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A Partial, Age-Graded Examination of Agnew's General Theory of Crime and Delinquency

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A PARTIAL, AGE-GRADED EXAMINATION OF AGNEW'S GENERAL THEORY OF CRIME AND DELINQUENCY

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ABSTRACT

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Previous examinations of Agnew's (2005) general theory of crime and delinquency have garnered mixed results for the theoretical construct. These previous investigations have concentrated on a singular stage of an individual's life—with analyses focusing on either the adolescent (Muftić, Grubb, Bouffard, & Maljević, 2014; Ngo & Paternoster, 2014; Roh & Marshall, 2018; Zhang, Day, & Cao, 2012) or the adult (Cochran, 2017; Ngo, Paternoster, Cullen, & Mackenzie, 2011) time juncture—failing to empirically assess the variability hypothesis centrally proposed by Agnew. Using data from a nationally representative sample of participants—the National Longitudinal Study of Adolescent to Adult Health [n = 20,745 (Wave I), 14,738 (Wave II), 15,917 (Wave III), and 15,701 (Wave IV)]—Agnew's general theory was applied to multiple junctures of an individual's life (adolescence and adulthood), which provided one of the first age-graded assessments of the theoretical construct. Poisson and negative binomial regression models were constructed and analyzed, with each generated model representing a significant improvement in fit over the null/intercept-only model. Moreover, Agnew's variability hypothesis obtained considerable empirical support, ultimately highlighting the various life domains (self and peer for adolescence; self and family for adulthood) most influential at differing time junctures. These multitude of findings led to the championing of crime prevention/behavior modification programs that specifically target

the correlates of crime and delinquency that this analysis found to be most significant in predicting engagement in crime/delinquency. A few model programs argued for within are the Gang Resistance and Education Training program, the Triple P-Positive Parenting Program, and Multisystemic Therapy.

Keywords: Theoretical Integration, Life Domains, Add Health

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CHAPTER I

INTRODUCTION

The perceived overabundance of theoretical constructs has led criminologists to ardently debate how, as a field, reduction of these propositions should transpire (Bernard, 1990; Bernard & Snipes, 1996). There are two camps/schools of thought when it comes to reducing the apparent profusion of criminological theories: 1) theoretical falsification, and 2) theoretical integration (Bernard, Snipes, & Gerould, 2010).

Supporters of theoretical falsification—also known as theory competition—argue that different theoretical constructs make contradictory predictions/assumptions concerning human nature/behavior (Bernard, 1990; Bernard & Snipes, 1996; Bernard et al., 2010). This alleged incongruous nature is most notably exhibited between control theories and other biological, psychological, and/or social-based theories. Biological, psychological, and/or social-based theories consider/assume that humans will naturally obey the rules/laws if left to their own devices, and that it is certain biological, psychological, and/or social forces that underscore deviant behaviors (Bernard et al., 2010). Contrarily, control theories contend that humans would naturally deviate if left to their own devices, and that there are certain controlling forces that restrain individuals from those intrinsic behaviors. Theoretical falsification supporters believe that these contradictory predictions/assumptions should be subjected to empirical testing, with the data ultimately supporting the most applicable theoretical construct(s); following these analyses, the most efficacious theoretical constructs would be retained for future

research, while the inefficacious once would be discarded (Bernard & Snipes, 1996; Bernard et al., 2010).

The other camp engrossed in this debate prescribes to theoretical integration, a process concerned with synthesizing and presenting a smaller number of larger theories (Bernard et al., 2010). Criminologists committed to this camp believe that theoretical falsification has undoubtedly failed in reducing the number of theoretical constructs; therefore, a different approach should be employed within the field (Bernard & Snipes, 1996; Bernard et al., 2010).

In response to the notion of contradictory beliefs/assumptions, theoretical integration supporters argue that these various constructs focus on differing aspects of engagement in crime/delinquency and should be viewed as complimentary instead of contradictory (Bernard & Snipes, 1996; Bernard et al., 2010). Integration supporters contend that these complimentary emphases should be integrated into general, concise theoretical frameworks, subsequently increasing the explanatory power of the constructs. This reduction technique has been employed by criminologists for several decades, with some notable integrated theoretical constructs including: Elliott, Huizinga, and Ageton's integrated theory of delinquency and drug use (1985); Braithwaite's theory of reintegrative shaming (1989); Tittle's control balance theory (1995); and Colvin, Cullen, and Ven's integrated theory of coercion and social support (2002).

Another attempt at theoretical integration was undertaken by Agnew (2005) through presentation of a general theory of crime and delinquency (GTCD), a synthesized presentation of a majority of the previously empirically supported correlates of crime/delinquency (which draws on the work of Agnew, 1993, 1995; Bernard & Snipes,

1996; Gottfredson & Hirschi, 1990; Hirschi, 1969; Moffitt, 1993; Sampson & Laub, 1993; Tittle, 1995; and many more). The core tenant underscoring GTCD is that crime/delinquency is more probable when the constraints (external control, stakes in conformity, and internal control) against crime/delinquency are low, and the motivations (social learning elements, and strain elements) for crime/delinquency are high. GTCD continues by arguing that 31 known correlates of crime/delinquency—separated using a variable approach into the five life domains of self, family, school, peer, and work—affect both the constraints against (decreases them), and motivations for (increases them), engagement in crime/delinquency. Agnew further expounded GTCD by proposing that: 1) each highlighted life domain has an indirect effect on crime/delinquency by impacting the other life domains, 2) prior crime has a direct effect on subsequent crime, and an indirect effect through the other life domains, 3) the life domains have contemporaneous, and lagged, effects on crime/delinquency and the other life domains, and 4) a multitude of sociodemographic variables affect an individual's standing within each highlighted life domain, thus indirectly affecting crime/delinquency (a detailed description of each proposition and component of Agnew's general theory will be discussed in the review of the literature).

Previous examinations into the applicability of Agnew's (2005) GTCD have garnered mixed results for the theoretical construct. The intricacy of the causal networks illustrated, as well as Agnew's suggestion that *modest* analyses should be undertaken when examining GTCD, prior attempts have concentrated on a singular stage of an individual's life (out of the three life stages highlighted by Agnew: childhood, adolescence, and adulthood). Previous analyses have employed Agnew's general theory

to explain engagement in either adolescent (Muftić, Grubb, Bouffard, & Maljević, 2014; Ngo & Paternoster, 2014; Roh & Marshall, 2018; Zhang, Day, & Cao, 2012) or adult offending (Cochran, 2017; Ngo, Paternoster, Cullen, & Mackenzie, 2011). A central component of Agnew's general theory is that the effect of the highlighted correlates within the life domains vary over the course of an individual's life. The centrality of this assertion is missing from previous examinations into the theoretical construct's applicability, calling for future research to examine its legitimacy within Agnew's GTCD.

By combining the most efficacious correlates of crime/delinquency into an integrated theoretical construct, Agnew (2005) provided another example of theoretical integration's attempt to provide a comprehensive analysis of engagement in crime/delinquency. To investigate the applicability of Agnew's integrated theoretical construct, as well as to specifically determine the efficacy of the life stage variability hypotheses, the current examination employed secondary analysis of the National Longitudinal Study of Adolescent to Adult Health (Add Health; Harris & Udry, 2008). Utilizing the first four waves of the Add Health dataset, this study assessed the first core proposition presented by Agnew, in which crime/delinquency is affected by the 31 known correlates of crime/delinquency—organized into the life domains of self, family, school, peers, and work—with the degree of this impact varying over the course of an individual's life.

CHAPTER II

REVIEW OF THE LITERATURE

Prior to hypothesizing and establishing GTCD, Robert Agnew was heavily engrossed in strain-based theory construction and examination. The history surrounding strain theory, and its subsequent applicability within sociological and criminological research, led Agnew (1985) to call for a complete revision of the strain theory perspective. Agnew's (1992) subsequent revision became known as general strain theory (GST), which ultimately developed into one of the most well-known and examined theoretical constructs. This review will begin with a brief examination of the history that led Agnew to the presentation of GST, the tenets within the revised strain theory, and an ephemeral presentation of empirical support garnered for the construct. After delving into GST, this review will shift towards Agnew's (2005) attempt at a general, integrated criminological theory. Within this theory, Agnew presented numerous causal networks and propositions, as well as the best practices researchers should employ when determining the relevancy of those concepts. Finally, this review will end with a presentation of the previous examinations of GTCD, the limitations associated with those investigations, and the recommendations within that that gives credence to this examination.

Strain Theory

Strain theory draws its foundations from Durkheim's (1893/1933) research regarding social change/breakdown within society. Examining the advancement of

French society during their industrial revolution, Durkheim hypothesized a society advancement continuum, with the two ends of the continuum being mechanical/primitive civilizations and organic/advanced civilizations. These differing civilizations facilitated dissimilar degrees of member regularity (the normative/moral demands placed upon individuals by society) with the construct of societal collective conscience representing the amount of uniformity sought by each civilization (Durkheim 1895/1938). Law played the central role of upholding the regularity nature pursued by each civilization; mechanical civilizations employed the law to seek regulation of members, while organic civilizations employed the law to normalize the various day-to-day societal interactions (Durkheim 1893/1933, 1895/1938). The inadequate regulation of these interactions, subsequently referred to as anomie, is what Durkheim (1897/1951) believed led to engagement in crime/delinquency.

Revitalizing the concept of anomie, Merton (1938) proposed that the inability to reach societally accepted goals, through societally accepted means, led to the commission of crime/delinquency. Merton (1938) believed that if the prosocial means to achieve societally accepted goals were not readily available to individuals, unconventional means would be employed to achieve them (Merton, 1938). This *innovation* to anomie is what Merton believed constituted most of the unconventional behaviors within a society. Support for this causal association was weak, and critics pointed to Mertonian strain theories' inability to explain crime/delinquency for groups other than those in the lower class, as well as inadequacy in elucidating the differing, individual responses to anomie/strain (Agnew, 1985; Burton & Cullen, 1992; Hirschi, 1969).

General Strain Theory

On the heels of the mounting criticisms leveled against the state of strain theory, Agnew (1992) presented a revised attempt that concentrated solely on the individual, their immediate social environment, and how this environment was interrelated with crime/delinquency. Agnew's GST converged its emphasis on the negative relationships that individuals had with other people. Two sides of this negative relationship were: 1) an individual perceiving that they are not being treated fairly, and 2) an individual being blocked from achieving a goal(s) that they view as imperative (Agnew, 1992). After either of these negative relationships occurred, a negative affective state was felt by the individual, with this state permitting the individual to believe that something must be done to right the perceived wrong (Agnew, 1992). Following this negative affective state was the concept of strain/frustration, which could be classified as either the failure to achieve positively valued goals, the removal of a positively valued stimuli, and/or the presentation of negative stimuli (Agnew, 1992). The final causal stepping stone in this model was a legitimate coping mechanism (Agnew, 1992). If the individual traversed all three previous steps in the general theory model, and they had a pro-social outlet for the strain that they experienced, then commission of crime/delinquency would be reduced; alternatively, if a pro-social outlet was not readily available, then the likelihood for engagement in crime/delinquency was increased (Agnew, 1992).

Support for General Strain Theory

After the presentation of GST, an initial examination of the theoretical construct observed empirical support for the theory's causal network (Agnew & White, 1992). Results from this examination revealed that negative life events, as well as life hassles,

were two of the most significant straining variables when explaining adolescent drug use (Agnew & White, 1992). Moreover, strain was most likely to lead to crime/delinquency when individual self-efficacy was low (Agnew & White, 1992). A subsequent longitudinal examination by Paternoster and Mazerolle (1994) reported that strain had both direct and indirect effects on criminal/delinquent behavior; the newly established indirect effects were perceived to be observed due to strain's weakening effect on the inhibitions that individuals held, as well as correspondingly increasing the involvement that those same individuals had with criminal/delinquent peers. Lastly, Broidy (2001) examined the GST causal network and reported that strain related anger appreciably increased the likelihood of criminal/delinquent outcomes.

A General Theory of Crime and Delinquency

After spending years cultivating and refining GST, Agnew (2005) transitioned into the realm of theoretical integration and endeavored to amalgamate the known correlates of crime/delinquency into a general theoretical construct (see Bernard & Snipes, 1996 for a complete discussion on theoretical integration). Agnew argued that it was imperative to understand the causes of engagement in crime/delinquency if meaningful attempts were to be made to control it. Through past research/examination into this very endeavor, as well as professed, unyielding vexation over the inability to adequately articulate criminal/delinquent deviation, Agnew drew on the most well-known, and effectual, criminological theories/research, and attempted to organize that information into a concise, well-defined, and reasonably comprehensive general theory. Through creation of such a theoretical construct (GTCD), Agnew hoped that individuals who interacted with the construct would see the insights and expertise that the field of

criminology had to offer when crime prevention strategies were being constructed/implemented. This hope rested on the assertion that the general theory would effectively highlight the factors of crime/delinquency that should be included in any future discussions on crime/delinquency prevention, as well as note the areas of future study that could complete the missing links within criminological research (Agnew, 2005).

Assumptions of a General Theory

After presentation of the reasoning behind his endeavor, Agnew (2005) established the various questions that he perceived any integrated theory should be able to answer, if applicability of the construct was to be elevated. Agnew's first requirement centered on the need for a general theory to be able to amply explain what the major causes of crime/delinquency were, and why these causes increased the likelihood of crime/delinquency. When referencing individual theoretical constructs (i.e. strain theory, control theory, social-learning theory), Agnew presented the reasoning behind how those specific constructs explained participation in crime/delinquency; however, Agnew continued by arguing that a general theory must integrate those various explanations in an appropriate way, ultimately reflecting the specific validity of each explanation.

After these requirements were delineated, Agnew (2005) argued that a general theory should satisfactorily explain how the highlighted causes of crime/delinquency were interrelated. This requirement was obligatory for Agnew because of the empirically supported, reciprocal (i.e. multidirectional; dynamic; feedback causal pathways) nature that these correlates have upon one another (Agnew, 2005). Agnew highlighted the work of Thornberry (1987) as a cornerstone within this reciprocal interaction, accompanying

that an effective general theory should highlight these interactions. Furthermore, Agnew contented that these reciprocal interactions may be stronger between certain correlates, when compared to others, and that an applicable general theory must delineate these magnitudes.

Further recommendations presented by Agnew (2005) included the necessity of a general theory to determine what effect crime/delinquency has upon the various correlates of crime/delinquency, as well as what effect prior deviation has upon subsequent deviation. This mandate for a general theory rested in the belief that crime/delinquency could impact the known correlates of crime/delinquency, with the increased likelihood of future crime/delinquency resulting from this interaction (Agnew, 2005). Agnew proposed that an effective general theory must be able to adequately explain this relationship, as well as to point to when the likelihood of this relationship coming to fruition is possible. Furthermore, Agnew believed that engagement in crime/delinquency could increase the likelihood of future engagement in crime/delinquency, ultimately presenting that a germane general theory should explain the conditions under which this possibility is highly probable.

Continuing with recommendations for a general theory, Agnew (2005) relayed that an effective general theory must explain how the known correlates of crime/delinquency interact with one another in affecting crime. This requirement is hinged upon the concept that the influence of one known correlate may ultimately depend upon the impact exerted by the other known correlates (Agnew, 2005). Agnew believed that these interaction effects were crucial in determining the causal steps, and the relationship between those steps, that increase the likelihood of crime/delinquency.

The penultimate requirement proposed by Agnew (2005) was that an applicable theoretical construct must adequately explain the timing component behind these interaction effects. The contemporaneous (i.e., time one independent variables impacting time one dependent variables, within a few months' time) and lagged (i.e., time one independent variables impacting time two dependent variables) effects witnessed between the various correlates, and engagement in crime/delinquency, must be adequately addressed by any general theory (Agnew, 2005). Agnew argued that if this timing component could be understood/explained, then efficacious and age-appropriate crime policies/interventions could be employed to reduce the prevalence of crime/delinquency (Agnew, 2005).

Agnew (2005) rounded out his requirements of a general theory by arguing that an effective general theory must address which external factors impact the level/operation of the known correlates of crime/delinquency. Highlighting biological factors, as well as an individual's standing within the greater social environment, Agnew emphasized that an applicable general theory must understand and readily explain these relationships.

Construction of the General Theory

After emphasizing the central requirements of an applicable general theory, Agnew began his attempt at constructing a concise, comprehensive, and effectual theoretical construct. Agnew's GTCD begins with the notion that crime/delinquency is more probable when the constraints (restraining factors) against crime/delinquency are low, and the motivations (actuating factors) for crime/delinquency are high. Agnew delineated this central notion by highlighting three constraints against crime/delinquency

(external control, stakes in conformity, and internal control) and two motivations for crime/delinquency (strain, social learning).

External control represents the idea that an individual will be caught and castigated if they engage in crime/delinquency (Agnew, 2005). External control, most well connected to formal law enforcement entities, can be exerted by school officials, parents, employers, neighbors, and/or law enforcement officials (Agnew, 2005). Agnew relayed that individuals were high in external control if criminal/delinquent behavior was clearly prohibited, if monitoring of such behaviors was effective, and if sanctions for engagement in those behaviors was consistent, appropriate, and meaningful (Agnew, 2005). Stakes in conformity refers to the ideology that some individuals have more to lose if they are caught and punished for crime/delinquency, when compared to others (Agnew, 2005). The large investment in conventional society that some individuals have can restrain them from engaging in crime/delinquency (Agnew, 2005). Individuals are seen to have large stakes in conformity if they possess strong emotional bonds to conventional others, they engage in conventionally accepted activities/routines, they receive positive benefits from interacting with conventional others, they have good jobs/are doing well in school, and/or they have an excellent reputation amongst other conventional individuals (Agnew, 2005). Internal control is an individual's belief that engagement in crime/delinquency is wrong/immoral, even if they find themselves in tempting situations for crime/delinquency engagement (Agnew, 2005). Agnew argued that this belief is typically relayed/instilled at an early age, at the hands of an individual's parents/role models, and this belief ultimately becoming internalized (Agnew, 2005).

Shifting to the motivations for crime/delinquency, Agnew (2005) believed these two factors were what tempted/compelled individuals to engage in crime/delinquency: 1) social learning elements of crime/delinquency, and 2) strain elements of crime/delinquency. Social learning elements of crime/delinquency are the factors that individuals learn from others prior to engaging in crime/delinquency (Agnew, 2005). These factors can be further parceled down into reinforcements for crime/delinquency, exposure to successful criminal/delinquent models, and/or being taught beliefs favorable to crime/delinquency. Reinforcements for crime/delinquency can be positive, or negative, and are more apt to lead to crime/delinquency if participation in crime: a) is frequently reinforced/infrequently punished, b) results in a large amount of reinforcement/small amount of punishment, and c) is more likely to be reinforced over conventional behavior(s) (Agnew, 2005). Exposure to successful criminal models is the understanding that the imitation of criminal/delinquent behavior is more likely to occur when individuals witness someone they like/respect being reinforced for their unconventional behavior (Agnew, 2005). If these unconventional behaviors are successfully reinforced for the liked/respected individual, then the individual witnessing that reinforcement may be more apt to commit those same unconventional behaviors in the future (Agnew, 2005). Taught beliefs favorable to crime/delinquency is the idea that some individuals are instructed that crime/delinquency is good, justified, or at a minimum excusable, under certain circumstances, with these taught beliefs increasing the likelihood that an individual will engage in crime/delinquency (Agnew, 2005). Moving to the strain elements of crime/delinquency, Agnew argued that a major influencer for engagement in crime/delinquency is negative treatment by others. This negative treatment, previously

addressed within the review of GST (Agnew, 1992), is the main pressurizer when it comes to crime/delinquency engagement (Agnew, 2005).

These four motivations for crime/delinquency, as well as the three constraints against crime/delinquency, interact when determining engagement in crime/delinquency, with Agnew (2005) offering that crime/delinquency is more likely to occur when the motivations for crime/delinquency are high and the constraints against crime/delinquency are low.

Known Correlates

Following the first core piece of his general theory, Agnew (2005) built upon the theoretical construct by signifying that a wide array of known correlates of crime/delinquency affect the constraints against, and motivations for, crime/delinquency. Agnew listed 31 separate known correlates of crime/delinquency within this proposition (see Appendix A), reasoning that each variable should have a substantial, direct effect on crime/delinquency. Agnew presented that it would make intuitive sense to order these correlates within the proceeding categories of constraints and motivations; however, since a preponderance of these correlates affect both the constraints against, and motivations for, crime/delinquency, Agnew championed a variable approach to ordering these correlates. A variable approach—first advocated by Vold, Bernard, & Snipes, 2010—allowed for each correlate of crime to belong to one, and only one, category, further increasing the likelihood that correlates within each category will be affected by the same overriding factors (Agnew, 2005). Agnew broke down these 31 correlates into five life domains: 1) personality traits, 2) family variables, 3) school variables, 4) peer variables, and 5) work variables. Each life domain contains the correlates that have been

empirically shown to have moderate to large influences on crime/delinquency (Agnew, 2005).

Within personality traits (self domain) Agnew listed the following known correlates: impulsivity, high activity levels, trouble concentrating (attention deficit), low ability to learn from punishment, sensation seeking, irritability, low empathy, poor social/problem solving skills, and/or beliefs favorable to crime. Within the family variables (family domain) Agnew listed the following known correlates: negative bonding between parent and child, family conflict, child abuse, poor supervision/discipline, criminal parents, criminal siblings, low social support, unmarried (adult life stage), negative bonding with spouse/partner, and/or criminal spouse/partner. Within the school variables (school domain) Agnew listed the following known correlates: poor academic performance, negative bonding to school, little time on homework, negative treatment by teachers, and/or low educational/occupational goals. Within the peer variables (peer domain) Agnew (2005) listed the following known correlates: association with delinquent peers, gang membership, considerable time in unstructured/unsupervised activities with peers, and/or criminal victimization. Within the work variables, (work domain) Agnew (2005) listed the following known correlates: poor work performance, chronic unemployment, and/or work in the 'secondary labor market'. Each of these 31 correlates increases engagement in crime/delinquency by reducing the constraints against, and increasing the motivations for, crime/delinquency (Agnew, 2005).

Effect of Correlates at Differing Life Stages

After listing the known correlates of crime/delinquency, Agnew (2005) signified the relative bearing that the five life domains exerted on crime/delinquency during different stages of an individual's life. To tackle this assertion, Agnew broke down an individual's life into three periods: childhood, adolescence, and adulthood.

Within the childhood life stage, Agnew (2005) argued that the most pertinent life domains influencing crime/delinquency are the self and family domains, specifically concerning the super personality traits of low self-control and irritability (Gottfredson & Hirschi, 1990), as well as poor parenting practices. Agnew argued that the super personality traits of low self-control and irritability emerge early in an individual's life and have a direct impact on how an individual perceives, experiences, interacts, and responds to their immediate environment. This effect has a direct impact on crime/delinquency engagement during the childhood years (Agnew, 2005). Within the family domain, poor parenting practices also command a large effect on crime/delinquency, due to the centrality of parental figures during the childhood years (Agnew, 2005). Outside of these two main effects, the school and peer domains have a relatively small effect on crime/delinquency during childhood, with the work domain being removed entirely due to child labor laws (Agnew, 2005).

Moving into the adolescence life stage, the most pertinent life domains are the self and peer domains (Agnew, 2005). The same causal argument is applied to the self domain, with the super personality traits still holding considerable sway within the life of an adolescent (Agnew, 2005). Touching on the peer domain, peer influence is considered at its peak during an individual's adolescent years, with peers serving a central role

within the life of an adolescent (Agnew, 2005). Agnew (2005) argued that the family domain, by comparison, has only a moderate effect on crime/delinquency, with the same impact being exerted by the school domain. Rounding out the domains, Agnew removed the work domain from the adolescence causal network due to the relatively small number of adolescents engaged within the working sector of society.

Finally transitioning into the adulthood life stage, the most pertinent life domains are the self, peers, work, and family domains, with the family domain specifically dealing with no, or bad, marriages (Agnew, 2005). Due to the notion that most adults are done with their schooling, Agnew (2005) proposed a small, indirect effect on crime/delinquency for the school domain. Moreover, because adulthood generally signifies division from direct parental influence, poor parenting practices, as well as negative parental bonding, generally have a small effect on crime/delinquency (Agnew, 2005).

One key caveat of these various connections is the idea that these effects do not always lead individuals to commit criminal/delinquent acts (Agnew, 2005). If this were true, then crime/delinquency would be at an uncontrollable level. Agnew (2005) understood this eventuality and argued that the effect of each highlighted life domain on crime/delinquency is ultimately affected by an individuals' standing within the other highlighted life domains. This signifies that an individual's standing within a specific life domain is more likely to lead to crime/delinquency when the other life domains are advantageous to crime/delinquency (Agnew, 2005). This interaction is further delineated when Agnew hypothesized that an individual's problems within a specific life domain will increase the likelihood of problems within the other life domains.

Direct and Reciprocal Effects

After establishing the main elements of the core proposition within the general theory, Agnew (2005) moved on to hypothesize and present the direct—e.g. irritable and hyperactive children experiencing negative school experiences—and reciprocal—e.g. irritable and hyperactive children experiencing negative school experiences, which leads to further irritability and hyperactivity—effects that the life domains have upon each other. Describing the direct and reciprocal effects that each life domain has upon the comparative life domains, Agnew established causal networks based upon each stage of an individual's life, and presentation of these networks will continue in a similar fashion.

During childhood—which contains the self (irritability/low self-control), school (negative school experiences), family (poor parenting practices), and peer (peer delinquency) domains—the self domain exhibits a large, direct effect on all the comparative life domains, with the family domain exhibiting a large, reciprocal effect on the self domain (Agnew, 2005). Also, during childhood, the family domain exhibits a large, direct effect on all the comparative life domains, with the self domain exhibiting a large, reciprocal effect on the family domain (Agnew, 2005). Additionally, during childhood, the school domain exhibits a large, direct effect on the peer domain, as well as a small to moderate effect on the family and self domains (Agnew, 2005). Moreover, the peer domain exhibits a large, reciprocal effect on the school domain (Agnew, 2005). Lastly, during the childhood years, the peer domain has a large, direct effect on the school domain, as well as a small to moderate effect on the family and self domains (Agnew, 2005). Furthermore, the school domain exhibits a large, reciprocal effect on the

peer domain (Agnew, 2005) (See Appendix M for a detailed diagram of this casual network).

Transitioning to the adolescence life stage—which contains the self (irritability/low self-control), school (negative school experiences), family (poor parenting practices), and peer (peer delinquency) domains—the self domain exhibits a large, direct effect on all the comparative life domains (Agnew, 2005). Also, during adolescence, the school domain exhibits a small to moderate, direct effect on the self and family domains, while also exhibiting a large, direct effect on the peer domain (Agnew, 2005). Furthermore, the peer domain exhibits a large, reciprocal effect on the school domain (Agnew, 2005). Additionally, during adolescence, the family domain exhibits a small to moderate, direct effect on the self domain, while also exhibiting a large, direct effect on the school and peer domains (Agnew, 2005). Lastly, during adolescence, the peer domain exhibits a small to moderate, direct effect on the self and family domains, while also exhibiting a large, direct effect on the school domain (Agnew, 2005). Moreover, the school domain exhibits a large, reciprocal effect on the peer domain (Agnew, 2005) (See Appendix N for a detailed diagram of this casual network).

Finally, transitioning into the adulthood life stage—which contains the self (irritability/low self-control), school (limited education), family (no/bad marriages), peer (peer delinquency) and work (unemployment/bad jobs) domains—the self domain exhibits a large, direct effect on all the comparative life domains (Agnew, 2005). Also, during adulthood, the school domain exhibits a small to moderate, direct effect on the family and self domains, while also exhibiting a large, direct effect on the peer and work domains (Agnew, 2005). Furthermore, the peer domain exhibits a large, reciprocal effect

on the school domain (Agnew, 2005). Next, during adulthood, the family domain exhibits a small to moderate, direct effect on the work and self domains, while also exhibiting a large, direct effect on the peer domain (Agnew, 2005). Moreover, the peer domain exhibits a large, reciprocal effect on the family domain (Agnew, 2005). Additionally, during adulthood, the peer domain exhibits small to moderate, direct effects on the self domain, while also exhibiting large, direct effects on the family, work, and school domains (Agnew, 2005). Furthermore, the work and school domains exhibit a large, reciprocal effect on the peer domain (Agnew, 2005). Lastly, during adulthood, the work domain exhibits a small to moderate, direct effect on the self domain, while also exhibiting a large, direct effect on the peer and family domains (Agnew, 2005). Moreover, the peer domain exhibits a large, reciprocal effect on the work domain (Agnew, 2005) (See Appendix O for a detailed diagram of this casual network).

Effects of Prior Crime on Future Crime

After delineation of the direct and reciprocal effects that the life domains exert on each other, Agnew (2005) established a hypothesized relationship between past crime/delinquency and future crime/delinquency. Describing these hypothesized effects, Agnew broke down these connections into indirect—e.g. prior crime/delinquency leading to future crime/delinquency by reducing an individual's standing within the highlighted life domains (seeking out delinquent peers post-criminal/delinquent act, thus providing an enhanced environment for crime/delinquency)—and direct effects, with each type of effect resulting in the increased likelihood of future crime/delinquency.

Beginning with the indirect effects, prior crime/delinquency is predicted to exhibit a small to moderate effect on the self domain, while also exhibiting a large effect on the

family, school, peer, and work domains (Agnew, 2005). The small to moderate effect on the self domain is due to the notion that an individual's personality traits are already developed prior to engagement in crime/delinquency; however, Agnew (2005) argued that personality traits could be modified after engaging in crime/delinquency, resulting in lower self-control and increased irritability. The large effect on the family, school, peer, and work domain is due to the notion that prior crime/delinquency helps establish a preference for environments advantageous to crime, affects an individual's performance in the highlighted life domains, and/or creates strain/the anticipation of strain (Agnew, 2005). All these explanations can increase the likelihood that an individual will engage in further crime/delinquency, by negatively impacting an individual's standing within their family, school, friend, and work group (Agnew, 2005).

Transitioning to the direct effects, prior crime/delinquency increases the likelihood of future crime/delinquency by reducing the fear of external sanctions, increasing strain, and providing short-term benefits that are advantageous to an individual (Agnew, 2005). Beginning with reducing the fear of external sanction, prior crime/delinquency that goes undetected, unpunished, and unnoticed, can lead to the belief that the risk of formal sanctions is low (Agnew, 2005). This belief can then increase the likelihood of engaging in future crime/delinquency, because one of the major constraints (external control) listed within Agnew's (2005) theoretical proposition has been diminished, lessening the restraining ability of said constraint (Agnew, 2005). Continuing with increasing strain, prior crime/delinquency may increase the likelihood of receiving negative treatment from others, the central tenet of the strain motivation (Agnew, 2005). This possibility would therefore increase one of the main motivations for

crime/delinquency, to reduce the feeling of strain borne from these negative treatments (Agnew, 2005). Finishing with providing short-term benefits, prior crime/delinquency may provide a fleeting feeling of satisfaction after commission of the act, which could in turn increase the likelihood that an individual will try and recapture that feeling (Agnew, 2005). This attempt to recapture the beneficial feeling of previous crime/delinquency may lead to the commission of future crime/delinquency (Agnew, 2005).

In concluding these direct and indirect effects, Agnew (2005) yielded that not all prior crime/delinquency leads to future crime/delinquency. Further specifying this relationship, Agnew argued that the effects of prior crime/delinquency can be conditioned by certain reactions to those acts. Conditioning of the effects of prior crime/delinquency will occur if the commission of the unconventional act is adequately responded to by others, responded to in a fitting manner, not responded to in a reinforcing way, and responded to in a way that rejects the act, but not the individual (Agnew, 2005).

Timing of Effects

After establishing the direct and indirect effects that the highlighted life domains have on crime/delinquency, and vice versa, Agnew (2005) proposed the timing component that these effects operate within. The general association relayed by Agnew is that the known correlates of crime/delinquency possess a largely contemporaneous effect on crime/delinquency, as well as on themselves. Furthermore, the known correlates of crime/delinquency possess a large, lagged effect on themselves (Agnew, 2005).

Beginning with the contemporaneous effects, Agnew (2005) first established that contemporaneous signified an effect that occurred within a moderately short period of time (i.e. within a few months' time). After this delineation, Agnew argued that crime is

largely a function of an individual's *current* state of constraints and motivations, so therefore, the effects witnessed at the hands of the highlighted life domains will be contemporaneous in nature. Furthermore, Agnew proposed that the highlighted life domains have a largely contemporaneous effect on themselves, exemplifying this connection by portraying that negative school experiences faced by an individual are more strongly connected to that individual's recent personality traits, versus their distant personality traits.

The other side of this assertion is that the life domains have a large, lagged (i.e. outside of a few months' time) effect on themselves (Agnew, 2005). This effect is hypothesized by Agnew (2005) due to the self-perpetuating nature of the highlighted life domains. Poor parenting practices at a described time one has a strong impact on poor parenting practices at a described time two, due to the routinized nature of human behavior (Agnew, 2005). Agnew conveyed the ideology that much of human nature is habitual and reinforcing, so the continuation of certain behaviors is not an uncommon occurrence. Another justification for the lagged effects of these life domains, is the notion that the actions resulting from an individual's standing within a specific life domain are oftentimes reinforced, leading to the continuation of the said action (Agnew, 2005). Signifying this assertion is the idea that impulsive behavior can lead to short-term satisfaction for unconventional behavior, leading to future usage of impulsive behavior to re-establish that satisfaction (Agnew, 2005). The final reason for the hypothesized lagged effects is the unfortunate reality that these known correlates of crime/delinquency often close off the opportunity for change on the part of the individual (Agnew, 2005). Exemplifying this reality, Agnew contended that an individual who has experienced poor

academic performance at a descried time one faces an arduous undertaking to improve academic performance at a described time two (Agnew, 2005).

Outside Factors

The final core component of Agnew's (2005) GTCD revolved around the outside factors/forces that are perceived to impact an individual's standing within the life domains, specifically concerning biological and socio-demographic influencers (Agnew, 2005). The specific exogenous factors highlighted by Agnew are an individual's age, sex, race/ethnicity, parental socio-economic status, and community socio-economic status. The highlighted life domains within the general theory interact with these outside factors, with the life domains being more likely to be encouraging to crime/delinquency when an individual faces a combination of the previously listed outside factors (Agnew, 2005).

Testing the General Theory

After dolling out a litany of causal networks and theoretical propositions within the GTCD, Agnew (2005) attempted to direct future research through the examination/assessment portion of the theoretical construct. After listing out each central proposition of the general theory, Agnew sought to establish how researchers would go about examining each tenet, and listed recommendations on best practices for achieving each examination. Each paragraph within this section will reiterate the core propositions laid out by Agnew, and then will transmit and discuss each analytic strategy identified.

The first core proposition laid out by Agnew (2005), and the proposition being tested within this analysis, can be abridged as follows: *crime/delinquency is caused by the highlighted variables within each life domain, with the impact of these variables on crime/delinquency varying over an individual's life*. Agnew reported that any

examination related to this proposition should be undertaken in several phases. Beginning with the five life domains, and the 31 variables within those domains, Agnew established that all the variables contained within the domains should have a direct, significant effect on crime/delinquency, while the other variables are being controlled for. As seen later within the previous examinations of this proposition, this effect size can be determined numerous ways, with determination of the appropriate analytic strategy being dependent upon the level of measurement found within the variables. Agnew relayed within this first step that researchers should conduct separate analyses for different age-groups of participants, due to the hypothesis that the impact of the highlighted correlates will vary over an individual's life. Agnew concluded this initial step by proposing that variables found to be statistically insignificant should be excluded from future analyses, and the general theory should be revised accordingly.

After this initial analysis has been handled, Agnew (2005) proposed that researchers should conduct factor analyses upon all the statistically significant variables to determine if they load by the hypothesized life domains. Factors that load together are to be taken as indicators of an underlying factor/construct (Agnew, 2005). Analogous to the first step in this proposition, Agnew recommended that separate factor analyses should be undertaken for different age-groups of participants, due to the same reservations reported earlier. After the factor analyses are complete, Agnew suggested that the variables that load together should coalesced to create subsequent life domain scales. Agnew proposed this undertaking due to the thought that previous theoretical researchers have failed to consider the interactions between these life domains, and how those interactions could better predict crime/delinquency.

Once the life domain scales are constructed, Agnew (2005) recommended that examination of the effects that these scales have upon crime/delinquency, across the three highlighted life stages, should be undertaken. If the general theory is correct, Agnew asserted that each scale should have a direct effect on crime/delinquency when all the other scales are controlled for, with these effects varying across an individual's life. The effect sizes, in relation to the life stage being examined, were previously laid out within this review, and the effects should mirror the hypotheses presented by Agnew. The preceding analytic steps presented by Agnew will be followed during the analysis portion of this investigation; however, a complete discussion of this plan will be presented within the methodology section of this report[1].

The second core proposition laid out by Agnew (2005) can be abridged as follows: *the variables within the highlighted life domains increase crime through reduction of the constraints against crime/delinquency, as well as through increasing the motivations for crime/delinquency*. This proposition is concerned with the meditating effects—e.g. identification/explanation component for an observed relationship between and IV and a DV; why the life domain variable groupings increase engagement in crime/delinquency —that the constraints and motivations have upon engagement in crime/delinquency (Agnew, 2005). To examine this proposition, Agnew suggested that researchers could compile variables related to the motivations for, and constraints against, crime/delinquency, and then subsequently measure the mediating effects that

[1] Outside of these core recommendations, Agnew presented an optional investigation that researchers could execute: analyzation of the variables within each scale and determining the effect that each variable has upon the others. This recommendation is not central to the examination of the first core proposition; however, Agnew argued that subtle information could be lost when combining the variables into scales, so analyzation of the effects that they have on the others could shed light onto pertinent policies/interventions that could be implemented to curb crime/delinquency participation.

those variables had upon the relationships between the life domains and crime/delinquency. If the general theory is to be applicable, Agnew argued that most of the life domain variables should affect several of the motivations for, and the constraints against, crime/delinquency.

The third core proposition laid out by Agnew (2005) can be abridged as follows: *the life domains affect the other life domains, with some domains entertaining a greater effect than others. Furthermore, these effects transform over an individual's life, ultimately concluding that each life domain has a direct effect on crime/delinquency, as well as an indirect effect on crime/delinquency through the subsequent life domains* (Agnew, 2005). Generally, Agnew's argument presented here is that the life domains have reciprocal effects on each other. The nature of these reciprocal effects, specifically the magnitude of them, have been previously discussed within this review, and Agnew argued that those relationships should hold true if the general theory is to be applicable. Further within this proposition, Agnew reported that this analysis would require longitudinal data to effectively establish these relationships, as well as data from all three-time periods relayed within the general theory.

The fourth core proposition laid out by Agnew (2005) can be abridged as follows: *prior engagement in crime/delinquency has a direct effect on subsequent engagement in crime/delinquency, as well as an indirect effect on crime/delinquency through the life domains. Furthermore, Agnew argued that these effects are ultimately conditioned by an individual's position within the life domains, reasoning that individuals with traits such as high irritability and low self-control are more likely to witness their prior crime/delinquency lead to subsequent crime/delinquency*. Agnew again described the

necessity of longitudinal data when examining this specific proposition, due to the necessity of measures of crime/delinquency at multiple junctures. Another necessity for determining the validity of this proposition is an examination into whether the highlighted life domains have a reciprocal effect on crime/delinquency (Agnew, 2005). Agnew proposed that if the general theory is to be relevant/applicable, prior crime/delinquency should have a significant impact on succeeding crime, when the life domains are controlled for, as well as the hypothesis that crime/delinquency will have a reciprocal relationship with the life domains. With all of this in mind, Agnew indicated that these effects will be ultimately conditioned by an individual's position within the highlighted life domains. Agnew exemplified this relationship through poor parenting, irritability, and self-control; prior crime/delinquency was more likely to lead to subsequent crime/delinquency amongst individuals who have experienced poor parenting, have lower levels of self-control, and who are irritable.

The fifth core proposition laid out by Agnew (2005) can be abridged as follows: *the highlighted life domains interact in influencing crime/delinquency, as well as the other life domains. Furthermore, Agnew argued that a given life domain is more apt to increase crime/delinquency, or negatively impact another life domain, when the other life domains are advantageous to crime/delinquency*. Agnew noted the work of Aiken, West and Reno (1991) as an exemplary resource for understanding and interpreting these interaction effects; however, in-depth explanation of these effects was minimal within Agnew's proposition. Further in this review, several previous examinations (Muftić et al., 2014; Ngo et al., 2011) will be presented that have incorporated these interaction effects into their examinations of the general theory.

The penultimate core proposition laid out by Agnew (2005) can be abridged as follows: *the highlighted life domains have largely contemporaneous and lagged effects on crime/delinquency, as well as on one another. Furthermore, crime/delinquency has a largely contemporaneous effect on the highlighted life domains* (Agnew, 2005). Once again, Agnew argued for the usage of longitudinal data to determine the contemporaneous and lagged effects that the life domains have upon crime/delinquency, as well as the contemporaneous and lagged effects that crime/delinquency have upon the highlighted life domains. Agnew argued that the contemporaneous effects should exhibit a larger effect, when compared to the lagged effects, if the general theory is to be applicable. Furthermore, the life domains should exhibit a large lagged effect on themselves if the general theory is to be applicable (Agnew, 2005).

The final core proposition laid out by Agnew (2005) can be abridged as follows: *a participants' age, race/ethnicity, sex, parental socio-economic status, and community socio-economic status impact their standing on the highlighted life domains. Moreover, the highlighted life domains are more likely to be conducive to crime/delinquency amongst younger male populations, specifically those who are minorities, and whose parents and community are of a lower socio-economic status* (Agnew, 2005). These sociodemographic variables affect the level and operation of the life domains, with these variables affecting the life domains as hypothesized by Agnew. Moreover, Agnew hypothesized that the effect of these sociodemographic variables should be largely explained by the life domains, due to the previous ideology that the life domains are leading correlates of crime/delinquency.

After presentation of all principal assertions, and the subsequent analytic strategies necessary to determine their relevancy, Agnew (2005) reported that examining all propositions at once would be next to impossible for current researchers. Due to the statistical/methodological limitations of current datasets and statistical software, Agnew instead argued for a modest approach to be taken by empirical investigators. Agnew proposed that one or two core propositions should be tested at a time, or even one or two portions of a proposition, to gather support for the theoretical construct generally. Agnew continued by proposing that if enough support for the theoretical construct could be gathered through modest analyses, then support/application of the general theory could be sustained until a time when a complete test could be undertaken.

Previous Examinations

Previous empirical examinations of Agnew's (2005) GTCD have garnered ambivalent results for the theoretical construct. Due to the complexity and extensiveness of the concept's causal networks, as well as the profusion of those networks, Agnew proposed that empirical testing of the general theory should be undertaken through modest analyses, with researchers focusing on only one or two core propositions at a time. Through this "bits and pieces" (Agnew, 2005, p. 185) approach, confirmation of, opposition for, and revision to the theoretical construct can be accumulated generally, which will elucidate where the theoretical construct stands in terms of applicability. This recommendation has led prior analyses to concentrate on singular stages of an individual's life, with researchers applying Agnew's theoretical construct to either the adolescent life stage (Muftić et al., 2014; Ngo & Paternoster, 2014; Roh & Marshall, 2018; Zhang et al., 2012) or the adult life stage (Cochran, 2017; Ngo et al., 2011).

Evaluation of these investigations will help specify where Agnew's general theory currently stands as an established criminological theory, as well as designate which areas future research should concentrate on when assessing the pertinence of the general theory.

Adolescent Life Stage

The first stage of an individual's life concentrated on by prior analyses is the adolescent life stage. Research (Sampson & Laub, 2003; Vitulano, Fite, & Rathert, 2010) has indicated that a preponderance of offenders commence their criminal careers at an early adolescent age, which signifies the importance of understanding the casual factors that facilitate this law-breaking behavior (Burns, 2013). With this implication in mind, four separate analyses have applied Agnew's (2005) general theory to a subpopulation of adolescents, to determine if the theoretical construct is sufficient in explaining participation in delinquent behaviors.

Zhang and colleagues (2012) employed secondary data analysis upon the *Youths and Deterrence: Columbia, South Carolina, 1979-1981* study (Paternoster, 2005), to examine the explanatory power of Agnew's (2005) general theory. Paternoster's (2005) original study examined high school-aged youths in Columbia, South Carolina, with self-report surveys being administered to a sample population of nine total high schools. Students were surveyed for the first time at the beginning of their sophomore year of high school, with subsequent re-administration of the same survey occurring during their junior and senior years of high school (Paternoster, 2005). The longitudinal data contained participant information on: 1) attitudes towards delinquency, 2) perception towards certainty of punishment for delinquency, 3) frequency of delinquency

participation, 4) frequency of apprehension for delinquency, 5) educational aspirations, 6) occupational aspirations, 7) peer group delinquency/activities, and 8) demographic and socioeconomic characteristics (Paternoster, 2005). Utilizing all three waves of data, Zhang and colleagues compiled variables into categories gauging constraints against crime, motivations for crime, three of the four life domains—school, peer, family—outlined by Agnew for the adolescent time-period, and participation in delinquent acts.

Within the constraints against delinquency grouping, Zhang and colleagues (2012) grouped indicators to designate various forms of external social control (certainty of apprehension, severity of punishment), informal social control (deterrent ability of best friend(s), family, and/or teachers), and stakes in conformity (apprehension would jeopardize employment, education, and peer aspirations); when queried against engagement in underage drinking, marijuana usage, theft, and intentional property damage. Within the motivations for delinquency grouping, Zhang and colleagues (2012) constructed indicators for reinforcements for delinquency (parental/peer approval), exposure to successful criminal models (perceptions towards their peers being apprehended for delinquency), and the acquisition of beliefs favorable to delinquency (how erroneous it is to partake in delinquency). Finally, within the life domain overall groupings, Zhang and colleagues (2012) constructed indicators to represent the family domain (attachment to parents, time spent with family, parental supervision and support), the school domain (academic performance, attachment to school, time spent studying, and educational aspirations), and the peer domain (number of delinquent peers, time spent with friends per week).

Following the models laid out by Agnew (2005), these three variable categories were utilized to predict self-reported engagement in delinquent acts (Zhang et al., 2012). Participation in delinquency was measured as an index, composed of fifteen dichotomous items, which gauged participant engagement in activities such as underage drinking, theft, burglary, grand theft auto, and/or assault (see Zhang et al., 2012 for a complete list). Overall, Zhang and colleagues (2012) garnered moderate support for GTCD, with five of the ten employed life domain variables reporting a significantly predictive relationship with engagement in adolescent delinquency. Within the overall model (which included the life domain variables, the constraints, and the motivations), Zhang and colleagues reported that the peer domain variables produced the only significant, direct effect on the employed life domain variables[2]. This reported finding helps support Agnew's hypothesis that the peer domain is one of the most central elements related to adolescent delinquency, but the lack of significance (even if it was hypothesized by Agnew as being small to moderate) for the other life domains does not support the general theory. Finally, findings indicated that the employed life domain variables exhibited a direct and indirect effect on participation in delinquency, which supported another one of the main assertions proposed within the general theory (Zhang et al., 2012).

Several limitations are associated with this analysis, specifically looking at the variables employed by Zhang and colleagues (2012). Beginning with the employed dependent variable, Zhang and colleagues' usage of a 15-item scale to measure general

[2] Zhang and colleagues (2012) also conducted a confirmatory factor analysis before constructing the final model. Surprisingly, the analysis ran did not signal underlying connections for any of the highlighted life domains, contrary to the assertion proposed by Agnew (2005).

delinquency does not elucidate the generalizability of the model in predicting differing acts of delinquency. Furthermore, the employment of only ten total indicators within the three highlighted life domains [excluding the self domain; which Agnew (2005) argued was just as important during adolescence as the peer domain] constitutes a major limitation and has consequences on the inferences that can be drawn from this analysis. Zhang and colleagues, who were cognizant of these issues, recommended future researchers to employ more comprehensive measures of the life domains.

Ngo and Paternoster (2014) performed the next analysis concerned with the application of Agnew's (2005) general theory to a subpopulation of adolescents. Employing secondary data analysis upon the National Education Longitudinal Study (NELS), Ngo and Paternoster sought to evaluate the contemporaneous and lagged effects that the highlighted life domains were projected to exhibit upon participation in delinquent acts. The NELS was designed to collect data on a nationally representative sample of students, with indicators employed to gauge participants' school related experiences from the time that they are transitioning from elementary school, through the time that they are engaging in the postsecondary education/employment sector (United States Department of Education, 2006). The data were collected through survey administration, with the first wave being collected in 1988 [subsequently referred to as W1], with approximately 25,000 eighth-grade students being queried (United States Department of Education, 2006). This sample was then re-surveyed again in 1990 [tenth grade; subsequently referred to as W2], 1992 [twelfth grade; subsequently referred to as W3], 1994 [2 years after scheduled date of graduation], and 2000 [eight years after scheduled date of graduation] (United States Department of Education, 2006). Moreover,

data were collected from parents and teachers during W2 and W3 of the longitudinal study and were explicitly concerned with perceived individual student behaviors. Specific indicators were participants': 1) school, work, and home experiences, 2) educational resources and support, 3) parents' and peers' role in their education, 4) neighborhood characteristics, 5) educational and occupational aspirations, 6) frequency of smoking, alcohol, and drug use, and 7) extracurricular activity participation (United States Department of Education, 2006). Utilizing the first three waves of data, Ngo and Paternoster compiled variables into categories measuring all four of the life domains—self (low self-control and attitudes favorable to deviance), family (close communication with parents and poor parental supervision/discipline), school (negative treatment by teachers, negative attachment to school, low educational aspirations, and frequency of homework time), and peer (conventional peers)—outlined by Agnew, as well as participation in delinquent acts.

Following the models laid out by Agnew (2005), these four variable groupings were utilized to establish the contemporaneous and lagged effects that the life domains had upon delinquency, as well as themselves (Ngo & Paternoster, 2014). Participation in delinquency was measured dichotomously with five measures of substance use being utilized within the analysis: 1) prior cigarette smoking at W1, 2) frequency of drinking alcohol in the last thirty days at W2, 3) frequency of using marijuana in the last thirty days at W2, 4) frequency of drinking alcohol in the last thirty days at W3, and 5) frequency of using marijuana in the last thirty days at W3 (Ngo & Paternoster, 2014). Ngo and Paternoster (2014) garnered mixed support for the specific proposition that the life domains had nonlinear and contemporaneous effects on crime and one another, as

well as having large lagged effects on themselves (Agnew, 2005). Ngo and Paternoster reported that the highlighted life domain variables demonstrated largely contemporaneous effects on the likelihood of consuming alcohol, as well as using marijuana; however, certain of these life domain's lagged effects were greater than their contemporaneous counterparts. Furthermore, two life domain variables—attitudes favorable to deviance and close communication with parents—were significantly related to the eight comparative life domain variables; however, the remaining seven life domain variables at were not significantly related to the eight comparative life domain variables (Ngo & Paternoster, 2014). These mixed findings led Ngo and Paternoster to call for future researchers to continue examining this specific proposition, to help determine its relevancy within Agnew's GTCD. Furthermore, Ngo and Paternoster recommended that future examinations should assess the direct, indirect, interaction, and reciprocal effects among the life domains and crime.

Like the work conducted by Zhang and colleagues (2012), several limitations were highlighted by Ngo and Paternoster (2014). First, the dependent variable (a dichotomous indicator of alcohol and marijuana usage) does not help generalize GTCD to multiple types of adolescent offending. Furthermore, Ngo and Paternoster's (2014) incorporation of a larger number of variables is beneficial to elucidate the state of GTCD; however, the omission of several key variables (irritability within the self domain), as well as the inclusion of several school related variables within the self domain (homework completion, absence, tardiness, attentiveness, and disruptiveness), calls for future analyses to utilize more representative indicators for each life domain (Ngo & Paternoster, 2014).

The third analysis concerned with the application of Agnew's (2005) general theory to a subpopulation of adolescents was by Muftić and colleagues (2014). Employing secondary data analysis upon the second wave of the International Self Report Delinquency Study (ISRD-2), Muftić and colleagues sought to analyze the direct, indirect, and interaction effects that Agnew's highlighted life domains had upon participation in violent, property, and drug delinquency for Bosnian and Herzegovinian adolescents. The ISRD-2 (Enzmann et al., 2015) was an international collaborative study of delinquency and victimization of seventh, eighth, and ninth graders. The ISRD-2 collected self-report data from 31 countries within Europe, the Caribbean, and South America, as well as the United States (Enzmann et al., 2015). The school-based study (like the data collection effort employed to gather data for the current analysis) utilized data collection experts within each participating nation to draw random samples of participants at either the city or national level (Enzmann et al., 2015). Overall, the ISRD-2 (Enzmann et al., 2015) gathered data concerning the prevalence and incidence of delinquent behaviors and victimization, which previous research has found to allow for the examination of various criminological concepts (Marshall & Maljevic 2013). Utilizing the ISRD-2 (Enzmann et al., 2015), Muftić and colleagues compiled variables into categories measuring all four of the life domains—self (low self-control, positive attitudes towards violence), school (school disorder, school attachment), peer (peer delinquency), family (positive parental bonding)—outlined by Agnew, as well as participation in violent, property, and drug related delinquent acts.

Following the analytic approach described by Agnew (2005), Muftić and colleagues (2014) created three models to examine the direct, indirect, and interaction

effects that the highlighted life domains had upon participation in violent, property, and drug delinquency. Theoretically consistent with the hypotheses relayed by Agnew, Muftić and colleagues reported that all the highlighted life domain variables utilized within the analysis were significantly associated with violent and property offending, and all the life domains, besides the family domain, were significantly predictive of drug offending. Furthermore, upon examining the interactive effects of the highlighted life domains on offending, low self-control and delinquent peers were both significantly predictive of violent and drug related delinquency; however, other interactive effects for the highlighted life domains—specifically school—were weak or non-existent (Muftić et al., 2014).

While a majority of Muftić and colleague's (2014) findings garnered positive support for Agnew's (2005) GTCD, a key limitation was found within their partial analysis. The construction of the employed life domains used only one or two indicators for each domain, which is restraining considering the multitude of correlates Agnew hypothesized within the four adolescent life domains. Specifically looking at the self domain, Muftić and colleagues (2014) included solely low self-control and attitudes towards violence. This is strong start to constructing the self domain, but irritability, high activity levels, sensation seeking, and low social support should have been included to fully grasp the influencing nature of the self domain on adolescent delinquency. This limitation can impact the findings reported with Muftić and colleague's (2014) analysis but helps illuminate the necessity of operationalizing more correlates highlighted by Agnew within future tests of GTCD.

The final analysis concerned with application of Agnew's (2005) GTCD to a subpopulation of adolescents was by Roh and Marshall (2018), who utilized the ISRD-2 (Enzmann et al., 2015) dataset as well. Roh and Marshall applied Agnew's general theory to comparatively analyze a sample population of American and Irish adolescents. Through construction of all four life domains—self (low self-control, positive attitudes towards violence), school (school disorganization, school bonding), peer (peer delinquency), family (positive parental bonding, family disruption)—outlined by Agnew, a fifth life domain concerning neighborhood context, and participation in various delinquent acts, Roh and Marshall examined the cross-national applicability of Agnew's general theory.

Examining the first proposition relayed within the general theory, Roh and Marshall (2018) reported that all four life domains within the adolescent model were statistically significant for both American adolescents and Irish adolescents. Furthermore, significant differences were found between sample populations, with family disruption and peer delinquency presenting a greater positive effect on participation in delinquent acts for American versus Irish adolescents (Roh & Marshall, 2018). Even though the cross-national differences do not shed light on the applicability of the general theory, the results garnered by Roh and Marshall provide support for the GTCD. It should be noted that the same limitation found within the Muftić and colleagues (2014) analysis [the inclusion of only a few of the correlates highlighted by Agnew (2005) for each life domain] can be applied to Roh & Marshall's (2018). It would be beneficial for future analyses to include more of the correlates highlighted by Agnew when testing GTCD.

Analyzation of adolescent criminal participation has been previously deemed important research (Burns, 2013; Sampson & Laub, 2003; Vitulano, Fite, & Rathert, 2010) however, analyzation of adult criminal participation is just as central when it comes to the applicability of the general theory. If the general theory can adequately predict criminal participation over multiple stages of an individual's life, then utilization of the theoretical construct will become more commonplace within empirical research.

Adult Life Stage

The second stage of an individual's life concentrated on by prior analyses is the adult life stage. The significance surrounding examination of adult criminality is the assertion that adult lawbreaking is oftentimes a continuation of juvenile lawbreaking (Kalb & Williams, 2002). Furthermore, research emphasizing the age-crime curve indicate the prevalence of criminality within the adult years (Loeber & Farrington, 2014). The age-crime curve—originally conveyed by Quetelet (1831)—is one of the most agreed upon actualities within the academic realm of criminal justice (Farrington, 1986; Hirschi & Gottfredson, 1983; Tremblay & Nagin, 2005). The correlation between age and criminal behavior graphically materializes in the shape of an asymmetrical bell, indicating that the occurrence of offending—the percentage of offenders within the population—generally increases from late childhood, reaches its apex during an individual's adolescent years, and then begins to decline during an individual's early adulthood years, often with a long tail representing this delayed desistance (Loeber & Farrington, 2014). Adult criminality, therefore, would constitute the second half of this asymmetrical bell, expressive of a moderate proportion of criminal activity, giving

credence to the two previous examinations that have investigated the explanatory power of Agnew's (2005) general theory when it comes to engagement in crime.

Ngo and colleagues (2011) employed secondary data analysis upon measures from the Maryland Boot Camp Experiment (MacKenzie, Bierie, & Mitchell, 2007) to determine the relevancy of Agnew's (2005) general theory. The Maryland Boot Camp Experiment was a randomized, experimental evaluation designed to gauge the effectiveness of Maryland's only correctional boot camp for adult offenders (MacKenzie et al., 2007). The main intention of the evaluation study was to assess whether a correctional boot camp, combined with a treatment orientation—addiction, life skills, and basic education treatments—reduced recidivism when compared to a customary correctional facility that had a treatment orientation, but no military-style component (MacKenzie et al., 2007). Subject participants were randomly assigned to either the correctional boot camp or the comparison facility, with the first round of survey collection occurring one week prior to assignment (MacKenzie et al., 2007). Following participation in either the boot camp or the comparison facility, participants were re-surveyed one week prior to release back into the community (MacKenzie et al., 2007). Both surveys gathered information concerning participants': 1) demographic characteristics, 2) anti-social attitude and orientations, 3) self-reported prior criminal history (both juvenile and adult), 4) perceptions of employment and family, and 6) association with anti-social peers (MacKenzie et al., 2007). Utilizing time one survey information, and subsequent criminal records checks conducted by the Maryland Department of Public Safety, Ngo and colleagues compiled variables into categories measuring all five of the life domains highlighted by Agnew—self (low self-control),

school (limited education), peer (friends' anti-social behaviors/attitudes), family (no marriage, bad relationships) and work (no job, bad job)—as well as a participants' recidivism rate during the follow-up period (Ngo et al., 2011).

Following the models laid out by Agnew (2005), Ngo and colleagues (2011) sought to examine the core proposition of the theoretical construct, the non-linearity of the life domains and crime, and the interaction effects of the life domains (Ngo et al., 2011). As previously mentioned, a participants' recidivism rate during the follow-up period served as the dependent variable and was coded dichotomously to indicate if the participant had committed a crime subsequent their release into the community (Ngo et al., 2011). Overall, Ngo and colleagues garnered weak empirical support for Agnew's GTCD. Within their bivariate analysis, only two of the five life domains (school and work) highlighted by Agnew were significantly associated with recidivism. Furthermore, findings from the multivariate models signified that only criminal peers, within the peer life domain, were significantly associated with recidivism (Ngo et al., 2011). Within the interaction effects analysis, only seven of the twenty-one effects were conditional on other indicators when predicting recidivism (Ngo et al., 2011). The null findings reported by Ngo and colleagues were hypothesized to be related to the sample population utilized within their examination. The small subsample of criminally active participants, a majority of whom were young African-American males, led Ngo and colleagues to call for future research to examine a broader spectrum of sample participants—e.g. college students, female offenders, other racial categories, etc.; broadly put, more generalizable sample populations.

The second analysis concerned with application of Agnew's (2005) general theory to a subpopulation of adults was by Cochran (2017). Collecting data from a convenience sample of college students, Cochran attempted to assess the same critical propositions tackled by Zhang and colleagues (2012), but this time to predict academic dishonesty amongst participants. Surveying undergraduate students enrolled in upper-division sociology classes, enrolled at a large public university located in the southwestern region of the United States, Cochran compiled variables into categories gauging constraints against crime (certainty/severity of shame, certainty/severity of embarrassment, certainty/severity of formal sanctions), motivations for crime (academic strain, course commitment, peer pressure), all five of the life domains—self (social maturity and integrity, low self-control, attitudes towards academic dishonesty), school (school attachment, grade point average, involvement in student organizations), peer (confiding in friends, socializing with friends), family (parental attachment, parental supervision), and work (work attachment, work commitment)—outlined by Agnew for the adult time-period, and participation in academic dishonesty (i.e. cheating off another's exam, plagiarizing a term paper, having another take an exam for you, lying to a professor about missing an assignment, and/or falsifying information on a research paper).

Cochran (2017) sought to examine three propositions: 1) if the various life domains influenced academic dishonesty, 2) if the measures of constraints and motivations influenced academic dishonesty, and 3) if the measures of constraints and/or motivations mediated the effects of the life domains on academic dishonesty (Cochran, 2017). Academic dishonesty contained 17 self-reported measures of academic dishonesty, gauging participants on if they had, in the past 12 months, cheated on an

exam, cheated on homework, payed someone to cheat for them, and/or plagiarized (see Cochran, 2017 for a complete list of academic misconduct activities). Overall, Cochran garnered mixed support for the theoretical construct formed by Agnew. Within the first model, only six of the twelve constructed life domain variables had a statistically significant correlation with academic dishonesty, with all three indicators in the self domain, school attachment, grade point average, and socializing with friends reaching statistical significance (Cochran, 2017). Within the second model, all four indicators for motivations for crime, and five of the six indicators for constraint against crime, were significantly correlated with academic dishonesty (Cochran, 2017). Within the final model, once constraints and motivations were introduced into the equation, only two of the twelve life domain variables—low self-control and attitudes towards academic dishonesty—retained statistical significance, a discovery consistent with Agnew's theoretical expectations (Cochran, 2017). The mixed results garnered by Cochran led to call for further research to investigate the complexities of this theoretical construct, preferably using nationally representative data (Cochran, 2017). Furthermore, Cochran argued that the cross-sectional data employed in the analysis may have hampered the findings reported, subsequently calling for longitudinal data to be utilized to ascertain the age-graded validity of the theoretical construct.

Current Examination

With Cochran's (2017) recommendation in mind, previous examinations of Agnew's (2005) GTCD mistakenly bypass the centrality of the life stage variability perspective within the proposed theoretical construct. A foundational component of the general theory designates that the highlighted causal indicators possess variability over

the highlighted life stages of an individual's life, with specified indicators being more meaningful/impactful than others at differing time junctures (Agnew, 2005). Previous research has signified the pertinence of this mutability over the life stages, with findings demonstrating that the bearing of certain causal variables on criminal participation differs over the course of an individual's life (Catalano & Hawkins, 1996; Elder, 1995; Moffitt, 1993; Piquero & Mazerolle, 2001; Sampson & Laub, 1993; Sampson & Laub, 2003; Thornberry, 1987). Prior examinations of Agnew's general theory may have excluded a multiple life stage perspective simply due to the statistical and analytical constraints proposed by Agnew; however, examination of this perspective is constructive when determining the applicability of the general theory.

To fill the gap in the literature concerning Agnew's (2005) general theory, this study explored the relationship between a majority of the highlighted causal indicators and participation in criminal behaviors across the adolescent and adult time periods of an individual's life. Using four waves of the Add Health dataset, this study assessed the first core proposition presented by Agnew, in which crime is affected by the five groupings of variables—which are organized into the life domains of self, family, school, peers, and work—with the degree of this impact on crime/delinquency varying over an individual's life.

CHAPTER III

METHODOLOGY

Research Questions

The purpose of this examination was to determine the applicability of Agnew's (2005) GTCD, through specific evaluation of the first core proposition presented by Agnew. Moreover, the explicit objective of this examination was to determine the explanatory power of Agnew's general theory when predicting engagement in violent, property, and drug-related crime/delinquency. In assessing this predictive ability, this investigation aimed to fill an important gap in research literature on the pertinence of Agnew's GTCD.

The first core proposition of Agnew's (2005) theory is reiterated as follows: crime/delinquency is caused by the groupings of variables within each life domain, with the impact of these variables on crime/delinquency varying over an individual's life. Previous examinations of Agnew's general theory have failed to assess the hypothesized variability that the highlighted life domains exert over an individual's life. To analyze this critical hypothesis, this examination utilized longitudinal, nationally representative data originating from the Add Health study. The first four waves of this dataset were employed to answer the following research questions:

Q1 Do the highlighted variables within each life domain accurately predict engagement in violent, property, and drug-related delinquency, as well as overall delinquency (specifically during adolescence)?

Q2 Do the highlighted variables within each life domain accurately predict engagement in violent and property-related crime, as well as overall crime (specifically during adulthood)?

Q3 Does the impact/relevancy of the constructed life domain scales (when applied to violent, property, drug, and overall delinquency) align with the hypotheses contended by Agnew (2005), specifically during adolescence?

Q4 Does the impact/relevancy of the constructed life domain scales (when applied to violent, property, and overall crime) align with the hypotheses contended by Agnew (2005), specifically during adulthood?

Q5 Are the life domains more likely to be conducive to crime/delinquency amongst adolescents, males, the members of certain race and ethnic groups, those with low-SES parents, and those who live in low-SES inner-city communities/neighborhoods?

Sample

To answer the five research questions, longitudinal data from the Add Health study was analyzed. The Add Health study is an ongoing, five-wave, longitudinal, school-based study that investigates the causes of health/health-related behaviors of participants, and the subsequent outcomes of those behaviors during adolescence and adulthood (Harris et al., 2009). Moreover, the Add Health study is designed to collect information on how an adolescent's, and then subsequently an adult's, social environment impacted their health (Harris et al., 2009). Emerging from a congressional mandate to fund research relating to adolescent health, the Add Health data were originally collected from a nationally representative sample of adolescents who were in 7^{th}-12^{th} grade during the 1994-1995 school year (Harris et al., 2009).

The original sampling frame for the Add Health study consisted of all high schools in the United States (n=26,666), with these educational institutions being stratified by size, school type, census region, level of urbanization, and percentage of white students (Harris et al., 2009). This stratified sampling technique led to a total of 80

high schools being selected for inclusion, with 52 of those educational institutions being eligible and agreeing to participate (Harris et al., 2009). The remaining 28 institutions were subsequently replaced by similar high schools, with the Add Health study utilizing the following eight inclusion criteria for replacement schools: 1) school size, 2) school type, 3) level of urbanization, 4) percent white, 5) grade span, 6) percent black, 7) census region, and 8) census division (Harris et al., 2009).

All 80 participating high schools were subsequently asked to identify junior high/middle schools that acted as feeder schools for their educational institution, with inclusion criteria for identification being that the junior high/middle school was expected to provide, at a minimum, five students to the entering class of the participating high school (Harris et al., 2009). All identified feeder schools were given a proportionate probability of selection/inclusion, calculated based on the percentage of the high school's entering class that came from that particular junior high/middle school (Harris et al., 2009). A total of only 52 junior high/middle schools were subsequently selected for inclusion, due to some participating high schools acting as their own feeder school—these institutions possessed grade ranges that included 7th or 8th grades—or because some participating high schools did not have an eligible feeder institution—incoming underclassmen for these institutions came from a very large number of junior high/middle schools (Harris et al., 2009).

Ensuing institutional eligibility and agreement to participate, the Add Health study began obtaining parental consent to allow students to participate in the study (Harris et al., 2009). The Add Health study utilized both passive—parental signature was required to signify non-participation—and active—parental signature was required to

signify participation—consent forms, with the determination of which method was employed decided by the participating institutions (Harris et al., 2009). After obtainment of parental consent, the Add Health study began with administration of an in-school questionnaire, with a sample size of 90,188 students completing the 45-minute survey (Harris et al., 2009). The in-school questionnaire garnered indicators on a participant's background, their parent's/guardian's background, their peers, their school life/activities, their work activities, and their general health status/behaviors (Harris et al., 2009).

Succeeding the in-school questionnaires, all participating educational institutions were asked to provide a roster of all students enrolled in their school (Harris et al., 2009). From this obtained list of enrolled participants, adolescents in 7th through 12th grade were sampled to participate in an in-home interview (Harris et al., 2009). After obtainment of written informed consent from the parents/legal guardians of the participant, as well as the participant themselves, 20,745 individuals were interviewed during 1994-1995 (referred to hereafter as Wave I) (Harris et al., 2009). Utilizing a Computer-Assisted Personal Interview (CAPI)/Audio Computer-Assisted Self Interview (ACASI) system, the Add Health study gathered further information on the participant's social, economic, psychological, and physical well-being, as well as contextual data on their family, neighborhood, community, school, peers/peer groups, and romantic relationships (Harris et al., 2009). Additionally, 17,670 parents/legal guardians were asked to participate in a separate interview, with indicators gauging demographic and health-related information about the parent/legal guardian, as well as further indicators concerning the adolescent participant (Harris et al., 2009).

Approximately one year later (1995-1996; referred to hereafter as Wave II) the Add Health study re-conducted the in-home interviews with a sample of 14,738 adolescents who were in 8th-12th grade (Harris et al., 2009). The sampling pool for Wave II was primarily drawn from the pool of individuals who had participated in Wave I, with most of the 12th graders during the Wave I investigation being excluded due to the grade eligibility requirement of the evaluation (Harris et al., 2009). Moreover, no parent interview was conducted during the Wave II investigation (Harris et al., 2009).

Approximately six years after (2001-2002; referred to hereafter as Wave III) conducting the Wave II in-home interviews, the Add Health study again re-conducted the in-home interviews of participants, with 15,917 young adults aged 18-26 being included in the investigation (Harris et al., 2009). Of the total number of participants in the Wave III investigation, 15,170 of them were participants in the original Wave I investigation (Harris et al., 2009). Moreover, during the Wave III investigation, 1,507 romantic partners of main study participants were interviewed, with couples being included if they were heterosexual, 18 years old or older, and had been together for longer than three months (Harris et al., 2009).

Six years after (2007-2008; referred to hereafter as Wave IV) the Wave III in-home interviews, the Add Health study once again re-conducted the in-home interviews of participants, with 15,701 adults aged 24-32 being included in the investigation (Harris et al., 2009). The Wave IV investigation was strictly concerned with conducting follow-up interviews with Wave I respondents only, ultimately exhibiting a 92.5% location rate and an 80.3% response rate (Harris et al., 2009). Currently, the fifth wave of the Add

Health study is being conducted, with a targeted sample size of 19,828 adults aged 32-42 (Harris et al., 2009).

Variables and Measurement

The Add Health data is collected using questionnaires that allow the dataset to assist a variety of behavioral, medical, and social science researchers; therefore, the data collection effort drew upon an extensive assortment of pre-established questionnaires/indicators (Udry, 2001). Because of this, no specific, integral questionnaire established in the empirical literature is included in the Add Health questionnaire(s) (Udry, 2001). Instead, the multitude of questionnaires employed are comprised of different indicators from a variety of preexisting scales, mainly ones that were suggested by co-funding agencies and then adapted, as necessary, by the Add Health research team. Overall, the Add Health questionnaires employed gather information on adolescents: 1) current mental, physical, emotional, and sexual health; 2) frequency of exercise and seat belt/drug/tobacco/alcohol use; 3) family patterns of illness/disease; and 4) family interactions, peer influence, and school interactions (Udry, 2001).

Utilizing the first four waves of the public-use Add Health data, the following measures were employed to answer the five research questions. The following sections will break down the measures into independent, dependent, and control variables, with separate segments relating to the adolescent and adult stages of an individual's life.

Independent Variables

Adolescent life stage. The independent variables for the adolescent life stage were primarily drawn from Wave I of the Add Health dataset, to help establish causal

ordering with the dependent variables employed within the adolescent models (taken from Wave 2 of the Add Health dataset. Some independent variables for the adolescent models were drawn from Wave II of the study and will be marked with a *.

All four of the pertinent life domains during the adolescent life stage, as highlighted by Agnew (2005), were found in Wave I and II of the Add Health dataset. Prior to modeling the various effects of these variables, all highlighted variables in the adolescent life stage (other than the dichotomous variables) were transformed into standardized (z score) variables, entered into a principal components analysis [to determine the number of factors produced; moreover, the Kaiser- Meyer-Olkin measure of sampling adequacy and the Barlett's Test of Sphericity were analyzed to determine if this step of the analysis was appropriate (Pallant, 2005)], weighted by the factor loadings produced in those principal component analyses, and subsequently summed to create their respective scales [see Cochran (2017) for another example of this analytic approach]. It should be noted that all principal component factor analyses conducted on the various independent variables (when appropriate) indicated that a single-factor solution best fit the data, helping give credence to the employment of specific indicators within their respective correlates.

Personality traits. The Add Health dataset contained seven of the nine variables described by Agnew (2005) for the adolescent self domain[3]: impulsivity, high activity

[3]Agnew (2005) contended that people who possessed the super-personality trait of low self-control are impulsive; they respond to the temptation of the moment, with little thought for future consequences; they enjoy risky, high-energy activities; they do not possess much ambition, motivation, and/or perseverance; and they do not feel restricted by conventional rules/norms. Moreover, Agnew (2005) presented people who possessed the super-personality trait of irritability are more frequently going to perceive events as aversive; they will attribute aversive events to the malicious behaviors of others; they will experience intense emotional reactions to these aversive events and they will respond to these aversive events in antisocial ways.

levels, attention deficit, sensation seeking, irritability, insensitivity to others/low empathy, and poor social- and problem-solving skills. The two self domain variables not found within the Add health dataset, for the adolescent life stage, were: 1) low ability to learn from punishment and 2) beliefs favorable to crime.

Impulsivity is composed of ten items (Cronbach's $\alpha = .739$[4]): gauging participants on how hopeful they felt for the future (during the past week), whether it was hard for them to start doing things (during the past week), whether they live their life without much thought of the future (overall)*, whether it is a big hassle to protect themselves from getting an STD (overall)*, whether birth control is too much of a hassle for them to use (overall)*, whether it took too much planning ahead to use birth control (overall)*, whether they believed that birth control interfered with sexual enjoyment (overall)*, whether they could stop and use birth control if they were aroused (overall)*, how sure they were that they could plan ahead to have form of birth control available (overall)*, and whether they could resist sex with their partner if that individual did not want to use birth control (overall)* (See Appendix B for complete description of measurements for each item in the self domain). Several of these measures have been utilized in past research when examining the effects of impulsivity on adolescent delinquency (Clinkinbeard, Simi, Evans, & Anderson, 2011).

High activity levels is composed of three items (average inter-item correlation = .026): gauging participants on how active they were with their exercise habits (during the past week), if they had trouble relaxing (during the past year), and if they perceive

[4] According to Pallant (2005), scales with less than 10 items are often stricken by low Cronbach values. Within this analysis, computed scales with fewer than 10 items will be analyzed for internal reliability using the mean inter-item correlations for the employed indicators. According to Clark and Watson (1995) an optimal range of mean inter-item correlations is between .15 and .50.

themselves to possess lots of energy (overall). Several of these measures have been utilized in past research when examining the effects of high activity levels on adolescent delinquency (Azimi & Daigle, 2017; Schreck & Fisher, 2004).

Attention deficit is composed of three items (average inter-item correlation = .152): gauging participants on if they had trouble paying attention in school (during the 1994-1995 school year), if they had trouble keeping their mind focused (during the past week), and if the Add Health interviewer perceived them to be bored/impatient during their assessment. Several of these measures have been utilized in past research when examining the effects of attention deficiencies on adolescent delinquency (Bekbolatkyzy, Yerenatovna, Maratuly, Makhatovna, & Beaver, 2018; Bunch, Iratzoqui, & Watts, 2018; Perrone, Sullivan, Pratt, & Margaryan, 2004).

Sensation seeking is composed of a singular item: gauging participants on if they perceive themselves to enjoy taking risks (overall)*.

Irritability is composed of six items (average inter-item correlation = .063): gauging participants on their perceived level of moodiness (during the past year), whether they felt that they were being bothered by things that usually do not (during the past week), if they perceive that they never argue with other individuals (overall), if they perceive that they never criticize other individuals (overall), if they perceive that they get upset by difficult problems (overall), and if the Add Health interviewer perceived them to have an attractive personality. Several of these measures have been utilized in past research when examining the effects of irritability on adolescent delinquency (Bunch et al., 2018).

Insensitivity to others/low empathy is composed of a singular item: gauging participants on if they perceive themselves to be sensitive to others' feelings (overall)*.

Poor social- and problem-solving skills is composed of six items (average inter-item correlation = .183): gauging participants on if they avoid confronting their problems (overall), if they go with their gut reaction (when solving a problem) without thinking through all the alternatives (overall), if they gather as many facts about a problem when confronted with one (overall), if they research multiple approaches to solving a problem when confronted with one (overall), if they use a systematic method of judging/comparing solutions to solve a problem (overall), and if they analyze the outcome(s) of a problem ensuing the employment of a solution (overall). Several of these measures have been utilized in past research when examining the effects of poor problem-solving skills on adolescent delinquency (Bekbolatkyzy et al., 2018; Bunch et al., 2018; Clinkinbeard et al., 2011).

Family variables. The Add Health dataset contained four of the ten variables described by Agnew (2005) for the adolescent family domain[5]: negative bonding between parent and child, family conflict, poor supervision/discipline, and low social support. The six family domain variables not found within the Add health dataset, for the adolescent life stage, were: 1) child abuse, 2) criminal parents, 3) criminal siblings, 4) unmarried, 5) negative bonding with spouse/partner, and 6) criminal spouse/partner.

[5] Agnew (2005) argued that delinquency is more likely to occur when family members hate/reject one another, and when they do not spend time together doing pleasurable activities. Moreover, delinquency is more likely to occur when parents fail to restrict delinquency behavior clearly and concisely, monitor rule compliance, and consistently/appropriately punish rule violations. Next, delinquency is related to conflict between parents and juveniles, and can include screaming, insults, threats/contempt, and violence (either physical, emotional, sexual, and/or neglect). After that, delinquency is related to the lack of positive parenting, which can constitute either failure to teach non-delinquent problem-solving skills or failure to provide social support (advice for problems juveniles are facing.

Negative bonding between parent and child is composed of seven items (average inter-item correlation = .289): gauging participants on if they have spent a night away from their home without their parent's permission (during the past year), if they perceive that their parents are close to them (overall), how much they perceive their parents care about them (overall), how much they perceive their family understands them (overall), how much fun their family has together (overall), if their parents are warm/loving to them (overall), and if they have ever lied to their parents about their whereabouts[6] (during the past year) (See Appendix C for complete description of measurements for each item in the adolescent family domain). Several of these measures have been utilized in past research when examining the effects of negative bonding between parent and child on adolescent delinquency (Bellair, Roscigno, & McNulty, 2003; Bunch et al., 2018; Clinkinbeard et al., 2011; Demuth & Brown, 2004; Genç, Su, & Durtshi, 2018; Haynie, 2001; Schreck & Fisher, 2004; Schreck, Fisher, & Miller, 2004).

Family conflict is composed of four items (average inter-item correlation = .178): gauging participants on if they have had a serious argument with their parents (during the past month), if they have ever run away from home (overall), if they have ever wanted to run away from home (overall), and if they perceive that their family pays attention to them (overall). Several of these measures have been utilized in past research when examining the effects of family conflict on adolescent delinquency (Bekbolatkyzy et al., 2018; Bellair et al., 2003).

Poor supervision/discipline is composed of three items (average inter-item correlation = .065): gauging participants on if their parents are actively supervising them

[6] Lying about whereabouts was included because of the research by Engels, Finkenauer, & van Kooten (2006) that connected frequent lying to behavioral and emotional problems for adolescents.

(overall), if they have easy access to damaging items in their house (overall), and if the participant usually relays to their parents where they are going when they go out on evenings or weekends (overall)*. Several of these measures have been utilized in past research when examining the effects of poor parental supervision on adolescent delinquency (Bekbolatkyzy et al., 2018; Bellair et al., 2003; Bunch et al., 2018; Demuth & Brown, 2004; Clinkinbeard et al., 2011; Azimi & Daigle, 2017).

Low social support is composed of two items (average inter-item correlation = -.035): gauging participants on if they have had a talk with their parents regarding a personal problem they were having (in the past month), and if the participant's mother discusses with them why what they did was wrong, if the participant has done something wrong that is important (overall). Both measures have been utilized in past research when examining the effects of family social support on adolescent delinquency (Perrone et al., 2004).

School variables. The Add Health dataset contained four of the five variables described by Agnew (2005) for the adolescent school domain[7]: poor academic performance, negative bonding to school, negative treatment by teachers, and low educational/occupational goals. The one school domain variable not found within the Add health dataset, for the adolescent life stage, was little time on homework.

[7] Agnew (2005) argued that juveniles are more likely to turn towards delinquency when they hate their school, hate their teachers, dislike their time at school, and perceive no value of education received. Next, juveniles are more likely to be delinquent when they do not perform well in school, and/or they are held back in school. After that, delinquency is more likely to occur when juveniles do not spend adequate time on their homework. Moreover, delinquency is more likely to occur when juveniles desire less education and expect to receive less education. Additionally, delinquency more likely for individuals who are not properly supervised by teachers and school officials, similarly to parental supervision. Penultimately, delinquency is more likely to occur when they receive negative treatment from their teachers, in the form of being talked down to, verbally abused, threatened, or treated unfairly. Lastly, delinquency is more likely when teachers fail to set high standards, fail to educate, and fail to provide social support.

Poor academic performance is composed of two items (average inter-item correlation = -.238): gauging participants on their reported school grades (during the 1995 spring grading period), and if they have ever repeated/been held back a grade (overall) (See Appendix D for complete description of measurements for each item in the adolescent school domain). Both measures have been utilized in past research when examining the effects of academic performance on adolescent delinquency (Bellair et al., 2003; Kavish, Mullins, & Soto, 2016).

Negative bonding to school is composed of ten items (Cronbach's $\alpha = .715$): gauging participants on if they have skipped school without an excuse (during the 1994-1995 school year), if they have ever received an out-of-school suspension (overall), if they have ever been expelled from school (overall), if they have ever carried a weapon at school (overall), if they had trouble getting along with teachers (during the 1994-1995 school year), if they had trouble getting along with other students (during the 1994-1995 school year), if they felt close to the people at their school (during the 1994-1995 school year), if they felt part of their school (during the 1994-1995 school year), if they felt happy at their school (during the 1994-1995 school year), and if they believe that their teachers care about them (overall). Several of these measures have been utilized in past research when examining the effects of teacher/school bonding on adolescent delinquency (Bellair et al., 2003; Bunch et al., 2018; Genç et al., 2018; Haynie, 2001; Kavish et al., 2016; Perrone et al., 2004; Schreck et al., 2004).

Negative treatment by teachers is composed of a singular item: gauging participants on if they believe that their teachers treat students fairly at their school (during the 1994-1995 school year).

Low educational/occupational goals is composed of four items (average inter-item correlation = .255): gauging participants on if they want to go to college (overall), the self-perceived likelihood that they will go to college (overall), the self-perceived likelihood that they will live to the age of 35 (overall), and the self-perceived likelihood that they will be killed by age 21 (overall). Several of these measures have been utilized in past research when examining the effects of low educational/occupational goals on adolescent delinquency (Bunch et al., 2018).

Peer variables. The Add Health dataset contained all four of the variables described by Agnew (2005) for the adolescent peer domain[8]: association with delinquent peers, gang membership, much time in unstructured/unsupervised activities with peers, and criminal victimization.

Association with delinquent peers is composed of three items (average inter-item correlation = .316): gauging participants on the quantity of their closest friends that drank alcohol (during the past month), the quantity of their closest friends that used marijuana (during the past month), and the frequency of occurrences where they partook in a group fight with their friends (during the past year) (See Appendix E for complete description of measurements for each item in the adolescent peer domain). Several of these measures have been utilized in past research when examining the effects of delinquent peers on adolescent delinquency (Bekbolatkyzy et al., 2018; Bellair et al., 2003; Bunch et al.,

[8] Agnew (2005) presented that juvenile delinquency was more likely to occur when an individual's peers engage in delinquency, because these peers will influence/encourage the individual to join them. Next, delinquency is more likely to occur when an individual is associated with a gang, because of the strong bonds exhibited between gang members and their subsequent influence to commit crime. After that, delinquency is more likely to occur when an individual is verbally or physically abused by a peer, especially if this abuse involves criminal victimization. Lastly, delinquency is more likely to occur when an individual spends a large amount of time with peers in unstructured, unsupervised activities (these situations are highly conducive to crime).

2018; Demuth & Brown, 2004; Haynie, 2001; Schreck & Fisher, 2004; Schreck et al., 2004).

Gang membership is composed a singular item: gauging participants on if they have been initiated into a named gang (during the past year)*. This measure has been utilized in past research when examining the effects of gang affiliation on adolescent delinquency (Haynie, 2001).

Much time in unstructured/unsupervised activities with peers is composed of a singular item: gauging participants on how frequently they specifically hung out with their friends (during the past week). This measure has been utilized in past research when examining the effects of unstructured, unsupervised activity with peers on adolescent delinquency (Meldrum & Barnes, 2017; Schreck & Fisher, 2004).

Criminal victimization is composed of four items (average inter-item correlation = .284): gauging participants on if they have had a gun or knife pulled on them (during the past year), if someone has shot them (during the past year), if someone had stabbed them (during the past year), and if they have been jumped (during the past year). Several of these measures have been utilized in past research when examining the effects of criminal victimization on adolescent delinquency (Bunch et al., 2018; Daigle & Teasdale, 2018; Schreck et al., 2004).

Adult life stage. The independent variables for the adult life stage were primarily drawn from Wave III of the Add Health dataset, with some variables drawn from Wave IV of the study (Wave IV variables will be marked with a *). All five of the pertinent life domains during the adult life stage, as highlighted by Agnew (2005), were found in Wave III and IV of the Add Health dataset. Prior to modeling the various effects of these

variables, all highlighted indicators in the adolescent life stage (other than the dichotomous indicators) were transformed into standardized (z score) variables, entered into a principal components analysis (to determine the number of factors produced), weighted by the factor loadings produced in the preceding principal component analysis, and subsequently summed.

Personality traits. The Add Health dataset contained seven of the nine variables described by Agnew (2005) for the adulthood self domain: impulsivity, high activity levels, attention deficit, sensation seeking, irritability, insensitivity to others/low empathy, and poor social- and problem-solving skills. The two self domain variables not found within the Add health dataset, for the adult life stage, were: 1) low ability to learn from punishment and 2) beliefs favorable to crime

Impulsivity is composed of eight items (average inter-item correlation = .125): gauging participants on if they live their life without much thought of the future (overall), if they often do things based on how they feel at that moment (overall), if they sometimes get so excited that they lose control of themselves (overall), if they often follow their instincts without thinking through all the details (overall), if they perceive themselves to be a careful individual (overall), if they perceive themselves to be a self-centered individual[9] (overall), if their gambling has ever caused serious financial/family problems (overall)*, and if they are always optimistic about their future (overall)* (See Appendix F for complete description of measurements for each item in the adult self domain). Several

[9] Self-centeredness was included because of the work by Soutschek, Ruff, Strombach, Kalenscher, and Tobler (2016), as well as the work by Wood, Pfefferbaum, & Arneklev (1993), which connect self-centeredness to lower levels of self-control (and subsequently criminal behavior).

of these measures have been utilized in past research when examining the effects of impulsivity on adult crime (Beaver, Boutwell, Barnes, Vaughn, & DeLisi, 2017).

High activity levels is composed of three items (average inter-item correlation = .033): gauging participants on how active they are with their exercise (during the past week), if they have vigorously exercised recently (during the past 24 hours)*, and if they believe that they are relaxed most of the time (overall)*. Several of these measures have been utilized in past research when examining the effects of high activity levels on adult crime (Beaver et al., 2017).

Attention deficit is composed of four items (average inter-item correlation = .089): gauging participants on if they had trouble keeping their mind focused (during the past week), if their attention shifts frequently (overall), if the Add Health interviewer perceived them to be bored/impatient during their assessment, and if they often forget to put things back in their proper place (overall)*.

Sensation seeking is composed of three items (average inter-item correlation = .429): gauging participants on if they like to take risks (overall), if they often try new things just for the thrills (overall), and if their boredom often leads them to seek out excitement (overall).

Irritability is composed of eleven items (Cronbach's $\alpha = .740$): gauging participants on whether they felt that they were being bothered by things that usually do not (during the past week), if they enjoy it when there are no rules/regulations restricting their behavior[10] (overall), if the Add Health interviewer perceived them to have an

[10] This variable, as well as the variable gauging participants on if they like order, was included because of the work of Susman and colleagues (1987) that connected aggressive attributes to acts of rebellion against rule/order.

attractive personality, if they have had frequent mood swings (during the past week)*, if they perceive themselves to get angry easily (overall)*, if they perceive themselves to get upset easily (overall)*, if they perceive themselves to lose their temper easily (overall)*, if they perceive themselves to not be easily bothered by things (overall)*, if they perceive themselves to rarely get irritated (overall)*, if they perceive themselves to like order (overall)*, and if they perceive themselves to generally keep their cool (overall)*. Several of these measures have been utilized in past research when examining the effects of irritability on adult crime (Beaver et al., 2017; Daigle & Teasdale, 2018).

Insensitivity to others/low empathy is composed of five items (average inter-item correlation = .271): gauging participants on if they feel perceives themselves to be a considerate person (overall), if they perceive themselves to sympathize with other's feelings (overall)*, if they perceive themselves to feel other's emotions (overall)*, if they perceive themselves to be generally uninterested in other people's problems (overall)*, and if they perceive themselves to be generally uninterested in others (overall)*. Several of these measures have been utilized in past research when examining the effects of low empathy on adult crime (Beaver et al., 2017; Daigle & Teasdale, 2018).

Poor social- and problem-solving skills is composed of two items (average inter-item correlation = .230): gauging participants on if they actively avoid confronting their problems (overall), and if they go with their gut reaction (when solving a problem) without thinking through the alternatives (overall). Both measures have been utilized in past research when examining the effects of poor social- and problem-solving skills on adult crime (Beaver et al., 2017; Daigle & Teasdale, 2018).

Family variables. The Add Health dataset contained four of the ten variables described by Agnew (2005) for the adult family domain[11]: negative bonding between parent and child, family conflict, unmarried, and negative bonding with spouse/partner. Additionally, a variable relating to bonding with children will be included in this variable grouping. Agnew hypothesized that strong bonds to children would reduce a participant's likelihood to engage in crime, especially for females. The six family domain variables not found within the Add health dataset, for the adult life stage, were: 1) child abuse, 2) poor supervision/discipline, 3) criminal parents, 4) criminal siblings, 5) low social support, and 6) criminal spouse/partner.

Negative bonding between parent and child is composed of three items (average inter-item correlation = .784): gauging participants on if they enjoy doing things with their parents (overall), if their parents are warm/loving towards them (overall), and if they are close to their parents (overall) (See Appendix G for complete description of measurements for each item in the adult family domain).

Family conflict is composed of five items (average inter-item correlation = .173): gauging participants on if they have ever run away from home (overall), if they have ever been ordered to move out of their parent's home (overall), if their partner or spouse has threatened and/or used violence against them (during the past year)*, if their partner or spouse has struck them (during the past year)*, and if their partner or spouse has ever raped them (during the past year)*. Several of these measures have been utilized in past

[11] According to Agnew (2005), the same connections between family and crime (presented in the adolescent life stage section) apply to adults; however, adults are more likely to engage in crime if they are unmarried, negatively bonded to their spouse or partner, and/or have weak bonds with their children.

research when examining the effects of family conflict on adult crime (Brumley, Brumley, & Jaffee, 2018).

Unmarried is composed of a singular item: gauging participants on if they have ever been married (overall)*[12].

Negative bonding with spouse/partner is composed of eight items (average inter-item correlation = .550): gauging participants on if they enjoy doing ordinary things with their partner or spouse (overall)*, if they are satisfied with how they handle problems with their partner or spouse (overall)*, if they are satisfied with how they handle finances with their partner or spouse (overall)*, if their partner listen to them when they need to talk (overall)*, if their partner or spouse expresses love/affection towards them (overall)*, if they are satisfied with their sex life with their partner or spouse (overall)*, if they trust their partner or spouse to be faithful (overall)*, and if they are satisfied with their current relationship (overall)*.

Weak bonding with children is composed of two items (average inter-item correlation = .721): gauging participants on if they are happy in their role as a parent (overall)*, and if they feel like they are close to their children (overall)*.

School variables. The Add Health dataset contained two of the five variables described by Agnew (2005) for the adult school domain[13]: negative bonding to school and low educational/occupational goals. Additionally, a variable relating to limited

[12] Indicators measuring participant's marital status, as well as their levels of bonding towards their spouse/partner, were taken from W4 of the Add Health dataset because of the research concerning emerging adulthood by Arnett (2000). Arnett characterized individuals in the emerging adulthood time period (i.e. 18-25 years old) as being self-focused and instable. This notion, coupled with the fact that the W4 Add Health data collection effort surveyed participants that were 24 to 32 years, led to the belief that the W4 answers to these indicators were more representative of participants marital and partner bonding status (because the participants at W4 had transitioned out of the emerging adulthood life stage).

[13] The same connections between school and crime (presented in the adolescent life stage section) apply to adults; however, adults are more likely to engage in crime if they have a limited education.

education will be included in this variable grouping. Agnew hypothesized that engagement in crime would be greater for adults who had a limited education, with limited education being defined as having the highest level of formal schooling completed being 11th grade or lower (Education as a Vocational Factor, 1996). The three school domain variables not found within the Add health dataset, for the adult life stage, were: 1) poor academic performance, 2) little time on homework, and 3) negative treatment by teachers.

Negative bonding to school is composed of a singular item: gauging participants on if they have ever been expelled from school (overall) (See Appendix H for complete description of measurements for each item in the adult school domain).

Low educational/occupational goals is composed of two items (average inter-item correlation = .220): gauging participants on the self-perceived likelihood that they will live to the age of 35 (overall), and the self-perceived likelihood that participant will have a middle-class income by the age of 30 (overall).

Limited education is composed of a singular item: gauging participants on the highest level of education they have received (overall)*[14]. This measure has been utilized in past research when examining the effects of limited education on adult crime (Cundiff, 2017; Dennison, 2018).

Peer variables. The Add Health dataset contained all four of the variables described by Agnew (2005) for the adult peer domain: association with criminal peers,

[14] The limited education indicator were taken from W4 of the Add Health data collection effort because it was most recent wave included in this analysis, thus giving participants more time to complete their highest level of education achieved.

gang membership, much time in unstructured/unsupervised activities with peers, and criminal victimization.

Association with delinquent peers is composed of a singular item: gauging participants on the frequency of occurrences where they partook in a group fight with their friends (during the past year) (See Appendix I for complete description of measurements for each item in the adult peer domain).

Gang membership is composed a singular item: gauging participants on if they have been initiated into a named gang (during the past year).

Much time in unstructured/unsupervised activities with peers is composed of a singular item: gauging participants on how frequently they specifically hung out with their friends (during the past week).

Criminal victimization is composed of six items (average inter-item correlation = .258): gauging participants on if they have had a gun pulled on them (during the past year), if they have had a knife pulled on them (during the past year), if someone has shot them (during the past year), if someone has stabbed them, if they been beaten up but nothing was stolen from them (during the past year), and if they have been beaten up but something was stolen from them (during the past year). Several of these measures have been utilized in past research when examining the effects of criminal victimization on adult crime (Daigle & Teasdale, 2018; Genç et al., 2018; Ihongbe & Masho, 2018).

Work variables. The Add Health dataset contains two of the three variables described by Agnew (2005) for the adult work domain[15]: unemployment and work in the 'secondary labor market'. The one work domain variable not found within the Add health dataset, for the adult life stage, was poor work performance.

Unemployment is composed of a singular item: gauging participants on if they are currently unemployed (overall)*[16] (See Appendix J for complete description of measurements for each item in the adult peer domain).

Work in the 'secondary labor market' is composed of nine items (average inter-item correlation = .189): gauging participants on if they have been fired frequently (overall)*, if they are currently employed in the 'secondary labor market' (overall)*, if they are currently working part-time (overall)*, if they receive health insurance from their current employer (overall)*, if they receive retirement benefits from their current employer (overall)*, if they get paid vacation or sick leave from their current employer (overall)*, if they have the freedom to make important decisions about what they do at work/how they do it (overall)*, if their current job involves repetitious activities (overall)*, and if they are satisfied with their current job (overall)*.

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[15] Agnew (2005) presented that individuals who are unemployed, with a constant history of said unemployment. Moreover, if these individuals are employed, but employed in bad jobs, they are more likely to commit crime. Next, individuals who work at jobs that do not have clear rules governing appropriate behavior, are poorly supervised at their jobs, and infrequently and inconsistently punished at their jobs are more likely to commit crime. After that, individuals who are negatively bonded to their current job(s) are more likely to commit crime. Moreover, individuals who do a poor job at work and miss work frequently are more likely to commit crime. Penultimately, individuals who perform simple, repetitious tasks, and physically demoing tasks at their current job are more likely to commit crime. This same prediction is applied to individuals with little autonomy in their work, individuals who work for little pay/no benefits, and individuals who work in an environment where they are frequently coerced to comply. Lastly, individuals who work with criminal coworkers are more likely to commit crime. These notions are further reiterated by the work of Osterman (1975).

[16] All work domain related indicators were taken from W4 of the Add Health data collection effort, with the same argument presented within the marital status and negative bonding with spouse/partner footnote applied [i.e. Arnett's (2000) work surrounding emerging adulthood and its unstable characterization].

Dependent Variables

Adolescent life stage. The dependent variables for the adolescent life stage were drawn from Wave II of the Add Health dataset, to help establish casual ordering for the independent variables (primarily from Wave I) employed. The dependent variables were grouped into violent, property, and drug-related delinquency, as well as an overall delinquency measure combing all three offense types. Each delinquency type was analyzed using a principal component factor analysis to determine the number of factors produced, an approach employed by Cochran (2017) during his assessment of Agnew's (2005) theoretical construct.

Violent delinquency is composed of six items (average inter-item correlation = .343): gauging participants on if they have been in a serious physical fight (during the past year), if they have seriously hurt someone during a fight (during the past year), if they have threatened to use a weapon to take something from someone (during the past year), if they have used a weapon in a fight (during the past year), if they pulled a knife or gun on someone (during the past year), and if they have shot or stabbed someone (during the past year)[17] (See Appendix K for complete description of the dependent variable groupings for both adolescent and adult models).

Property delinquency is composed of ten items (Cronbach's $\alpha = .733$): gauging participants on if they have ever graffitied someone else's or public property (during the past year), if they have ever deliberately damaged property that did not belong to them (during the past year), if they have taken something from a store without paying for it (during the past year), if they have driven a car without the owner's permission (during

[17] A principal component factor analysis of these six items generated two factors with eigenvalues greater than 1.00, but a scree discontinuity test indicated that a single-factor solution best fit these items.

the past year), if they have driven a vehicle when they had been drinking alcohol (during the past month), if they have stolen something worth more than $50 (during the past year), if they have gone into a house/building to steal something (during the past year), if they have sold marijuana or other drugs (during the past year), if they have stolen something worth less than $50 (during the past year), and if they have acted loud/rowdy/unruly in a public place (during the past year)[18].

Drug delinquency is composed of seven items (average inter-item correlation = .174): gauging participants on if they have used cigarettes (during the past month), if they have used chew or snuff (during the past month), if they have used alcohol (during the past year), if they have used marijuana (during the past month), if they have used cocaine (during the past month), if they have used inhalants (during the past month), and if they have used other illegal drugs—i.e. LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills—(during the past month)[19].

Overall delinquency, as previously mentioned, is composed of the previously highlighted 23 items (Cronbach's $\alpha = .797$). A principal component factor analysis of these 23 items generated six factors with eigenvalues greater than 1.00, but a scree discontinuity test indicated that a single-factor solution best fit these items.

Adult life stage. The dependent variables for the adult life stage were drawn from Wave IV of the Add Health dataset, to help establish casual ordering for the independent variables (primarily from Wave III) employed. The dependent variables were grouped into violent and property-related crime, as well as an overall crime measure combing both

[18] A principal component factor analysis of these ten items generated three factors with eigenvalues greater than 1.00, but a scree discontinuity test indicated that a single-factor solution best fit these items.
[19] A principal component factor analysis of these seven items generated two factors with eigenvalues greater than 1.00, but a scree discontinuity test indicated that a single-factor solution best fit these items.

offense types. Drug crime was not included within the various adult models as an outcome variable because Wave IV of the Add Health dataset only queried two forms of drug crime, which was not substantial enough to make meaningful inferences.

Violent crime is composed of eight items (average inter-item correlation = .147): gauging participants on if they have threatened or used violence against their partner (during the past year), if they have slapped or kicked their partner (during the past year), if they have fought their partner—resulting in a sprain, bruise, or cut—(during the past year), if they have threatened to use a weapon to take something from someone (during the past year), if they have been in a serious physical fight (during the past year), if they have seriously hurt someone during a fight (during the past year), if they pulled a knife or gun on someone (during the past year), and if they have shot or stabbed someone (during the past year)[20].

Property crime is composed of nine items (average inter-item correlation = .178): gauging participants on if they have paid or have been paid for sexual intercourse (during the past year), if they have if they have ever deliberately damaged property that did not belong to them (during the past year), if they have stolen something worth more than $50 (during the past year), if they have gone into a house/building to steal something (during the past year), if they have sold marijuana or other drugs (during the past year), if they have stolen something worth less than $50 (during the past year), and if they have interacted with stolen property—bought, sold, and/or held—(during the past year), if they have used someone else's credit/bank/automatic teller card without their permission or

[20] A principal component factor analysis of eight nine items generated three factors with eigenvalues greater than 1.00, but a scree discontinuity test indicated that a single-factor solution best fit these items.

knowledge (during the past year), and if they have deliberately written a bad check (during the past year)[21].

Overall crime, as previously mentioned, is composed of the previously highlighted 17 items (Cronbach's $\alpha = .673$). A principal component factor analysis of these 17 items generated five factors with eigenvalues greater than 1.00, but a scree discontinuity test indicated that a single-factor solution best fit these items.

Control Variables

Adolescent life stage. The following variables were included in the adolescent analyses to control for any confounding influence(s). Moreover, Agnew (2005) hypothesized (during presentation of his seventh core proposition) that a participant's age, race/ethnicity, sex, parental socio-economic status, and community socio-economic status would impact their standing on the highlighted life domains. The following sociodemographic variables—found within Wave I of the Add Health dataset—were employed to answer the fifth research question proposed: gauging a participant's self-reported sex, if the participant is of Hispanic or Latino origin, what race the Add Health interviewer perceives the participant to be, if the participant's parents receive public assistance, the perceived SES of the participant's community, and what level of urbanicity[22] the Add Health interviewer perceives the participant to live in (See Appendix L for a complete description of the control variables employed for the adolescent and adult models).

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[21] A principal component factor analysis of these nine items generated two factors with eigenvalues greater than 1.00, but a scree discontinuity test indicated that a single-factor solution best fit these items.

[22] This indicator was measured by asking the Add Health interviewer to describe the immediate area or street (one block, both sides) where the respondent lived. Response options included rural, suburban, urban (residential only), 3 or more commercial properties (mostly retail), and 3 or more commercial properties (mostly wholesale or industrial). The options rural and suburban were coded as a 0 (non-urban), while the other three options were coded 1 (urban).

Adult life stage. The following variables, found within Wave III of the Add Health dataset, were employed—to control for any confounding influence(s) and to test Agnew's (2005) seventh core proposition—during the adult analyses: gauging a participant's self-reported sex, their self-reported age, if the participant is of Hispanic or Latino origin, and what race the Add Health interviewer perceives the participant to be.

Analytic Technique

To assess the five research questions previously presented, the preceding variables were first utilized within seven Poisson or negative binomial regression models—four for the adolescent life juncture and three for the adult life juncture; one model was employed for each type of offending—to determine the applicability of the various highlighted correlates within Agnew's (2005) general theory on crime/delinquency.

Following Agnew's (2005) suggested analytic strategy (to determine the relevancy of the first proposition relayed within the general theory) estimating the impact that the employed variables had upon crime/delinquency occurred first. Agnew relayed that most of the highlighted variables within his theoretical construct had a well-established, empirically supported effect on engagement on crime/delinquency. While there were still some correlates whose effect on crime/delinquency engagement was not as well supported within academic literature, Agnew reported that if the general theory was to be correct then each of the highlighted correlates should have a significant, direct effect on crime/delinquency while the other correlates are controlled for.

Following this suggested strategy, Agnew (2005) relayed that researchers should factor analyze all statistically significant correlates of crime/delinquency to see if they

load around the highlighted life domains. Due to statistical software package issues/familiarity, this analysis was not able to perform a factor analysis (specifically a confirmatory factor analysis[23]) upon all the statistically significant correlates. Instead, this analysis undertook the third step in Agnew's suggested analytic approach to the first core proposition of the GTCD: combining the highlighted correlates of crime/delinquency into life domain scales and subsequently re-examining their impact upon the various employed measures of crime/delinquency. This portion of the analysis was achieved through the construction of another seven Poisson or negative binomial regression models—four for the adolescent life juncture and three for the adult life juncture; one model was employed for each type of offending—to determine the accuracy of Agnew's predicted effects for the life domain scales at each time juncture.

Primary Poisson and Negative Binomial Regression Models

The highlighted dependent variables were summed to form an index for violent, property, drug, and overall crime/delinquency. The dichotomized, and subsequently additive, nature of the dependent variables employed called for the construction of seven Poisson or negative binomial regression models. To answer the first research question—which questions whether the employed indicators accurately predict engagement in adolescent delinquency—four Poisson or negative binomial regression models were

[23]Confirmatory factor analysis (CFA)—a form of factor analysis that is utilized to corroborate a pattern of connections based upon theoretical, or previous empirical, support (DeVellis, 2003)—would have been employed within this analysis, if available, because research has contended that a strong theoretical basis must be established before CFA can be employed (Hurley et al., 1997; Thompson, 2004). Because Agnew's (2005) GTCD is based upon a myriad of theoretical works, CFA would have been an appropriate dimension reduction technique to assess the first core proposition relayed by Agnew. Moreover, previous examinations (Ngo & Paternoster, 2014; Ngo et al., 2011; Muftić et al., 2014; Zhang et al., 2012) into the efficacy of Agnew's GTCD have employed CFA when establishing the loading nature of the known correlates into the hypothesized life domains, given further support for the utilization of CFA. This limitation will be discussed within the final chapter of this analysis.

constructed to assess the impact that the 19 employed correlates of delinquency had upon adolescent violent, property, drug, and overall delinquency, while controlling for the indicators of sex, ethnicity, race, parental SES, and neighborhood SES. To answer the second research question—which questions whether the employed indicators accurately predict engagement in adult crime—the next three Poisson or negative binomial regression models were constructed to assess the impact that the 21 employed correlates of crime had upon adult violent, property, and overall crime, while controlling for the indicators of sex, age ethnicity, and race. A similar regression model construction approach was employed by Zhang and colleagues (2012), Muftić and colleagues (2014), Ngo and Paternoster (2014), and Cochran (2017), during their analyses into the efficacy of Agnew's (2005) GTCD.

A Poisson/negative binomial distribution was determined to be the most applicable to the current investigation because of its reported utilization within discrete distribution—i.e. variables whose possible values form a set of separate numbers (0, 1, 2, 3, etc.), while at the same time not possessing an infinite continuum of possible real numbers [Agresti & Finlay (2007)]—analyses (Shmueli, Minka, Kadane, Borle, & Boatwright, 2005), as well as its reported usefulness within prior criminology and criminal justice related problems (Osgood, 2000; Piza, 2012; Zou, 2004). Osgood (2000), as well as Maltz (1994), described the litany of ways that Poisson/negative binomial distributions have been previously applied to empirical research within criminology and criminal justice, with the overall purpose of such a distribution to help connect explanatory variables to dependent variables that are in a count form (similar to the employed dependent variables within the current analysis).

The Poisson distribution is quantified as having a variance that is equal to the mean count of the dependent variable (Osgood, 2000). The inclusion of negative binomial regression within this analysis stems from previous literature surrounding the notion that some previously employed Poisson distribution analyses have encountered greater variability within their data than expected, which can lead to substantial extra-Poisson variation, or simply overdispersion, in relationship to a Poisson distribution (Lawless, 1987). Because one of the defining characteristics of a Poisson distribution is that the variance is supposed to be equal to the mean, when this variance is not observed, the validity of inferences drawn from these analyses have been brought into question (Lawless, 1987; Osgood, 2000; Shmueli et al., 2005). According to Piza (2012), the level of overdispersion within each specific count dependent variable should be determined prior to modeling, through either the employment of a Pearson Chi-Square goodness-of-fit test or an exploratory Poisson regression model. Within this analysis, an exploratory Poisson regression model was constructed to determine the level of dispersion within each dependent variable and the model employed was adjusted from a Poisson distribution to a negative binomial distribution if overdispersion was observed.

Secondary Poisson and Negative Binomial Regression Models

Following the construction and examination of the primary seven Poisson or negative binomial regression models, the highlighted correlates of crime/delinquency within this analysis will be combined into their respective life domain scales (self, family, school and peer for the adolescent time juncture; self, family, school, peer, and work for the adult time juncture). Once these correlates are combined into their life domain scales, they will be subsequently re-regressed against engagement in the various forms of

crime/delinquency. To answer the third research question—which questioned whether the adolescent life domains experienced the hypothesized impact on engagement in delinquency—four Poisson or negative binomial regression models were constructed using violent, property, drug, and overall delinquency as the response indicators. To answer the fourth research question—which questioned whether the adult life domains experienced the hypothesized impact on engagement in crime—the final three Poisson or negative binomial regression models were constructed using violent, property, and overall crime as the response indicators.

CHAPTER IV

ANALYSIS

Following the models/suggestions laid out by Agnew (2005), the analyses conducted within this investigation utilized Poisson or negative binomial regression to determine the applicability of Agnew's GTCD at the adolescent and adult time junctures. Data for these analyses were drawn from the first four waves of the Add Health dataset and the final sample size for the eight adolescent models was 3,084 respondents, while the final sample size for the six adult models ranged from 1,140 to 1,026 respondents[24] [See Table 1 (adolescent models) and Table 2 (adult models) for the descriptive statistics associated with each variable employed in the various Poisson/negative binomial regression models; it is noted that negative values within these tables are observed due to the standardization technique employed on most indicators, which was addressed within the prior chapter].

After recoding the Add Health dataset to obtain all the highlighted variables, as well as to standardize the direction of the employed indicators, the variables were utilized within the previously mentioned Poisson or negative binomial regression models. Before presentation of the results occurs, it should be mentioned that the large number of variables included in each regression model increases the likelihood of making a type II error (accepting a false null hypothesis). Cochran (2017) advised readers of his analysis to use caution when interpreting the results of his presented models, and the same notion

[24] Listwise deletion, coupled with combining multiple waves of Add Health data, resulted in reductions in final sample sizes.

Table 1

Descriptive statistics for all independent and dependent variables- Adolescent models

Variable	N	Min.	Max.	μ	*SD*
Impulsivity	3669	-4.691	12.028	-.067	3.172
High Activity Levels	6480	-5.865	2.957	.002	1.333
Attention Deficit	6353	-1.743	4.581	.031	1.315
Sensation Seeking	4810	-2.337	1.412	.000	1.000
Irritability	6436	-5.242	6.062	.004	1.645
Low Empathy	4812	-1.182	3.950	.000	1.000
Poor Social/Problem Solving Skills	6371	-4.768	10.186	-.010	2.282
Negative Bonding Parent/Child	6299	-4.598	16.386	.024	2.861
Family Conflict	6371	-1.998	7.770	.001	1.547
Poor Supervision/ Discipline	4618	-2.042	6.509	-.006	1.119
Low Social Support	6120	-1.834	3.444	.041	1.126
Poor Academic Performance	6271	-2.032	2.628	.622	.917
Negative Bonding School	6283	-4.296	11.460	.257	2.597
Teachers Treat Students Fair	6367	-1.397	2.284	.000	1.000
Low Educational/ Occupational Goals	6415	-1.749	8.640	-.008	1.820
Association with Delinquent Peers	6300	-1.512	5.842	-.001	1.665
Gang Initiation	4803	.000	1.000	.040	.202
Much Time in Unstructured/ Unsupervised Time with Peers	6498	-1.949	1.018	.000	1.000
Criminal Victim	6451	-.726	19.304	-.001	1.880
Sex	6503	1.000	2.000	1.480	.500
Ethnicity	6481	.000	1.000	.110	.319
Race*	6498	1.000	5.000	1.560	1.018
Parents Welfare	6504	.000	2.000	.110	.356
Participant's House Tidiness	6413	1.000	4.000	1.620	.844
Participant's Neighborhood Tidiness	4639	1.000	4.000	1.650	.779
Urbanicity	6378	.000	1.000	.350	.477
Self Domain	3555	-16.755	20.853	.049	5.550

Note. *Add Health Interviewer's Perception

Table 1

(continued)

Variable	N	Min.	Max.	μ	*SD*
Family Domain	4406	-10.471	25.648	-.091	5.100
School Domain	6162	-8.183	18.942	.818	3.833
Peer Domain	4672	-4.187	27.164	-.036	3.255
Drug Delinquency	4834	.000	7.000	1.040	1.179
Property Delinquency	4834	.000	10.000	1.230	1.687
Violent Delinquency	4834	.000	6.000	.420	.954
Overall Delinquency	4834	.000	23.000	2.690	2.978

Table 2

Descriptive statistics for all independent and dependent variables- Adult models

Variable	N	Min.	Max.	μ	*SD*
Impulsivity	4027	-3.953	6.914	-.028	2.164
High Activity Levels	4195	-1.571	5.168	.295	.933
Attention Deficit	4095	-1.494	4.199	.022	1.130
Sensation Seeking	4725	-3.539	3.841	-.001	1.871
Irritability	4082	-8.691	13.380	-.035	3.741
Low Empathy	4110	-4.299	10.193	-.058	2.139
Poor Social/Problem Solving Skills	4859	-2.414	3.054	-.001	1.229
Negative Bonding Parent/Child	4673	-3.356	13.684	.000	2.567
Family Conflict	4048	.000	2.698	.358	.626
Unmarried	5106	.000	1.000	.500	.500
Negative Bonding Spouse/Partner	4010	-5.212	18.129	-.559	4.613
Weak Bonds with Children	2579	-.818	10.442	-.002	1.716
Negative Bonding School	4875	.000	1.000	.080	.267
Low Educational/ Occupational Goals	4729	-1.132	7.020	.002	1.221
Limited Education	5133	-1.109	2.241	.000	1.000
Association with Delinquent Peers	4841	-.276	7.107	.000	1.000
Gang Initiation	4836	.000	1.000	.150	.358
Much Time in Unstructured/ Unsupervised Time with Peers	4861	-2.214	.842	.000	1.000
Criminal Victim	4835	.000	3.698	.079	.323
Unemployment	4275	.000	1.000	.210	.410
Participation in Secondary Labor Market	4877	-1.115	5.265	.998	1.381
Sex	4882	1.000	2.000	1.460	.499
Age	4882	18.000	28.000	21.820	1.811
Ethnicity	4875	.000	1.000	.110	.309
Race*	4879	1.000	4.000	1.410	.726
Self Domain	3914	-20.902	31.758	.100	7.440
Family Domain	1677	-9.386	32.696	.246	6.654
School Domain	4089	-2.241	9.144	.017	1.805
Peer Domain	4792	-2.489	11.550	.232	1.631

Note. *Add Health Interviewer's Perception

Table 2

(*continued*)

Variable	N	Min.	Max.	μ	*SD*
Work Domain	4082	-1.115	6.265	1.271	1.575
Violent Delinquency	4497	.000	6.000	.390	.831
Property Delinquency	4366	.000	8.000	.230	.709
All Delinquency	3944	.000	14.000	.630	1.269

is relayed to readers of this analysis. With that advisement presented, this analysis will move into the results found during the Poisson and negative binomial regression models. It should be relayed that the interpretation of these various count regression techniques, as well as the inclusion of natural logarithms within each interpretation, is summarized below.

> Since count regression techniques model the *log* of incident counts, the coefficients can be interpreted as follows: for a one unit change in the independent variable, the log of dependent variable is expected to change by the value of the regression coefficient (Piza, 2012, para. 8).

Adolescent Models

Separated Models

Violent delinquency. The first adolescent model constructed examined the dependent variable, violent delinquency, and the impact of the 19 highlighted, adolescent independent variables, as well as the following control variables: sex, ethnicity, race, parental SES, community SES, and level of urbanicity. Below, the first adolescent model is outlined for the dependent variable violent delinquency.

- $\ln \lambda_i = \beta_0 + \beta_{IM}$ (Impulsivity)$_i$ $+\beta_{HAL}$ (High Activity Levels)$_i$ $+\beta_{AD}$ (Attention Deficit)$_i$ $+\beta_{SS}$(Sensation Seeking)$_i$ + β_{IR} (Irritability)$_i$ $+\beta_{LE}$ (Low Empathy)$_i$ $+\beta_{SPSS}$ (Poor Social/Problem Solving Skills)$_i$ $+\beta_{NPCB}$ (Negative Parent/Child Bonding)$_i$ $+\beta_{FC}$(Family Conflict)$_i$ + β_{PSD} (Poor Supervision/Discipline)$_i$ $+\beta_{LSS}$ (Low Social Support)$_i$ $+\beta_{PAP}$ (Poor Academic Performance)$_i$ $+\beta_{NSB}$(Negative School Bonding)$_i$ + β_{NTT} (Negative Treatment by Teachers)$_i$ $+\beta_{LEOG}$ (Low Educational/Occupational Goals)$_i$ $+\beta_{ADP}$ (Association with Delinquent Peers)$_i$ $+\beta_{GM}$(Gang Membership)$_i$ + β_{UUA} (Much Time in Unstructured/Unsupervised Activities with Peers)$_i$ $+\beta_{CV}$ (Criminal Victimization)$_i$ + β_S (Sex)$_i$ $+\beta_E$ (Ethnicity)$_i$ $+\beta_R$ (Race)$_i$ $+\beta_{PSES}$ (Parental SES)$_i$ + β_{CSES} (Community SES)$_i$ $+\beta_U$ (Urbanicity)$_i$[25]

Poisson distribution was utilized within the first adolescent model because the observed variability in the count dependent variable (violent delinquency) was not overdispersed after modeling. The Omnibus test—which indicates if the model regressed against the count dependent variable offers a statistically significant improvement to explaining the variance in the dependent variable, as compared to the null/intercept-only model with none of the highlighted correlates/predictors —associated with this model was found to be statistically significant. Of the 19 highlighted correlates of crime/delinquency, as well as the six control variables, 14 were found to be statistically significant: impulsivity, attention deficit, sensation seeking, low empathy, family conflict, poor supervision/discipline, poor academic performance, negative bonding to school,

[25] Where we want to model the average number of violent delinquent acts based on the various employed predictors. This model is letting VDi be the number of violent delinquent acts for participant i. This model assumes that VDi ~ Poisson(λi), where λi is the expected number of violent delinquent acts for participant i. Equation and explanation adapted from originals created by Beaujean & Morgan (2016), as well as Reese (2016).

association with delinquent peers, gang membership, criminal victimization, sex, race, and community SES (See Table 3 for values computed for the first adolescent regression model).

Analyzing the unstandardized regression coefficients for the first adolescent model provided information on the predicted change in the expected log counts of acts of violent delinquency for every one unit increase in a specific predictor variable[26] (Piza, 2012), while the other predictor variables in the model were held constant. Scanning the unstandardized regression coefficients, specifically those for the variables that were found to be statistically significant, some interesting results are seen. Beginning with the impulsivity scale, an unstandardized regression coefficient of .030 indicates that there is a positive predicted change in the expected log counts of acts of violent delinquency for every one standard deviation increase on the impulsivity scale (which was 3.172; on a scale that ranged from -4.691 to 12.028). Other notable unstandardized regression coefficients reported within this model are sensation seeking and gang membership. Sensation seeking reported an unstandardized regression coefficient of .172, which would indicate (due to the dichotomous nature of this specific indicator) that there is a .172 predicted increase in the expected log counts of acts of violent delinquency for every one unit increase (on the five-point Likert scale where 1= strongly disagree and 5= strongly agree) in a participant's pleasure towards taking risks. Gang membership (which was also

[26] It should be noted again that the employed predictor variables, minus the dichotomous ones, were transformed into z-scores prior to weighting and scaling. This, in turn, provides context to the unstandardized regression coefficients reported in this analysis. Instead of these coefficients indicating the predicted change in the expected log counts of acts of violent delinquency for every one unit increase in a specific predictor variable, they are indicating the predicted change in the expected log counts of acts of violent delinquency for every one unit (z-score; which would make one unit equal to one standard deviation for each predictor variable) increase in a specific predictor variable. The subtle, but meaningful, distinction applies to all models performed in this analysis, regardless of the application of a Poisson or negative binomial regression analysis.

Table 3

Poisson regression (adolescent model) predicting violent delinquency (n=3,084)

Variable	*b*	*SE*	*p*-value
Impulsivity*	.030	.010	.002
High Activity Levels	.013	.024	.587
Attention Deficit*	-.053	.024	.027
Sensation Seeking*	.172	.032	<.001
Irritability	.038	.020	.055
Low Empathy*	.075	.026	.005
Poor Social/Problem Solving	-.001	.013	.908
Negative Bonding Parent/Child	-.014	.014	.311
Family Conflict*	.101	.022	<.001
Poor Supervision/Discipline*	.088	.028	.001
Low Social Support	.032	.030	.275
Poor Academic Performance*	-.189	.034	<.001
Negative Bonding School*	.032	.013	.014
Teachers Treated Students Fairly	.003	.031	.927
Low Educational/ Occupational Goals	.004	.016	.820
Association with Delinquent Peers*	.089	.017	<.001
Gang Membership*	1.075	.079	<.001
Unstructured/Unsupervised Activities with Friends	-.008	.030	.803
Criminal Victim*	.080	.010	<.001
Sex*	.441	.069	<.001
Ethnicity	-.049	.087	.569
Race*	.076	.028	.007
Parental SES	.082	.073	.260
Community SES*	.080	.019	<.001
Urbanicity	.075	.064	.241

Note. * Statistically significant predictor variable.

dichotomous in nature) reported an unstandardized regression coefficient of 1.075, which would indicate that gang affiliation increases the predicted change in the expected log counts of acts of violent delinquency by 1.075.

Contrary to the theoretical direction predicted by Agnew (2005), attention deficit and poor academic performance had a negative relationship with the employed dependent variable. Reporting unstandardized coefficients of -.053 and -.189, respectively, having less attention deficit issues and doing better in school increased the predicted change in

the expected log counts of acts of violent delinquency (for every one unit, or standard deviation, on the respective indicators; 1.315 for attention deficit and .917 for poor academic performance).

Property delinquency. The second adolescent model constructed examined the dependent variable, property delinquency, and the impact of the 19 highlighted independent variables, as well as the six highlighted control variables. Below, the second adolescent model is outlined for the dependent variable property delinquency.

- $\ln \lambda_i = \beta_0 + \beta_{IM}(\text{Impulsivity})_i + \beta_{HAL}(\text{High Activity Levels})_i + \beta_{AD}(\text{Attention Deficit})_i + \beta_{SS}(\text{Sensation Seeking})_i + \beta_{IR}(\text{Irritability})_i + \beta_{LE}(\text{Low Empathy})_i + \beta_{SPSS}(\text{Poor Social/Problem Solving Skills})_i + \beta_{NPCB}(\text{Negative Parent/Child Bonding})_i + \beta_{FC}(\text{Family Conflict})_i + \beta_{PSD}(\text{Poor Supervision/Discipline})_i + \beta_{LSS}(\text{Low Social Support})_i + \beta_{PAP}(\text{Poor Academic Performance})_i + \beta_{NSB}(\text{Negative School Bonding})_i + \beta_{NTT}(\text{Negative Treatment by Teachers})_i + \beta_{LEOG}(\text{Low Educational/Occupational Goals})_i + \beta_{ADP}(\text{Association with Delinquent Peers})_i + \beta_{GM}(\text{Gang Membership})_i + \beta_{UUA}(\text{Much Time in Unstructured/Unsupervised Activities with Peers})_i + \beta_{CV}(\text{Criminal Victimization})_i + \beta_S(\text{Sex})_i + \beta_E(\text{Ethnicity})_i + \beta_R(\text{Race})_i + \beta_{PSES}(\text{Parental SES})_i + \beta_{CSES}(\text{Community SES})_i + \beta_U(\text{Urbanicity})_i + \varepsilon_i$ [27]

Negative binomial distribution was utilized within the second adolescent model because the observed variability in the count dependent variable (property delinquency) was overdispersed after modeling. Like the first adolescent model, the Omnibus test

[27] Where we want to model the average number of property-related delinquent acts based on the various employed predictors. This model is letting PDi be the number of property-related delinquent acts for participant i. This model assumes that PDi | λi ~ Poisson (λi), where λi is the expected number of property-related delinquent acts for participant i. Equation and explanation adapted from originals presented by Lord, Park, & Levine (2013) and Moksony & Hegedűs (2014).

associated with this model was found to be statistically significant. Of the 19 highlighted correlates of crime/delinquency, as well as the six control variables, 14 were found to be statistically significant: impulsivity, sensation seeking, irritability, low empathy, poor social/problem solving skills, negative bonding between parent and child, family conflict, poor supervision/discipline, negative bonding to school, association with delinquent peers, gang membership, much time in unstructured/unsupervised activities with peers, criminal victimization, and sex (See Table 4 for values computed for the second adolescent regression model).

Scanning the statistically significant unstandardized regression coefficients for the second adolescent model provides further interesting findings. An unstandardized regression coefficient of .158 for sensation seeking indicates that there is a .158 predicted change in the expected log counts of acts of property-related delinquency for every one unit increase in a participant's pleasure towards taking risks. Additionally, a .794 unstandardized regression coefficient for gang membership indicates a positive predicted change in the expected log counts of acts property-related delinquency when a participant indicates gang affiliation. Interestingly, all four employed peer domain variables within the second adolescent model reported statistical significance (with unstandardized regression coefficients of .089 for association with delinquent peers, .794 for gang membership, .077 for much time in unstructured/unsupervised activities with peers, and .036 for criminal victimization). Each reported unstandardized regression coefficient indicates a positive relationship between the respective peer domain correlate and the predicted change in the expected log counts of acts of property-related delinquency.

Table 4

Negative binomial regression (adolescent model) predicting property delinquency (n=3,084)

Variable	*b*	*SE*	*p*-value
Impulsivity*	.023	.008	.003
High Activity Levels	-.014	.019	.467
Attention Deficit	.024	.020	.237
Sensation Seeking*	.158	.024	<.001
Irritability*	.032	.016	.049
Low Empathy*	.054	.024	.022
Poor Social/Problem Solving Skills*	.035	.011	.001
Negative Bonding Parent/Child*	.027	.011	.018
Family Conflict*	.037	.019	.049
Poor Supervision/Discipline*	.062	.023	.006
Low Social Support	.011	.023	.625
Poor Academic Performance	.004	.028	.871
Negative Bonding School*	.026	.011	.019
Teachers Treated Students Fairly	.019	.025	.463
Low Educational/ Occupational Goals	-.024	.015	.095
Association with Delinquent Peers*	.089	.014	<.001
Gang Membership*	.794	.092	<.001
Unstructured/Unsupervised Activities with Friends*	.077	.024	.001
Criminal Victim*	.036	.012	.002
Sex*	.237	.050	<.001
Ethnicity	.070	.074	.342
Race	-.011	.024	.647
Parental SES	-.093	.066	.159
Community SES	.013	.016	.429
Urbanicity	-.044	.051	.387

Note. * Statistically significant predictor variable.

Unlike the first adolescent model, none of the statistically significant correlates were found to have a negative relationship between their respective indicator and engagement in property-related delinquency.

Drug delinquency. The third adolescent model constructed examined the dependent variable, drug delinquency, and the impact of the 19 highlighted independent variables, as well as the six highlighted control variables. Below, the third adolescent model is outlined for the dependent variable drug delinquency.

- $\ln \lambda_i = \beta_0 + \beta_{IM}$ (Impulsivity)$_i$ $+\beta_{HAL}$ (High Activity Levels)$_i$ $+\beta_{AD}$ (Attention Deficit)$_i$ $+\beta_{SS}$(Sensation Seeking)$_i$ $+ \beta_{IR}$ (Irritability)$_i$ $+\beta_{LE}$ (Low Empathy)$_i$ $+\beta_{SPSS}$ (Poor Social/Problem Solving Skills)$_i$ $+\beta_{NPCB}$ (Negative Parent/Child Bonding)$_i$ $+\beta_{FC}$(Family Conflict)$_i$ $+ \beta_{PSD}$ (Poor Supervision/Discipline)$_i$ $+\beta_{LSS}$ (Low Social Support)$_i$ $+\beta_{PAP}$ (Poor Academic Performance)$_i$ $+\beta_{NSB}$(Negative School Bonding)$_i$ $+ \beta_{NTT}$ (Negative Treatment by Teachers)$_i$ $+\beta_{LEOG}$ (Low Educational/Occupational Goals)$_i$ $+\beta_{ADP}$ (Association with Delinquent Peers)$_i$ $+\beta_{GM}$(Gang Membership)$_i$ $+ \beta_{UUA}$ (Much Time in Unstructured/Unsupervised Activities with Peers)$_i$ $+\beta_{CV}$ (Criminal Victimization)$_i$ $+ \beta_S$ (Sex)$_i$ $+\beta_E$ (Ethnicity)$_i$ $+\beta_R$ (Race)$_i$ $+\beta_{PSES}$ (Parental SES)$_i$ $+ \beta_{CSES}$ (Community SES)$_i$ $+\beta_U$ (Urbanicity)$_i$ $+ \varepsilon_i$ [28]

Negative binomial distribution was utilized within the third adolescent model because the observed variability in the count dependent variable (drug delinquency) was overdispersed after modeling. Of the 25 included indicators, 11 were found to be statistically significant: high activity levels, sensation seeking, poor social/problem solving skills, poor supervision/discipline, poor academic performance, association with delinquent peers, gang membership, much time in unstructured/unsupervised activities with peers, criminal victimization, sex, and race (See Table 5 for values computed for the third adolescent regression model).

Before diving into the unstandardized coefficients associated with this negative binomial regression, one statistically insignificant variable was found to be theoretically contradictory than would be expected. Impulsivity, which was statistically significant in

[28] Where we want to model the average number of drug-related delinquent acts based on the various employed predictors. This model is letting DDi be the number of drug-related delinquent acts for participant i. This model assumes that DDi | λi ~ Poisson (λi), where λi is the expected number of drug-related delinquent acts for participant i.

Table 5

Negative binomial regression (adolescent model) predicting drug delinquency (n=3,084)

Variable	*b*	*SE*	*p*-value
Impulsivity	.003	.006	.613
High Activity Levels*	-.034	.014	.015
Attention Deficit	.005	.015	.738
Sensation Seeking*	.132	.019	<.001
Irritability	.015	.012	.221
Low Empathy	.000	.018	.988
Poor Social/Problem Solving*	.017	.008	.025
Negative Bonding Parent/Child	.008	.008	.314
Family Conflict	.026	.014	.059
Poor Supervision/Discipline*	.085	.016	<.001
Low Social Support	-.032	.018	.071
Poor Academic Performance*	-.050	.021	.016
Negative Bonding School	.010	.008	.215
Teachers Treated Students Fairly	-.022	.019	.248
Low Educational/ Occupational Goals	.006	.011	.553
Association with Delinquent Peers*	.195	.010	<.001
Gang Membership*	.275	.068	<.001
Unstructured/Unsupervised Activities with Friends*	.124	.019	<.001
Criminal Victim*	-.027	.009	.002
Sex*	.080	.038	.038
Ethnicity	.005	.059	.933
Race*	-.080	.020	<.001
Parental SES	-.089	.052	.087
Community SES	-.024	.013	.060
Urbanicity	-.055	.040	.170

Note. * Statistically significant predictor variable.

the previous two adolescent models, was found to be non-significant in the third adolescent model. This is surprising given the empirical notion that impulsivity is a determinant of drug use/abuse (De Wit, 2009); however, this topic shall be broached more thoroughly within the discussion section of this analysis.

Moving to the statistically significant correlates, all four peer domain indicators were found to be statistically significant within the third adolescent model. Association with delinquent peers (.195 unstandardized regression coefficient), gang membership

(.275 unstandardized regression coefficient), and much time in unstructured/unsupervised activities with peers (.124 unstandardized regression coefficient) indicated a positive relationship between the respective correlate and a predicted change in the expected log counts of drug-related delinquency. Surprisingly, having a lesser history of criminal victimization increased (.027) the predicted change in the expected log counts of acts of drug-related delinquency [for every one unit of the indicator's standard deviation (1.880; on a scale from -.726 to 19.304)].

Sticking with the theoretically contradictory results, high activity levels (which was statistically significant with an unstandardized regression coefficient of -.034) was found to have a negative predicted change in the expected log counts of acts of drug-related delinquency for every one standard deviation increase on the high activity scale (which was 1.333; on a scale that ranged from -5.865 to 2.957). Poor academic performance was also found to have a negative relationship with the employed dependent variable. Reporting and unstandardized coefficients of -.050, doing better academically increased the predicted change in the expected log counts of acts of drug-related delinquency (for every one unit of the indicator's standard deviation; which was .917; on a scale that ranged from -2.032 to 2.628).

Overall delinquency. The fourth adolescent model constructed examined the dependent variable, overall delinquency, and the impact of the 19 highlighted independent variables, as well as the six highlighted control variables. Below, the fourth adolescent model is outlined for the dependent variable overall delinquency.

- $\ln \lambda_i = \beta_0 + \beta_{IM}\,(\text{Impulsivity})_i + \beta_{HAL}\,(\text{High Activity Levels})_i + \beta_{AD}\,(\text{Attention Deficit})_i + \beta_{SS}(\text{Sensation Seeking})_i + \beta_{IR}\,(\text{Irritability})_i + \beta_{LE}\,(\text{Low Empathy})_i + \beta_{SPSS}$

(Poor Social/Problem Solving Skills)$_i$ +β_{NPCB} (Negative Parent/Child Bonding)$_i$ +β_{FC}(Family Conflict)$_i$ + β_{PSD} (Poor Supervision/Discipline)$_i$ +β_{LSS} (Low Social Support)$_i$ +β_{PAP} (Poor Academic Performance)$_i$ +β_{NSB}(Negative School Bonding)$_i$ + β_{NTT} (Negative Treatment by Teachers)$_i$ +β_{LEOG} (Low Educational/Occupational Goals)$_i$ +β_{ADP} (Association with Delinquent Peers)$_i$ +β_{GM}(Gang Membership)$_i$ + β_{UUA} (Much Time in Unstructured/Unsupervised Activities with Peers)$_i$ +β_{CV} (Criminal Victimization)$_i$ + β_S (Sex)$_i$ +β_E (Ethnicity)$_i$ +β_R (Race)$_i$ +β_{PSES} (Parental SES)$_i$ + β_{CSES} (Community SES)$_i$ +β_U (Urbanicity)$_i$ + ε_i [29]

Negative binomial distribution was utilized within the fourth adolescent model because the observed variability in the count dependent variable (overall delinquency) was overdispersed after modeling. Following the determination of the model reaching statistical significance, it was observed that 14 of the 25 included indicators reached statistical significance: impulsivity, sensation seeking, irritability, low empathy, poor social/problem solving skills, family conflict, poor supervision/discipline, poor academic performance, negative bonding to school, association with delinquent peers, gang membership, much time in unstructured/unsupervised activities with peers, criminal victimization, and sex (See Table 6 for values computed for the fourth adolescent regression model).

Like the previous adolescent models before, gang membership had the largest unstandardized regression coefficient, with a value of .731 indicating that gang affiliation increased the predicted change in the expected log counts of acts of overall delinquency

[29] Where we want to model the average number of overall delinquent acts based on the various employed predictors. This model is letting ODi be the number of overall delinquent acts for participant i. This model assumes that ODi | λi ~ Poisson (λi), where λi is the expected number of overall delinquent acts for participant i.

Table 6

Negative binomial regression (adolescent model) predicting all delinquency (n=3,084)

Variable	*b*	*SE*	*p*-value
Impulsivity*	.014	.006	.012
High Activity Levels	-.016	.013	.227
Attention Deficit	.008	.014	.564
Sensation Seeking*	.156	.017	<.001
Irritability*	.027	.012	.020
Low Empathy*	.036	.017	.031
Poor Social/Problem Solving Skills*	.024	.007	.001
Negative Bonding Parent/Child	.012	.008	.131
Family Conflict*	.047	.013	<.001
Poor Supervision/Discipline*	.081	.016	<.001
Low Social Support	-.010	.016	.525
Poor Academic Performance*	-.038	.019	.049
Negative Bonding School*	.025	.008	.001
Teachers Treated Students Fairly	-.002	.018	.921
Low Educational/ Occupational Goals	-.002	.010	.811
Association with Delinquent Peers*	.145	.010	<.001
Gang Membership*	.731	.067	<.001
Unstructured/Unsupervised Activities with Friends*	.087	.017	<.001
Criminal Victim*	.030	.009	<.001
Sex*	.193	.035	<.001
Ethnicity	.042	.053	.427
Race	-.032	.017	.056
Parental SES	-.059	.046	.204
Community SES	.003	.011	.817
Urbanicity	-.025	.036	.480

Note. * Statistically significant predictor variable.

by .731. Further similarities between this model and the previous adolescent models is the statistical significance found for all four of the employed peer domain indicators. With unstandardized regression coefficients of .145 (association with delinquent peers), .731 (gang membership), .087 (much time in unstructured/unsupervised activities with peers), and .030 (criminal victimization), the peer domain continued to show its relevancy/importance during the adolescent time juncture.

Other notable unstandardized regression coefficients found within the fourth adolescent model include a .156 value for the sensation seeking indicator, which again translates to a .156 increase in the predicted change in the expected log counts of acts of overall delinquency for every one unit increase in a participant's pleasure towards taking risks. Moreover, an unstandardized regression coefficient of .047 for family conflict indicated that for every one unit increase in the standard deviation of family conflict (which was 1.54; a scale that ranged from -1.998 to 7.770) there is a .047 predicted increase in the expected log counts of acts of overall delinquency.

The overall delinquency model for adolescents also provided a theoretically contradictory result. Poor academic performance's unstandardized regression coefficient of -.038 indicated that there was a .038 increase in the predicted change in the expected log counts of acts of overall delinquency for every one standard deviation decrease on the academic performance scale (*SD*= .917; on a scale that ranged from -2.032 to 2.628). Poor academic performance was also found to be theoretically contradictory within two of the three previous adolescent models, calling into question its theoretical inclusion into Agnew's (2005) theoretical construct, or its operationalization within this analysis.

Combined Life Domain Models

Violent delinquency. Following the construction/examination of the primary Poisson and negative binomial regression models, the highlighted correlates of crime/delinquency were combined into their respective life domain scales. The first combined adolescent life domain model examined the dependent variable, violent delinquency, and the impact of the four combined life domain scales: the self domain, the family domain, the school domain, and the peer domain. Moreover, the following

variables were included in the fifth adolescent model to control for any confounding influence(s) (as well as assess the fifth presented research question): sex, ethnicity, race, parental SES, community SES, and level of urbanicity. Below, the fifth adolescent model is outlined for the dependent variable violent delinquency.

- $\ln \lambda_i = \beta_0 + \beta_{SD}\,(\text{Self Domain})_i + \beta_{FD}\,(\text{Family Domain})_i + \beta_{SD}\,(\text{School Domain})_i + \beta_{PD}(\text{Peer Domain})_i + \beta_S\,(\text{Sex})_i + \beta_E\,(\text{Ethnicity})_i + \beta_R\,(\text{Race})_i + \beta_{PSES}\,(\text{Parental SES})_i + \beta_{CSES}\,(\text{Community SES})_i + \beta_U\,(\text{Urbanicity})_i$[30]

Like the separated adolescent model that utilized violent delinquency as its response indicator, this combined life domains model utilized a Poisson distribution[31]. The Omnibus test associated with this model was found to be statistically significant, with eight of the ten employed indicators reaching statistical significance: self domain, family domain, school domain, peer domain, sex, race, parental SES, and community SES (See Table 7 for values computed for the fifth adolescent regression model).

Examination of the unstandardized regression coefficients computed for this model was undertaken to answer the third research question. Within this model, the peer domain reported an unstandardized regression coefficient of .115, indicating that for every one standard deviation (*SD*= 3.255; on a scale that ranged from -4.187 to 27.164) increase on the peer domain scale, the predicted change in the expected log counts for acts of violent delinquency equals .115. Further positive statistically significant, positive unstandardized regression coefficients are

[30] Where we want to model the average number of violent delinquent acts based on the various employed predictors. This model is letting VDi be the number of violent delinquent acts for participant i. This model assumes that VDi ~ Poisson(λi), where λi is the expected number of violent delinquent acts for participant i.

[31] All the combined life domain models were regressed using the same statistical distribution as their separated model counterpart.

Table 7

Combined life domains- Poisson regression (adolescent model) predicting violent delinquency (n=3,084)

Variable	*b*	*SE*	*p*-value
Self Domain*	.035	.006	<.001
Family Domain*	.026	.006	<.001
School Domain*	.025	.008	.001
Peer Domain*	.115	.006	<.001
Sex*	.565	.062	<.001
Ethnicity	.153	.084	.069
Race*	.074	.028	.007
Parental SES*	.138	.071	.050
Community SES*	.094	.019	<.001
Urbanicity	.048	.063	.446

Note. * Statistically significant predictor variable.

reported for the other three life domains included in this model, indicating a positive predictive relationship between each indicator and the expected count outcome for violent delinquency. The self domain (*b*= .035) seems to express the second-strongest influence on the predicted change in the expected log counts for acts of violent delinquency, mirroring the assertion presented by Agnew (2005) that the peer and the self domains were the most impactful during the adolescent time juncture.

Property delinquency. The second combined adolescent life domain model examined the dependent variable, property delinquency, and the impact of the ten previously highlighted domains/control variables. Below, the sixth adolescent model is outlined for the dependent variable property delinquency.

- $\ln \lambda_i = \beta_0 + \beta_{SD}\,(\text{Self Domain})_i + \beta_{FD}\,(\text{Family Domain})_i + \beta_{SD}\,(\text{School Domain})_i + \beta_{PD}(\text{Peer Domain})_i + \beta_S\,(\text{Sex})_i + \beta_E\,(\text{Ethnicity})_i + \beta_R\,(\text{Race})_i + \beta_{PSES}\,(\text{Parental SES})_i + \beta_{CSES}\,(\text{Community SES})_i + \beta_U\,(\text{Urbanicity})_i + \varepsilon_i$ [32]

The Omnibus test associated with this model was found to be statistically significant, with five of the ten employed indicators reaching statistical significance: self domain, family domain, school domain, peer domain, and sex (See Table 8 for values computed for the sixth adolescent regression model). The peer domain (*b*= .079) reported the strongest influencing effect on the predicted change in the expected log counts for acts of property-related delinquency, followed once again by the self domain (*b*= .038)[33]. It is worth noting that, once again, the family and school domain indicators reached statistical significance; however, their unstandardized regression coefficient of .034 and .016, respectively, indicate small to moderate predicted change in the expected log count of acts of property-related delinquency.

Drug delinquency. The third combined adolescent life domain model examined the dependent variable, drug delinquency, and the impact of the ten previously highlighted domains/control variables. Below, the seventh adolescent model is outlined for the dependent variable drug delinquency.

[32] Where we want to model the average number of property-related delinquent acts based on the various employed predictors. This model is letting PDi be the number of property-related delinquent acts for participant i. This model assumes that PDi | λi ~ Poisson (λi), where λi is the expected number of property-related delinquent acts for participant i.

[33] An unstandardized regression coefficient of .038 for the self domain indicated that for every one standard deviation (*SD*= 5.550; on a scale from -16.755 to 20.853) increase on the self domain scale, the predicted change in the expected log counts of acts of property-related delinquency increased by .038.

Table 8

Combined life domains- Negative binomial regression (adolescent model) predicting property delinquency (n=3,084)

Variable	*b*	*SE*	*p*-value
Self Domain*	.038	.005	<.001
Family Domain*	.034	.005	<.001
School Domain*	.016	.007	.020
Peer Domain*	.079	.008	<.001
Sex*	.229	.047	<.001
Ethnicity	.114	.074	.121
Race	-.019	.024	.429
Parental SES	-.105	.067	.115
Community SES	.013	.016	.432
Urbanicity	-.062	.051	.230

Note. * Statistically significant predictor variable.

- $\ln \lambda_i = \beta_0 + \beta_{SD}\,(\text{Self Domain})_i + \beta_{FD}\,(\text{Family Domain})_i + \beta_{SD}\,(\text{School Domain})_i + \beta_{PD}(\text{Peer Domain})_i + \beta_S\,(\text{Sex})_i + \beta_E\,(\text{Ethnicity})_i + \beta_R\,(\text{Race})_i + \beta_{PSES}\,(\text{Parental SES})_i + \beta_{CSES}\,(\text{Community SES})_i + \beta_U\,(\text{Urbanicity})_i + \varepsilon_i$ [34]

The Omnibus test associated with this model was found to be statistically significant, with seven of the ten employed indicators reaching statistical significance: self domain, family domain, school domain, peer domain, race, community SES, and urbanicity (See Table 9 for values computed for the seventh adolescent regression model).

The peer domain (*b*= .085) continued to possess the strongest, positive predictive relationship between itself and the expected count outcome for drug-related delinquency. Unlike the previous combined life domain models, the family domain's (*b*= .024) unstandardized regression coefficient indicated that for every one standard deviation

[34] Where we want to model the average number of drug-related delinquent acts based on the various employed predictors. This model is letting DDi be the number of drug-related delinquent acts for participant i. This model assumes that DDi | λi ~ Poisson (λi), where λi is the expected number of property-related delinquent acts for participant i.

Table 9

Combined life domains- Negative binomial regression (adolescent model) predicting drug delinquency (n= 3,084)

Variable	*b*	*SE*	*p*-value
Self Domain*	.017	.003	<.001
Family Domain*	.024	.003	<.001
School Domain*	.012	.005	.018
Peer Domain*	.085	.005	<.001
Sex	.030	.035	.399
Ethnicity	-.001	.059	.984
Race*	-.105	.021	<.001
Parental SES	-.099	.052	.059
Community SES*	-.032	.013	.010
Urbanicity*	-.085	.040	.034

Note. * Statistically significant predictor variable.

(5.100; on a scale that ranged from -10.471 to 25.648) increase on the family domain scale, the predicted change in the expected log counts for acts of drug-related delinquency. This was moderately surprising given Agnew's (2005) hypothesis that the peer and the self domains would be the most influential at the adolescent time juncture.

Overall delinquency. The fourth combined adolescent life domain model examined the dependent variable, overall delinquency, and the impact of the ten previously highlighted domains/control variables. Below, the eighth adolescent model is outlined for the dependent variable overall delinquency.

- $\ln \lambda_i = \beta_0 + \beta_{SD}\,(\text{Self Domain})_i + \beta_{FD}\,(\text{Family Domain})_i + \beta_{SD}\,(\text{School Domain})_i + \beta_{PD}(\text{Peer Domain})_i + \beta_S\,(\text{Sex})_i + \beta_E\,(\text{Ethnicity})_i + \beta_R\,(\text{Race})_i + \beta_{PSES}\,(\text{Parental SES})_i + \beta_{CSES}\,(\text{Community SES})_i + \beta_U\,(\text{Urbanicity})_i + \varepsilon_i$ [35]

[35] Where we want to model the average number of drug-related delinquent acts based on the various employed predictors. This model is letting DDi be the number of drug-related delinquent acts for participant i. This model assumes that DDi | λi ~ Poisson (λi), where λi is the expected number of property-related delinquent acts for participant i.

The Omnibus test associated with this model was found to be statistically significant, with six of the ten employed indicators reaching statistical significance: self domain, family domain, school domain, peer domain, sex, and race (See Table 10 for values computed for the eighth adolescent regression model).

The peer domain (*b*= .104) reported the strongest predictive relationship between itself and the count outcome for overall delinquency, followed by the self domain (*b*= .029), the family domain (*b*= .028), and the school domain (*b*=.018). These findings are like the notions presented by Agnew (2005), with the adolescent time juncture experiencing the greatest influence from the self and peer domain, while the subsequent life domains are barely, to moderately, influencing an adolescent's engagement in delinquency.

Adult Models

Separated Models

Like the adolescent models previously reported, the three adult time juncture models (violent, property, and overall crime) were regressed following data management/recoding. Unlike the adolescent models, all three of the adult time juncture models were regressed using a Poisson distribution, due to the lack of overdispersion seen in the various count dependent variables. Presentation of these models will occur in a similar fashion to the adolescent models, with violent crime being reported first, followed by property crime, and then overall crime.

Violent crime. The first adult model constructed examined the dependent variable, violent crime, and the impact of the 21 highlighted, adult independent variables,

Table 10

Combined life domains- Negative binomial regression (adolescent model) predicting all delinquency (n=3,084)

Variable	*b*	*SE*	*p*-value
Self Domain*	.029	.003	<.001
Family Domain*	.028	.003	<.001
School Domain*	.018	.005	<.001
Peer Domain*	.104	.006	<.001
Sex*	.190	.034	<.001
Ethnicity	.072	.055	.185
Race*	-.041	.017	.020
Parental SES	-.059	.048	.217
Community SES	.006	.012	.634
Urbanicity	-.058	.037	.118

Note. * Statistically significant predictor variable.

as well as the following control variables: sex, age, ethnicity, and race. Below, the first adult model is outlined for the dependent variable violent crime.

- $\ln \lambda_i = \beta_0 + \beta_{IM}(\text{Impulsivity})_i + \beta_{HAL}(\text{High Activity Levels})_i + \beta_{AD}(\text{Attention Deficit})_i + \beta_{SS}(\text{Sensation Seeking})_i + \beta_{IR}(\text{Irritability})_i + \beta_{LE}(\text{Low Empathy})_i + \beta_{SPSS}(\text{Poor Social/Problem Solving Skills})_i + \beta_{NPCB}(\text{Negative Parent/Child Bonding})_i + \beta_{FC}(\text{Family Conflict})_i + \beta_{UM}(\text{Unmarried})_i + \beta_{NSPB}(\text{Negative Spouse/Partner Bonding})_i + \beta_{WBC}(\text{Weak Bonding to Children})_i + \beta_{NSB}(\text{Negative School Bonding})_I + \beta_{LEOG}(\text{Low Educational/Occupational Goals})_i + \beta_{LE}(\text{Limited Education})_i + \beta_{ADP}(\text{Association with Delinquent Peers})_i + \beta_{GM}(\text{Gang Membership})_i + \beta_{UUA}(\text{Much Time in Unstructured/Unsupervised Activities with Peers})_i + \beta_{CV}(\text{Criminal Victimization})_i + \beta_{U}(\text{Unemployment})_i + \beta_{PSLM}(\text{Participation in Secondary Labor Market})_i + \beta_{S}(\text{Sex})_i + \beta_{A}(\text{Age})_i + \beta_{E}(\text{Ethnicity})_i + \beta_{R}(\text{Race})_i$[36]

[36] Where we want to model the average number of violent criminal acts based on the various employed predictors. This model is letting VCi be the number of violent criminal acts for participant i. This model assumes that VCi ~ Poisson(λi), where λi is the expected number of violent criminal acts for participant i.

The Omnibus test associated with this model was found to be statistically significant, which meant that the constructed model (containing all the highlighted correlates/predictors) represented a significant improvement in fit over the null/intercept-only model with none of the highlighted correlates/predictors. Of the 21 highlighted correlates of crime/delinquency, as well as the four control variables, 10 were found to be statistically significant: irritability, poor social/problem solving skills, family conflict, unmarried, negative spouse/partner bonding, weak bonding with children, limited education, gang membership, ethnicity, and race (See Table 11 for values computed for the first adult regression model).

The unstandardized regression coefficients for the first adult model provided information on the predicted change in the expected log counts of acts of violent crime for every one unit increase in a specific predictor variable, while the other predictor variables were held constant. Scanning the unstandardized regression coefficients for the first adult model resulted in some interesting findings. Beginning with the family conflict scale, an unstandardized regression coefficient of .930 indicated that for every one standard deviation increase in the family conflict scale (*SD*= .626; on a scale that ranged from .000 to 2.698), the predicted change in the expected log counts of acts of violent crime increased by .930. Moreover, the unmarried unstandardized regression coefficient of .207 indicated that if a participant was unmarried, the predicted change in the expected log counts of acts of violent crime increased by .207. This type of large predicted increase was also seen within the limited education correlate (unstandardized regression coefficient of .160). The ordinal nature of this indicator (Four-point Likert scale; 0= completed post-secondary education, 1= some post-secondary education, 2= high school

Table 11

Poisson regression (adult model) predicting violent crime (n=1,140)

Variable	*b*	*SE*	*p*-value
Impulsivity	.051	.029	.084
High Activity Levels	.022	.056	.687
Attention Deficit	.026	.047	.573
Sensation Seeking	-.064	.033	.055
Irritability*	.038	.013	.004
Low Empathy	.015	.025	.540
Poor Social/Problem Solving*	.110	.042	.009
Negative Bonding Parent/Child	.020	.017	.259
Family Conflict*	.930	.064	<.001
Unmarried*	.207	.102	.043
Negative Bonding Spouse/Partner*	.021	.010	.025
Weak Bonding to Children*	.053	.023	.022
Negative Bonding School	-.075	.159	.639
Low Educational/ Occupational Goals	-.079	.043	.070
Limited Education*	.160	.054	.003
Association with Delinquent Peers	.061	.040	.128
Gang Membership*	-.438	.137	.001
Unstructured/Unsupervised Activities with Friends	.071	.049	.146
Criminal Victim	.195	.107	.068
Unemployed	-.145	.121	.229
'Secondary Labor Market'	.033	.036	.355
Sex	-.027	.117	.816
Age	.025	.028	.372
Ethnicity*	.329	.137	.016
Race*	.224	.060	<.001

Note. * Statistically significant predictor variable.

education, 3= below a high school education) highlights that for every one unit increase on the limited education scale, the predicted change in the expected log counts of acts of violent crime increase by .160. Finally, poor social/problem solving skills (*b*= .110) was theoretically consistent with Agnew's (2005) proposed theoretical construct, with its reported coefficient indicating that individuals who are more likely to avoid confronting problems, as well as go with gut without thinking through alternative solutions to their

problems, are predicted to have a positive change in their expected log counts of acts of violent crime.

Similar to some of the adolescent models previously reported, the adult violent crime model observed one theoretically contradictory result. Gang membership's unstandardized regression coefficient of -.438 indicated that gang membership decreased the predicted change in the expected log counts of acts of violent crime. This is highly conflicting to the results found within the adolescent models and will be discussed further within the final chapter of this report.

Property crime. The second adult model constructed examined the dependent variable, property crime, and the impact of the 25 highlighted adult time juncture indicators. Below, the second adult model is outlined for the dependent variable property crime.

- $\ln \lambda_i = \beta_0 + \beta_{IM}$ (Impulsivity)$_i$ $+\beta_{HAL}$ (High Activity Levels)$_i$ $+\beta_{AD}$ (Attention Deficit)$_i$ $+\beta_{SS}$(Sensation Seeking)$_i$ + β_{IR} (Irritability)$_i$ $+\beta_{LE}$ (Low Empathy)$_i$ $+\beta_{SPSS}$ (Poor Social/Problem Solving Skills)$_i$ $+\beta_{NPCB}$ (Negative Parent/Child Bonding)$_i$ $+\beta_{FC}$(Family Conflict)$_i$ + β_{UM} (Unmarried)$_i$ $+\beta_{NSPB}$ (Negative Spouse/Partner Bonding)$_i$ $+\beta_{WBC}$ (Weak Bonding to Children)$_i$ $+\beta_{NSB}$(Negative School Bonding)$_I$ $+\beta_{LEOG}$ (Low Educational/Occupational Goals)$_i$ + β_{LE} (Limited Education)$_i$ $+\beta_{ADP}$ (Association with Delinquent Peers)$_i$ $+\beta_{GM}$(Gang Membership)$_i$ + β_{UUA} (Much Time in Unstructured/Unsupervised Activities with Peers)$_i$ $+\beta_{CV}$ (Criminal

Victimization)$_i$ +β_U (Unemployment)$_i$ +β_{PSLM} (Participation in Secondary Labor Market)$_i$ +β_S (Sex)$_i$ +β_A (Age)$_i$ +β_E (Ethnicity)$_i$ +β_R (Race)$_i$[37]

Like the first adult model presented, the Omnibus test associated with this model was found to be statistically significant. Of the 25 highlighted indicators, 11 were found to be statistically significant: impulsivity, irritability, negative parent/child bonding, family conflict, unmarried, negative spouse/partner bonding, weak bonding with children, negative school bonding, limited education, sex, and age (See Table 12 for values computed for the second adult regression model).

The unstandardized regression coefficients for the second adult model provided information on the predicted change in the expected log counts of acts of property-related crime for every one unit increase in a specific predictor variable, while the other predictor variables were held constant. Notable coefficients within this model related to the entire family domain reporting statistical significance. Negative parent/child bonding (.074), family conflict (.464), unmarried (.730), negative spouse/partner bonding (.082), and weak bonding with children (.070) were all found to possess a positive predictive relationship between each specific indicator and the expected count outcome for property-related crime. Moreover, limited education (.191) and impulsivity (.111) both reported significant unstandardized regression coefficients, once again indicating a positive predictive relationship between each correlate and the expected count outcome for property-related crime.

[37] Where we want to model the average number of property-related criminal acts based on the various employed predictors. This model is letting PCi be the number of property-related criminal acts for participant i. This model assumes that PCi ~ Poisson(λi), where λi is the expected number of property-related criminal acts for participant i.

Table 12

Poisson regression (adult model) predicting property crime (n=1,126)

Variable	*b*	*SE*	*p*-value
Impulsivity*	.111	.049	.023
High Activity Levels	.063	.090	.486
Attention Deficit	.086	.078	.266
Sensation Seeking	.010	.055	.854
Irritability*	.073	.020	<.001
Low Empathy	.024	.038	.531
Poor Social/Problem Solving	.014	.069	.840
Negative Bonding Parent/Child*	.074	.029	.010
Family Conflict*	.464	.103	<.001
Unmarried*	.730	.166	<.001
Negative Bonding Spouse/Partner*	.082	.015	<.001
Weak Bonding to Children*	.070	.030	.019
Negative Bonding School*	-.684	.277	.014
Low Educational/ Occupational Goals	-.087	.069	.202
Limited Education*	.191	.086	.027
Association with Delinquent Peers	.069	.064	.278
Gang Membership	-.292	.222	.188
Unstructured/Unsupervised Activities with Friends	.069	.081	.395
Criminal Victimization	-.319	.192	.096
Unemployed	.048	.208	.816
'Secondary Labor Market'	.065	.058	.260
Sex*	1.129	.199	<.001
Age*	.146	.046	.001
Ethnicity	.225	.242	.353
Race	.065	.128	.613

Note. * Statistically significant predictor variable.

Negative bonding to school, which was found to have an unstandardized regression coefficient of -.684, is theoretically contradictory to the notions presented by Agnew (2005); however, this result may be due to the operationalization of this indicator (simply asking participants if they have ever been expelled from school).

Overall crime. The third adult model constructed examined the dependent variable, overall crime, and the impact of the 25 highlighted indicators. Below, the third adult model is outlined for the dependent variable overall crime.

- $\ln \lambda_i = \beta_0 + \beta_{IM}$ (Impulsivity)$_i$ $+\beta_{HAL}$ (High Activity Levels)$_i$ $+\beta_{AD}$ (Attention Deficit)$_i$ $+\beta_{SS}$(Sensation Seeking)$_i$ $+ \beta_{IR}$ (Irritability)$_i$ $+\beta_{LE}$ (Low Empathy)$_i$ $+\beta_{SPSS}$ (Poor Social/Problem Solving Skills)$_i$ $+\beta_{NPCB}$ (Negative Parent/Child Bonding)$_i$ $+\beta_{FC}$(Family Conflict)$_i$ $+ \beta_{UM}$ (Unmarried)$_i$ $+\beta_{NSPB}$ (Negative Spouse/Partner Bonding)$_i$ $+\beta_{WBC}$ (Weak Bonding to Children)$_i$ $+\beta_{NSB}$(Negative School Bonding)$_I$ $+\beta_{LEOG}$ (Low Educational/Occupational Goals)$_i$ $+ \beta_{LE}$ (Limited Education)$_i$ $+\beta_{ADP}$ (Association with Delinquent Peers)$_i$ $+\beta_{GM}$(Gang Membership)$_i$ $+ \beta_{UUA}$ (Much Time in Unstructured/Unsupervised Activities with Peers)$_i$ $+\beta_{CV}$ (Criminal Victimization)$_i$ $+\beta_{U}$ (Unemployment)$_i$ $+\beta_{PSLM}$ (Participation in Secondary Labor Market)$_i$ $+\beta_{S}$ (Sex)$_i$ $+\beta_{A}$ (Age)$_i$ $+\beta_{E}$ (Ethnicity)$_i$ $+\beta_{R}$ (Race)$_i$[38]

Like all the models previously reported, the Omnibus test associated with this model was found to be statistically significant. Of the 21 highlighted correlates of crime/delinquency, as well as the four control variables, 15 were found to be statistically significant: irritability, poor social/problem solving skills, negative parent/child bonding, family conflict, unmarried, negative spouse/partner bonding, weak bonding with children, negative school bonding, limited education, gang membership, much time in unstructured/unsupervised activities with peers, sex, age, ethnicity, and race (See Table 13 for values computed for the third adult regression model).

Similar to the adult property-related crime model, all correlates within the family domain were found to be statistically significant; with negative parent/child bonding (.032), family conflict (.765), unmarried (.430), negative spouse/partner bonding (.047),

[38] Where we want to model the average number of overall criminal acts based on the various employed predictors. This model is letting OCi be the number of overall criminal acts for participant i. This model assumes that OCi ~ Poisson(λi), where λi is the expected number of overall criminal acts for participant i.

Table 13

Poisson regression (adult model) predicting all crime (n=1,026)

Variable	*b*	*SE*	*p*-value
Impulsivity	.050	.026	.052
High Activity Levels	.086	.049	.077
Attention Deficit	.053	.041	.198
Sensation Seeking	-.028	.030	.346
Irritability*	.049	.011	<.001
Low Empathy	.007	.022	.732
Poor Social/Problem Solving*	.105	.037	.005
Negative Bonding Parent/Child*	.032	.015	.037
Family Conflict*	.765	.055	<.001
Unmarried*	.430	.090	<.001
Negative Bonding Spouse/Partner*	.047	.008	<.001
Weak Bonding to Children*	.055	.019	.004
Negative Bonding School*	-.292	.143	.042
Low Educational/ Occupational Goals	-.069	.039	.074
Limited Education*	.172	.048	<.001
Association with Delinquent Peers	.067	.035	.052
Gang Membership*	-.377	.122	.002
Unstructured/Unsupervised Activities with Friends*	.099	.045	.027
Criminal Victimization	.033	.095	.725
Unemployed	-.085	.108	.432
'Secondary Labor Market'	.040	.032	.207
Sex*	.327	.103	.001
Age*	.076	.025	.002
Ethnicity*	.338	.124	.006
Race*	.164	.059	.006

Note. * Statistically significant predictor variable.

and weak bonding with children (.055) all having unstandardized regression coefficients that indicated a positive predictive relationship between each indicator and the expected count outcome of overall crime. Additionally, much time in unstructured/unsupervised activities with peers (on a four-point Likert scale; 0= not at all, 3= 5 or more times a week) indicated that every one standard deviation increase for this measure (*SD*= 1.000; on a scale from -2.214 to .842) increased the predicted change in the expected log counts of acts of overall crime by .099.

Mirroring the first adult model, gang membership's negative unstandardized regression coefficient (-.377) indicated a negative relationship between gang affiliation and the expected count outcome of overall crime. This negative relationship, as well as its statistical insignificance within the second adult model, calls into question its inclusion within Agnew's (2005) theoretical construct, its operationalization within this analysis, as well as its magnitude within the population sampled by the Add Health data collection effort.

Combined Life Domain Models

Violent crime. Just like the combined life domain models for the adolescent time juncture, the combined adult life domain models utilized the similar regression distribution to their separated model counterpart (which means that for the adult models, Poisson distribution was utilized for all six adult models). The first combined adult life domain model examined the dependent variable, violent crime, and the impact of the five combined life domain scales: the self domain, the family domain, the school domain, the peer domain, and the work domain. Moreover, the following variables were included in the fourth adult model to control for any confounding influence(s) (as well as to continue to assess the fifth presented research question): sex, age, ethnicity, and race. Below, the fourth adult model is outlined for the dependent variable violent crime.

- $\ln \lambda_i = \beta_0 + \beta_{SD}\,(\text{Self Domain})_i + \beta_{FD}\,(\text{Family Domain})_i + \beta_{SD}\,(\text{School Domain})_i + \beta_{PD}(\text{Peer Domain})_i + \beta_{WD}\,(\text{Work Domain})_i + \beta_S\,(\text{Sex})_i + \beta_A\,(\text{Age})_i + \beta_E\,(\text{Ethnicity})_i + \beta_R\,(\text{Race})_i$[39]

[39] Where we want to model the average number of violent criminal acts based on the various employed predictors. This model is letting VCi be the number of violent criminal acts for participant i. This model assumes that VCi ~ Poisson(λi), where λi is the expected number of violent criminal acts for participant i

The Omnibus test associated with this model was found to be statistically significant, with five of the nine employed indicators reaching statistical significance: self domain, family domain, peer domain, ethnicity, and race (See Table 14 for values computed for the fourth adult regression model).

Like the all the separated adult models, the work domain reported statistical insignificance in the combined life domain model for violent crime. This is another surprising finding in relationship to the work domain, given Agnew's (2005) belief that the work domain would express moderate to strong influence upon engagement in crime for adults. The peer domain (*b*= .069) and the family domain (*b*= .067) reported the most influential, positive relationship between the respective indicator and the expected count outcome for violent crime. The family domain's .067 unstandardized regression coefficient, specifically, indicates that for every one standard deviation increase (*SD*= 6.654; on a scale that ranged from -9.386 to 32.696) on the family domain scale, an individual's predicted change in the expected log counts for acts of violent crime increased by .067. This (coupled with the information reported in the separated adult models) gives significant weight to the importance of the family domain at the adult time juncture.

Property crime. The second combined adult life domain model examined the dependent variable, property crime, and the impact of the five combined life domain scales and the four previously mentioned adult control variables. Below, the fifth adult model is outlined for the dependent variable property crime.

Table 14

Combined life domains- Poisson regression (adult model) predicting violent crime (n=1,140)

Variable	*b*	*SE*	*p*-value
Self Domain*	.032	.006	<.001
Family Domain*	.067	.006	<.001
School Domain	.044	.028	.119
Peer Domain*	.069	.025	.005
Work Domain	.037	.031	.230
Sex	.069	.100	.493
Age	.029	.028	.296
Ethnicity*	.300	.130	.021
Race*	.332	.058	<.001

Note. * Statistically significant predictor variable.

- $\ln \lambda_i = \beta_0 + \beta_{SD}\,(\text{Self Domain})_i + \beta_{FD}\,(\text{Family Domain})_i + \beta_{SD}\,(\text{School Domain})_i + \beta_{PD}(\text{Peer Domain})_i + \beta_{WD}\,(\text{Work Domain})_i + \beta_S\,(\text{Sex})_i + \beta_A\,(\text{Age})_i + \beta_E\,(\text{Ethnicity})_i + \beta_R\,(\text{Race})_i$[40]

The Omnibus test associated with this model was found to be statistically significant, with four of the nine employed indicators reaching statistical significance: self domain, family domain, sex, and age (See Table 15 for values computed for the fifth adult regression model).

Following the hypotheses laid down by Agnew (2005), the self (*b*= .060) and family (*b*= .089) domains had the most influence upon the predicted change in the expected log counts of acts of property crime. What is surprising is the lack of statistical significance for the remaining three life domains. The work domains lack of impactful behavior has been noted, but it appears that the variable for limited education (which was

[40] Where we want to model the average number of property-related criminal acts based on the various employed predictors. This model is letting PCi be the number of property-related criminal acts for participant i. This model assumes that PCi ~ Poisson(λi), where λi is the expected number of property-related criminal acts for participant i

Table 15

Combined life domains- Poisson regression (adult model) predicting property crime (n=1,126)

Variable	*b*	*SE*	*p*-value
Self Domain*	.060	.011	<.001
Family Domain*	.089	.009	<.001
School Domain	-.005	.047	.914
Peer Domain	.002	.041	.961
Work Domain	.082	.050	.104
Sex*	1.075	.173	<.001
Age*	.128	.046	.005
Ethnicity	.156	.227	.491
Race	.184	.114	.108

Note. * Statistically significant predictor variable.

a strong predictor within the separated adult models) lost statistical relevancy after computation of the life domain scales.

Overall crime. The third combined adult life domain model examined the dependent variable, overall crime, and the impact of the five combined life domain scales and the four previously mentioned adult control variables. Below, the sixth adult model is outlined for the dependent variable overall crime.

- $\ln \lambda_i = \beta_0 + \beta_{SD}\,(\text{Self Domain})_i + \beta_{FD}\,(\text{Family Domain})_i + \beta_{SD}\,(\text{School Domain})_i + \beta_{PD}(\text{Peer Domain})_i + \beta_{WD}\,(\text{Work Domain})_i + \beta_S\,(\text{Sex})_i + \beta_A\,(\text{Age})_i + \beta_E\,(\text{Ethnicity})_i + \beta_R\,(\text{Race})_i$[41]

The Omnibus test associated with this model was found to be statistically significant, with seven of the nine employed indicators reaching statistical significance: self domain, family domain, school domain, sex, age, ethnicity, and race (See Table 16 for values computed for the sixth adult regression model).

[41] Where we want to model the average number of overall criminal acts based on the various employed predictors. This model is letting OCi be the number of overall criminal acts for participant i. This model assumes that OCi ~ Poisson(λi), where λi is the expected number of overall criminal acts for participant i

Table 16

Combined life domains- Poisson regression (adult model) predicting all crime (n=1,026)

Variable	*b*	*SE*	*p*-value
Self Domain*	.040	.006	<.001
Family Domain*	.073	.005	<.001
School Domain	.022	.025	.386
Peer Domain*	.062	.022	.004
Work Domain*	.061	.027	.027
Sex*	.372	.088	<.001
Age*	.066	.025	.008
Ethnicity*	.284	.119	.017
Race*	.277	.056	<.001

Note. * Statistically significant predictor variable.

The family and peer domains again witnessed a moderate, positive predictive relationship with each indicator and the expected count outcome for overall crime. The self domains positive relationship is also in line with Agnew's (2005) hypotheses about the adult time juncture. Lastly, the school domain again indicated statistical insignificance, which will be discussed more within the final chapter of this analysis.

Research Question Five

The final section of this analysis section will touch upon the impact of the various control indicators included within the seven primary models. These variables were included to measure the accuracy of Agnew's (2005) seventh core proposition, as well as to answer the fifth research question within this analysis[42]. This section will break down the reported results from each controlling variable within each time juncture, beginning with the adolescent models and then concluding with the adult models.

[42] Both can be summarized as follows: are the life domains more likely to be conducive to crime/delinquency amongst adolescents, males, the members of certain race and ethnic groups, those with low-SES parents, and those who live in low-SES inner-city communities/neighborhoods?

Adolescent Models

The six employed variables within the four separated adolescent models (sex, ethnicity, race, parental SES, community SES, and urbanicity) were found to have moderate statistical significance/impact. Sex (*b*= .441), race (*b*= .076), and community SES (*b*= .080) were all statistically significant within the violent delinquency model, while ethnicity, parental SES, and urbanicity were not. Moreover, sex (*b*= .237) was the only statistically significant indicator within the property-related delinquency model, while sex (*b*= .080) and race (*b*= -.080) were the only statistically significant indicators within the drug-related delinquency model. Lastly, sex (*b*= .193) was the only statistically significant predictor within the overall delinquency model.

Within the combined life domain models, sex (*b*= .565), race (*b*= .074), parental SES (*b*= .138) and community SES (*b*= .094) were all found to be statistically significant within the adolescent violent delinquency model. Moreover, sex (*b*= .229) was found to be statistically significant within the adolescent property delinquency model, while race (*b*= -.105), community SES (*b*= -.032), and urbanicity (*b*= -.085) were found to be statistically significant within the adolescent drug delinquency model. The adolescent drug delinquency model offers several theoretically contradictory results, which could warrant revision to the seventh core proposition relayed by Agnew (2005). Lastly, the adolescent overall delinquency model reported statistical significance for the sex (*b*= .190) and race (*b*= -.041) control variables.

These various findings show that sex was the most meaningful predictor when it comes to engagement in adolescent delinquency, supporting Agnew's (2005) assertion that males would be more likely to engage in crime/delinquency, because being male

affects their standing within the highlighted life domains. Outside of this finding, the rest of Agnew's (2005) seventh core proposition is called into question. The lack of consistent statistical significance for the ethnicity indicator is surprising, given this indicator was answered by the respondent and not the Add Health interviewer (which might explain some of the issues relating to the race indicator not reaching statistical significance within two of the four adolescent models). Moreover, the two employed SES indicators failed to reach statistical significance within most of the adolescent regression models, calling into question its operationalization within this analysis, or its relevancy within Agnew's GTCD. Further limitations surrounding these specific indicators will be presented within the final chapter of this analysis, with these limitations possibly explaining the lack of empirical legitimacy for Agnew's seventh core proposition.

Adult Models

Both the separated and combined adult models also found moderate support for Agnew's (2005) seventh core proposition, but still some theoretical contradictory results were found. Beginning with the violent crime models, both ethnicity (*b*= .329 for separated, *b*= .300 for combined) and race (*b*= .224 for separated, *b*= .332 for combined) were found to be statistically significant predictors, with both exhibiting considerable, positive predictive relationships between each correlated and the expected count outcome for violent crime. Conversely, sex (*b*= 1.129 for separated, *b*= 1.075 for combined) and age (*b*= .146 for separated, *b*= .128 for combined) were found to be statistically significant predictors within the property crime models, but both age variables indicated that for every year a participant gets older, the predicted change in the expected log counts of property-related crime increases by .146 and .128, respectively (which is

theoretically contradictory to the notions presented by Agnew). Lastly, the overall crime models found all four indicators to have statistical significance, with sex (*b*= .327 for separated. *b*= .372 for combined), age (*b*= .076 for separated, *b*= .066 for combined), ethnicity (*b*= .338 for separated, *b*= .284 for combined), and race (*b*= .164 for separated, *b*= .277 for combined) all reporting a positive predictive relationship between each indicator and the expected count outcome of overall crime.

CHAPTER V

CONCLUSION AND IMPLICATIONS

The purpose of this thesis was to evaluate the ability of Agnew's (2005) GTCD to explain engagement in crime/delinquency, specifically during the adolescent and adult time junctures. To achieve that purpose, the first four waves of the Add Health dataset were utilized within 14 Poisson or negative binomial regression models to help answer the five research questions. To summarize, moderate support was garnered for Agnew's theoretical proposition. During the adolescent time juncture, between 9 (drug delinquency) and 13 (property and overall delinquency) of the utilized correlates were found to be statistically significant in explaining engagement in delinquency. Moreover, during the adolescent combined life domain models, all four (self, family, school, and peer) of the life domains were found to be statistically significant in explaining engagement in the four forms of adolescent delinquency. During the adult time juncture, between 8 (violent crime) and 11 (overall crime) of the utilized correlates were found to be statistically significant in explaining engagement in crime. Moreover, the self and family adult combined life domains were found to be statistically significant in explaining engagement in the three types of adult criminality. Lastly, in answering the fifth and final research question, sex was observed to be the most impactful control variable in explaining engagement in adolescent delinquency, while ethnicity and race were found to be statistically significant predictors in engagement in violent and overall

adult crime. Outside of these variables, support for Agnew's seventh core proposition was not consistently found across the various adolescent and adult models.

The following sections will break down and discuss the litany of results found from the 14 created models, beginning first within the adolescent time juncture and then transitioning into the adult time juncture. Following this presentation, a broader discussion will be had regarding the implications of this research endeavor. These implications will consider both the implications for Agnew's (2005) GTCD and the crime prevention policies/hypotheses that could be undertaken utilizing the results from this analysis. After that discussion, this chapter will transition into a discussion of the limitations surrounding this investigation, and how these limitations could impact the results garnered. This limitation section will then transition into a discussion of how future researchers could overcome these limitations, while continuing to question the efficacy of Agnew's GTCD. Finally, a brief conclusion will summarize this investigation and its relevancy within the current literature on Agnew's GTCD.

Findings

Adolescent Separated Results

The first research question within this investigation can be reiterated as follows: do the highlighted variables within each life domain accurately predict engagement in violent, property, and drug-related delinquency, as well as overall delinquency (specifically during adolescence)? To help answer this question, three negative binomial, and one Poisson regression, models were constructed and analyzed against violent, property, drug, and overall delinquency. When predicting engagement in violent

delinquency, the most meaningful correlates observed were gang membership[43], sensation seeking, family conflict, criminal victimization, association with delinquent peers, poor academic performance, and community SES. Six of these seven correlates (poor academic performance being the exception[44]) were theoretically consistent with the hypotheses presented by Agnew (2005). Moreover, six of the seven remaining statistically significant correlates (attention deficit being the exception) were theoretically consistent with Agnew's original conception of GTCD. This support can be qualified as moderate for GTCD, ultimately failing to reach a level of sounder support due to 11 of the 25 utilized variables not reaching statistical significance. Furthermore, moderate support can be classified for this specific model because the correlates relating to attention deficit and poor academic performance exhibiting a negative predictive relationship between each correlate and the count outcome variable of acts of violent delinquency.

Additional moderate support for GTCD was found within the property delinquency negative binomial regression model. With 14 of the 26 utilized correlates reaching statistical significance, and that significance indicating a theoretically consistent

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[43] This finding was consistent with the work of Thornberry (1998), who reported that youth gang members were increasingly more likely to engage in violent/serious delinquency, and that these gang members committed a vast majority of the violent delinquent acts.

[44] Zhang and colleagues (2012) reported statistical insignificance for their employed poor academic performance indicator, but other adolescent specific analyses of GTCD do not include a measure of poor academic performance. It could be hypothesized that the rigors associated with constant academic success could cause strain in the lives of students, calling for the removal of that strain through various coping mechanisms. One such mechanism could be adolescent delinquency. This notion is briefly touched upon by Janosz, Le Blanc, Boulerice, and Tremblay (2000) and their work surrounding high school dropouts. Janosz and colleagues' (2000) assessment into the various types of high school dropouts resulted in the classification of the *disengaged* dropout, who is a student classified by low commitment to school, low behavioral issues, and moderate to high academic success. These students, who became disengaged in the learning process and subsequently drop out, had significant predictive relationships with self-reported drug use, delinquency, and number of arrests (Janosz et al., 2000). A similar process could be happening within this analysis; students who are characterized as academically successful could be disengaged learners, and therefore, more probable to commit acts of delinquency.

nature to the propositions relayed by Agnew (2005), the property delinquency model garners the most empirical support for GTCD. The most notable changes between this model and the violent delinquency model is the impact that association with delinquent peers has upon property delinquency. Moreover, the impact of all four of the peer domain correlates indicated the relevancy that peer influence has upon engagement in property-related delinquent acts. The findings within this analysis mirror the literature on peer influence, specifically Regnerus' (2002) work regarding much time in unstructured/unsupervised activities with peers, and Fergusson, Swain-Campbell, and Horwood's (2002) work regarding association with delinquent peers.

Transitioning to the drug delinquency model, moderate support was further garnered for GTCD, with 11 of the 26 employed correlates reaching statistical significance. Interestingly, four of those eleven correlates were observed to possess a theoretically contradictory relationship between the specific indicator and the count outcome variable of drug delinquency. Notable theoretically inconsistent variables, which call into question the generalizability of Agnew's (2005) integrated theory, were poor academic performance and criminal victimization. Beginning with poor academic performance, the findings within this analysis are inconsistent with the past literature on this correlate and drug delinquency, with Paulson, Coombs, and Richardson (1990) specifically indicating that substance use is empirically linked to poor grades, higher absenteeism, and higher recidivism dropout rates. There has been a consistent empirical connection between poor academic performance and increased drug use, possibly explaining why Agnew (2005) included it within his theoretical construct; however, the generalizability of this specific correlate, in explicitly predicting engagement in drug

delinquency, can be seriously challenged following the reported outcomes of this model[45]. This theoretically inconsistent pattern was further seen within the criminal victimization correlate, which is also contradictory to previous research within the field[46]. Lastly, as previously mentioned, the lack of statistical significance found for the impulsivity variable in this specific model calls into question its generalizability within this theoretical construct, but more likely calls into question its operationalization within this analysis[47].

Finally, the overall delinquency model offered further moderate support for GTCD by reporting statistical significance for 14 of the 26 employed correlates. Irritability, which had not been a significant predictor within two of the three previous regression models, exhibited the expected positive predictive relationship with the count outcome of acts of overall delinquency. The lack of statistical significance reported within the violent and drug delinquency models for this correlate are surprising, given the centrality that Agnew (2005) argues the irritability correlate plays within the self domain, as well as engagement in crime/delinquency. Further relevant findings within this negative binomial regression model center back to the lack of statistical significance for the poor academic performance correlate. Within three of the first four adolescent models (the property delinquency model being the exception) this correlate exhibited a negative

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[45] Interestingly, the work of Felson & Staff, (2006) suggests that the relationship between poor academic performance and delinquency is spurious instead of causal, which could explain the results found within this analysis.

[46] Specifically, the work of McClellan, Farabee and Crouch (1997), who looked at victimization rates for male and female prisoners in Texas, ultimately finding a connection between early-childhood victimization and drug dependency. Moreover, Estévez and Emler (2011) have reported a significant correlation between criminal victimization and drug use.

[47] One limitation of the impulsivity scale is the presentation of the various sex related questions to participants over 15 years of age. This methodologic choose by the Add Health researchers excluded 987 participants from answering these indicators, which in turn, reduced the sample size associated with the adolescent specific models. Such an approach could have affected the reported outcomes of these models.

predictive relationship with the predicted change in the expected log counts of acts of each specific delinquency, for every one unit increase in those specific delinquent acts. Only two of the previous six empirical investigations conducted on the efficacy of Agnew's (2005) GTCD (Cochran, 2017; Zhang et al., 2012) have utilized the poor academic performance correlate, with Zhang and colleagues (2012) reporting a statistically insignificant predictive relationship between poor academic performance and delinquency[48].

Succinctly, moderate support was found for the first research question proposed within this analysis. Each specific model reported a statistically significant improvement in fit, over the null/intercept-only model, when explaining the variance in their respective dependent variables. This statistical significance relays the effectiveness of the various correlates of crime/delinquency, but the lack of uniform statistical significance for each employed correlate indicates generalizability issues regarding Agnew's (2005) general theoretical construct.

Adolescent Combined Models

The combined adolescent models help answer the third research question associated with this analysis, which can be reiterated as follows: does the impact/relevancy of the constructed life domain scales (when applied to violent, property, drug, and overall delinquency) align with the hypotheses contended by Agnew (2005), specifically during adolescence? To help answer this research question, the same type of

[48] Cochran (2017) did report statistical significance between the employed dependent variable and the poor academic performance correlate; however, the dependent variable within that analysis was academic dishonesty, which is more analogous than delinquent. Still, this reported contradiction between Cochran (2017) and the results found by Zhang et al., (2012), as well as this analysis, call into question the generalizability and relevancy of the poor academic performance correlate's inclusion within GTCD.

regression model was applied to each count outcome of delinquent acts, but with these models utilizing the combined life domains scales, as well as the control variables, to predict engagement in the respective type of delinquency. These four regression models garnered strong empirical support for the life domain component of Agnew's GTCD, with all four life domains (self, family, school, peer) reaching statistical significance within each specific delinquency model. Moreover, the peer and the self domains, which Agnew argued had the greatest influencing impact upon adolescent delinquency, reported the greatest (using the unstandardized regression coefficient values) impact upon engagement in delinquency within three of the four models. The only exception was the drug delinquency model, in which the family domain reported the second strongest impact upon engagement in drug delinquency (followed closely by the self domain).

It should be noted that this is the first analysis of Agnew's (2005) GTCD to combine the employed life domain correlates into their respective domains, so it is not possible to compare these outcomes to prior analyses. Because this combining approach is a major component of the first proposition relayed by Agnew, future researchers would be wise to test this component of GTCD. Overall, in answering the third research question within this analysis, strong support was garnered for the predicted influencing nature of the various adolescent life domains, as proposed by Agnew.

Adult Separated Models

The second research question can be reiterated as follows: do the highlighted variables within each life domain accurately predict engagement in violent and property-related crime, as well as overall crime (specifically during adulthood)? To answer this question, three Poisson regression models were created to predict engagement in violent,

property, and overall adult criminal acts. Beginning with the violent crime model, moderate support was garnered for Agnew's (2005) first proposition with GTCD, with 10 of the 25 employed correlates reaching statistical significance. Within the theoretically consistent life domain correlates, the most impactful predictors resided within the family domain. Family conflict, unmarried, negative spouse/partner bonding, and weak bonding to children all possessed significant, positive predictive relationships between the specific correlate and the count outcome variable of acts of violent crime. These reported findings help establish the importance of the adjusted family domain (focusing more on an individual's partner and children, versus an individual's parents) during the adult time juncture, a hypothesis established by Agnew. Further significant findings include the importance of limited education upon engagement in violent crime. Agnew contended that limited education would have a small to moderate direct effect on adult criminality; however, the reported findings within this analysis indicate that limited education has a moderate to large effect on engagement in violent criminality. This finding joins the mixed body of literature upon education and criminality, with Witte (1997) indicating that the connection between education and crime is empirically limited; however, Lochner (1999) indicated that education, training, and work subsidies can in fact reduce engagement in adult criminality. Moreover, no prior adult-specific analyses of Agnew's GTCD have utilized a measure for limited education, erasing the possibility of comparing across empirical analyses.

The one surprising outcome from the violent crime model was in relationship to the negative predictive relationship between gang affiliation and violent criminality. Previous literature has indicated the empirical connection between adolescent gang

affiliation and violent delinquency; however, a similar relationship has not been uncovered between the adult time juncture and crime (Huizinga, 1997; Thornberry, Krohn, Lizotte, Tobin, & Smith, 2003). Moreover, the work of Lasley (1992), who systematically examined the age-gang relationship and found adult gangs to be the exception and not the rule, helps question the generalizability of gang membership across the various life junctures proposed by Agnew (2005). This reported negative relationship presents a fascinating connection for future researchers to delve into, specifically life-course criminologists.

Moving to the property crime adult model, 11 of the 25 correlates reported statistical significance, garnering more moderate support for the first proposition related by Agnew (2005). Interestingly, impulsivity reported statistical significance within this model, mirroring the findings reported by Cochran (2017) during his analysis of Agnew's GTCD. Conversely, Ngo et al. (2011), within their adult time juncture specific analysis, reported no statistical significance for their measure of impulsivity. The mixed support for this specific correlate requires further empirical analysis to determine its relevancy within the adult time period of Agnew's theoretical construct. As seen within the previous adult model, the correlates within the family domain reported the most significant impact upon engagement in property-related criminality. Neither Cochran (2017) nor Ngo et al. (2011) found much empirical support for similar correlates within their respective adult time juncture family domains, calling for future researchers to continue determining the relevancy of the family domain upon adult criminality.

The final separated adult model, overall criminality, garnered the most empirical support for Agnew's (2005) first proposition within GTCD, reporting statistical

significance for 15 of the 25 employed correlates. Similarly, to the previous two models, the family domain correlates exerted the most impactful relationship with acts of overall criminality. The same impactful relationship is seen with the correlate of limited education, increasing the perceived importance of that correlate within this specific analysis. The final notable statistically significant correlate is poor social/problem solving skills/behaviors, which mirrors the work of Antonowicz and Ross (2005) who systematically reviewed the most impactful and signifying empirical analyses connecting social/problem solving skills to criminality. This correlate could prove useful for policymakers and practitioners when it comes to controlling/curbing adult criminality.

It should be noted within the overall crime model, as well as the previous two adult models, the lack of statistical significance for the correlates within the work domain. Neither unemployment, nor participation in the 'secondary labor market', reported statistical significance within any of the three separated adult models. This finding contradicts Ngo et al.'s (2011) reported finding that having a 'bad job' (unhappy with prior job and did not enjoy working at prior job) significantly predicted recidivism for adult boot camp participants but aligned closer with Cochran's (2017) reported finding of work attachment and commitment not possessing significant predictive relationships with academic dishonesty[49]. These contradictory outcomes should be

[49] While Cochran (2017) did not elaborate on why he believed the work domain indicators within his analysis did not reach statistical significance, the reported theoretical inconsistency within this analysis could simply be due to operationalization. Agnew (2005) relayed that chronic unemployment, and not simply unemployment, was the true predictor of engagement in criminality. The data employed within this analysis did not have a consistent tracker of unemployment levels for participants, and solely relied on a cross-sectional measure of unemployment. Future researchers would be wise to include chronic unemployment indicators in their analyses, which could help elucidate the hypothesized importance of the work domain at the adult time juncture.

fledged out future by future researchers of the GTCD model/construct, and do not warrant exclusion of the work domain from GTCD yet.

Combined Adult Models

The fourth research question, which gauged whether the impact/relevancy of the constructed life domain scales (when applied to violent, property, drug, and overall crime) aligned with the hypotheses contended by Agnew (2005), was answered through the construction and analysis of the final three Poisson regression models. Beginning with the violent crime combined model, three (self, family, and peer) of the five life domain scales reported a positive predictive relationship with violent criminality, with the self and family domains exerting the most meaningful impact. Once again, it is noted that the combined work domain did not have a moderate to large effect on engagement in adult violent criminality, contradicting the hypotheses relayed by Agnew. Moreover, once the limited education correlate was combined with the rest of the school domain correlates, the statistical significance previously reported was diminished to non-significance. This adjustment, which was briefly touched on by Agnew, indicates that limited education is the most relevant school domain correlate at the adult life stage. This indicates that each time juncture possesses different correlates of crime/delinquency, which reduces the parsimoniousness of this theoretical construct, which was already diminished to begin with; however, it is not surprising to see that different factors affect people at different time junctures differently, with those factors developing/evolving in a similar nature to the individual they are associated with. Such a morphing, integrated, general construct requires further theoretical support, but should be incorporated within future attempts at explaining criminality across an individual's life.

The property combined adult model saw further contradictions to Agnew's (2005) hypotheses, with the peer domain reporting statistical insignificance, which is opposite of the predictive relationship hypothesized by Agnew; and as with the previous combined adult model, the work and school domains did not report statistical significance. The only two domains that registered as statistically significant were the self and family domain, which does align with the hypotheses presented by Agnew. The relevancy of these two domains, which is seen throughout all three combined adult models, should be taken into consideration when addressing the status of GTCD. As was previously mentioned, this is the first investigation into the efficacy of GTCD that combined the various employed correlates into their respective life domains, so cross-analysis comparisons cannot be made. Overall, small to moderate support was found for the fourth research question and Agnew's hypotheses regarding which life domains are the most influential to an individual as an adult.

Finally, the overall crime combined adult model garnered moderate to large support for this portion of Agnew's GTCD. Four of the five (save the school) life domains had a significant predictive relationship with acts of overall adult criminality. Moreover, the combined adult crime model was the first model to report statistical significance for the work domain, which helps support its inclusion within the adult time juncture. Seeing as how GTCD is a general theory, the fact that it can accurately predict engagement in overall crime at the adult time juncture bodes well for its inclusion within criminological theory research; however, the drawback of not being generalizable to specific types of criminality will require modification/revision to the construct. Further findings within the combined adult crime model continue to show the relevancy of the

self and the family domains at this time juncture, a finding that should be homed in on by policy makers, practitioners, and future researchers within this field. Lastly, the peer domain's reported statistical significance helps support that specific hypothesis presented by Agnew (that the peer domain would exert moderate to strong influence on adult criminality). Overall, the predictive ability of the various life domains to predict adult criminality garners moderate support for Agnew's GTCD, prompting future research into the specific life domains that are exerting influence upon adults.

Implications

The plethora of findings associated with this analysis carry implications for the state/status of GTCD. Beginning with the separated adolescent model, the lack of statistical significance for the following variables (within several of the four constructed models) may call for future researchers to exclude them within their analyses: high activity levels, low social support, teachers treat students fairly, and low educational/occupational goals. These various indicators show no statistically significant relationship with adolescent delinquency and should be further scrutinized by researchers within this field. If those analyses return a similar verdict, GTCD should be modified, ultimately removing them as correlates of crime/delinquency. Moving to the significant variables within the separated adolescent model, gang affiliation and sensation seeking should be utilized by practitioners/policymakers to help construct adequate and efficacious crime prevention policies/strategies. In discussing crime prevention policies geared towards the self-domain (which encompasses sensation seeking), Agnew (2005) recommended programs that are intensive in nature and last for a greater duration than typical prevention programs. Because the self-domain encompasses correlates that are

rooted into the individual being targeted, Agnew believed that meaningful changes could not be made following a week or two, but instead argued for programs that lasted months or even years. Moreover, following the recommendations laid out by Donohew and colleagues (2000), programs/curricula that are high in novelty and excitement value tend to reach individuals who seek out exciting sensations better than traditional methods. Using the results from this analysis, building intensive prevention programs that can grip adolescents who go through them have a higher likelihood of making significant improvements to the various self-domain correlates being targeted.

These types of programs can be similarly applied to the reported significance of gang membership. According to Howell (2010), adolescents join gangs for a plethora of reasons (protection, fun, respect) and therefore special care needs to be taken when creating and implementing proper prevention programs. One such program is known as The Gang Resistance and Education Training (G.R.E.A.T) program, which provides gang resistance curriculum to students and families in an educational environment. The G.R.E.A.T program curriculum is delivered by law enforcement officers and focuses on the dangers of gang affiliation, social skills development, cognitive-behavioral development, conflict resolution, and refusal skills. Moderate program efficacy has been reported for the G.R.E.A.T program by Esbensen, Osgood, Taylor, Peterson, & Freng (2001), and the results from this analysis show that such a crime-prevention program could prove meaningful for the adolescents.

Further adolescent implications stem from the combined life domain models, which consistently show the effects of the peer domain on the various delinquent outcomes. The reported findings stemming from the combined peer domain is consistent

with the previous four adolescent specific analyses—Muftić et al., 2014; Ngo & Paternoster, 2014; Roh & Marshall, 2018; Zhang et al., 2012—and warrants substantial consideration from policymakers tasked with reducing adolescent delinquency. The common solution to such a problem has consistently been aggregating deviant youths together so that they can receive treatment/programming outside of the realm of their more conventional peers (including arenas containing, but not limited to, mental health, education, juvenile justice, child protective services, and community programming) (Dodge, Dishion, & Lansford, 2006). Dodge and colleagues (2006) argued that this avenue of policy/programming is oftentimes ineffective and harmful to those deviant peers, and empirically invalidated deviant adolescent aggregation programs should be defunded, discontinued, and replaced by more efficacious alternatives. Some alternatives to such efforts include Functional Family Therapy (FFT; Alexander et al., 1998), Multisystemic Therapy (MST; Henggeler, Mihalic, Rone, Thomas, & Timmons-Mitchel, 1998), and Multi-dimensional Treatment Foster Care (MTFC; Chamberlain, 2003). FFT and MST specifically focus on enhancing the ability of parents to monitoring youth and manage behaviors using rewards and punishments, while MTFC specifically focuses on training foster parents to set clear expectations for tolerable behavior(s), actively monitor their foster children's behaviors, and try and prohibit interaction with deviant others (Dodge et al., 2006). These various programs have been shown to have beneficial effects for adolescent participants, and should be considered, with the results of this analysis in mind, as attractive prevention programs targeting the negative effects of the peer domain.

Implications surrounding the adult time juncture are just as pertinent, specifically with the correlates and connections associated with GTCD. Agnew (2005) relayed in his

theoretical construct that the life domains of self, family, peer, and work would all be significant predictors of engagement in adult criminality; however, a majority of the models reported within this analysis indicated that the self and the family were the only consistent predictors of engagement in adult criminality, while limited education (which Agnew believed would only have a small, direct effect on adult criminality) was one of the most influential correlates at the adult time juncture. While these connections will need to be further analyzed within the context of GTCD, these theoretically inconsistent findings show that GTCD may need revision in the future.

Outside of these theoretically inconsistent correlates and life domains, the relevancy of the family domain is one of the biggest takeaways from the adult analyses within this investigation. The consistent, positive predictive relationship that the family domain, and most of its correlates, showed with adult criminality expresses the significance of these concepts for practitioners and policy makers. Specifically, for the adult time juncture, the correlates surrounding spouse/partner bonding, marriage, and bonding to children should be addressed by practitioners tasked with reducing adult criminality. One such program that targets the above-mentioned behaviors is the Triple P–Positive Parenting Program (Sanders, 1999, 2003). This parenting program is a multilevel system of family intervention, which provide five distinct levels of interventions that increase in specificity and intensity: 1) a single stage of universal population-level media information campaign targeting all parents, 2) two levels of primary care consultations targeting mild behavior problems in children, and 3) two further intensive parent training/intervention programs for households with children at risk for more severe social/behavioral problems (Sanders, 1999). This program has

primarily been empirically assessed by its effects on child outcomes; however, a meta-analysis by Nowak and Heinrichs (2008) showed the efficacy that the Triple P-Positive Parenting Program had upon improved parenting skills and parental well-being. While the generalizability of such a program is limited to individuals with children, the reported findings within this analysis indicate the importance of the correlates involving such an endeavor.

Further implications stemming from the various adult models includes the reported insignificance of the work domain on adult criminality. Although this insignificance could be because of the operationalization of such concepts within this analysis, the consistent level of insignificance reported within this investigation leads to some questioning of the work domains inclusion within GTCD. This lack of statistical significance for the work domain was further found by Cochran (2017), who specifically looked at work attachment and commitment, but is opposite of the results garnered by Ngo and colleagues (2011) who found that having a bad job was significantly predictive in being rearrested. Future research is needed to determine the relevancy of the work domain within GTCD.

Limitations

The reported findings within the various models of this analysis warrant consideration in the effort of crime/delinquency prevention, but caution should be warranted for readers because of several limitations that will be discussed below.

The first limitation surrounding this analysis is its partial approach to addressing the topic of GTCD. Although Agnew (2005) relayed that partial assessments are necessary to answer the various casual connections relayed within his construct, the

limited assessment of GTCD within this thesis does not help illuminate the efficacy of the construct's entirety. First, the lack of inclusion of any childhood time juncture is a severe limitation of this analysis, and it is something that has consistently plagued GTCD researchers in the past. Sampling younger individuals is a difficulty due to their protected status, and it may be some time before adequate sampling of this population occurs to answer the connections relayed by Agnew. Retroactive questioning could be an approach used by future researchers in getting the information relevant within the childhood life juncture; however, it is not hard to fathom that retroactive survey/interview questions may be difficult for participants to adequately/accurately answer.

Outside of the lack of inclusion of the childhood time juncture, the adolescent time juncture models did not include several of the correlates highlighted by Agnew (2005): low ability to learn from punishment, beliefs favorable to crime/delinquency, child abuse, criminal parents, criminal siblings, little time spent of homework, among others. The lack of inclusion of all the correlates highlighted by Agnew is not uncommon for previous analyses of GTCD, but it is still a severe limitation of this investigation. Moreover, the inclusion of several indicators within the self domain were only extended to those adolescents above the age of fifteen, reducing the final sample size for the adolescent models.

The same issues surrounding lack of inclusion of certain correlates can be extended to the adult time juncture models as well. Low ability to learn from punishment, beliefs favorable to crime, child abuse, criminal parents, criminal spouse/partner, poor work performance, etc., were not included within the various adult models within this

analysis, reducing the inferences that can be drawn from this analysis to the body of literature on GTCD.

Further limitations associated with this analysis include the inability of the researcher to run confirmatory factor analysis in between the separated and combined models. Agnew (2005) included this method of analysis to help confirm the grouping of correlates within each hypothesized life domain. If the correlates in fact grouped around their hypothesized life domain, Agnew believed that there was an underlying factor establishing such a connection. If this was true, and could in fact be included within this analysis, prevention efforts would be able to target the life domains instead of specific correlates, increasing the potential effect of those proposed programs. Without the inclusion of such an analysis, this investigation assumed the various correlates were associated with the other correlates within their specific life domain. This assumption is a severe limitation and should addressed by future researchers of GTCD.

The penultimate limitation surrounding this investigation concerns itself with the various control indicators used within this analysis. Beginning with the race indicator, this variable was determined by the interviewer's perception of the interviewee, instead of the interviewee listing what they believed their race to be. This is problematic because the interviewee could perceive themselves to be a part of a different racial category than the interview listed them as, which could impact how the interviewee perceives they are viewed within the world. Moreover, the various SES and urbanicity questions utilized within the adolescent models were either the interviewer's perception or the interviewee's perception of their parent's SES. Again, there are severe limitations

surrounding these indicators, which could help explain their lack of statistical significance within the various models.

The final limitation surrounding this analysis is the lack of parsimony in the interpretation of the analysis. After standardizing the various indicators within each correlate, the interpretation of the various analyses was fundamentally altered. Instead of the regression models (and specifically the unstandardized regression coefficients) indicating changes within the respective units of each indicator, the reported changes were in the standard deviations for each indicator. This subtle, but substantial, difference clouds the interpretation of the results associated with this analysis but was necessary due to the lack of consistent operationalization for the various employed indicators.

Future Research

With the aforementioned limitations in mind, the following section lays out several avenues for future researchers to investigate the efficacy of GTCD. First, future researchers should investigate the connections/associations relayed by Agnew (2005) for the childhood life domain. No previous investigations have looked at this time juncture and would be wise to investigate this significant portion of Agnew's theoretical construct. Moreover, these researchers should analyze the GTCD model against analogous behaviors instead of delinquent behaviors, because of the potential lack of delinquency within child samples.

Future analyses should also try to include more of the correlates relayed by Agnew (2005), as well as the various constraints for, and motivations against, crime/delinquency not touched upon by this analysis. There have been several partial attempts at determining the efficacy of GTCD, with results indicating moderate to strong

support for the concept. It is becoming the time where more complete tests of this construct are needed, with these tests attempting to answer more than a singular portion of Agnew's theory. If future researchers could attempt to complete a more comprehensive test of GTCD, it would be able to provide a better elucidated picture on the efficacy surrounding this construct.

Future researchers should also utilize more concrete and reliable control variables within their analysis of GTCD. Agnew (2005) relayed the importance of these variables within his final core proposition, and future researchers would be wise to help answer this component of GTCD. Finally, future researchers should continue using nationally representative samples when addressing the efficacy of GTCD. Cochran (2017) relayed the importance of using such a sample for generalizability sake, and that message is echoed by this researcher.

Conclusion

The history of GTCD is full of partial analyses finding moderate to strong support for the theoretical construct. Still, almost fifteen years after Agnew (2005) relayed this integrated, general construct, there remains to be substantial assessments into the concept's efficacy. This thesis attempted to add to the literature surrounding the topic by conducting the first analysis of GTCD to include multiple time junctures. By examining GTCD's predictive ability at both the adolescent and adult time juncture, this investigation attempted to provide the next stepping stone in empirical support for Agnew's construct. Future researchers should attempt to expand the analyses reported within this investigation, until one day consistent and comprehensive examinations into

GTCD are conducted. Only then can a determination be made into the efficacy surrounding the theoretical construct.

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APPENDIX A

VARIABLES PREDICTED TO HAVE A MODERATE TO LARGE DIRECT EFFECT ON CRIME

Category (Life Domain)	Variables
Personality Traits (Self)	
	Impulsivity
	High Activity Levels
	Trouble Concentrating (Attention Deficit)
	Low Ability to Learn from Punishment
	Sensation Seeking
	Irritability
	Insensitivity to Others/Low Empathy
	Poor Social- and Problem-Solving Skills
	Beliefs Favorable to Crime
Family Variables (Family)	
	Negative Bonding Between Parent and Child
	Family Conflict
	Child Abuse
	Poor Supervision/Discipline
	Criminal Parents
	Criminal Siblings
	Low Social Support
	(For Adults) Unmarried
	Negative Bonding with Spouse/Partner
	Criminal Spouse/Partner
School Variables (School)	
	Poor Academic Performance
	Negative Bonding to School
	Little Time on Homework
	Negative Treatment by Teachers
	Low Educational/Occupational Goals
Peer Variables (Peer)	
	Association with Delinquent Peers
	Gang Membership
	Much Time in Unstructured, Unsupervised Activities with Peers
	Criminal Victimization
Work Variables (Work)	
	Poor Work Performance
	Chronic Unemployment
	Work in the ‘Secondary Labor Market’

APPENDIX B

SELF DOMAIN VARIABLES IN ADOLESCENT MODEL

Life Domain	Indicator	Measurement
Self		
	Impulsivity	
		Hopeful about the future- Four-point Likert scale (0= most of the time or all of the time; 3= never or rarely)
		Difficulty starting things- Four-point Likert scale (0= never or rarely; 3= most of the time or all of the time)
		Live life without thought of future; Big hassle to protect from STDs; Too much planning ahead for birth control; Birth control interferes with sexual enjoyment; Birth control too much of a hassle- Five-point Likert scale (1= strongly disagree; 5= strongly agree)
		Stop and use birth control when aroused; Plan ahead to have birth control; Resist sex if partner does not want to use birth control- Six-point Likert scale (1= very sure; 6= never want to use birth control)
	High Activity Levels	
		Active exercise- Additive index of three separate indicators [range of scores from zero (participant does not actively exercise) to nine (participant actively exercises continually)]
		Trouble relaxing- Five-point Likert scale (0= never; 4= every day)
		Lots of energy- Five-point Likert scale (1= strongly disagree; 5= strongly agree)
	Attention Deficit	
		Trouble paying attention in school- Five-point Likert scale (0= never; 4= every day)
		Trouble keeping mind focused will be coded- Four-point Likert scale (0= never or rarely; 3= most of the time or all of the time)
		Interviewee appeared bored or impatient- Dichotomous (0= no; 1= yes)
	Sensation Seeking	
		Like to take risks- Five-point Likert scale (1= strongly disagree; 5= strongly agree)
	Irritability	
		Moodiness- Five-point Likert scale (0= never; 4= every day)

Life Domain	Indicator	Measurement
		Bothered by things that usually do not- Four-point Likert scale (0= never or rarely; 3= most of the time or all of the time) *Never argue with others; Never criticize others*- Five-point Likert scale (1= strongly agree; 5= strongly disagree) *Getting upset by difficult problems*- Five-point Likert scale (1= strongly disagree; 5= strongly agree) *Attractiveness of the interviewee's personality*- Five-point Likert scale (1= very attractive; 5= very unattractive)
	Insensitivity to Others/Low Empathy	
		Sensitive to others' feelings- Five-point Likert scale (1= strongly agree; 5= strongly disagree)
	Poor Social- and Problem-Solving Skills	
		Avoid confronting problems; Going with gut without think of alternatives - Five-point Likert scale (1= strongly disagree; 5= strongly agree) *Gathering additional facts; Research multiple approaches to a problem; Systematic method to solve a problem; Analyze outcome after solution*- Five-point Likert scale (1= strongly agree; 5= strongly disagree)

APPENDIX C

FAMILY DOMAIN VARIABLES IN ADOLESCENT MODEL

Life Domain	Indicator	Measurement
Family		
	Negative Bonding Between Parent and Child	
		Spent night away without permission- Dichotomous (0= no; 1= yes) *Close to parents*- Additive index of two separate indicators [range of scores from 1 (very much close to parents) to 10 (not close at all to parents)] *How much parents care about participant*- Additive index of two separate indicators [range of scores from 1 (parents care very much) to 10 (parents do not care at all)] *Family understands participant; Family has fun together*- Five-point Likert scale (1= very much; 5= not at all) *Parents are warm/loving*- Additive index of two separate indicators [range of scores from 1 (strongly agree) to 10 (strongly disagree)] *Lie to parents about whereabouts*- Four-point Likert scale (0= never; 3= 5 or more times)
	Family Conflict	
		Had a serious argument with parents- Additive index of two separate indicators [range of scores from 0 (no arguments) to 2 (yes arguments)] *Run away from home*- Four-point Likert scale (0= never; 3= 5 or more times) *Want to leave* home- Five-point Likert scale (1= not at all; 5= very much) *Family pays attention to participant*- Five-point Likert scale (1= very much; 5= not at all)
	Poor Supervision/Discipline	
		Parents are supervising participant- Additive index combing six indicators [range of scores from one (participant's parents are always supervising them) to thirty (participant's parents are never supervising them)]

Life Domain	Indicator	Measurement
	Low Social Support	*Easy access to damaging items*- Additive index of four separate indicators [range of scores from zero (no easy access to damaging items) to four (easy access to all damaging items)] *Participant tells parents where they are going*- Five-point Likert scale (1= strongly agree 5= strongly disagree) *Had a talk with parents about a personal problem*- Additive index of two separate indicators [range of scores from 0 (no talks) to 2 (yes talks)] *Mother discusses with participant when they've done wrong*- Five-point Likert scale (1= strongly agree; 5= strongly disagree)

APPENDIX D

SCHOOL DOMAIN VARIABLES IN ADOLESCENT MODEL

Life Domain	Indicator	Measurement
School		
	Poor Academic Performance	
		Participant's grades- Additive index of four separate indicators [range of scores from four (all A's during the most recent grading cycle) to 16 (all D's or lower during the most recent grading cycle)]
		Repeat/held back a grade- Dichotomous (0= no; 1= yes)
	Negative Bonding to School	
		Skipped school without an excuse; Received an out-of-school suspension; Expelled from school; Carried a weapon at school- Dichotomous (0= no; 1= yes)
		Trouble getting along with teachers; Trouble getting along with other students- Five-point Likert scale (0= never; 4= every day)
		Feel close to people at school; Feel a part of school; Happy at school- Five-point Likert scale (1= strongly agree; 5= strongly disagree)
		Teachers care about participant- Five-point Likert scale (1= very much; 5= not at all)
	Negative Treatment by Teachers	
		Teachers treat students fairly- Five-point Likert scale (1= strongly agree; 5= strongly disagree)
	Low Educational/ Occupational Goals	
		Participant wants to go to college; Likelihood of college for participant- Five-point Likert scale (1= high; 5= low)
		Chances to live to 35- Five-point Likert scale (1= almost certain; 5= no chance)
		Chances killed by 21- Five-point Likert scale (1= no chance; 5= almost certain)

APPENDIX E

PEER DOMAIN VARIABLES IN ADOLESCENT MODEL

Life Domain	Indicator	Measurement
Peer		
	Association with Delinquent Peers	
		Friends drink alcohol; Friends use marijuana- Four-point Likert scale (0= no friends; 3= all three friends) *Partake in group fight with friends*- Four-point Likert scale (0= none; 3= five or more times)
	Gang Membership	
		Gang initiation- Dichotomous (0= no; 1=yes)
	Much Time in Unstructured/ Unsupervised Activities with Peers	
		Just hang out with friends- Four-point Likert scale (0= not at all; 3= 5 or more times)
	Criminal Victimization	
		Knife or gun pulled on participant; Someone shot participant will be coded; Someone stabbed participant; Participant was jumped- Three-point Likert scale (0= never; 2= more than once)

APPENDIX F

SELF DOMAIN VARIABLES IN ADULT MODEL

Life Domain	Indicator	Measurement
Self		
	Impulsivity	
		Live life without thought of future- Five-point Likert scale (1= strongly disagree; 5= strongly agree) *Do thing based on feelings at that moment; Lose control when excited; Follow instincts with not thought of the* details- Five-point Likert scale (1= not true; 5= very true) *Carefulness*- Four-point Likert scale (1= very careful; 4= not at all careful) *Self-centeredness*- Four-point Likert scale (1= not at all self-centered; 4= very self-centered) *Gambling cause's problems*- Dichotomous (0= no; 1= yes) *Optimistic about future*- Five-point Likert scale (1= strongly agree; 5= strongly disagree)
	High Activity Levels	
		Active exercise- Additive index of seven separate indicators [range of scores from zero (participant does not actively exercise) to twenty-seven (participant actively exercises continually)] *Vigorous physical activity*- Dichotomous (0= no; 1= yes) *Relaxed most of the time*- Five-point Likert scale (1= strongly agree; 5= strongly disagree)
	Attention Deficit	
		Trouble keeping mind focused will be coded- Four-point Likert scale (0= never or rarely; 3= most of the time or all of the time) *Attention shifts frequently*- Five-point Likert scale (1= not true; 5= very true) *Interviewee appeared bored or impatient*- Dichotomous (0= no; 1= yes) *Forget to put things back in the right place*- Five-point Likert scale (1= strongly disagree; 5= strongly agree)
	Sensation Seeking	
		Like to take risks- Five-point Likert scale (1= strongly disagree; 5= strongly agree)

Life Domain	Indicator	Measurement
		Try new things for thrills; Boredom leads to excitement seeking- Five-point Likert scale (1= not true; 5= very true)
	Irritability	*Bothered by things that usually do not*- Four-point Likert scale (0= never or rarely; 3= most of the time or all of the time) *Like when no rules/regulations*- Five-point Likert scale (1= not true; 5= very true) *Attractiveness of the interviewee's personality*- Five-point Likert scale (1= very attractive; 5= very unattractive) *Frequent mood swings; Anger easily; Upset easily; Lose temper*- Five-point Likert scale (1= strongly disagree; 5= strongly agree) *Not easily bothered by things; Rarely get irritated; Like order; Keep cool*- Five-point Likert scale (1= strongly agree; 5= strongly disagree)
	Insensitivity to Others/Low Empathy	*Consideration*- Four-point Likert scale (1= very considerate; 4= not at all considerate) *Sympathize with others' feelings; Feel other's emotions*- Five-point Likert scale (1= strongly agree; 5= strongly disagree) *Not interested in other people's problems; Not interested in others*- Five-point Likert scale (1= strongly disagree; 5= strongly agree)
	Poor Social- and Problem-Solving Skills	*Avoid confronting problems; Going with gut without think of alternatives* - Five-point Likert scale (1= strongly disagree; 5= strongly agree)

APPENDIX G

FAMILY DOMAIN VARIABLES IN ADULT MODEL

Life Domain	Indicator	Measurement
Family		
	Negative Bonding Between Parent and Child	
		Enjoy doing things with parents- Additive index of four separate indicators [range of scores from one (strongly enjoy doing things with parents) to eleven (strongly hate doing things with parents)]
		Parents are warm/loving- Additive index of four separate indicators [range of scores from one (parents are extremely warm/loving) to eleven (parents are not at all warm/loving)]
		Close to parents- Additive index of four separate indicators [range of scores from one (extremely close to parents) to ten (not close at all to parents)]
	Family Conflict	
		Run away from home; Ordered out of parent's home; *Partner has threated/used violence against participant; Partner has struck participant; Partner has injured participant; Partner has raped participant*- Dichotomous (0= no; 1= yes)
	Unmarried (For Adults)	
		Marriage- Dichotomous (0= yes; 1= no)
	Negative Bonding with Spouse/Partner	
		Enjoy doing ordinary things with partner or spouse; Satisfied with problem resolution with partner or spouse; Satisfied with handling of finances with partner or spouse; Partner listens; Partner expresses love/affection; Satisfied with sex life; Partner faithfulness- Five-point Likert scale (1= strongly agree; 5= strongly disagree)
		Satisfied with current relationship- Five-point Likert scale (1= very happy; 5= not too happy)
	Weak Bonding With Children	
		Happy in role as parent; Close to kids- Five-point Likert scale (1= strongly agree; 5= strongly disagree)

APPENDIX H

SCHOOL DOMAIN VARIABLES IN ADULT MODEL

Life Domain	Indicator	Measurement
School		
	Negative Bonding to School	
		Expelled from school- Dichotomous (0= no; 1= yes)
	Low Educational/ Occupational Goals	
		Chances to live to 35; Chances to have a middle-class income by 30- Five-point Likert scale (1= almost certain; 5= no chance)
	Limited education	
		Limited education- Four-point Likert scale (0= completed post-secondary education; 3= below a high school education)

APPENDIX I

PEER DOMAIN VARIABLES IN ADULT MODEL

Life Domain	Indicator	Measurement
Peer		
	Association with Delinquent Peers	
		Partake in group fight with friends- Four-point Likert scale (0= none; 3= five or more times)
	Gang Membership	
		Gang initiation- Dichotomous (0= no; 1=yes)
	Much Time in Unstructured/ Unsupervised Activities with Peers	
		Just hang out with friends- Four-point Likert scale (0= not at all; 3= 5 or more times)
	Criminal Victimization	
		Knife pulled on participant; Gun pulled on participant; Someone shot participant; Someone stabbed participant; Participant beaten up, but nothing stolen; Participant beaten up with something stolen- Dichotomous (0=no; 1= yes)

APPENDIX J

WORK DOMAIN VARIABLES IN ADULT MODEL

Life Domain	Indicator	Measurement
Work		
	Unemployment	
		Currently unemployed- Dichotomous (0= no; 1= yes)
	Work in 'Secondary Labor Market'	
		Constant turnover; Participation in the 'secondary labor market'; Part-time employment- Dichotomous (0= no; 1= yes) *Health insurance; Retirement benefits; Paid vacation or sick leave*- Dichotomous (0= yes; 1= no) *Job autonomy*- Four-point Likert scale (0= all or almost all of the time; 3= none or almost none of the time) *Repetitious job tasks*- Four-point Likert scale (0= none or almost none of the time; 3= all or almost all of the time) *Job satisfaction*- Five-point Likert scale (1= extremely satisfied; 5= extremely dissatisfied)

APPENDIX K

DEPENDENT VARIABLES

Time Juncture	Variable Grouping	Measurement
Adolescent		
	Violent Offending	
		Serious physical fight; Hurt someone bad in a fight; Hurt someone in a physical fight; Threaten weapon to rob someone; Used a weapon in a fight; Pulled a knife of gun on someone; Shot or stabbed someone- Dichotomous (0= no; 1= yes)
	Property Offending	
		Graffiti; Deliberate property damage; Shoplifting; Grand theft auto; DUI; Steal something more than $50; Breaking and entering; Selling drugs; Steal something less than $50; Public disorder- Dichotomous (0= no; 1= yes)
	Drug Offending	
		Cigarette usage; Chew or snuff usage; Alcohol usage; Marijuana usage; Cocaine usage; Inhalant usage; Other illegal drug usage- Dichotomous (0= no; 1= yes)
Adult		
	Violent Offending	
		Threatened or used violence against partner; Slapped or kicked partner; Fought partner with injuries; Threaten weapon to rob someone; Serious physical fight; Hurt someone bad in a fight; Pulled a knife of gun on someone; Shot or stabbed someone- Dichotomous (0= no; 1= yes)
	Property Offending	
		Prostitution; Deliberate property damage; Steal something more than $50; Breaking and entering; Selling drugs; Steal something less than $50; Interacted with stolen property; Use stolen card; Bad check- Dichotomous (0= no; 1= yes)

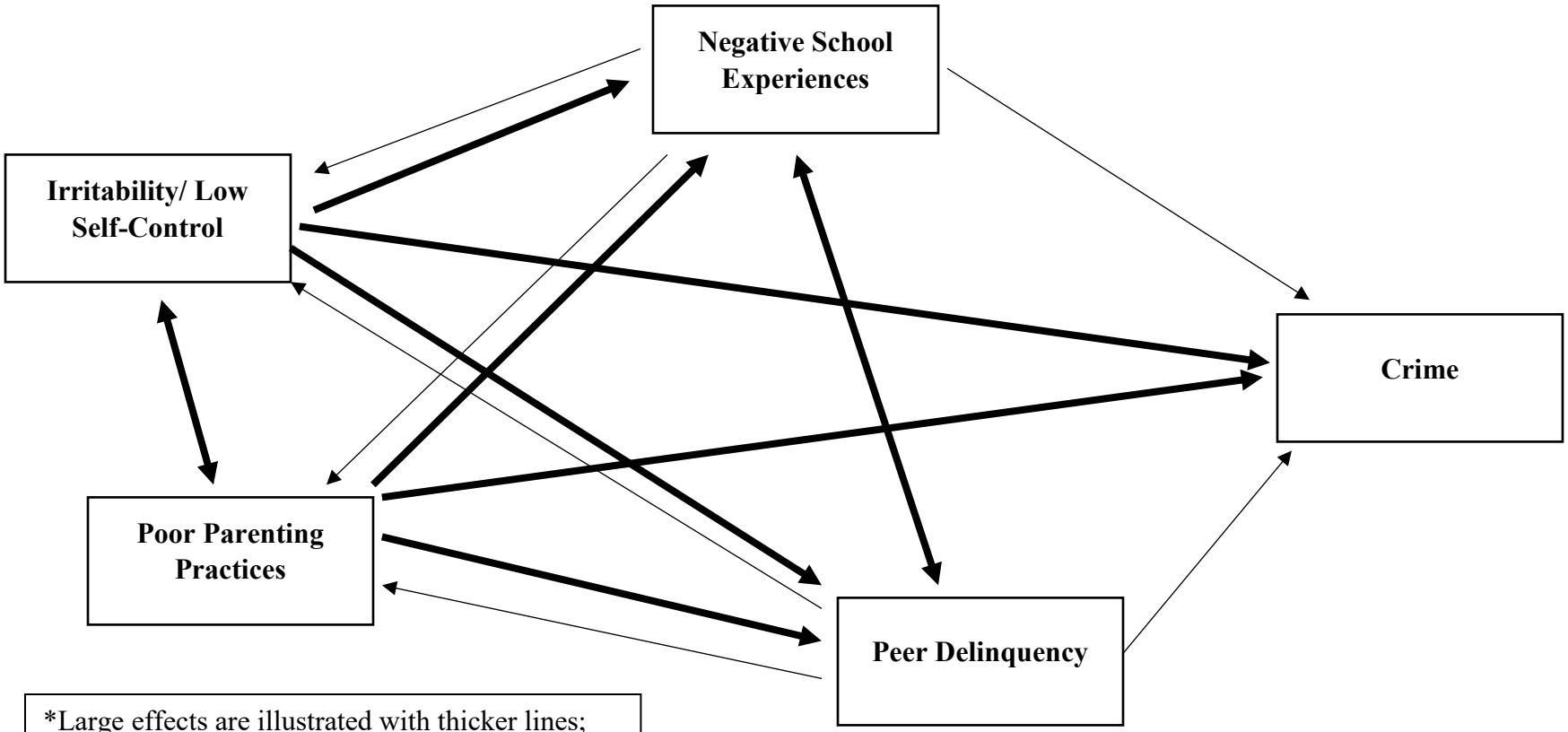
APPENDIX L

CONTROL VARIABLES

Life Juncture	Variable Grouping	Measurement
Adolescent		
	Control	
		Sex- Dichotomous (1= female; 2= male) *Hispanic or Latino origin; Participant lives in an urban area*- Dichotomous (0= no; 1= yes) *Interviewer marks participant race*- Five-point Likert scale (1= white; 2= black or African-American; 3= American Indian or Native American; 4= Asian or Pacific Islander; 5= any other racial category) *Parent's receive public assistance*- Additive index of two separate indicators [range of scores from 0 (parents receive no public assistance) to 2 (parents receive public assistance)] *Community SES*- Additive index of two separate indicators [range of scores from one (very high perceived community SES) to eight (very low perceived community SES)]
Adult		
	Control	
		Sex- Dichotomous (1= female; 2= male) *Age*- Continuous (ranged from 18 to 28 years of age) *Hispanic or Latino origin*- Dichotomous (0= no; 1= yes) *Interviewer marks participant race*- Five-point Likert scale (1= white; 2= black or African-American; 3= American Indian or Native American; 4= Asian or Pacific Islander; 5= any other racial category)

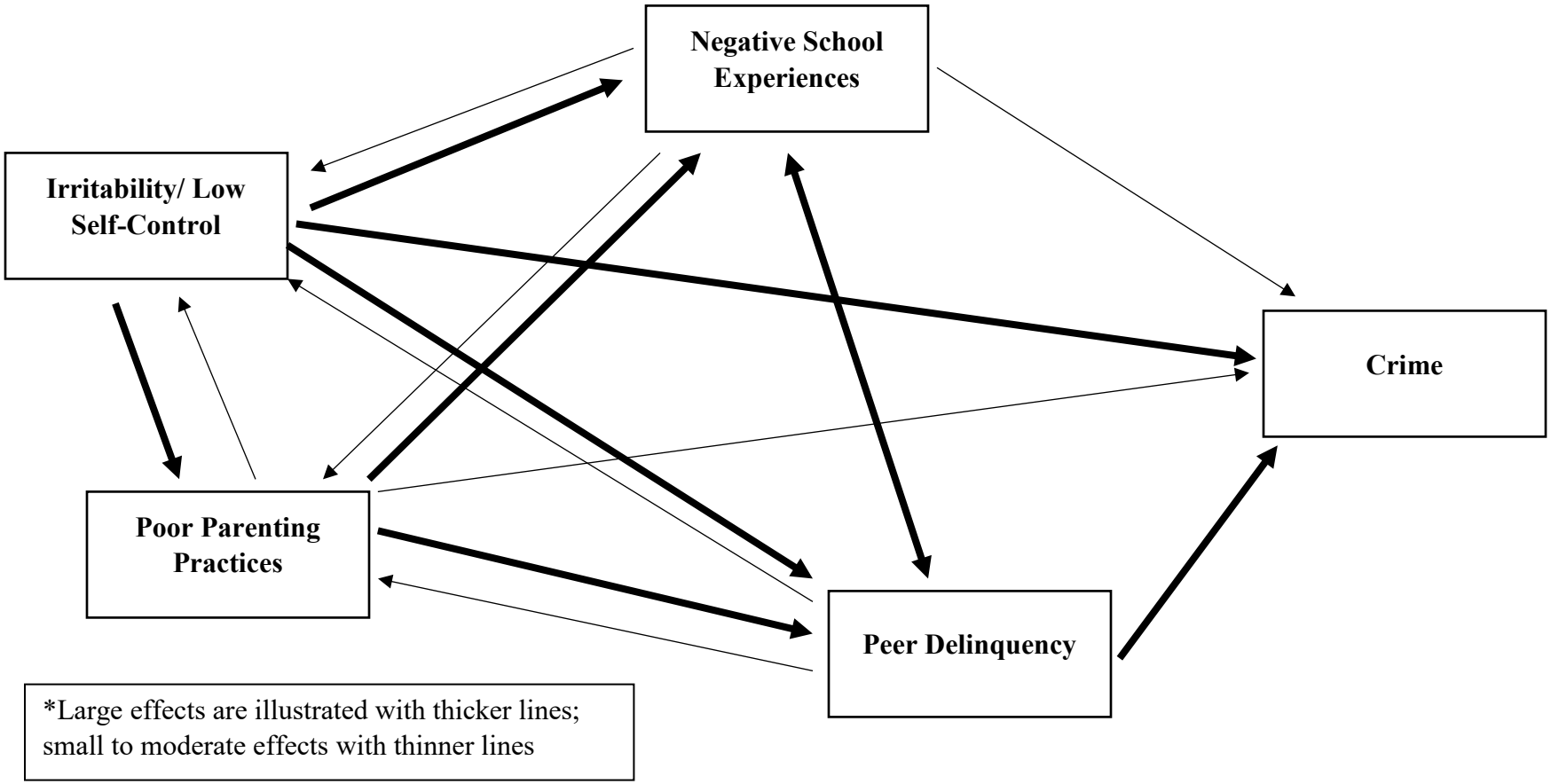
APPENDIX M

THE EFFECTS OF THE LIFE DOMAINS ON ONE ANOTHER AND ON CRIME DURING CHILDHOOD


Negative School Experiences
Irritability/ Low Self-Control
Crime
Poor Parenting Practices
Peer Delinquency
*Large effects are illustrated with thicker lines; small to moderate effects with thinner lines

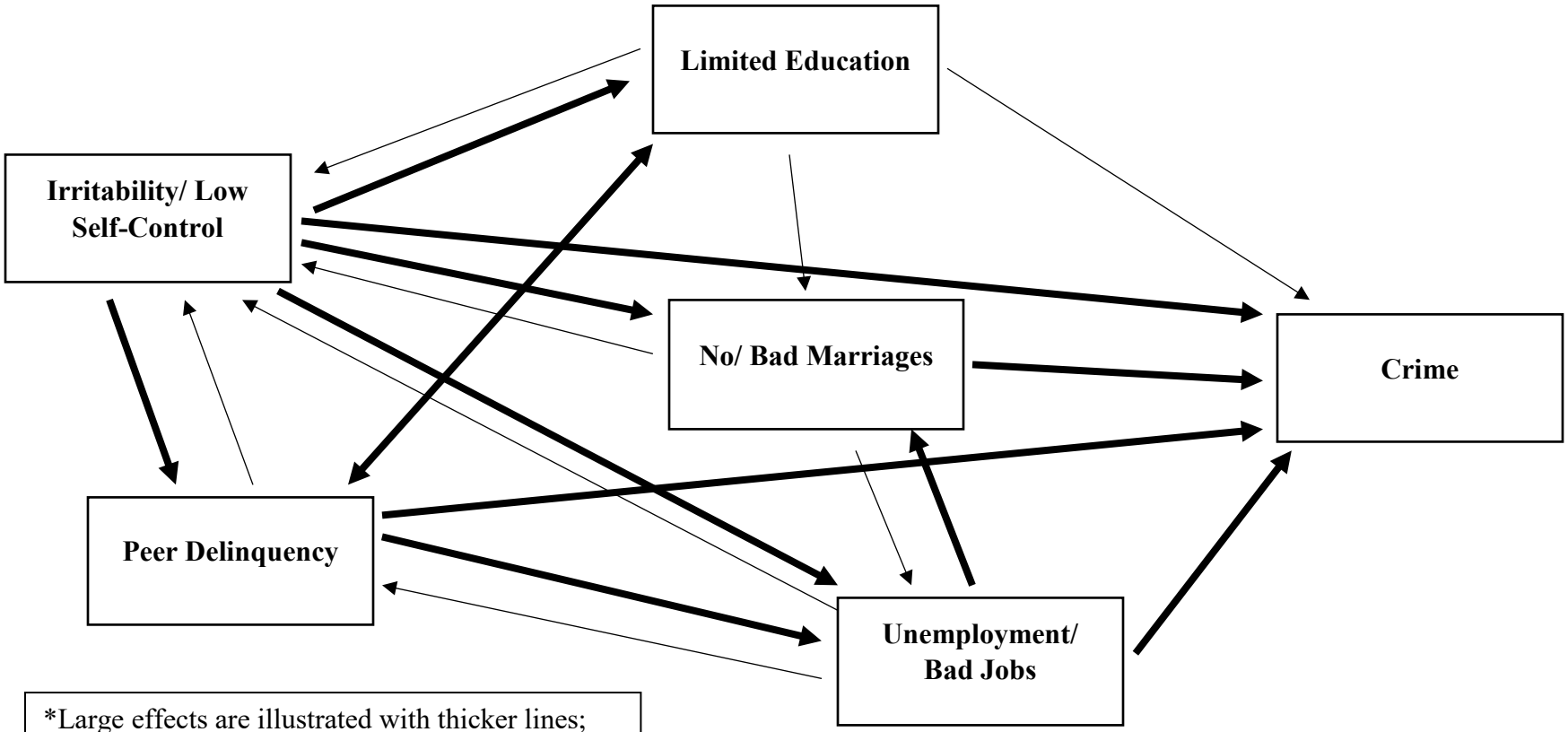
APPENDIX N

THE EFFECTS OF THE LIFE DOMAINS ON ONE ANOTHER AND ON CRIME DURING ADOLESCENCE


Negative School Experiences
Irritability/ Low Self-Control
Crime
Poor Parenting Practices
Peer Delinquency
*Large effects are illustrated with thicker lines; small to moderate effects with thinner lines

APPENDIX O

THE EFFECTS OF THE LIFE DOMAINS ON ONE ANOTHER AND ON CRIME DURING ADULTHOOD


Limited Education
Irritability/ Low Self-Control
No/ Bad Marriages
Crime
Peer Delinquency
Unemployment/ Bad Jobs
*Large effects are illustrated with thicker lines; small to moderate effects with thinner lines