of multiple criminological theories apply to bullying in the same way they apply to other deviant activities.

3.3.1 Univariate Results

Table 3.6 contains the means, standard errors, and standard deviations of all variables used in the general strain analyses. As was the case in the discussion of the low self-control models, most of the variables used in this analysis were previously employed, and we will limit our discussion to variables new to the models.[53] Respondents' levels of strain ranged from 0 to 6, with a mean of 1.652 (SD = 1.216) suggesting that overall respondents were not experiencing significant amounts of stress. Our measure of temper had a mean of 2.588 on a five-point scale (SD = .830), with values ranging from 1 to 4. Finally, our measure of negative emotions ranged from 0 to 4, and had a mean of .540 (SD = .548).

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[53] Again, the values for the variables employed in prior analyses are consistent in the imputation for the general strain analysis.

Table 3.6 – General Strain Descriptive Statistics

	Total (N=10,123)		
	Mean	S.E.	Std. Dev.
Dependant Variables			
Bullying (0–1)	0.090	0.005	0.291
Substance Use (0–1)	0.182	0.011	0.388
Property Crime (0–1)	0.102	0.007	0.301
Violent Crime (0–1)	0.040	0.006	0.202
Other Crime (0–1)	0.111	0.007	0.318
Mediators			
Temper (1–4)	2.588	0.017	0.830
Negative Emotions (0–4)	0.540	0.010	0.548
Focal Variables			
Total Strain (0–6)	1.652	0.025	1.216
Key Criminological Variables			
Male (0–1)	0.519	0.010	0.500
Age (13–18)	15.195	0.063	1.468
Black (0–1)	0.123	0.009	0.358
Hispanic (0–1)	0.139	0.012	0.351
Deviant Associations (-2.37–5.07)	-0.038	0.017	0.620
Other Race (0–1)	0.051	0.006	0.218
Low Self-Control (1–4)	2.328	0.011	0.657
Control Variables			
Authoritative Mom (0–1)	0.644	0.009	0.477
Authoritative Dad (0–1)	0.475	0.013	0.500
Logged Parental Income (0–14.61)	11.123	0.041	1.739
Parents Less than High School Education (0–1)	0.074	0.006	0.287
Parents More than High School Education (0–1)	0.613	0.018	0.493
Social Desirability (0–10)	1.630	0.030	1.522

Weighted, imputed results.

Table 3.7 – General Strain Ordinary Least-Squares Regression Results

	Temper			Negative Emotions			Temper			Negative Emotions		
	b	*se*	*sig.*	*b*	*se*	*sig.*	*b*	*se*	*sig.*	*b*	*se*	*sig.*
Focal Variables												
Total Strain[1]	0.227	0.011	***	0.160	0.011	***	0.267	0.015	***	0.177	0.013	***
Total Strain[1] × Gender							-0.089	0.025	**	-0.038	0.017	*
Key Criminological Variables												
Male	0.066	0.019	**	-0.076	0.017	***	0.066	0.019	**	-0.076	0.017	***
Age[1]	-0.005	0.007		0.007	0.006		-0.003	0.007		0.008	0.006	
Age-Squared	-0.007	0.005		-0.010	0.004	*	-0.007	0.005		-0.010	0.004	*
Black	0.079	0.028	**	0.062	0.027	*	0.076	0.028	*	0.061	0.027	*
Hispanic	0.017	0.043		0.004	0.026		0.016	0.044		0.003	0.026	
Other Race	-0.025	0.048		0.158	0.047	**	-0.018	0.048		0.162	0.047	**
Control Variables												
Authoritative Mom	-0.009	0.037		-0.001	0.022		-0.010	0.037		-0.002	0.022	
Authoritative Dad	-0.025	0.031		0.011	0.018		-0.019	0.030		0.014	0.018	
Logged Parental Income	-0.002	0.005		-0.004	0.004		-0.001	0.005		-0.004	0.004	
Parents Less than High School Education	0.007	0.046		-0.044	0.043		0.011	0.046		-0.042	0.043	
Parents More than High School Education	-0.119	0.036	**	-0.015	0.020		-0.114	0.037	**	-0.013	0.020	
Social Desirability	-0.069	0.008	***	-0.008	0.006		-0.070	0.008	***	-0.008	0.006	
Constant	2.798	0.065	***	0.655	0.053	***	2.789	0.066	***	0.651	0.053	***
$R^{2\dagger}$	0.153			0.150			0.157			0.152		
N	10,123			10,123			10,123			10,123		

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

[1] Mean-centered.

[†] Estimated value.

3.3.2 Multivariate Results

3.3.2.1 Regression Results

Table 3.7 contains the ordinary least-squares regression results for the temper and negative emotion measures independent of control variables, with and without the interaction between gender and total strain. In regards to the temper model without the interaction term, we find, in line with expectations, that strain is a significant predictor of temper. We also find that there are significant gender differences in mean levels of anger, with boys reporting significantly higher levels of temper than girls ($p < .01$). Finally, there are racial and ethnic differences in self-reports of anger, with black respondents reporting significantly higher levels than white respondents ($p < .01$).

Turning to the model accounting for gender differences in the effects of strain, we find that while total strain is associated with significantly higher levels of anger, there are gender differences in these effects: ($b_{girls} = 0.267$, $p < .001$; $b_{boys} = 0.178$, $p < .001$), and the impact of total strain on our measure of temper is significantly weaker for boys than for girls ($p < .01$). Finally, there are also racial and ethnic differences in self-reports of temper, with black respondents reporting higher levels of temper than white respondents ($p < .05$).

For the negative emotions model without the interaction term, we find a similar pattern in the effects of total strain. As expected, we find that strain is a significant predictor of psychological distress. We also find significant gender differences in mean levels of negative emotions, with boys reporting significantly lower levels than girls ($p < .001$). Finally, there are racial and ethnic differences in self-reports of anger, with both black respondents and members of another racial group reporting higher levels of negative emotions than white respondents ($p < .05$ and $p < .01$ respectively).

Regarding the model accounting for gender differences in the effects of strain on negative emotions, we also find a similar pattern of effects. For girls, higher levels of strain are associated with significantly higher levels of psychological distress ($b = .177$, $p < .001$), and this relationship holds for boys as well ($b = .139$, $p < .001$). The difference in the effects of total strain on negative emotions is significantly weaker for boys than for girls ($p < .05$). Lastly, we also find racial and ethnic differences in the effects of total strain on depressive symptoms, with both black respondents and members of another racial group reporting higher levels of negative emotions than white respondents ($p < .05$ and $p < .01$ respectively).

Table 3.8 reports the results of our logistic regression analyses of deviant activity for our general strain model.[54] While there is variation across models, for all deviant activities increases in our measure of anger/frustration are associated with significant increases in the odds of involvement (odds ratios range from 1.403 for other crime, to 1.865 for bullying, to 2.210 for violent crime), supporting general strain theory's assertion that deviant coping is a likely occurrence when respondents are frustrated by the stressors they are experiencing. However, we do not find support for the idea that the experience of negative emotions due to strain will also lead respondents to employ deviant coping strategies, as our measure of depressive symptoms was not significantly related to any of our outcomes. The apparent consistency in the effects of the mediators provides further evidence that a common causation underlies both bullying and other forms of deviance.

Beyond this, we also fail to find support for general strain theory's argument that the effects of strain on involvement in deviant activities is fully mediated by emotional responses to

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[54] The indirect and total effects are reported in Table 3.9, and will be discussed later in this section.

Table 3.8 – General Strain Logistic Regression Results

	Bullying			Substance Use			Property Crime			Violent Crime			Other Crime		
	exp(b)	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*
Mediators															
Temper	1.865	0.095	***	1.508	0.074	***	1.474	0.089	***	2.210	0.131	***	1.403	0.095	**
Negative Emotions	1.062	0.096		1.142	0.070		0.913	0.168		0.991	0.132		1.046	0.076	
Focal Variables															
Total Strain[1]	1.303	0.054	***	1.218	0.048	***	1.396	0.073	***	1.205	0.088	*	1.275	0.056	***
Key Criminological Variables															
Male	1.429	0.104	**	1.163	0.076		3.571	0.121	***	3.472	0.212	***	2.961	0.103	***
Age[1]	0.913	0.038	*	1.747	0.041	***	1.226	0.055	**	1.290	0.074	**	1.410	0.041	***
Age-Squared	1.001	0.022		0.910	0.026	**	0.959	0.027		0.963	0.038		0.942	0.033	
Black	1.441	0.148	*	0.562	0.115	***	0.885	0.139		3.145	0.247	***	0.881	0.143	
Hispanic	1.066	0.138		0.788	0.144		1.389	0.215		1.886	0.250	*	1.221	0.179	
Other Race	0.930	0.218		0.597	0.195	*	1.256	0.347		1.225	0.318		0.588	0.266	
Deviant Associations	1.555	0.090	***	2.433	0.104	***	2.469	0.109	***	2.840	0.141	***	2.372	0.098	***
Low Self-Control	1.354	0.101	**	1.494	0.087	***	1.550	0.085	***	1.113	0.191		1.319	0.130	*
Control Variables															
Authoritative Mom	0.840	0.125		0.692	0.133	**	0.664	0.118	**	0.841	0.219		0.728	0.125	*
Authoritative Dad	1.223	0.117		0.928	0.120		0.904	0.120		0.599	0.185	**	0.744	0.103	**
Logged Parental Income	0.997	0.017		1.028	0.034		1.035	0.030		1.016	0.037		1.036	0.031	
Parents Less than High School Education	0.950	0.170		0.973	0.215		0.722	0.263		0.915	0.282		0.994	0.201	
Parents More than High School Education	1.059	0.108		0.947	0.088		1.450	0.195		0.674	0.198		1.257	0.121	
Social Desirability	0.956	0.041		0.855	0.027	***	0.931	0.044		0.900	0.060		0.832	0.033	***
Constant	0.006	0.344	***	0.028	0.539	***	0.004	0.479	***	0.001	0.750	***	0.011	0.408	***
McKelvey & Zavoina's Pseudo-R^2[†]	0.236			0.410			0.372			0.452			0.363		
Tjur's Coefficient of Discrimination[†]	0.102			0.255			0.196			0.195			0.195		
N	10,123			10,123			10,123			10,123			10,123		

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

[1] Mean-centered.

[†] Estimated value.

strain. In our analyses, strain continued to have significant direct effects on deviant activity for all outcomes controlling for emotional responses to strain. Further, the direct effects of stress on deviance are relatively consistent across models (with odds ratios ranging from 1.205 for violent crime, to 1.303 for bullying, to 1.396 for property crime). Again, the lack of a distinct pattern in the effects of strain and resultant emotional responses for bullying compared to other forms of deviance supports our argument that bullying is simply another manifestation of a general propensity towards deviance, and that it can be explained in the same manner we explain other sanctioned behaviors.

Turning to our key criminological variables, we can see that boys are more likely than girls to be involved in all forms of deviance other than substance use. The effects of age are similar to what we found in our examination of the impacts of self-control on deviant outcomes, with age having a curvilinear effect on substance use, and a negative linear effect on bullying, and a positive linear effect on property, violent, and other crime. Again, as with our self-control analysis, ethnic differences paint a somewhat muddled picture. Compared to white respondents, black respondents are more likely to be involved in both bullying and violent crime, less likely to be substance users, and equally likely to be involved in both property and other crime. Hispanic respondents, on the other hand, are more likely to be involved in violent crime than white respondents, but no different from white respondents in involvement in other forms of deviance. Lastly, members of another racial or ethnic group are less likely to be substance users than white respondents when controlling for strain and its resultant emotional responses, and equally likely to be involved in other forms of deviance. Additionally, respondents with lower levels of self-control are more likely to be involved in all forms of deviance except violent crime. Finally, associations with deviant parents, friends, and siblings are associated with significant increases

in the likelihood of personal involvement in deviant activity. These similarities suggest that similar mechanisms are at work in the etiology of bullying and other forms of deviance. As we found in our examination of self-control, there are no major discrepancies in how a general strain approach would explain bullying and other forms of crime and deviance.

3.3.2.2 Mediation Results

Table 3.9 reports the breakdown of direct, indirect, and total effects from the mediation analysis. Here we see that, in line with the expectations of general strain theory, the total amount of strain experienced by respondents has significant indirect effects through temper on involvement in each deviant activity. We find that temper mediates the impact of strain on deviance for both boys and girls. As negative emotions were not associated with any of our deviant outcomes, we find no evidence that psychological distress mediates the effects of strain on deviance for either boys or girls. Further, examining the total effects of strain on deviance, we see that strain appears to have a stronger influence on the deviant behavior of girls than boys. Beyond this as the proportion mediated is higher for girls than boys across outcomes, our results suggest that emotional responses explain a greater proportion of the effects of strain on deviance for girls than for boys. While the differences in the impacts of strain across models have not been tested for significance, there do not appear to be any major differences in the magnitude of

Table 3.9 – General Strain Mediation Results

	Bullying			Substance Use			Property Crime			Violent Crime			Other Crime		
	Coeff.	*se*	*sig.*	*Coeff.*	*se*	*sig.*	*Coeff.*	*se*	*sig.*	*Coeff.*	*se*	*sig.*	*Coeff.*	*se*	*sig.*
Indirect Effects															
Boys															
Through Temper	0.070	0.013	***	0.048	0.010	***	0.045	0.011	***	0.088	0.017	***	0.040	0.012	***
Through Negative Emotions	0.005	0.008		0.012	0.007		-0.008	0.015		-0.001	0.012		0.004	0.007	
Girls															
Through Temper	0.105	0.017	***	0.072	0.014	***	0.067	0.016	***	0.133	0.023	***	0.059	0.017	***
Through Negative Emotions	0.007	0.011		0.015	0.008		-0.010	0.019		-0.001	0.015		0.005	0.009	
Direct Effects															
Total	0.167			0.129			0.215			0.117			0.159		
Total Effects															
Boys															
Total	0.243			0.189			0.252			0.204			0.203		
Girls															
Total	0.279			0.216			0.272			0.248			0.224		
Proportion Mediated															
Boys															
Total	0.311			0.318			0.145			0.428			0.215		
Girls															
Total	0.401			0.404			0.208			0.530			0.289		

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

Note: All coefficients are standardized to the same scale within each model.

the coefficients.[55] This suggests that a general strain approach to understanding bullying is operating in the way we would expect, and lends further support to our argument that similar factors are responsible in the etiology of bullying and other forms of deviant activity.

3.3.2.3 Assessing the Relative Importance of Predictors

Table 3.10 contains the standardized logistic regression coefficients necessary to assess the relative importance of our predictors.[56] As was the case in Section 3.2.2.2, the number of significant predictors varies across models, and we will limit our discussion to the relative importance of the seven most important predictors of bullying (the number of significant predictors in the general strain model predicting bullying involvement).

Self-reported temper ranges from the most important predictor of bullying and violent crime, to the fifth most important predictor of other crime; while the direct effect of total strain ranges from being the second most important predictor of bullying to the seventh most important predictor of violent crime. Taken together, this suggests that even after controlling for potential confounding variables that the experience of stress and the affective impact of stressors are vital to understanding youths' involvement in bullying.

Association with deviant others, while the third most important predictor of bullying, is the second most important predictor of involvement in all other forms of deviance. Low self-

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[55] While there are some differences between bullying and other deviant outcomes, there are differences of a similar magnitude between these other deviant outcomes as well. If there were greater consistency across outcomes with bullying being an outlier, this would undermine our argument as to the commonality of bullying and other manifestations of a propensity towards deviance. Since this is not the case, and we find similar discrepancies across virtually all outcomes, we feel that our argument is supported on the whole.

[56] The standardization and ranking approaches are the same as previously discussed.

Table 3.10 – Rank Order of xy*-Standardized General Strain Logit Coefficients

	Bullying		Substance Use		Property Crime		Violent Crime		Other Crime	
	*bStdXY**	*Rank*	*bStdXY**	*Rank*	*bStdXY**	*Rank*	*bStdXY**	*Rank*	*bStdXY**	*Rank*
Mediators										
Temper	**0.249**	**1**	**0.144**	**3**	**0.141**	**4**	**0.269**	**1**	**0.124**	**5**
Negative Emotions	0.016	11	0.031	13	-0.022	15	-0.002	17	0.011	16
Focal Variables										
Total Strain[1]	**0.157**	**2**	**0.103**	**5**	**0.180**	**3**	**0.094**	**7**	**0.132**	**4**
Key Criminological Variables										
Male	**0.086**	**5**	0.032	12	**0.278**	**1**	**0.254**	**3**	**0.239**	**1**
Age[1]	**-0.065**	**6**	**0.347**	**1**	**0.131**	**5**	**0.153**	**5**	**0.222**	**3**
Age-Squared	0.001	17	**-0.086**	**8**	-0.039	12	-0.033	12	-0.056	10
Black	**0.063**	**7**	**-0.087**	**7**	-0.019	17	**0.167**	**4**	-0.020	15
Hispanic	0.011	13	-0.035	11	0.050	9	**0.091**	**8**	0.031	13
Other Race	-0.008	14	**-0.048**	**10**	0.022	16	0.018	14	-0.051	11
Deviant Associations	**0.132**	**3**	**0.233**	**2**	**0.245**	**2**	**0.264**	**2**	**0.236**	**2**
Low Self-Control	**0.096**	**4**	**0.112**	**4**	**0.126**	**6**	0.029	13	**0.080**	**7**
Control Variables										
Authoritative Mom	-0.040	9	**-0.074**	**9**	**-0.085**	**7**	-0.034	11	**-0.067**	**8**
Authoritative Dad	0.049	8	-0.016	15	-0.022	14	**-0.104**	**6**	**-0.065**	**9**
Logged Parental Income	-0.002	16	0.020	14	0.026	13	0.011	15	0.027	14
Parents Less than High School Education	-0.007	15	-0.003	17	-0.041	11	-0.010	16	-0.001	17
Parents More than High School Education	0.014	12	-0.011	16	0.080	8	-0.079	9	0.050	12
Social Desirability	-0.033	10	**-0.101**	**6**	-0.047	10	-0.066	10	**-0.123**	**6**

Bold numbers represent significant coefficients.

control is either the fourth (bullying and substance use), sixth (property crime), or seventh (other crime) most important predictor of all deviant outcomes with the exception of violent crime (non-significant). While gender is a key factor underlying involvement in each manifestation of deviant behavior other than substance use (non-significant), its relative importance is variable across models: gender is the most important predictor of property crime and other crime, the third most important predictor of involvement in violent crime, and the fifth most important predictor of bullying.[57] The impact of age is also highly variable across models, ranging from the most important predictor of substance use to the sixth most important predictor of bullying. Lastly, the coefficient for black is reported as seventh in the rank order of predictors of bullying, but once again, it is not appropriate to discuss the effects of a multinomial measure in this way. Altogether, the similarities in the relative importance of predictors for each outcome (with the notable exception of violent crime) support our assertion that bullying is generally the same as other types of deviant behavior.

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[57] While there are some discrepancies in the rank order of coefficients across outcomes, as was the case with the mediation results presented in section 3.2.2.2 these discrepancies are not confined to bullying and do not undermine our overall argument.

CHAPTER 4 – DISCUSSION AND CONCLUSION

4.1 Introduction

Faced with the tragic consequences of bullying (school shootings, suicides, etc.), society has taken increased notice of this behavior, and traditional views regarding bullying as a "normal" part of growing up are being discarded. The increase in attention paid to bullying has led to an abundance of scholarly research being conducted on the issue since the turn of the millennium. One striking feature of this research lies in its treatment of bullying as a novel form of deviance and aggression (e.g., Swearer and Hymel 2015), as opposed to nothing more than another manifestation of a general propensity towards deviance. Given that aggression and deviance have been extensively studied since (at least) the nineteenth century, it is somewhat surprising that the bullying literature has largely ignored virtually everything criminologists have discovered.

This oversight has led to a growing body of work, in many ways, is reinventing the wheel. The discoveries of bullying researchers tend to be well known and expected by criminologists. For example, Swearer and Hymel (2015) discuss the causal importance of masculine gender norms, a finding well-documented by criminologists (e.g., Daly and Wilson 1988; Hagan et al. 1987; Messerschmidt 1993); the curvilinear relationship between involvement and age, again a well-established finding in criminology (e.g., Greenberg 1985; Hirschi and Gottfredson 1983); and the etiological role played by impulsivity, a finding widely acknowledged by researchers of crime (e.g., Gottfredson and Hirschi 1990; Grasmick et al. 1993). We feel that the (unsurprising to criminologists) similarities in the causation of bullying and other forms of crime and deviance, supports arguments regarding the generality of deviance (Gottfredson and Hirschi 1990; Hirschi and Gottfredson 1994; Rebellon and Waldman 2003),

and argue that separate explanations for each manifestation of an underlying deviant predisposition are unnecessary and misguided. We believe that bullying researchers have made a serious error in ignoring criminological theories and the vast body of research on crime.

Following the tenets of the classical school of criminology, we argued that all behavior (criminal or not) shares a common motive (simple hedonism), and that the choice of one behavior over another is an exercise in free will, made after weighing the costs and benefits of each alternative. Further, the foundation of our thinking is rooted in the control perspective: a broad paradigm encompassing numerous theories of crime focusing on the factors that constrain committing crime (as opposed to looking at what motivates crime). In order to explore whether bullying was different from other forms of crime and deviance or simply another manifestation of the same underlying propensity towards crime we employed a latent class analysis with the expectation that bullying would co-occur with other deviant acts. We followed this by employing two leading control theories (self-control theory and general strain theory) to examine whether similar forces were responsible for both bullying and other manifestations of deviance. To address some of the limitations of the theoretical perspectives employed we also included a selection of well-documented key criminological variables tapping other prominent criminological theories in our examination of the etiological roots of bullying and other forms of deviance. At this point, we will highlight the primary findings of our analysis.

4.2 Discussion

4.2.1 Latent Class Analysis

We began our study with a latent class analysis in order to identify a typology of participation in deviant activities. Our primary interest was whether bullies would emerge as a distinct group, for if they did, it would provide evidence that bullying is a unique form of deviant

behavior. Our results clearly indicate that bullies are not a distinct class of deviants, as they did not emerge as a separate class. Rather, we found four homogenous subgroups: serious offenders, dabblers, substance users, and non-deviants. Further, our results indicate that the probability of involvement in bullying is consistent with the probabilities of involvement for other deviant activities within each subgroup. This lends support to our hypothesis that bullying is simply another manifestation of an underlying propensity towards deviance in general.

Our confidence in our results is enhanced when we examine the groups in greater detail. As mentioned in section 3.1.2.2, substance use, while a manifestation of deviant inclinations, is also a mental health issue, therefore the emergence of a substance users class is in line with expectation. Further, in line with prior research on offending, we found a class of serious offenders (a group with very high probabilities of participation in all types of deviance) comprising approximately 8% of our sample. Prior studies have consistently found that a small group of offenders commit the majority of offences (e.g., Wolfgang, Figlio, and Sellin 1972; Farrington 2002; Moffitt 1993). Additionally, a group that we called dabblers emerged, and members of this group may experiment with deviance. In her seminal work, Moffitt (1993) demonstrated that for many adolescents (approximately 22% in our sample) deviance during adolescence can be seen as somewhat "normative," and is used in an instrumental manner. She argues that for this group[58] involvement in deviant activities can be a source of social status, and helps narrow the maturity gap (where adolescents may be physically like adults, but lack social recognition as adults and are seen as akin to children), as many deviant activities can be

[58] Moffitt labels these adolescents as adolescence-limited offenders (Moffitt 1993).

associated with maturity and adulthood (Moffitt 1993; see also Dijkstra et al. 2010). Finally, as expected, the majority (approximately 57%) of our sample falls into a non-deviant class.

If we turn our attention to the predictors of class membership, we further enhance our confidence in our results. As the links between substance use and mental health are beyond the scope of our research, we will limit our attention here to criminal activities. Beginning with gender, it is well documented that males are far more involved in crime and deviance than girls (e.g., Daly and Wilson 1988; Esbensen et al. 2010; Gottfredson and Hirschi 1990), and this is supported when we look at the odds ratios for membership in our deviant classes: boys are 5.8 times as likely to be classified as serious offenders than non-deviants, and boys are 3.4 times as likely to be classified as dabblers than non-deviants.

In regards to age, we find a curvilinear effect on membership in the serious offender class versus the non-deviant class, and no impact in regards to dabblers. This too is supported by the criminological literature. The majority of offending occurs in adolescence (Gottfredson and Hirschi 1990; Moffitt 1993). The small group of serious offenders begin their involvement in deviant activity at a young age and reach their peak level in adolescence (Farrington 1995; Moffitt 1993), and it is probable that this is what our results indicate.[59] The lack of an effect on the dabblers class is also supported by Moffitt's (1993) research on the somewhat normative nature of involvement in deviance during adolescence for the majority of offenders. As our

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[59] However, we were unable to directly test this relationship due to the complicated nature of the latent class analysis, and it is possible that instead of a ceiling effect where involvement in crime is reaching a plateau we are seeing a situation where involvement in crime has already peaked and is beginning to decline (a situation that would not be readily explicable by criminological theory).

sample was limited to adolescents, we are seeing the peak level of involvement for this group, and would not expect age to play a significant role within this time frame.

Lastly, our race and ethnicity findings are also supported by previous research on crime and deviance. We found that black respondents, as compared to white respondents are more likely to be classified as dabblers than non-deviants. This further supports the maturity gap argument, as members of racial minorities face disadvantage beyond the disjunction between biological and social age, suggesting that the maturity gap is wider for minority youth than their white counterparts. Further, this supports the broader criminological research on race and ethnicity. Messerschmidt (1993) argues that various social factors (e.g., social class) lead to racialized socialization practices. For example, he argues that white, middle-class boys are socialized to enact masculinity through behaviors favorable to educational, occupational, and financial success throughout life, behaviors which are antithetical to delinquency. In terms of racial minorities, the enactments of masculinity are often quite different, favoring violence as one of the 'ideal' means of constructing masculine identity (Messerschmidt 1993; see also Cobbina, Like-Haislip, and Miller 2010). This echoes previous research which has suggested that toughness and risk-taking (characteristics linked to involvement in deviance) are essential tools for the construction of identity among youth from disadvantaged racial minorities (e.g., Anderson 1999; Katz 1988; Stewart, Simons, and Conger 2002).

Altogether, we believe that our latent class analysis has contributed to the criminological literature by demonstrating that bullies are not a homogenous subgroup within the population. Bullies did not emerge as a distinct class in our analysis: instead, the probability of involvement in bullying was in line with other forms of deviance within each class. Further, the typology of involvement revealed by our analysis is readily understandable to criminologists, and concordant

with past research. Our confidence in the typology uncovered by our analysis is enhanced by the operation of our key criminological variables when predicting class membership. The predictions of gender, age, and race and ethnicity are in concert with prior research on crime and deviance. On these bases, we feel confident in suggesting that criminological theory is an appropriate lens for studying bullying.

4.2.2 Low Self-Control Analysis

The results of the latent class analysis demonstrated that calls to treat bullying as some form of novel, unique behavior may be unwarranted. We next examined how empirical models based on self-control theory would explain bullying and involvement in other forms of misbehavior. Our primary hypothesis for this analysis was that a self-control model would predict bullying, and would do so in the same way it predicted other deviant activities. If the overall pattern of results, in terms of significant predictors and the relative importance of predictors, were in agreement between bullying and other forms of crime and deviance, this would serve as evidence that bullying and crime share common etiological roots, and that researchers studying bullying should be taking advantage of the insights found in the criminological literature. Alternatively, if the results appeared to be discrepant, this would suggest that the causal roots of bullying may differ from those of crime, and that researchers should be directing their attention to uncovering the motivations of bullying.

Our results suggest that self-control theory appears able to explain bullying. As was the case with the latent class analysis given the unique position of substance use as a form of deviance and a mental health issue, we will be limiting our discussion to bullying, property crime, violent crime, and other crime. Low self-control is a significant predictor of all forms of deviance, including bullying, and increases the odds of involvement by between approximately

60% and 100%; further, the odds ratios for bullying and property crime are quite similar. Beyond this, low self-control is the strongest predictor of bullying, underscoring the importance of accounting for criminological concepts research on this area.

Turning to the impact of our key criminological variables, we see that while gender predicts crime (with boys being more likely to be involved), it does not predict bullying. One possible reason for this discrepancy lies in the nature of the behavior itself: as discussed in section 1.3.4.1, bullying encompasses physical, verbal, emotional, and relational aggression. While boys may be socialized to be physical and tough (e.g., Cobbina et al. 2010; Hagan et al. 1979; Hagan et al. 1987; Messerschmidt 1993), in line with physical and direct verbal aggression, research has suggested that girls are socialized in ways that may lead to greater involvement in emotional and relational aggression (e.g., Berger and Rodkin 2009; Hagan et al. 1979; Hagan et al. 1987; Seals and Young 2003). As a result, while boys may engage in bullying as an enactment of masculinity, girls may engage in bullying as an enactment of femininity. This is supported by research that has found that boys are more involved in physical bullying (Beckman et al. 2013; Carbone-Lopez et al. 2010; Goldstein et al. 2008; Hymel and Swearer 2015; Seals and Young 2003; Wang et al. 2009), and girls are typically more involved in indirect, non-physical forms of bullying. We cannot determine if the lack of a gender difference in involvement is due to the non-specific measure we have of bullying. It is possible that if we were to limit our discussion to physical and direct forms of bullying, we would see a similar gender difference. While this result is somewhat anomalous for the criminological literature, future research with a better measure of bullying is warranted before we come to any firm conclusion.

In regards to age, there appears to be another discrepancy: while involvement in crime increases with age, involvement in bullying decreases. One possible reason for this finding is that bullying may be an age-graded behavior, and bullying may simply be the manifestation of low self-control that is most appropriate at younger ages. As mentioned in section 1.3.4.2, the main difference between the age-crime and age-bullying curves is that the age-bullying curve peaks a few years younger, commonly in middle school (Seals and Young 2003; Wang et al. 2009), suggesting that bullying may be an earlier developmental stage of deviant behavior (Baldry and Farrington 2000). We do not feel that this suggests a difference in the etiology of bullying when compared to other forms of deviance; rather, we would suggest that adolescents are simply engaging in age-appropriate behavior.

Turning now to race and ethnicity, our results suggest that black and Hispanic respondents are more likely to be involved in violent crime than white respondents, but only black respondents are more likely than white respondents to be involved in bullying. As discussed in section 1.3.4.2, inconsistent findings regarding racial and ethnic differences in crime are common in both the criminological and bullying literatures, but due to lack of controls for socio-structural factors (e.g., neighborhood or school context) in our data, we cannot rule out the possibility that these differences are either spurious, or are simply methodological artifacts. This being said, our results suggest that members of disadvantaged racial minorities may be more likely to be involved in various types of deviant behavior. We do not feel that our results regarding race and ethnicity undermine our overall conclusion that bullying and other forms of deviance are motivated by the same causal factors.

Additionally, as expected, deviant associations increase the likelihood of involvement in all forms of deviant activity including bullying. This supports the arguments of social learning

theory documented in section 1.3.2.3, and provides evidence that bullying and other forms of deviance share causal roots. Finally, consistent with social control theories, school commitment lowers the risk of involvement in bullying, substance use, and crime. The constraining effects of social bonds across outcomes serves as additional support for our argument of a shared etiology.

On the whole, we feel that our results suggest that the current approach of treating bullying as a distinct form of behavior is misleading. We have demonstrated that a leading criminological theory can predict bullying, and does so in a manner consistent with how it predicts other forms of deviance. While there are some minor discrepancies in our results (limited primarily to sociodemographic differences), we do not believe these differences undermine our arguments in favor of the generality of deviance. As we expected, low self-control significantly increases the probability that respondents engage in all of the deviant outcomes in our study, and seems to do so relatively consistently. Further, we found evidence that other key criminological variables commonly included in self-control models (deviant associations and school commitment) operate in the hypothesized manner for both bullying and other manifestations of deviant behavior. We believe that we have contributed to the criminological literature by demonstrating the applicability of criminological theory to the study of bullying.

4.2.3 General Strain Analysis

The results of our latent class analysis suggested that bullies do not appear to be a distinct group of deviants, and the low self-control analysis suggested that at least one criminological theory appears capable of explaining involvement in bullying. Taken together, these analyses provided some evidence that bullying may simply be another manifestation of deviant behavior and be driven by similar factors as other forms of misbehavior. However, it is possible that there

is something specific about self-control theory that makes it amenable to the study of bullying. In order to more firmly establish that criminological theory, and not just self-control theory in particular, is able to explain bullying involvement, we examined the utility of empirical models based on general strain theory. Our primary hypothesis here was that these models would also predict bullying, and in a similar manner as they predicted other forms of deviance. As with the low self-control analysis, we are interested in similarities and discrepancies in the overall pattern of results. We argue that similarities would suggest a shared causation across particular forms of deviant behavior, and would help rule out the possibility that self-control theory is an anomaly in its ability to explain bullying. Alternatively, if there are serious dissimilarities in the patterns of results across outcomes, this would provide evidence that bullying does differ from other manifestations of deviant tendencies.

As general strain theory argues that deviance is a coping mechanism for the negative emotional states resulting from stressful life events (Agnew 1992), we begin with a very brief discussion of our models predicting temper and psychological distress. As expected, exposure to strain is associated with higher levels of temper and distress. Further, we find evidence of gender differences in the relationships between stress and negative emotional states, suggesting that boys and girls may react differently in the face of problematic situations. As predicted by research on gender and strain (e.g., Broidy and Agnew 1997; Ngo and Paternoster 2013), boys report experiencing higher levels of temper and lower levels of psychological distress than girls.

Research on gender differences in the impact of strain would suggest that boys should primarily react with anger, while girls should react primarily with distress (Broidy and Agnew 1997; Ngo and Paternoster 2013). In line with prior research, we found that for boys, increases in strain were associated with smaller increases in psychological distress than for girls.

However, we also found that increases in strain for boys were associated with smaller increases in temper than was the case for girls, contrary to expectations. Possible reasons for this discrepancy lay in our measures: we employed a trait-based measure of anger and frustration rather than a situational measure, and our measure of strain is a composite index rather than individual strains. While we will return to the issues surrounding these measures in section 4.5, we will make two brief notes here: first, our measure of anger is not necessarily capturing an emotional response to stressful conditions (Mazerolle, Piquero, and Capowich 2003); and second, prior research has suggested that boys and girls experience different types of strain (Broidy and Agnew 1997; Ngo and Paternoster 2013), and a composite measure of strain may obscure the relationship. However, we do not necessarily feel that this undermines our results in any way, as our primary interest lies in testing whether temper and psychological distress mediate the impact of strain on deviance. As mentioned in section 2.2.2.2, this is an exploratory study to determine whether the basic propositions of general strain theory may work as an explanation of bullying. If, on the whole, general strain theory appears to be a promising avenue of enquiry, future research can disentangle the impacts of individual stressful events.

Our results indicate that general strain theory may be a useful approach to the study of bullying. As with the previous analyses, we will be omitting a discussion of the substance use models. We find that, as predicted by general strain theory, the impact of stressful life events on delinquency is mediated by negative emotional states. While our measure of total strain remains significant in the full models, research generally finds that strain is not fully mediated by emotional responses (e.g., Agnew et al. 2002; Baron 2004; Broidy 2001; Mazerolle et al. 2000; Moon, Hays, and Blurton 2009). Further, the direct impact of strain is similar across bullying and other types of deviance, increasing the odds of involvement by 21%-40%, with the increase

for bullying being in the center of this range. We also find that our measure of anger and frustration is significant across outcomes, and increases the odds of engaging in each behavior by approximately 40%-120%. Further, temper is the strongest predictor of involvement in bullying. As was the case with the impact of total strain, bullying appears to be middle-of-the-pack. However, our measure of psychological distress was not significant for any of our deviant activities. Given the frequent co-occurrence of negative emotional states (e.g., Broidy and Agnew 1997; Ngo and Paternoster 2013), it is possible that statistical redundancy is responsible for negative emotions being non-significant. While we cannot rule out this possibility, the average correlation between temper and negative emotions across the imputed datasets is only approximately .270, suggesting that these emotional states are, at best, moderately correlated, and redundancy is an unlikely culprit. Another plausible explanation once again lies in our reliance on a composite measure of total strain and gender differences in the types of strain experienced, but this is a question for future research.

Finally, our results indicate that there are significant indirect effects of strain on deviance through negative emotional states, supporting the basic argument of general strain theory. As the patterns for our key criminological variables are quite similar to what we found in the low self-control analysis (as detailed in section 4.2.2), we will not repeat that discussion here. Overall, we feel that our results suggest that the basic tenets of general strain theory may prove fruitful in regards to understanding bullying.

4.2.4 Summary

The primary motivation for this research was an exploration of the discriminant validity of bullying versus other forms of deviant behavior. While the literature tends to treat bullying as a unique behavior, in need of its own explanation, much of what has been learned about bullying

and bullies resonates with and parallels what has been learned about deviance and deviants. Given that we subscribe to arguments regarding the generality of deviance – the idea that each specific deviant behavior is motivated by the same factors as every other form of deviance, and that all manifestations of deviance should be explicable under the same theoretical framework – the treatment of bullying as different from other forms of misbehavior seemed misguided. Further, we believed that researchers studying bullying should be taking advantage of the vast body of criminological work, and that criminological theories should be more than capable of helping us understand bullying.

To test whether bullying was truly unique, we undertook a series of three analyses. First, we performed a latent class analysis, and our results indicated that bullies are not a distinct group of offenders. Individuals who engage in bullying are also likely to engage in other forms of deviance, and do so at approximately the same rate. Given this, we then explored how self-control theory, a leading theory of crime and deviance, would account for bullying. Our results indicated that self-control appears to be capable of explaining bullying, and that it does so in a manner analogous to how it explains other forms of deviance. Finally, in order to address the possibility that self-control theory is unique amongst criminological theories in its ability to handle bullying, we explored whether general strain theory, another leading criminological theory, appeared able to explain bullying. As was the case with self-control theory, our results indicate that the predictions of general strain theory in regards to bullying are akin to its predictions for other manifestations of deviance. Lastly, in both the self-control and general strain models, the focal predictor of the theory was the strongest predictor of bullying involvement. Our results indicate that not only do criminological variables play a role in the

etiology of bullying, but that they may play a larger role than predictors commonly used in studies of bullying, underscoring the importance of a criminological understanding of bullying.

Additionally, in our tests of self-control and general strain theory, variables derived from other perspectives also played a significant role in predicting involvement in deviant activities. This suggests, that as criminologists, we may reify various theoretical approaches as distinct and competing accounts to an extent unwarranted by the realities of social life, as the evidence does not appear to provide a basis for their distinctiveness. Self-control, strain and its attendant emotional responses, social learning, and social bonds all play a role in the causation of deviance. This suggests that perhaps we should stop viewing leading criminological perspectives as antagonistic, and acknowledge that instead, each theoretical account of crime only accounts for one piece of the puzzle. By acknowledging and incorporating constructs from other perspectives, we can improve our understanding of deviance.

Taken together, our results seem to indicate that there is no basis for arguments that bullying is distinctive from other types of deviance. This suggests that the current approach in the bullying literature is dubious, and that criminological theories should form the basis of future bullying research. Beyond this, we feel that our results support arguments for the generality of deviance, and general theories of crime. Further, our demonstration of the utility of two leading criminological theories in the explanation of bullying, and the lack of major discrepancies in the operation of our models, suggests a shared etiology for bullying and other forms of misbehavior.

At this point, we turn our attention to other important issues in the study of bullying. Section 4.3 will entail a brief discussion of cyberbullying, an issue beginning to attract a great deal of public and academic interest. In section 4.4, we will summarize current research and findings on programmatic interventions focused on reducing bullying. In section 4.5, we will

address some of the limitations of our research and suggest avenues of inquiry for future research.

4.3 Cyberbullying

While there was no measure of it available in our data, at this point we briefly turn our attention to the issue of cyberbullying. Cyberbullying is simply bullying behaviors via electronic media, and occurs primarily through the use of computers and cellular phones connected to the internet (Patchin and Hinduja 2006). Research on cyberbullying is still in its infancy (Hinduja and Patchin 2008; Patchin and Hinduja 2006; Slonje and Smith 2008), but one overarching theme is that cyberbullying is somehow even more different from other forms of deviant activities than traditional (school-based) bullying (Mishna, Saini, and Solomon 2009; Patchin and Hinduja 2006). For example, Patchin and Hinduja (2006:148) refer to this phenomenon as a "novel form of deviance stemming from the intersection of communications and computers."

In much the same way as a number of high-profile school shootings drew public, media, and scholarly attention to the issue of school-based bullying (Carbone-Lopez et al. 2010; Menard and Grotpeter 2011; Spriggs et al. 2007), a series of tragic suicides of victims of cyberbullying (e.g., Amanda Todd, and Rehtaeh Parsons) has drawn similar interest in cyberbullying. While extreme consequences such as this are rare, we cannot ignore this issue as research suggests that internet-connected communication devices are ubiquitous, with up to 90% of adolescents regularly using the internet and over half owning their own cellular phone (Hay et al. 2010; see also Mishna et al. 2009). Further, other consequences and prevalence of involvement in cyberbullying parallel the consequences of traditional bullying (Patchin and Hinduja 2006; Pelfrey and Weber 2013; Slonje and Smith 2008; Smith 2015; Wade and Beran 2011). With the always-connected reality of today's adolescents, cyberbullying definitely warrants attention, but

given the results of our research, we question whether it is appropriate to treat it as a new phenomenon.

At this point, we turn our attention to some of the arguments in favor of treating cyberbullying as distinct from other forms of bullying. First, some researchers suggest that the use of the internet as the medium of bullying expands the audience beyond the youth's social circle (Beckman et al. 2013; Hay et al. 2010; Slonje and Smith 2008; Smith 2015). The argument here is that this wider audience for bullying victimization[60] is more problematic than the smaller audience typically associated with school-based bullying. However, other researchers have found that rather than using networking technology to expand their social circles, adolescents' online networks tend to parallel their offline social networks (boyd and Ellison 2007; Pelfrey and Weber 2013)[61] and include the same people. Therefore, we argue that researchers should seek evidence that the audience is, in fact, larger, but at this time, see no reason here to justify treating cyberbullying as distinct from other forms of deviance. Further, we believe that even if the audience is larger, there is insufficient evidence that victimization

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[60] The majority of research on cyberbullying focuses on victimization; accordingly, this discussion focuses primarily on cyberbullying victimization. However, there is some research to suggest that the anonymity available in cases of cyberbullying may lead adolescents who would not bully others at school to do so online (Beckman et al. 2013; Hinduja and Patchin 2008; Mishna et al. 2009; Pelfrey and Weber 2013; Smith 2015). We argue however that the anonymity afforded by the internet and the potential for new perpetrators does not suggest a difference in the causal impetus for cyberbullying: anonymity is simply the removal of informal social control, a well-documented factor in the etiology of deviance (Brannigan 1997; Brannigan et al. 2002; Gottfredson and Hirschi 1990; Hardwick and Brannigan 2008; Sampson and Laub 1993).

[61] Please note that (boyd and Ellison 2007) is not a typographical error, as the first author's name is legally all lower-case letters.

experiences reaching a larger audience (comprised of people with whom the victim would rarely interact) would have a more deleterious impact.

Second, researchers have found that cyberbullying has freed bullying from the school environment and removes the possibility of escape to a safe haven. The argument here is that the majority of adolescents are always connected to their peers through the internet or text messages, and therefore victimization experiences follow the victim home whereas traditional bullying is confined to the school grounds and allows respite outside of school hours (Hay et al. 2010; Hinduja and Patchin 2008; Mishna et al. 2009; Patchin and Hinduja 2006; Pelfrey and Weber 2013; Slonje and Smith 2008). Based on evidence gathered through focus groups, Mishna et al. (2009:1224) found that "children expect to feel safe and protected from bullying in their own homes. Consequently the cyber bullying [sic] they experience while on the computer at home, and often in their own bedroom, may feel particularly invasive." This is in line with other research that suggests that cyberbullying victimization may amplify the negative consequences (Hinduja and Patchin 2008) and create feelings of helplessness (Pelfrey and Weber 2013). We cannot gainsay arguments about the increased severity of negative consequences due to the loss of a safe refuge, but based on our findings, we do not feel that this justifies the treatment of cyberbullying as a unique phenomenon, as the severity of the consequences is unlikely to alter the etiology of this behavior.[62]

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[62] We would also like to point out, that the loss of the home as a safe haven is not unique to cyberbullying. In addition to situations of abuse by parents (for example), bullying by one's siblings would result in the same loss of respite from negative social interactions (Wolke, Tippett, and Dantchev 2015). In fact, it has been argued that sibling bullying may have some of the most severe consequences (Wolke et al. 2015), but it would be hard to argue that sibling bullying is a new phenomenon.

Third, researchers have found that online victimization is rarely brought to the attention of adults (Beckman et al. 2013; Mishna et al. 2009; Slonje and Smith 2008).[63] This is an important consideration, particularly given the loss of a safe haven discussed above. Also, as discussed in section 1.3.4.4 the negative consequences of involvement in bullying (whether online, or offline) are well-documented, and by not making adults aware of victimization experiences adolescents are forgoing an important source of social support that may help them cope with victimization. However, once again, we find no evidence in this study to suggest that cyberbullying would have different etiological roots than other forms of deviant behavior.

While there was no measure of cyberbullying available in our data, we remain unconvinced at this point that cyberbullying is fundamentally different from other forms of deviance in regards to its causation. Given that research in this area is in its infancy, future research may illuminate important differences (or additional similarities) between cyberbullying and other forms of deviance, but the current evidence regarding the correlates (Beckman et al. 2013; Hinduja and Patchin 2008; Patchin and Hinduja 2006; Patchin and Hinduja 2011; Pelfrey and Weber 2013; Slonje and Smith 2008; Smith 2015; Wade and Beran 2011) and consequences (Patchin and Hinduja 2006; Pelfrey and Weber 2013; Slonje and Smith 2008; Smith 2015; Wade and Beran 2011) of cyberbullying parallels the evidence on the correlates and consequences of traditional school-based bullying. We believe that our analysis supports arguments about the

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[63] Reasons for this are varied, but include the fact that many youth consider adults "oblivious to the cyber world and to the phenomenon of cyber bullying [sic]" (Mishna et al. 2009:1225); despair over the ability of parents to identify the perpetrator, stop the victimization (Mishna et al. 2009), or having the offending material removed (Hay et al. 2010); and fear of losing computer/cellular phone privileges (Mishna et al. 2009).

generality of deviance (Gottfredson and Hirschi 1990; Hirschi and Gottfredson 1994), and this leads us to believe that cyberbullying, similar to school-based bullying, is not a unique phenomenon.

4.4 Policy Implications

4.4.1 Bullying Interventions

> "It is unrealistic to claim that violence of all forms can be eliminated from schools. Children, like adults, will inevitably fight over property, space, and stature; will form alliances against other students; will malign each other with verbal taunts; and will intimidate each other through physical aggression. In short, even exemplary educational leaders using inclusive anti-bullying programs will not have schools completely free of violence" (Walton 2004:30).

While it may be unrealistic to assume that we can eliminate deviance amongst adolescents, there is a need to implement policies aimed at reducing levels of deviant behavior. Further, governments around the world mandate that schools adopt policies to reduce school violence (including bullying) (Espelage and Swearer 2003). As researchers, it is our duty to identify the relevant factors for policy makers to include in their programs, but policy makers need to look at all of the available evidence. Given the current psychological and educational dominance in the bullying literature, and the treatment of the problem as unique, it is probable that policy makers are missing out on important factors related to the reduction of deviance in general. This is a serious misstep, for as we have demonstrated in this research, bullying is not unique, and given the support we found for the generality of deviance, it is not just a school issue or psychological problem. Further, research suggests that programs broad in scope are more effective than programs based on a single domain (Piquero, Jennings, and Farrington 2010).

Additionally, the rising prominence of bullying and its tragic consequences (school shootings, suicides, etc.), has led to increased pressure to take steps to stop bullying and a proliferation of anti-bullying campaigns and programs (Bradshaw 2015; National Academies of

Sciences 2016). However, research on the potential adverse consequences of anti-bullying legislation is lacking (National Academies of Sciences 2016). For example, the laws implemented by many governments expand schools' surveillance authority and ability to remove bullies from the school environment (National Academies of Sciences 2016). Zero-tolerance policies,[64] which frequently include the installation of metal detectors at schools to prevent students from bringing weapons onto the school grounds, have become the focus of attention, and are now standard practice in many U.S. school districts (Carbone-Lopez et al. 2010; Skiba and Knesting 2001). But given that sociological criminology has taught us the importance of school climate and school bonds to preventing crime and delinquency (e.g., Agnew 2001; Bradshaw et al. 2009; Hirschi and Gottfredson 1995; Sampson and Laub 1993), are policies that break social bonds and create negative school climates (Skiba and Knesting 2001) really desirable?

Moreover, we may ask how does making schools more prison-like (e.g. metal detectors, on-site police, closed campuses, constant invasive surveillance etc.) impact the learning environment and student perceptions of school climate? It has been suggested that these policies could, in fact, make things worse (Borgwald and Theixos 2013; Menacker, Weldon, and Hurwitz 1990). One way in which this could happen is by making the behavior more covert, or simply displacing it from the school grounds (Borgwald and Theixos 2013). Further, youth who are suspended or expelled are relocated to a new school, and thus zero-tolerance programs simply displace the problem rather than solve it (Espelage and Swearer 2003). This is further compounded by the complete lack of evidence (gathered over more than a decade) that zero-

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[64] Policies which impose harsh penalties (including expulsion) starting from the first offense.

tolerance programs improve either student behavior or school safety (Skiba and Knesting 2001). Given these potential problems, ensuring that interventions will not exacerbate the problem is a main benefit of drawing on all available sources of information in the design and implementation of anti-bullying policies. We now turn our attention to a brief review of anti-bullying programs.

As mentioned above, the rise in attention to issues surrounding bullying and changes in legislation have led to an explosion in the number anti-bullying programs in use, to the point where there are so many prevention programs out there, that it can be daunting for schools to choose an effective one (Holt and Espelage 2007). So daunting in fact, that a 2001 review by the Surgeon General found that hundreds of programs were in use without full understanding of their long-term effects or effectiveness (Glew et al. 2008). Further, evidence from recent reviews of the effectiveness of programs aiming to reduce bullying has been mixed (Bradshaw 2015; Ferguson et al. 2007; Merrell et al. 2008; Smith, Salmivalli, and Cowie 2012; Ttofi and Farrington 2011; Vreeman and Carroll 2007). This is still complicated by a number of issues: poor implementation and questionable compliance with program frameworks can compromise program effectiveness (Bradshaw 2015; Vreeman and Carroll 2007); numerous methodological issues in studies of program effectiveness (Bradshaw 2015) undermine the results; and researchers involved in the development of programs tend to find more favorable results than independent third-party researchers (e.g., Eisner 2009), which suggests that more independent research is necessary.

4.4.2 Elements of Effective Strategies

In programs that have had at least some degree of success, a few key elements stand out: proactive, as opposed to reactive strategies, particularly when beginning at a young age (Elinoff et al. 2004; Farrington 1995; National Academies of Sciences 2016; Olweus 1978); promotion of

a positive school climate (Bradshaw 2015; Espelage and Swearer 2003; Olweus 1995); programs with a broad, as opposed to specific approach (e.g., programs that target deviance in general can reduce bullying, programs specifically targeting school-based bullying can reduce cyber-bullying, etc.); a focus on social norms, pro-social interactions, and improved social skills (Borgwald and Theixos 2013; Bradshaw 2015; Carbone-Lopez et al. 2010; Cowie 2011; Glew et al. 2008; Haynie et al. 2001; Olweus 1995; Pratt and Cullen 2000); a focus on fostering academic achievement and success (Espelage and Swearer 2003; Farrington 1995); and programs aimed at increasing levels of social support available to both victims and perpetrators (Cowie 2011; Demaray and Malecki 2003; Hay and Evans 2006; Holt and Espelage 2007; Olweus 1978; Swearer and Hymel 2015). Further, research has demonstrated that involving youths' families, even in minor ways, can lower the incidence of bullying, and ameliorate some of the negative outcomes (Bradshaw 2015; Farrington 1995; Olweus 1995). Upon close examination of this list, one theme clearly emerges – programs designed to reduce bullying are most effective if they focus on increasing levels of informal social control.

This should not come as a surprise to criminologists, as the importance of informal social control is well-documented (e.g., Brannigan 1997; Brannigan et al. 2002; Gottfredson and Hirschi 1990; Hirschi 1969; Hirschi 2004; Sampson and Laub 1993; Sampson and Laub 1995; Sampson and Laub 2003). One key example of the importance of social control is found in the work of Sampson and Laub (1993). The authors set forth their theory of informal social control in an attempt to account for individual change resulting from important life events. Building on the life-course perspective, social control theory argues that "(1) structural context mediated by informal family and school controls explains delinquency in childhood and adolescence; (2) in turn, there is continuity in antisocial behavior from childhood through adulthood in a variety of

life domains; and (3) informal social bonds in adulthood to family and employment explain changes in criminality over the lifespan despite early childhood propensities" (Sampson and Laub 1993:7). That is to say, social bonds weaken crime (see also Brannigan 1997; Sampson and Laub 1995). It is important to note that this perspective combines informal social control with social capital, as while the existence of a social bond is a necessary condition of social control, existence alone is not sufficient, and the reciprocal social investment associated with the bond, as well as the bond's strength and quality must be considered (Brannigan 1997; Sampson and Laub 1993; Sampson and Laub 1995). Social control theory emphasizes how the duration, timing, and ordering of major events in an individual's life influence subsequent outcomes (Sampson and Laub 1993), and is age-graded in that the social bonds that matter most vary by life-stage (Sampson and Laub 1995). In this way, one of the leading theories in criminology demonstrates that increases in informal social control can reduce participation in deviant activities. The importance of social control in reducing bullying, one again, suggests that bullying may not be fundamentally different from other forms of deviant behavior.

One of the most popular intervention programs incorporating many of the elements listed above is the Olweus Bullying Prevention Program. This program is a whole-school approach to improving peer relations, social control, and to assist students in forming positive attachments. It has shown promise in Norway and England (Olweus 1996), and has been demonstrated to reduce current levels of bullying and prevent future problems (Olweus 1995). Additionally, the program has been shown to improve social relationships, school bonds, class climate, and to reduce other forms of crime and deviance (Olweus 1995). However, this program is expensive to implement (Tremonti 2016), and the results of the Olweus Bullying Prevention Program in the US (National Academies of Sciences 2016; Vreeman and Carroll 2007) and Canada (Tremonti

2016) have been far less favorable.[65] This, coupled with the issues raised in section 4.4.1, suggests additional research is required.

4.5 Limitations and Future Research

While this research has a number of strengths and improves our understanding of the similarities in the etiologies of bullying and other forms of deviance, there are a number of limitations that need to be addressed. First, our measure of bullying is a single-item dichotomous measure asking respondents if they ever had a time in their lives when they often "bullied," threatened, or frightened people, including smaller or younger children. Prior research has shown that single item measures of bullying tend to grossly underestimate the prevalence of these behaviors (Esbensen and Carson 2009; Stockdale et al. 2002). Additionally, without providing a definition of what counts as bullying behavior, there is a great deal of room for respondents to subjectively interpret whether their behavior would count as bullying (Solberg and Olweus 2003). Beyond this, research has demonstrated that reliance upon a shared understanding of what constitutes bullying may be inappropriate as consensus is often lacking (Esbensen and Carson 2009). Further, this measure includes threatening and frightening behaviors that may or may not be related to bullying. Building on this point, the inclusion of these threatening and frightening behaviors could over-emphasize physical forms of bullying to the exclusion of verbal and relational forms (which may be more common) (Carbone-Lopez et al. 2010; Solberg and Olweus 2003). However, as seen in section 3.1.2.2, for the majority of

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[65] While more research is required to determine why the Olweus Bullying Prevention Program tends to be only marginally effective in North America, it has been suggested that the greater degree of heterogeneity in the North American population may be responsible (Evans, Fraser, and Cotter 2014).

deviants (those classified as substance users and dabblers in the latent class analysis), bullying participation appears to be more in line with property crime than violent crime. While this does not hold for the serious offenders, they represent only a small proportion of youth who engage in inappropriate behavior.[66] Lastly, there was no measure of cyberbullying available in the NCS-A survey, and as mentioned in section 4.3 this is an area that should not be ignored. Additional research providing a definition of what behaviors are considered bullying, and using more extensive multi-item scales[67] tapping multiple dimensions and media of bullying would help to give greater confidence in the reliability of these results.

There is also a second caveat regarding our measure of bullying. Bullying behavior is 'fuzzy.' While it may be relatively simple for respondents to recall how often they committed robbery, the same may not be true for bullying. A wide range of behaviors can be classified as bullying, and the standard definition of bullying involves a power imbalance. This may introduce a great deal of subjectivity in respondents' interpretations of whether their actions count as bullying. While we do not feel that there are any major discrepancies in the ways in which self-control or general strain theories explain bullying vis-à-vis other categories of crime, this fuzziness may account for some of the minor differences observed in our results (e.g., the

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[66] Research on serious offenders has also demonstrated a number of characteristics and tendencies unique to this group (e.g., an early age-of-onset, an escalation in seriousness of offenses, high frequency of offending, and a continuation of involvement into adulthood) that suggests distinct trajectories and patterns of illicit behavior (e.g., Moffitt 1993).

[67] However, caution must be used in the construction of multi-item scales as these may count multiple behaviors that occur together in one bullying incident (e.g., a respondent shoves another youth against the wall while calling him a name) as separate acts. This may result in artificially inflated estimates of bullying involvement.

variability in the rank-order of importance of coefficients). While we feel that future research needs to keep this in mind, the use of multi-item scales and the provision of what counts as bullying, as suggested above, may help to address this limitation.

A third, and related, weakness is our reliance upon self-report data. While we attempted to address potential bias in reporting bullying behavior (as well as other forms of deviance, impulsivity, etc.) with the inclusion of a control for social desirability bias, we cannot be certain that respondents are not under- or over-reporting involvement in socially sanctioned behavior. However, researchers tend to agree that self-report measures are more valid than other indicators of bullying (Bradshaw 2015; Furlong et al. 2010). Another consideration stemming from self-report measures relates to our inclusion of a measure of peer deviance. The criminological literature has established that delinquency amongst adolescents is largely a group phenomenon (e.g., Gottfredson and Hirschi 1990). When answering questions regarding the deviant activities of their peers, respondents may in fact be reporting acts in which they too were involved (Gottfredson and Hirschi 1990), inflating the correlation between their own deviant behavior and that of their peers. This is especially problematic, in that peer effects are one of the strongest predictors of deviance, and cannot be readily omitted from any analysis.

Another limitation of our work lies in our measure of anger. We relied on a trait-based measure of anger, and research has demonstrated that such measures can attenuate the relationship between strain and crime (Mazerolle et al. 2003). Although angry people (as indicated by trait-based measures) may feel more situational anger, they may also cause themselves even more strain (Mazerolle et al. 2003), and relying upon a trait-based measure does not allow us to differentiate between these possibilities. Additional research should employ

measures of situational anger, and ask respondents if events and conditions actually caused them frustration (Agnew 2001).

Further, given the exploratory nature of our work, our use of five different outcomes, and our research questions, we employed a composite measure of strain in our analyses, an approach that has been questioned (e.g., Agnew 2001). The major concern regarding this approach is that as not all strains will be conducive to criminal coping, a composite measure can underestimate the impact of strain. While we attempted to address this concern by limiting our measure to strains argued to be criminogenic in nature (Agnew 2001), future work using general strain theory to examine bullying should employ measures of individual strains in order to account for differences in the types of strain, the degree to which they violate justice norms, their magnitude, etc. (Agnew 2001). Building on this point, future research should also seek to determine whether negative conditions or events that are expected to be stressful actually do result in respondents experiencing strain. This would build on life-course approaches (e.g., Sampson and Laub 1993) which suggest that important events and transitions are age-graded. It may be that some strains are more or less applicable to specific age groups (e.g., is the impact of relationship problems with romantic partners the same for adolescents as it is for adults).

Additionally, we relied on cross-sectional data, and cannot be certain of the temporal framing of our measures. One example of this can be seen in our general strain analyses. We argue that the impact of stressful conditions on deviant activities is mediated by feelings of anger. However, it is possible that these feelings of anger (particularly given that we employed a trait-based measure) actually created more stressful events and conditions for respondents. As our data are cross-sectional, we cannot rule out the possibility that an alternative causal order is responsible for our results. Yet, in many cases we can rely upon logical consistency in assigning

causal order (e.g., it is unlikely that bullying another youth will lead to lower levels of self-control for the respondent). Future research with longitudinal data is warranted in order to help determine the correct causal ordering. However, we believe that despite the limitations of cross-sectional data, we have contributed to an improved understanding of bullying in a number of ways. First, our latent class analysis demonstrated that bullies do not appear to be a distinct group of deviants, and that bullying tends to co-occur with involvement in other forms of deviant activity. This suggests that a criminological lens and an approach acknowledging that generality of deviance may be more appropriate than approaches suggesting that bullying is somehow different from other forms of illicit behavior. Second, even though we cannot rule out issues of alternative causal ordering, by demonstrating associations between both low self-control and emotional responses to strain with bullying, we provide evidence that leading criminological theories can account for youths' involvement in bullying.

A final limitation of these analyses is the large number of missing cases on one or more of our measures. While we addressed this missingness with multiple imputation, the fact that there were so many missing values (up to 35% in the general strain analyses) does raise concerns over the quality of our data. Future research with a lesser degree of missingness would add confidence to our results.

Overall, there are a few key issues regarding our data: our measure of bullying is a single item relying upon a consensus as to what constitutes bullying, and the data are cross-sectional. Despite these issues, we employed the NCS-A data, as available datasets with better measures of bullying typically lack items important in testing criminological theories. Having demonstrated that criminology theory may improve our understanding of bullying, we feel it is important that future data collection incorporates both measures related to bullying and to crime in general.

This would benefit future research, as it would allow more rigorous and methodologically sound tests of the appropriateness of a criminological understanding of bullying.

4.6 Conclusion

Bullying is a prevalent and serious problem faced by today's youth. The consequences of involvement in bullying, whether as a perpetrator or a victim, from suicides and school shootings to subsequent participation in criminal activities, have a tremendous impact on society. Thankfully, there has been an increase in attention paid to this issue by the media, the public, academics, and policy-makers. However, we take issue with the specific manner in which the academic community has addressed bullying. We argue that by treating bullying as a unique phenomenon, distinct from other forms of deviant behavior, bullying researchers have done themselves a disservice. A vast wealth of information on deviance has been accumulated, much of which suggests that individual deviant behaviors are all manifestations of a general underlying propensity towards deviance. By ignoring this research, and starting from square one, progress towards a better understanding of the causation and prevention of bullying has been delayed, and this delay is inexcusable when faced with the tragic, albeit rare, consequences of bullying.

In section 1.3.1, we located the foundation of our thinking in the control paradigm, and we now briefly return our attention to control theories. As previously mentioned, the focus of the control paradigm is on the factors that restrain people from committing crime, and that the primary constraint from this perspective is informal social control. While not the focus of our research, our results support the idea that individual theories within this paradigm, despite being treated as mutually exclusive and competing theories by most criminologists, may overlap more than commonly believed.

The primary issue at stake is the commonality of social bonds (the cornerstone of informal social control) on crime in all of these theoretical accounts: for self-control theory, weak bonds between parents and their children will impair children's development of self-control; while for general strain theory, the default of non-criminal coping is likely to be the result of socialization and informal social control,[68] and further, if we examine the list of criminogenic strains (Agnew 2001) we see that the majority involve problematic relationships (strained, threatened, or negative social bonds). We can extend this line of reasoning beyond the perspectives employed in our research: for social control theories, it is suggested that valued social bonds with others are jeopardized by deviant behavior, and thus serve as a cost in the rational calculus of weighing one action versus another; and we can even argue that informal social control plays a role in social learning perspectives, in so far as associations with deviant peers implies that the social norms in operation (in this particular context) would not sanction deviant activity. The primacy of social bonds and informal social control is further supported by their importance in successful bullying intervention programs, and again, suggests that various theories in the control perspective may not be as antagonistic as commonly believed. We feel that this is an important issue that warrants further attention.

While some researchers have concluded that bullying and delinquency are not simply different manifestations of the same underlying propensity to offend (Baldry and Farrington 2000), we believe the empirical basis for maintaining this distinction is lacking. We have

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[68] It should be noted however, that research on this area is lacking, and the reliance on non-criminal coping in the absence of pressure to resort to illegitimate means is only implicit. We feel that future research on default coping strategies and their roots would be of great benefit to the criminological community.

documented a large number of similarities between bullying and delinquency: they share causes, correlates, consequences, and descriptions of the perpetrators. Further, we have demonstrated that bullies are not a distinct group of offenders, and that criminological theory appears able to explain much of what we know about bullying. However, we have only examined one piece of the puzzle: the shared etiology of school-based bullying and crime. Future attention to whether the same arguments apply to cyberbullying and to the applicability of crime intervention strategies for bullying (whether school-based or electronically mediated) are still required. This being said, we argue that our results suggest that bullying and delinquency are simply different behavioral expressions of the same underlying construct (criminality), and heartily agree with (Bender and Lösel 2011:105) who argue that this "suggests that the topic of school bullying should become more integrated into criminological research."

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APPENDIX A – ALTERNATE LATENT CLASS SOLUTIONS

A1.1 Alternate Latent Class Solutions

Here we will discuss the alternate latent class solutions that one or more measure of fit suggested were superior to the 4-class solution discussed in Chapter 3. We will begin with the 3-class solution identified as optimal in the analysis that did not employ covariates to predict class membership, move to the 5-class solution selected by the BIC as the best fitting solution in the analysis with covariates, and end with a discussion of the 6-class solution suggested by the sample-size adjusted BIC.

A1.1.1 3-Class Solution

Figure A.1 – Probabilities of Deviance by Latent Classes (3-Class Solution)

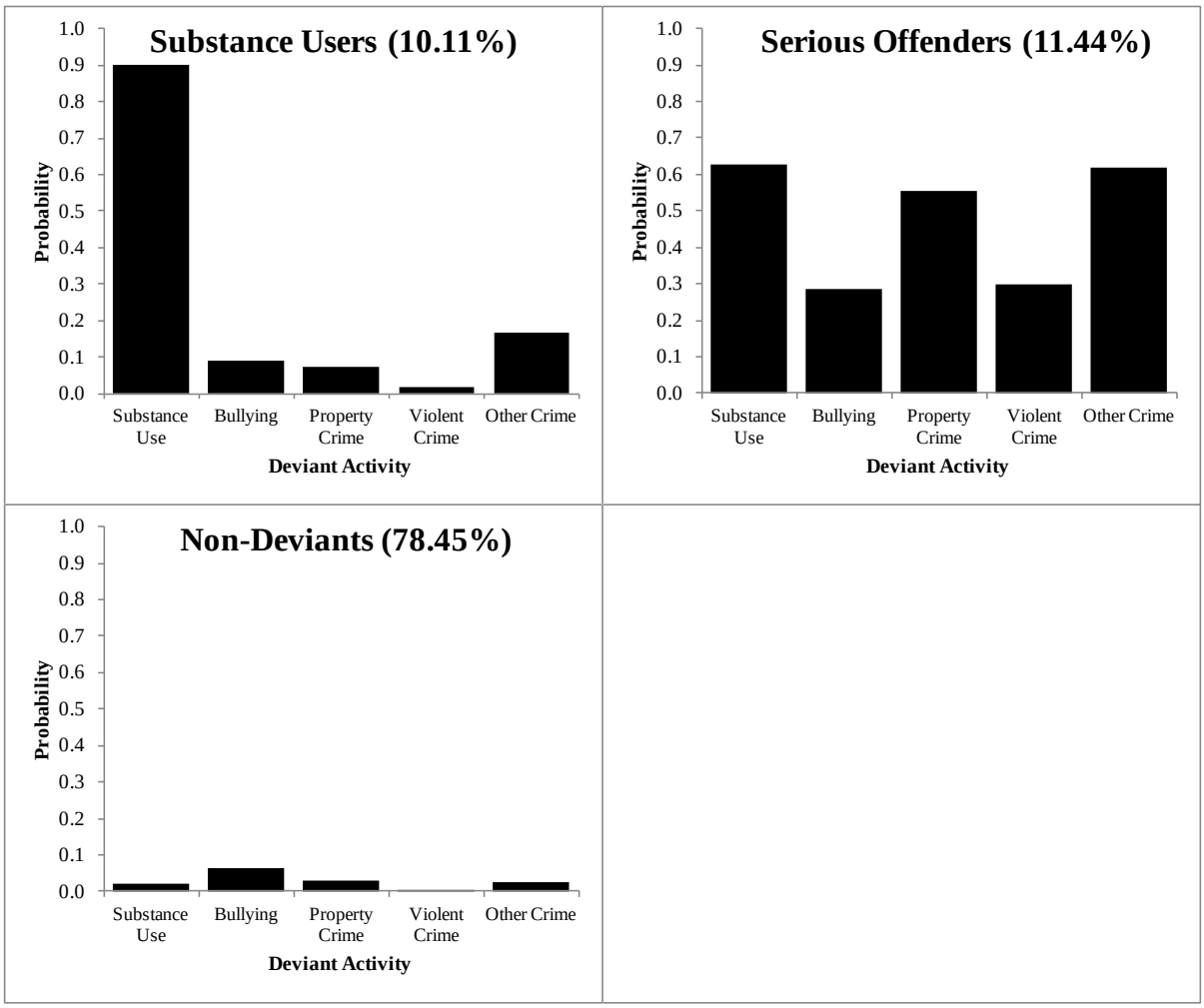


Figure A.1 contains the probabilities of involvement in each type of deviant activity by class membership for the 3-class solution modeled with covariates predicting class membership. The primary difference from the 4-class solution presented in Chapter 3 is the lack of a group of respondents who dabble in deviance.

For the substance users class, the probability of substance use involvement is .901; for bullying its .092; for involvement in property crime, the probability is .075; the probability of violent crime is .017; and the probability of involvement in other crime is .168. For this class of offenders, the probability of involvement in bullying appears to be similar to the probability of committing property crime, as we saw with the 4-class solution in Chapter 3. The probabilities of deviance appear to be slightly higher for substance users in the 3-class solution, with the exception of property crime (relatively unchanged) and other crime (slightly lower).

For the serious offenders class, we can see that the probability of involvement in substance use is .627; for bullying, the probability is .284; for property crime, the probability is .555; the probability for violent crime is .297; and the probability for involvement in other crime is .620. For serious offenders, involvement in bullying seems to in line with involvement in violent crime, as was the case in the 4-class solution. The probability of involvement in each deviant activity is lower for the serious offender class, which, along with the lack of a dabbler class and the larger class size (11.44% versus 7.97% of respondents), suggests that some of the dabblers are being included here in the 3-class solution.

Lastly, for the non-deviant class, involvement in all forms of deviance is highly unlikely. The probability of substance use is .020; the probability of bullying is .063; for property crime, the probability of involvement is .032; the probability of involvement in violent crime is .006; and for other crime, the probability is .027. For the normative class, bullying appears not to be

meaningfully different from any other form of deviance, just as we saw in the 4-class solution. While the probabilities are higher for non-deviants in the 3-class solution as compared to the 4-class solution, the overall pattern is similar with low probabilities of involvement in each form of deviance. This, combined with the larger class size (78.45% compared to 57.31%) and the lack of a dabbler class, suggests that the remainder of those classified as dabblers in the 4-class solution are being included as non-deviants in the 3-class solution.

Table A.1 – Correlates of Deviance Latent Classes (3-Class Solution)

	Class 1 (Substance Users)			**Class 2 (Serious Offenders)**		
	exp(b)	*se*	*sig.*	*exp(b)*	*se*	*sig.*
Key Criminological Variables						
Male	0.603	0.235	*	4.389	0.195	***
Age[1]	2.109	0.152	***	1.784	0.080	***
Age-Squared	0.847	0.051	**	0.910	0.049	
Black	0.331	0.440	*	1.547	0.245	
Hispanic	0.499	0.359		1.923	0.305	*
Other Race	0.439	0.366	*	0.682	0.276	
Control Variables						
Authoritative Mom	0.779	0.213		0.586	0.200	**
Authoritative Dad	0.859	0.177		0.548	0.155	***
Logged Parental Income	1.001	0.048		1.018	0.027	
Parents Less than High School Education	1.340	0.313		1.225	0.280	
Parents More than High School Education	0.627	0.172	**	0.712	0.185	
Social Desirability	0.757	0.061	***	0.711	0.039	***

Reference Group = Class 3 (Non-Deviant Class)
[1] Mean-Centered

Table A.1 contains the results of the regression of latent class on our predictors. Boys, as compared to girls, are around 60% as likely to be substance users, and around 4.4 times as likely to be classified as serious offenders as opposed to non-deviants. Compared to non-deviants, age has a non-linear effect for substance users, and a linear effect on the probability of classification as a serious offender. While the effect of age for substance users is similar to what we saw in the

4-class solution, the effect on classification as a serious offender is different. In regards to racial differences in class assignment, similar to what we saw in Chapter 3, black respondents are much less likely to be substance users than white respondents, and no different from white respondents in the likelihood of assignment to the serious offender class. Hispanic respondents, compared to white respondents, are around twice as likely to be serious offenders, but no more or less likely to be classified as substance users than to be non-deviants. In the 4-class solution, Hispanic respondents were not more likely to be serious offenders, but were significantly more likely to be dabblers, supporting our argument that a number of dabblers from the 4-class solution have been included as serious offenders in the 3-class solution. Lastly, there is one other change compared to the 4-class solution: members of some other racial/ethnic group are around 44% as likely as white respondents to be classified as substance users, instead of non-deviants.

Turning our attention to parenting style, similar to what we saw in the 4-class solution, having an authoritative mother and/or an authoritative father reduces the likelihood of a respondent being a serious offender as compared to a non-deviant, by around 60%; and parenting style has no impact on the likelihood of a respondent's classification as a substance user. Parental education has a negative effect on how likely a respondent is to be classified as a substance user compared to a non-deviant (approximately 63% as likely), but no impact on the likelihood of assignment to the serious offender class. Again, this is different from what was found in the 4-class solution, where respondents with more educated parents were around 60% as likely as respondents with parents who had just completed high school. Lastly, we can see that increases in social desirability lead to lower likelihood of a respondent being classified as a substance user (76%), or a serious offender (71%) rather than a non-deviant.

Overall, the pattern of findings for the 3-class solution is quite similar to what we found in the 4-class solution discussed in Chapter 3. Where there are discrepancies, they do not appear to be large, and we argue that these differences can be explained by the inclusion of members of the dabbler class in both the serious offender and the non-deviant classes. Further, bullying still did not emerge as a distinct subgroup in the 3-class solution, and our main finding – that bullying appears to be no different from other forms of deviance – remains unchallenged by this alternative solution.

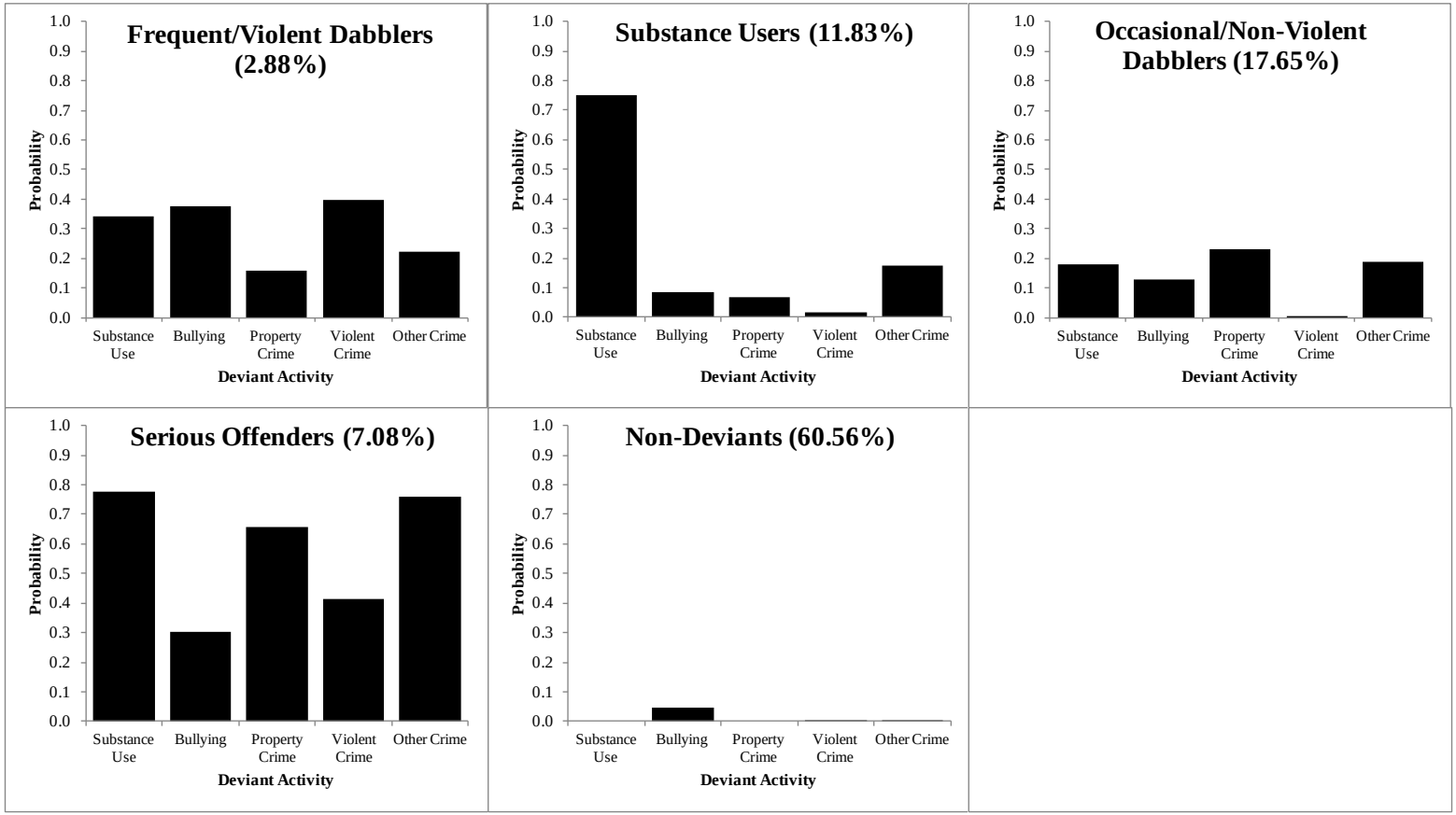
A1.1.2 5-Class Solution

Figure A.2 presents the probabilities of involvement in each manifestation of deviance by class membership for the 5-class solution suggested by the BIC. Compared to the 4-class solution, the primary difference here is the dabblers class is subdivided into two distinct groups of respondents who experiment in deviance: those who are more frequently involved, and have a higher probability of experimenting with violence; and those who are less likely to experiment with deviance, and highly unlikely to test out violence.

For the frequent/violent dabblers class, the probability of substance use involvement is .341; for bullying, the probability of involvement is .375; for involvement in property crime, the probability is .159; the probability of violent crime involvement is .400; and the probability of involvement in other crime is .222. For this class of deviants, the probability of involvement in bullying appears to be most similar to the probability of committing violent crime, very different from what was found in the 4-class solution in Chapter 3.

For the substance users class, the probability of substance use involvement is .752; for bullying, it is .084; for involvement in property crime, the probability is .066; the probability of violent crime is .015; and the probability of involvement in other crime is .177. For the

Figure A.2 – Probabilities of Deviance by Latent Classes (5-Class Solution)



substance user class, the probability of involvement in bullying appears to be similar to the probability of committing property crime, as we saw with the 4-class solution in Chapter 3. The probabilities of involvement in deviance appear to be comparable for substance users in the 3-class solution and the 4-class solution presented in Chapter 3, with the exception of substance use, which appears to be slightly higher in the 5-class solution.

For the serious offenders, the probability of involvement in substance use is .777; for bullying, the probability is .303; for property crime, the probability is .659; the probability for violent crime is .412; and the probability for involvement in other crime is .760. For serious offenders, involvement in bullying seems to in line with involvement in violent crime, as was the case in the 4-class solution presented in Chapter 3. Compared to the 4-class solution, the probability of involvement in each deviant activity is higher for the serious offender class in the 5-class solution. This, along with the slightly smaller class size (7.08% versus 7.97% of respondents), suggests that some of the serious offenders in the 4-class solution have been classified here as frequent/violent dabblers.

For the occasional/non-violent dabblers class, the probability of substance use is .181; the probability of involvement in bullying is .130; for involvement in property crime, the probability of involvement is .233; the probability of violent crime is .004; and the probability of involvement in other forms of crime is .189. For this class of respondents, the probability of involvement in bullying appears not to be in line with the probability of any other form of deviance, which is very different from what we saw with the 4-class solution in Chapter 3. Lastly, for the normative non-deviant class, we can see that involvement in all forms of deviance is highly unlikely. The probability of bullying is .048, and the probability of violent crime is .002, while the estimated probabilities of all other forms of deviance are .000. For non-

Table A.2 – Correlates of Deviance Latent Classes (5-Class Solution)

	Class 1 (Frequent/Violent Dabblers)			Class 2 (Substance Users)			Class 3 (Serious Offenders)			Class 4 (Occasional / Non-Violent Dabblers)		
	exp(b)	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*
Key Criminological Variables												
Male	1.802	0.379		0.603	0.383		6.253	0.286	***	3.869	0.331	***
Age[1]	0.972	0.247		2.291	0.141	***	2.472	0.109	***	1.232	0.126	
Age-Squared	1.002	0.118		0.838	0.066	**	0.839	0.058	**	0.985	0.045	
Black	94.822	5.404		0.247	0.541	*	0.763	0.433		1.023	0.566	
Hispanic	11.953	4.251		0.362	0.671		2.077	0.455		2.487	0.384	*
Other Race	18.616	4.555		0.306	0.630		0.710	0.392		1.820	0.506	
Control Variables												
Authoritative Mom	0.621	0.575		0.771	0.228		0.505	0.229	**	0.808	0.192	
Authoritative Dad	0.519	0.770		0.766	0.162		0.484	0.175	***	0.834	0.187	
Logged Parental Income	1.107	0.231		0.992	0.056		0.996	0.043		1.018	0.071	
Parents Less than High School Education	3.010	0.815		1.559	0.438		1.033	0.287		0.927	0.819	
Parents More than High School Education	0.383	0.593		0.549	0.286	*	0.637	0.243		1.522	0.321	
Social Desirability	0.764	0.155		0.725	0.060	***	0.677	0.067	***	0.822	0.081	*

Reference Group = Class 5 (Non-Deviant Class)

[1] Mean-Centered

deviants, it appears that bullying is not substantively different from other forms of deviance. The probabilities of deviant activities for non-deviants in the 3-class solution as compared to the 4-class solution are nearly identical, and the overall pattern is similar with low probabilities of involvement in each form of deviance.

Table A.2 contains the results of the regression of latent class on our predictors. Boys, as compared to girls, are around 6.3 times as likely to be classified as serious offenders, and around 3.9 times as likely to be frequent/non-violent dabblers as opposed to non-deviants, and the gender difference in the likelihood of being assigned to the substance user class observed in the 4-class solution has disappeared. Compared to non-deviants, age has a non-linear effect on classification as a substance user or a serious offender, while in the 4-class solution the effect of age was linear for the probability of classification as a serious offender. Otherwise, the effects of age are similar to what we saw in Chapter 3. In regards to racial differences in classification, similar to what we saw in Chapter 3, black respondents are much less likely to be substance users than white respondents. While we previously found that black respondents were more likely to be classified as dabblers than non-deviants, in the model with the split dabblers group, we do not find this difference. Hispanic respondents, compared to white respondents, are around 2.5 as likely to be assigned to the occasional/non-violent dabblers class as the non-deviant class, similar to what we saw in the 4-class solution.

In regards to parenting style, similar to what we saw in the 4-class solution, having an authoritative mother and/or an authoritative father reduces the likelihood of a respondent being a serious offender as compared to a non-deviant. Higher levels of parental education continue to have a negative effect on how likely a respondent is to be classified as a substance user compared to a non-deviant (approximately 55% as likely), but unlike we saw in the 4-class

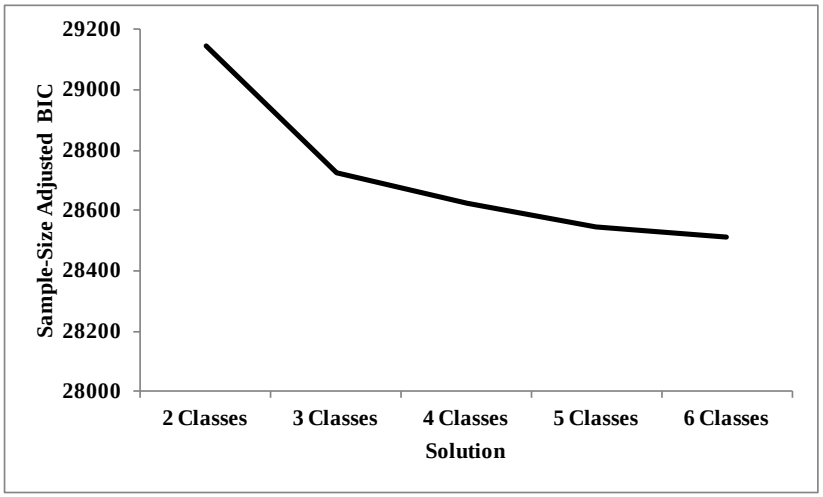
solution, it has no impact on the likelihood of assignment to the serious offender class. Lastly, we can see that increases in social desirability lead to lower likelihood of a respondent being classified as a substance user (73%), a serious offender (68%), or an occasional/non-violent dabbler (82%) rather than a non-deviant, and these effects are nearly identical to what we found in the 4-class solution.

Overall, the pattern of findings for the 5-class solution is quite similar to what we found in the 4-class solution previously discussed. Any differences from the 4-class solution appear to be relatively minor, and we argue that these differences can be explained by the splitting of the dabbler class into violent/frequent dabblers and occasional/non-violent dabblers. One finding of note in the 5-class solution is that no covariate is predictive of membership in the group of frequent/violent dabblers. While this can be, in part, explained by the relatively small class size (2.88% of respondents), there are still approximately 300 respondents in this class, and we would expect to continue to find some covariates to be predictive of class membership. Further, the lack of a gender difference in the likelihood of classification as a frequent/violent dabbler suggests that this model may not be entirely trustworthy, as gender may be one of, if not the strongest, predictor of violent crime (e.g., Cobbina et al. 2010; Daly and Wilson 1988; Hadjar et al. 2007; Quinsey 2002). Further confirming our main finding that bullying appears to be no different than other forms of deviance, bullying still did not emerge as a distinct subgroup in the 5-class solution, and given the overall pattern of findings, we remain confident that our decision to select the 4-class solution is justified.

A1.1.3 6-Class Solution

Figure A.3 plots the BIC across various latent class solutions. We can see that the sample-size adjusted BIC continues to decrease as the number of classes increases, and

Figure A.3 – Sample-size Adjusted BIC Values Across Latent Class Solutions



inspection of the plot suggests that a 6-class solution is preferred over a 5-class solution (ABIC = 28509.195 versus 28790.563 respectively). However, it should be noted that this solution may not be trustworthy, as there were insufficient degrees of freedom for the chi-squared test of model fit, and the best log-likelihood was not replicated even after increasing the number of random starts and iterations to extremely high values (75,000 random sets of starting values; 75,000 final stage optimizations; 37,500 initial stage iterations; and 7,500 maximum iterations for the expectation maximization algorithm used in estimation of the model. The corresponding values for the 5-class solution are 7,500, 7,500, 1,500, and 1,000).[69] Given the questionable nature of this solution, it is only reported for the sake of completeness, and discussion of the results will be very limited.

Figure A.4 presents the probabilities of involvement in each form of deviance by class membership for the 6-class solution suggested by the sample-size adjusted BIC. Compared to

[69] Replication of the best log-likelihood helps ensure that the maximum likelihood identified is the global maximum and not a local maxima, which is a key requirement for ensuring the reliability of the solution (Collins and Lanza 2010).

Figure A.4 – Probabilities of Deviance by Latent Classes (6-Class Solution)

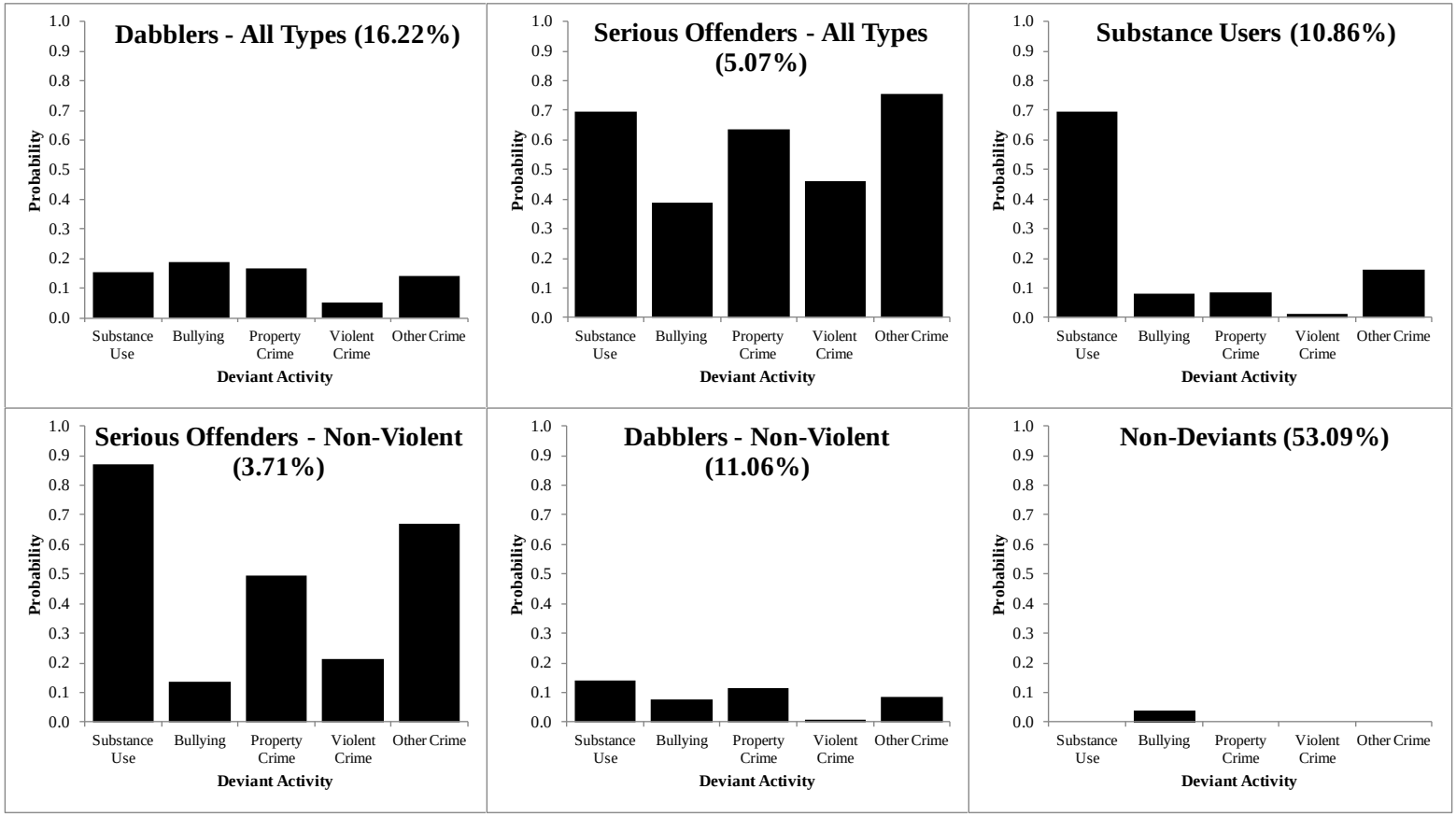


Table A.3 – Correlates of Deviance Latent Classes (6-Class Solution)

	Class 1 (Dabblers - All Types)			Class 2 (Serious Offenders - All Types)			Class 3 (Substance Users)			Class 4 (Serious Offenders - Non-Violent)			Class 5 (Dabblers - Non-Violent)		
	exp(b)	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*	*exp(b)*	*se*	*sig.*
Key Criminological Variables															
Male	2.555	0.300	**	4.170	0.276	***	0.484	0.269	**	1.77E+29945	37.204	***	6.53E+29944	37.150	***
Age[1]	0.909	0.135		1.948	0.148	***	2.303	0.180	***	1.64E+5388	8.187	***	9.04E+5387	8.182	***
Age-Squared	0.899	0.055		0.801	0.086	**	0.769	0.061	***	2.46E+2219	4.636	***	2.69E+2219	4.635	***
Black	3.313	0.362	**	1.738	0.377		0.269	0.518	*	---	8.573	***	---	8.577	***
Hispanic	3.059	0.340	**	2.048	0.377		0.424	0.535		9.92E-2967	24.203	***	5.18E-2967	24.169	***
Other Race	2.048	0.584		0.660	0.433		0.295	0.495	*	2.46E+4838	10.898	***	5.4E+4838	10.841	***
Control Variables															
Authoritative Mom	1.043	0.241		0.582	0.194	**	0.756	0.247		---	27.673	***	---	27.658	***
Authoritative Dad	0.546	0.243	*	0.416	0.220	***	0.704	0.182		6.86E+15947	14.437	***	1.75E+15948	14.425	***
Logged Parental Income	0.967	0.059		1.014	0.048		0.991	0.055		3.65E+2041	16.107	***	5.31E+2041	16.113	***
Parents Less than High School Education	1.131	0.423		1.408	0.323		1.634	0.382		---	24.006	***	---	23.943	***
Parents More than High School Education	0.733	0.224		0.397	0.239	***	0.488	0.203	***	1.55E+17407	15.983	***	1.59E+17407	15.963	***
Social Desirability	0.756	0.067	***	0.627	0.064	***	0.692	0.061	***	8.12E+260	4.719	***	1.05E+261	4.729	***

Reference Group = Class 6 (Non-Deviant Class)

[1] Mean-Centered

the 4-class solution, the primary differences for this solution are that both the serious offenders and the dabblers class are both subdivided into two groups: those likely to participate in all types of deviance, and those likely to participate primarily in non-violent forms of deviance.

In terms of the probabilities of involvement in deviance, for the dabblers (all types) group, the main differences from the dabblers class in the 4-class solution appear to be a slightly higher probability of bullying, and a slightly lower probability of committing a property crime. The serious offenders (all types) class appears to be highly similar to the serious offenders class found in the 4-class solution, with only a small increase in the probabilities of each type of deviance with the exception of substance use, which is a little lower. Substance users are virtually identical in the 4-class and the 6-class solutions. The serious offenders (non-violent) class has an increased probability of substance use, and decreased probabilities of involvement in all other forms of deviance. Respondents who experiment with non-violent deviance have relatively low probabilities of involvement in any deviant activity compared to any other class with the exception of the normative, non-deviant class. Lastly, the non-deviants in the 6-class solution are virtually identical to the non-deviants in the 4-class solution, and are extremely highly unlikely to commit any form of deviance.

Table A.3 presents the results of the regression of latent class on our covariates for the 6-class solution. The first thing that should be noted is the extreme, and questionable coefficients for both the serious offenders (non-violent) and the dabblers (non-violent) classes, with the smallest of these odds ratio being 8.12E+260. Given how unlikely it is that the coefficient is that high, we will not be discussing the effects of our predictors any further, and feel that the 6-class solution is inappropriate.