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Developmental Assets and Outcomes: An Analysis of Male Serious Juvenile Offenders to Promote Evidence Based Approaches for Rehabilitation

Danielle Jordan Nesi
Loyola University Chicago

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DEVELOPMENTAL ASSETS AND OUTCOMES:

AN ANALYSIS OF MALE SERIOUS JUVENILE OFFENDERS TO PROMOTE EVIDENCE

BASED APPROACHES FOR REHABILITATION

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DANIELLE J. NESI

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To my mom and dad.

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ABSTRACT

Positive youth development is an approach that seeks to enhance and promote young people's developmental progress. Although there has been a shift toward asset building in rehabilitation of delinquent youth, research on positive youth development has historically focused on children at risk of adverse outcomes, rather than those who are already engaged in criminal behavior. Without knowledge about the distribution of assets among delinquent youth and the relations of these assets to outcomes later in life, it is unclear if interventions based on research of developmental assets among at-risk youth are appropriate for justice-involved youth. The 40 Developmental Assets (Search Institute, 1997; 2007) provides a comprehensive list of protective factors that can be used to identify the presence of positive assets among youthful offenders. The current study uses archival data from the Pathways to Desistance Study (Mulvey, n.d.) to explore the presence of developmental assets among a population of 420 male serious juvenile offenders in Philadelphia, Pennsylvania. Structural equation modeling techniques were utilized to evaluate the impact of individual developmental assets on four critical outcomes: participation in high risk behaviors, future offending, employment and interpersonal relationships. Overall, findings suggest that developmental assets operate as both protective factors and risk factors among juvenile offenders, suggesting that previous work on protective factors and the initiation of delinquency should not be generalized to delinquent youth. Findings from the current study suggest that many developmental assets that demonstrated a protective effect on outcomes among other youth populations were also found to be protective for the current sample; however, certain developmental assets, namely family-related assets and school-

related assets, may actually serve as risk factors among serious juvenile offenders. Additional research is needed to identify the mechanisms that cause family and school-related assets to be positively related to negative outcomes among this population.

INTRODUCTION

Positive youth development is an approach that seeks to enhance and promote young people's developmental progress. Historically, research on positive youth development has focused on children at risk of adverse outcomes, rather than those children who have already committed a crime and have entered the juvenile justice system. More recently, however, researchers and other stakeholders have advocated for a reformation of the juvenile justice system to adopt a positive youth development approach (Frabutt, Di Luca, & Graves, 2008; Butts, Mayer, & Ruth, 2005). As noted by Butts and colleagues (2005), the movement away from a deficits-based perspective of juvenile justice can be attributed to numerous factors, including an emergent body of work on resiliency, ushered by Michael Rutter, which emphasized the potential for youth to thrive even when exposed to adverse conditions and experiences. Further propelling this shift was growing dissatisfaction with the deficit-based approach that stemmed from the high rates of recidivism among juvenile offenders in correctional programs in conjunction with research demonstrating that the majority of pre-existing rehabilitation efforts were ineffective (e.g., Lipton, Martinson, & Wilks, 1975). The perceived failure of the former system and emerging information on adolescence as a period in which youth are still highly susceptible to external influences and have the capacity for resilience paved the way for an infusion of positive youth development within the juvenile justice system.

Identifying young people's protective factors, or developmental assets, is one initial step of incorporating positive youth development and evidenced-based interventions in the juvenille justice system. The 40 Developmental Assets (Search Institute, 1997; 2007) is a comprehensive list of developmental assets that have been found to be associated with thriving and positive outcomes among children and adolescents. It can be a tool to identify positive assets of youthful offenders that can be targeted to reduce recidivism and promote positive outcomes among these youth.

The current study is an investigation of the 40 Developmental Assets (Search Institute, 1997; 2007) in a population of male serious juvenile offenders. It involves secondary data analysis of a longitudinal archive (Mulvey, n.d). The longitudinal study tracked youth for seven years following adjudication (youth tried in the juvenile system) or decertification hearing or arraignment (youth tried in the adult system). The data from this study permits the study of how individual developmental assets relate to the outcomes of these youthful offenders at their final follow-up seven years later. Specifically, we predicted that the relative impact of these forty assets would vary, such that certain asset items would exert greater influence on the outcomes of these youth than others.

Overall, the goal of this study was to provide enhanced knowledge about the relations between developmental assets and outcomes among juvenile offenders in order to identify how specific developmental assets may facilitate positive outcomes among this population. Findings may be used to inform evidence-based interventions that can incorporate strengths-based approaches that foster key developmental assets among juvenile offenders in order to promote positive outcomes among this population. Focusing intervention efforts to address developmental assets found to have the largest impact on outcomes among serious juvenile offenders could have

profound implications. The work could ultimately benefit youth and their families as well as for broader society by enhancing public safety and maximizing resources provided to this population in intervention efforts and treatment programming.

BACKGROUND – APPROACH TO JUVENILE DELINQUENCY/JUVENILE OFFENDERS

During most of the 20th century, state sentencing policies were generally offender-oriented and based on a rehabilitative model of individualized sentencing (Listenbee, 2014). However, beginning in the 1960s, rising crime rates in the United States resulted in a change from a treatment-based model to one that was increasingly punitive. The change toward a more punitive philosophy for addressing offenders in the criminal justice system filtered down to the juvenile justice system. This shift coincided with an increase in the number of homicides committed by adolescents in the late 1980s and early 1990s which caused alarm among both the public and policy makers (Listenbee, 2014) and resulted in major changes in the institutional response to juvenile offending. By the end of the 1990s, all states had passed legislation to make their juvenile justice systems more punitive and consequently, more juveniles were processed in the adult system and sent to adult facilities (Listenbee, 2014).

Juvenile delinquency appears to be in decline following a peak in the early 1990s, as evidenced by lower rates of juvenile arrests (OJJDP, n.d.) and number of delinquency cases processed in courts (Hockenberry & Puzzanchera, 2014). Despite this decline, juvenile crime is still a significant issue that warrants further attention. In 2014, U.S. law enforcement agencies made over one million arrests of individuals under 18 years of age (U.S. Department of Justice, n.d.) and youth crime still makes up a considerable amount of the total number of crimes perpetrated in the United States. In 2008, youths accounted for 16% of arrests for violent crime and 26% of all arrests for property crimes (Puzzanchera, 2009). In the U.S. alone, it is estimated that the costs of crimes committed by young males (between seven and 17 years of age) are

between 89 and 110 million dollars annually (Welsh, Loeber, Stevens, Stouthamer, Loeber, Cohen, & Farrington, 2008). Others have emphasized the need to study juvenile offending due to the fact that many adults begin their criminal careers as youth (Farrington, 1992).

Concern regarding juvenile crime and its impact has led to research on young people who have come into contact with the justice system, both as perpetrators and as victims. This body of literature has found that youthful offenders have high levels of risk factors. Compared to their non-offending peers, youthful offenders have greater psychosocial (Carswell, Maughan, Davis, Davenport, & Goffard, 2004; Chitsabesan, & Bailey, 2006) and mental health problems (Carswell et al., 2004; Chitsabesan & Bailey, 2006; Chisabesan et al., 2006; Fergusson, Lynskey, & Horwood, 1996; Kroll et al., 2002; Teplin et al., 2002). Youthful offenders also have lower levels of intellectual functioning and a higher incidence of learning disabilities as compared to non-offending youth (Chitsabesan & Bailey, 2006; Katsiyannis, Ryan, Zhang, & Spann, 2008). Together, these factors are broadly considered to be risk factors, which can be understood as both individual and situational factors that contribute to the likelihood that an individual will engage in criminal behavior (Fougere & Daffern, 2011).

Though young offenders as a group have extremely high levels of risk factors, the trajectories among youthful offenders are not homogenous and there is widespread acceptance of the idea that not all delinquent youth continue to offend into adulthood. A considerable body of empirical evidence has accumulated from studies that have indicated multiple trajectories among youthful offenders (e.g., Kratzer & Hodgins, 1999; Moffitt, Caspi, Harrington, & Milne, 2002; Stattin & Magnussson, 1991).

Perhaps the most well-known work identifying different trajectories among young offenders was by Moffitt et al. (2002). The authors indicated the existence of two main groups of

offenders – 1) *adolescent-limited offenders* who engaged in normative adolescent delinquent behavior but who cease participation in such behaviors as they approach adulthood, and 2) life-course-persistent offenders who exhibit behavior problems from childhood and who offend from an early age and continue offending throughout adulthood. Evidence that juvenile offenders are at risk for adverse outcomes later in life (Ramchand, Morral, & Becker, 2009) and findings showing the malleability of the adolescent brain (Giedd, 2015) and potential for resiliency and positive outcomes for even at-risk youth (Eccles, Barber, Stone, & Hunt, 2003; Heinze, 2013; Scales, Benson, & Mannes, 2006) highlight the need to examine these trajectories and identify evidenced-based practices for prevention and intervention efforts.

Despite work identifying the different trajectories of youthful offenders, one gap in the literature of research on this group lies in the qualities of young offenders and their environments that assist them in desisting from delinquent and criminal behavior. In their work, Moffit and colleagues (2002) suggest that adolescent-limited offenders mature against a background of relatively normal socializations, however, the specific factors that contribute to desistance and the processes through which young offenders cease engaging in delinquency is less established. In many ways, elucidating the processes and factors that enable youth to desist from criminal behaviors may be even more important than identifying those who are likely to reoffend, a specific individual's level of risk, or the factors that contribute to delinquency. For this reason, researchers and other commentators have stressed that what we need to know is how adolescents involved in the juvenile justice system get out of trouble, or how they desist from antisocial activities (Farrington, Ohlin, & Wilson, 1986; Loeber & LeBlanc, 1990). As noted by Mulvey and colleagues (2004), it would be valuable for courts and social service systems to know what

propels serious adolescents towards productive lifestyles, as it is the goal of these systems to

support and promote such positive influences (Uggen & Piliavin, 1998).

MOVEMENT TOWARDS A FOCUS ON PROTECTIVE FACTORS AMONG JUVENILE

OFFENDERS

Recently, there has been a trend both among researchers and clinicians to look beyond

risk factors and consider the potential relevance of individual strengths that may assist offenders

from desisting from future criminal behavior (Carr & Vandiver, 2001; Lodewijks, de Ruiter, &

Doreleijers, 2010). Protective factors can be thought of as those aspects of an individual, and/or

their situation or environmental context, that contribute to a decreased likelihood of criminal

behavior by having a direct effect on problem behaviors or by modifying the relationship

between risk factors and criminal behavior (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin,

1995).

The benefits of studying protective factors among juvenile offenders are numerous. For

one, understanding the relationship between protective factors and criminal behavior can be used

in the development and application of tools to guide clinical interventions for juvenile offenders.

In addition, research has also shown the significance of protective factors in relation to violence

risk assessments (Carr & Vandiver, 2001). For example, an archival study of risk and protective

factors in young offenders in the United States demonstrated that protective factors including

personal characteristics (e.g., high self-esteem and good temperament), family conditions (e.g.,

structured home environment, parental support), presence of positive adult role models, interest

in school and prosocial peers, and hobbies and activities, significantly distinguished non-repeat

offenders from repeat offenders (Carr & Vandiver, 2001). The same study found that the

summed score of risk factors failed to distinguish between non-repeat and repeat offenders. These findings demonstrate the utility of protective factors in assessing juveniles' risk of reoffending. They also demonstrate the idea that protective factors provide an enhanced understanding of juvenile offenders that exceeds our understanding if only risk factors are considered.

To this end, research has culminated in an explication of various protective factors and has led to the development of risk assessment instruments that incorporate protective factors in addition to risk factors, such as the Short-Term Assessment of Risk and Treatability (START; Webster, 2006) and the Structured Assessment of Protective Factors for Violence Risk (SAPROF; de Vogel, de Ruiter, Bouman, & de Vries Robbé, 2009). Both instruments are used to appraise risk in adult offenders. The Structure Assessment of Violence Risk in Youth (SAVRY; Borum et al, 2000) is used to assess risk of violence among youthful offenders. The movement towards an increased focus on protective factors also can be attributed to the fact that the prior response to juvenile offending that focused on juveniles' deficits and a harsh response has been shown to be ineffective, or potentially harmful. Evidence suggests that institutionalization may be an especialy poor response to juvenile delinquency, as institutionalized delinquent youth are at-risk for developing negative consequences later in life, including low educational attainment and early parenthood (Giordano, Cernkovich, & Lowry, 2004; Lanctôt, 2005; Sampson & Laub, 1995) as well as other individual level negative outcomes such as poor mental health and difficulty gaining employment (Holman & Zeidenberg, 2006). Moreover, it appears that detaining low-risk individuals may actually increase antisocial behavior as increases in violent behavior and subsequent law violations have been cited as results of detaining low-risk juveniles (Mendel, 2008; Tonry, 2007).

Other punitive methods such as shock incarceration interventions have also failed to demonstrate efficacy in reducing juvenile crime. The intention of these programs, of which Scared Straight may be the most known example, was to bring juvenile offenders into adult prisons and "scare out" their delinquency through threats, bullying and intimidation by inmates (Drake, Aos, & Miller, 2009; Greenwood, 2006; Howell, 2003).

The move away from of the deficits-based, punishment-focused model gained momentum as studies began to evaluate the features of successful intervention programs. As noted by Henggeler and Schoenwald (2011), decades of correlation, longitudinal and experimental research has built a strong foundation for a multi-determined ecological conceptualization of juvenile offending. Comprehensive reviews have summarized findings that support a relatively consistent list of risk factors for antisocial behavior including individual, family, peer, and neighborhood-related factors (e.g., Howell, 2003; Liberman, 2008; Loeber, Burke & Pardini, 2009). Evidence-based treatments take advantage of this research, focusing their interventions on key aspects of individual youth's social ecology. In contrast to punishing youth to scare them from further criminal behavior, these interventions focus on mitigating risk factors.

Finally, growing understanding of the malleability of the adolescent brain has also contributed to an increased focus on exploring the role of protective factors among juvenile offenders. In line with positive youth development literature, there is growing evidence that youth trajectories are not fixed and that even the most at-risk youth can benefit from exposure to protective factors. Together, this work stresses that adolescence is a key period in which juvenile offenders may benefit from treatment programs that target and build upon strengths. There is a growing realization that punitive efforts do not work, while efforts to reduce risk factors and

enhance protective factors are more effective strategies in reducing juvenile crime. We can expect, as a result, a continued desire to explore protective factors in this population.

PREVIOUS WORK ON PROTECTIVE FACTORS AND JUVENILE OFFENDERS

In recent years, there is general consensus of the importance of protective factors as it is thought that neglecting them may contribute to inaccuracies in predications of violent reoffending (Rodgers, 2000). Also, identifying the relationship between protective factors and recidivism is important for the design of interventions that enhance protective factors (Lodewijks et al., 2010). However, research on protective factors has not kept pace with these changing attitudes; only a few empirical studies have focused on desistance from violence and on factors that predict desistance (Hussong, Curran, Moffitt, Caspi, & Carrig, 2004; Laub & Sampson, 2001; Masten, Burt, Roisman, Obradovic, Long & Tellegen, 2004; Stouthamer-Loeber, Loeber, Stallings, & Lacourse, 2008). Identifying the protective factors related to violent reoffending has been posed as the challenge for the next decade of research in risk assessment (Farrington, 2003; 2007).

One general line of work sought to explore the prevalence of protective factors among justice involved youth. For example, Chew, Osseck, Raygor, Eldridge-Houser and Cox (2010) explored the presence of developmental assets in a population of youth who were moved to a juvenile justice facility. In their work, Chew and colleagues found that these youths in general lacked protective factors and demonstrated low levels of positive peer or parental support as well as low levels of service to others and involvement in religious groups or activities. Though this work provides some information about the presence of developmental assets among justice system-involved youth, it did not assess how these factors are related to future outcomes

Another line of study has focused on the relationship between protective factors and desistance from delinquency. In their 2001 study, Carr and Vandiver explored the relationship between risk and protective factors and recidivism among a sample of young offenders aged 11 to 17. In this study, Carr and Vandiver found that protective factors including personal, familial, social and academic factors, did discriminate between non-repeat offenders and repeat offenders, and thus, they concluded that protective factors did play an important role in decreasing recidivism among young offenders. Specifically, they found that non-repeat offenders had higher numbers of protective factors (i.e., more individual protective factors). Non-repeat offenders also had higher mean scores than their counterparts with specific protective factors, such as personal characteristics, familial conditions, and peer selection.

Although the study by Carr and Vandiver (2001) was useful in that it provided evidence demonstrating the importance of protective factors in regards to recidivism, there were several limitations of their study. For one, protective factors were only considered as binary, such that they were only scored as being absent or present. This methodology is questionable as it seems likely that there is a range in the level at which an individual youth experiences a particular protective factor. By quantifying protective factors as binary variables, it seems likely that those who do experience protective factors to a lesser extent will likely be coded as not having them at all. Therefore, using a binary coding scheme may artificially minimize the existence of protective factors among youth who do experience protective factor, but to a lesser degree.

Coding protective factors as binary is also not an optimal approach to evaluate protective factors, particularly among youthful offenders, as these are individuals who by their very nature are among the highest risk youth and therefore will endorse fewer protective factors and a smaller range of protective factors than would be observed among youth populations. Thus, what

matters more in evaluating these youth is the subtle differences of their experience with protective factors. A binary coding scheme inherently prohibits the evaluation of these differences and consequently is not an ideal approach to evaluating protective factors among juvenile offenders.

Another limitation of the Carr and Vandiver (2001) study was that it included juvenile offenders with a broad range of offense severity. This is problematic as it is likely that youth who engaged in serious offending would be likely to have different rates of recidivism than youth who participated in low level offenses. Many of the youth in this study who were charged with minor offenses such as "mischief" or "trespass" were likely to desist from reoffending, particularly as it could be argued that some of these low level offenders had never engaged in true delinquency in the first place.

In addition, it is also possible, if not likely, that the low level offenders had higher levels of protective assets among the participants surveyed. Thus, it is difficult to ascertain from this study whether or not it was the protective assets that caused these offenders to stop engaging in delinquent behaviors or if the level of protective assets contributed directly to individuals' offense severity, which was indicative of their likelihood of reoffending. It seems that it would be more useful to evaluate the impact of protective assets and outcomes among different types of juvenile offenders engaged in minor forms of delinquency and those involved in more serious criminal behaviors separately, as it seems that these offenders would likely have different trajectories for continued or desisted criminal behavior and would also be impacted differently from the presence of protective factors.

Finally, another important limitation to the Carr and Vandiver (2001) study relates to the age at which recidivism was evaluated. Although the study was longitudinal, which is important

in evaluating the impact of early protective (or risk) factors on outcomes among juvenile offenders, recidivism was evaluated only four years later. As noted by Mulvey and colleagues (2004), a crucial component of longitudinal studies that seek to explore desistance from crime is to follow individuals until they have passed the chronological age at which a large number would be expected to have desisted from criminal activity (p. 220). In the present study, youth were followed for four years at which point participants would be between 15 and 21 years of age. One of the most consistent findings across studies of offending is the age-crime curve (Farrington, 1986; Tremblay & Nagin, 2005), which dictates that there is a sharp incline in offending behavior during early adolescence which peaks during the mid and late teenage years (around ages 15 to 19), and then declines from the early 20s. Therefore, in Carr and Vandiver's (2001) study, all of the participants, particularly the younger participants, were still in what can be thought of as the peak period of juvenile offending. By evaluating participants' recidivism at this age, Carr and Vandiver's evaluation was premature and it is probable that they falsely identified individuals as repeat offenders when these individuals would have been non-repeat offenders, had they been evaluated when they reached the age at which youth typically begin desisting from criminal behavior.

Another study by Lodewijks, de Ruiter, and Doreleijers (2010) explored the impact of protective factors on recidivism from violent reoffending among adolescents in different stages of the judicial process (i.e., pre-trial, during residential treatment, and after release from juvenile justice facility). In this study, protective factors were evaluated using the Structured Assessment of Violence Risk in Youth (SAVRY), which includes evaluation of six groupings of protective factors: prosocial involvement, strong social support, strong attachments and bonds, positive attitudes towards intervention and authority, strong commitment to school or work and lastly,

resilient personality (Borum, Bartel, & Forth, 2002). Overall, Lodewijks and colleagues (2010) found that the inclusion of protective factors did significantly increase the amount of variance explained by dynamic risk factors alone (i.e., social/contextual and individual-level items), stressing the importance of including protective factors in appraising juvenile offenders' risk of reoffending. In addition, the study also found that in medium to high risk subgroups (i.e., youth with higher levels of SAVRY risk factors), the violent reoffending rate was significantly higher when protective factors were absent compared to when protective factors were present.

Protective factors were also found to have a buggering effect on recidivism in two of the three low-risk samples and the failure to observe this effect in one group has been attributed to a low recidivism rate among this sample as compared to other samples. Moreover, when Lodewijks and colleagues explored individual protective factor domains, they found that certain protective factors were predictive of violent of offending. Among all samples, they found that strong social support and strong attachment and bonds were predictive of violent reoffending while strong commitment to school or work and positive attitudes towards intervention and authority were found to be protective among youth currently in residential facilities.

Overall, these findings demonstrate the importance of protective factors in appraising risk among serious juvenile offenders and provide evidence that suggest that protective factors might mitigate the effects of risk factors for serious juvenile offenders. As noted by Lodewijks and colleagues (2010), the findings have direct implications for treatment and intervention programming designed to reduce violent recidivism as both protective and risk factors should be targets of such programs.

Although the studies by Carr and Vandiver (2001) and Lodewijks and colleagues (2010) offer a useful starting point in evaluating the role of protective factors among populations of

serious juvenile offenders, it is clear that more research needs to clarify the potential impact that protective factors can have in encouraging resilience and reducing recidivism among these populations. In the Carr and Vandvier study, they only considered six broad categories of protective factors (i.e., personal characteristic, family conditions, positive adult role models, peer selection, interest in school, activities/hobbies) which were comprised of individual protective factors. For example, positive adult role models was comprised of 1) family member, 2) teacher, coach, counselor, and 3) sports, entertainment, music personality. This methodology fails to account for the other protective factors to which youth may be exposed.

Moreover, by combining individual items to broader constructs, we are unable to evaluate the impact of individual items. This is important as it seems likely that within a broader protective factor construct, particular items will exert a greater influence on outcomes than others. Consequently, this methodology limits the utility of applying these findings to evidence-based intervention to address recidivism, as it is unclear what specific components of broader constructs, such as personal characteristics or positive adult role models, should be addressed.

It must be noted that a significant body of work has evaluated the role of protective factors against offending and violence (see Ttofi, Farrington, Piquero & DeLisi (2016) for a complete review). Overall, these studies have found that protective factors do provide ameliorating benefits to youth and prevent participation in criminal behavior, both among youth generally and among youth who are at-risk of negative outcomes. However, it is important to emphasize the importance of evaluating juvenile offenders as a distinct group.

Differentiating at-risk youth, or those who may be at-risk of engaging in delinquency, from those who already have engaged in delinquency is important as evidence suggests that risk and protective factors may operate differently for these groups. This notion that risk and

protective factors may not have the same impact for youth who are at-risk for delinquent behaviors and those who have already engaged in such behaviors refers to the idea that prevention is different from and distinct from intervention, such that factors that may prevent the initiation of delinquent behaviors may differ from those that are related to the cessation of such activities.

Work by Asscher and colleagues (2014) exploring the relationships between delinquent behavior, relationship quality with parents, and involvement with deviant peers demonstrates that differences exist between delinquent and non-delinquent adolescents. Specifically, Asscher et al. (2014) found that the relations between poor parent-adolescent relationship quality, involvement with deviant peers, and delinquency depended both on the informant (i.e., parent report versus adolescent report) and the sample used (general population or delinquent sample). Moreover, they found that delinquents differed from non-delinquents as the relation between adolescent-reported relationship quality and parent-reported delinquency was only significant among the delinquent sample. The finding that the relationship between one developmental asset (relationship quality) and one outcome measure (parent-reported delinquency) was significant for the delinquent sample and not for the non-delinquent sample highlights that delinquent youth are a distinct group and that the mechanisms between protective factors and outcomes may not be the same for both delinquent and non-delinquent youth. These results emphasize the fact that intervention programs to address delinquent behaviors among adolescents should not rely on empirical findings derived from non-delinquent samples as the results from this study indicate such findings cannot be generalized to convicted juvenile delinquents.

Findings such as those of Asscher and colleagues (2014) emphasize the fact that the pathways to delinquency among the general population (i.e., initial delinquency) may differ from

the pathways to delinquency among juveniles who are already engaging in delinquency behavior (i.e., recidivism). Consequently, it seems clear that developmental assets relevant for preventing delinquency may differ from those that are critical to the desistance of delinquency and the promotion of positive outcomes among youth already engaged in such behaviors. Therefore, exploration of the path from specific developmental asset factors to outcomes later in life among juvenile offenders as a distinct population warrants further study and exploration. This is particularly important in the potential for this information to inform evidence-based intervention treatment programs to help these youths.

THE CURRENT STUDY

To address these gaps in the literature, we conducted an exploratory evaluation of developmental assets among a population of male serious juvenile offenders and the relationship between these assets to outcomes seven years later. Male offenders were chosen as the focus of the study due to the fact that male offenders account for the majority of crimes committed by youth. For example, in 2010, females accounted for less than 30 percent of juvenile arrests (Sickmund & Puzzanchera, (2014).

Furthermore, evidence suggests that young females are distinct from their male counterparts in many ways that make it inappropriate to evaluate them together. Female juvenile offenders typically arrive at delinquency in a pathway that differs from those observed among males. Girls' delinquency is generally precipitated by physical and sexual abuse and troubled family and school relationships (Hubbard & Pratt, 2002) and the families of delinquent girls are more likely to be severely dysfunctional (Calhoun & Jurgens, 1993; Hipwell & Loeber, 2006).

In addition, there is also evidence that what factors are protective against delinquency also vary by gender. For example, evidence has found that being in a stable romantic relationship can be a positive turning point in the lives of young males leading to decreases in criminal behavior, however, the opposite effect has been observed in females (Gorman-Smith, 2003). There is also evidence that the factors related to recidivism among juvenile offenders also differ for males and females (Thompson & Morris, 2013). The significant differences between male

and female juvenile offenders in regards to the factors that cause them to initiate criminal

behavior and desist from such behaviors prohibits the evaluation of protective factors and

outcomes among male and female offenders together in the present study. Again, we have

chosen to initially focus on male offenders in the current study as this group makes up a large

majority of juvenile delinquency. Future studies, however, should explore the relationship

between protective factors and outcomes among female juvenile offenders as female-perpetrated

delinquency is a rapidly growing phenomena (Sickmund & Puzzanchera, 2014).

The intention of this study was to identify the relationship between developmental assets

and outcomes among a sample of male serious juvenile offenders. Moreover, we sought to

identify which developmental asset factors have the largest impact on participants' outcomes and

the relative impact of individual developmental asset factors on outcomes among these youth.

Unlike previous studies which evaluated only the impact of the presence or absence of a

small number of protective factors, we chose to evaluate a comprehensive list of protective

factors and thus utilized the 40 Developmental Assets for Adolescents scale created by the

Search Institute (1997, 2007). Instead of evaluating broad constructs, this study evaluated each of

the protective factors outlined by the Search Institute independently to analyze the impact of

each individual factor on outcomes for juvenile offenders. Developmental assets were evaluated

as continuous variables enabling us to capture the true distribution of these factors among our

sample of serious juvenile offenders.

The current study also extends previous work examining the role of protective factors for

recidivism among serious juvenile offenders by exploring the role of protective factors on

several outcome measures. In addition to considering recidivism, we also considered the role of

protective factors on three other outcomes: high risk behaviors, employment, and interpersonal

relationships. We chose to explore these outcomes as we felt they provided an indication of whether the youth surveyed achieved positive outcomes overall as these factors seemed to encompass broad domains within an individuals' life and therefore give a more complete picture of how an individual is doing than if only one outcome measure is considered.

In addition, these factors were selected as they have demonstrated to be important in regards to successful offender reentry. Connections between employment and crime are well established, such that unemployment has been found to be associated with high arrest rates (Allan & Steffensmeier, 1989). Of particular importance to the current study, evidence has also demonstrated that employment in early adulthood significantly reduces crime following criminal involvement during adolescence (Bernburg & Krohn, 2003).

Similarly, social support has been identified as a critical factor relating to offenders' reentry. Studies have demonstrated that social support is a protective factor against many negative outcomes among serious offenders such as participation in risky behaviors (Sphor, Suzuki, Marshall, Taxman & Walters, 2016), poor mental health (Wallace et al., 2016) as well as poor employment outcomes and recidivism (Berg & Huebner, 2011).

We also chose to evaluate risky behaviors as an outcome in the current study as it provided an indication of the youths' current health, including participation in risky behaviors such as unprotected sex and use of alcohol and other drugs. The costs associated with prolonged participation in high risk behaviors can likely cause need for future interventions subsidized by broader systems, such as local government and communities, including medical treatment for acute and chronic conditions. By exploring the impact of a comprehensive list of developmental assets on a range of outcomes salient for juvenile offenders, this current study will provide valuable information that can be used in designing intervention programs for serious juvenile

offenders. By targeting efforts to enhance and foster levels of the developmental assets that have demonstrated to have the largest impact on positive outcomes for these youth, intervention treatment and programming will maximize both resources allocated to such endeavors and the possibility that such interventions will produce desired results, namely successful reentry and desistance from future criminal behavior.

METHODS

This project is a secondary data analysis of an existing data set (Mulvey, n. d.).

Therefore, the description of the Methods begins with details about the data set, and then turns to

information about the analytic sample and construction of measures. Although the Pathways to

Desistance study involves two sites – Philadelphia, Pennsylvania and Phoenix, Arizona, the

analyses in this study were confined to the Philadelphia, Pennsylvania site, and details are

described for only that site.

Pathways to Desistance Data Set
        Sample. The Pathways to Desistance study recruited a sample of 1,354 adjudicated

adolescents between the ages of 14 and 17 years at the time at which their offenses were

committed. Of the 1,354 participants initially surveyed at the onset of the Pathways to

Desistance study (Mulvey, n.d.) only a subset of these participants completed follow-up

assessments, due to various factors such as participant dropout, death, or the inability to locate

participants. At the 84-month follow-up, the retention rate was 84 percent.

Of these 700 participants were youth in the juvenile and adult court systems in

Philadelphia, Pennsylvania. Participants were selected for potential enrollment after a review of

court files in each location revealed that they had been adjudicated delinquent or found guilty of

a serious offense. Eligible crimes included all felony offenses with the exception of less serious

property crimes, misdemeanor weapons offenses, and misdemeanor sexual assault (Schubert et

al., 2004).

Drug violations represented a significant proportion of the offenses committed by the age group of interest, and males account for the vast majority of those cases (Stahl, 2003). The study elected to cap the proportion of male juveniles with drug offenses to 15% of the sample at each recruitment site (Schubert et al., 2004).

Procedure. In addition to youths' baseline interviews, an adult collateral informant (most typically a parent) was also interviewed at baseline. For youths in the juvenile court system, baseline interviews were conducted within 75 days of their adjudication hearing. For youths in the Philadelphia adult system, the baseline interview was conducted within 90 days of the decertification hearing, at which time it is determined if the case will remain in the adult system or will be sent back to juvenile court.

At baseline, participants completed two types of interviews: "time-point" interviews and "release" interviews. The time-point interview included a standard set of measures that were administered at six-month intervals, beginning six months after the baseline interview and then continuing for the three-year follow-up period. The date for each of the time point interviews was calculated based on the date of the baseline interview, which ensured approximately equal measurement periods for all participants. According to Schubert et al. (2004), the use of equal measurement periods simplified the statistical analyses needed "to assess developmental processes, environmental changes, and their relations to changes in behavior" (pg. 239).

One year following the baseline interview, and at annual intervals after that, additional collateral information was obtained from peers identified by the participants as individuals who knew them well. The shift from a parent or guardian collateral at baseline to a peer informant at follow up was motivated by a desire to capture information about the ongoing behavior of the participant, rather than historical information (Schubert et al, 2004). Moreover, the researchers

also felt that peers would serve as better informants of the behaviors of interest because previous research has found that peers are better able to report on deviant activity than a parent (Chassin, Pitts, & Delucia, 1999; Smith, McCarthy, & Goldman, 1995).

In addition to these baseline "time-point" interviews, "release" interviews were also conducted. Release interviews were completed following any stay at a residential facility (Schubert et al., 2004). The interviews obtained participants' reports of the services they received and their perceptions of the environments experienced while in institutional care (Schubert et al., 2004, p. 240).

Both the baseline and time-point interviews covered six domains: 1) background characteristics, including information about participant demographics, offense history, neurological functioning, personality psychopathology, academic achievement, etc., 2) indicators of individual functioning, including questions about work and school status and performance, substance abuse, mental disorder, and antisocial behavior, 3) psychosocial development and attitudes, including factors such as impulse control, susceptibility to peer influences, perceptions of opportunity and procedural justice, as well as disengagement, 4) family context, including questions about household composition and quality of familial relationships, 5) personal relationships, including questions about quality of romantic and platonic relations, peer delinquency, and contact with caring adults, and lastly 6) community context, including questions about neighborhood conditions, personal capital, social ties, and community involvement. Because of the comprehensive nature and length of the baseline assessment, these interviews were broken down into two 2-hour sessions (Schubert et al., 2004). In addition, follow-up interviews, which were conducted to assess changes during the previous six months in

the domains evaluated during the baseline interview, were conducted in one 2-hour session. (For full description of data collection procedures see Schubert et al., 2004).

Recruitment and Retention of Participants in Pathways Study. As in other longitudinal studies of high-risk populations, the investigators faced the challenge of maintaining research participants involved in repeat testing over an extended period of time as the current study was set to collect data over the course of several years. The issue of retaining research subjects over the course of the study was especially challenging due to the fact that the population of interest was serious adolescent offenders. As noted by Schubert et al. (2004), as is true with other adolescents, this population "selects (and is selected into) a more diverse and often frequently changing set of novel social contexts," such as a change in residence or entrance into and out of correctional facilities, etc., which can be extremely disruptive (p. 244). To address concerns about participant retention, Pathways researchers made significant efforts to address concerns about participant attrition (for complete description of these retention protocols see Schubert et al., 2004).

Participants. The original Pathways study employed data collection at two different sites: Phoenix, AZ and Philadelphia, PA. The Philadelphia sample ($N = 700$) was predominantly comprised of Black (71.7%) youth and also included a small number of Hispanic (15.3%) and Caucasian (10.3%) youth and youth who identified as Other (2.7%).

In addition, the number of female participants was small in the Philadelphia sample, $N = 95$. As discussed previously, despite the rising rates of arrests and convictions for female offenders, it is important to consider female and male offenders (and female and male juvenile offenders) separately due to considerable evidence that demonstrates that female offenders are unique from their male counterparts.

Analytic Sample

For our initial confirmatory factor analysis models evaluating our construct latent developmental asset factors at baseline (i.e., time 1), we had a total of 562 participants. Participants were between 14 and 19 years of age (M =16.13, SD = 1.226). At baseline, 57 participants (10.1%) were Caucasian, 409 (72.8%) were African American, 81 (14.4%) were Hispanic and 15 (2.7%) identified as other.

The smaller sample size at the 84-month follow-up reduced sample size in our SEM models. In total, the final sample for our SEM models were comprised of 420 participants who had complete data on outcome measures assessed at the 84-month follow up, in addition to complete data on developmental asset related variables measured at baseline. At follow up, participants ranged in age from 20 to 26 years (M=23.11, SD=1.277). Of the 420 participants, 48 were Caucasian (11.4%), 297(70.7%) were African American, 64 were Hispanic (15.2%) and 11 (2.6%) identified as other. Overall, we found no significant differences between the baseline and follow-up samples in regards to age (t(980) = .626, p = .532) or ethnic/racial distribution (X^2(3, N = 982) = .627, p = .890).

Measurement of 40 Developmental Assets

The previously collected data were used in order to assess the presence (or absence) of the 40 Developmental Assets (Search Institute, 1997; 2007) among the population of juvenile offenders surveyed in the Pathways to Desistance Study. In their 1998 study, Leffert, Benson, Scales, Sharma, Drake, & Blyth (1998) reported the 40 Developmental Assets (Search Institute, 1997; 2007) as binary variables identifying whether youths either possessed or lacked each of the 40 Developmental Assets (Search Institute, 1997; 2007) (Leffert et al., 1998). Though developmental assets were reported as binary variables (presence/absence), the assets were, in

fact, measured by one or more survey items with a minimum of five Likert-type response options (Leffert et al., 1998, 216).

As explained by Leffert et al. (1998), the decision to report the data in a binary form was due to the researchers' intentional focus on public communication over measurement precision as the primary purpose of the study and to provide communities and their citizens with "an overall snapshot of how youth in their community are fairing developmentally, and what dimensions of adolescents' lives may require community action" (Leffert et al., 1998, p. 216). Again, the purpose of this study was to provide a portrait of the developmental strengths to both professionals and community members and thus, the researchers sought a reporting format that could "clearly communicate the percentage of a community's youth who possess each of many developmental assets, an overall portrait of how many of the assets youth had, and the relation of the number of assets to adolescent behavior" (Leffert et al., 1998, p. 216). Though Leffert and colleagues chose to report the developmental assets as binary variables, they acknowledged that this decision did result in the loss of some information and consequently, the loss of some variability that would otherwise have been captured. Subsequent studies using the 40 Developmental Assets (Search Institute, 1997; 2007) have considered them as both dichotomous and continuous variables.

Some developmental assets were easily accounted for by a single Pathways' questionnaire item (i.e., developmental asset #23 - homework) while other assets could be captured by several items (i.e., developmental asset #14 - adult role models). After extracting all Pathways items that were relevant to developmental asset factors, Pathways were, when necessary, recoded to be analyzed through a robust diagonally weighted least-squares estimation, and so as to retain as large a sample size as possible. Thus, items that were originally categorical

with multiple response options were recoded as dichotomous. For example, Pathway's questionnaire item - scale mom drug problem originally had three response options: 1) No, 2) Yes – drug problem in past and 3) Yes – drug problem currently, was recoded as a dichotomous variable with two response options – 1) no history of drug problems 2) history of drug problems (past or present).

Missing data was also addressed at this stage. In instances when data was missing at random or respondents chose to answer "don't know" or who were coded as missing because they "had too few values for computation," were assigned mean values. In instances when there was missing data for questionnaire items with Likert-scale response options, means were computed and participants with missing data were assigned the response option closest to the obtained mean value. For example, if the mean was 2.05 on a questionnaire with response items with 1) strongly disagree, 2) disagree, 3) neither agree nor disagree 4) agree and 5) strongly agree, participants with missing data were assigned a score of 2) disagree. For items where parents did not answer because they did not skip into that section, they were assigned the lowest possible value for that item. For example, many participants did not skip into the questionnaire section that asked about their experiences in community school (i.e., their participation in extracurricular clubs, athletic teams etc.) because they attended school for less than one month. These individuals were recoded as 0 (i.e., they spent 0 days per week on athletic teams, etc.). We felt this was an ideal way to handle these responses because it enabled us to retain a large sample size. It also captured the true essence of the 40 Developmental Assets (Search Institute, 1997; 2007) items as well focused on whether a protective asset is present for a youth or not. Therefore, the key factor is whether or not a youth was participating in extracurricular activities

and it is not of great significance if they were not participating by choice or because they were not enrolled in school.

After cleaning the data and accounting for missing values, we removed redundant items when possible. For example, the Pathways questionnaire included several items about participation in various extracurricular clubs including study government, athletic teams, and cheerleading. However, another item asked youth to indicate the total number of extracurricular activities in which they were involved. As developmental asset # 18 Youth programs (i.e. "young person spend three or more hours per week in sports, clubs, or organizations at school and/or in community organizations") could be answered by the one Pathways' item that asked youth to report the total number of extracurricular activities they participated in. Other items that asked about participation in specific extracurricular activities were unnecessary and excluded.

Due to the nature of the data set, it was not possible for us to evaluate all forty developmental assets outlined by the Search Institute (see Appendix A); however, efforts were made to evaluate the presence of these variables in the Pathways sample of juvenile offenders to the fullest extent possible. In total, the current study evaluated 11 external developmental assets and 12 internal developmental assets, which will be described in the following section.

External Developmental Assets

Family Support

At the beginning of our analysis, Developmental asset #1 Family Support was comprised of one factor – Domains of Social Support – Family (S0CADFM). This item was derived from The Contact with Caring Adults inventory, which was developed for the Pathways to Desistance study and was based on several sources (Nakkula, Way, Stauber, & London, 1990; Phillips & Springer, 1992; Institute of Behavioral Science, 1990). This item was created to determine the

presence of supportive adults in the adolescent's life. Specifically, support was assessed across eight domains: adults you want to be like, adults you could talk to if you need information or advice about something, adults you could talk to if you needed information or advice about something, adults you could talk to about trouble at home, adults you would tell about an award or if you did something well, adults with whom you can talk about important decisions, adults you can depend on for help, adults you feel comfortable talking about problems with, social adults who care about your feelings. S0CADFM asked you to report that total number of domains with at least one family member mentioned.

Positive Family Communication

Originally, developmental asset #2 Positive Family Communication was comprised of two Pathways to Desistance factors: 1) Parental Warmth - Mother and 2) Parental Hostility – Mother (α = -.838). Parental Warmth – Mother and Parental Hostility – Mother factors were derived from the Quality of Parental Relationships Inventory (Conger, Ge, Elsder, Lorenz, & Simons, 1994) which was adapted for the Pathways to Desistance study in order to assess "the affective tone of the parental-adolescent relationship" (Mulvey, 2013, p. 343) In total, Parental Warmth – Mother was defined as the mean of nine items (e.g., "How often does your mother let you know she really cares about you"). Responses for Parental Warmth – Mother were coded on a Likert-scale from 1 – never to 4 – always, "with higher scores indicating a more positive supportive and nurturing parental relationship" (Mulvey, 2013, p. 343). Parental Hostility – Mother was defined as the mean of 12 items (e.g., "how often does your mother get angry at you," which was also coded on a Likert-scale from 1 – never to 4 – always. According to the Pathways to Desistance codebook, higher scores on the Parental Hostility – Mother question item, indicated more supportive and nurturing parental relationship" (Mulvey, 2013, p. 343).

Although the Pathways to Desistance codebook stated that higher values on parental warmth and hostility related items indicated more "supportive and nurturing parental relationship[s]," we did obtain a negative Cronbach's alpha value for these factors (α = -.838). In addition, we found that there was a negative correlation between these items (r =-.319, N = 562, p = .000). Due to the negative correlation between Parental Hostility – Mother and Parental Warmth – Mother, we felt that contrary to what was stated in the Pathways to Desistance codebook, higher scores on Parental Hostility – Mother item did not indicate more supportive and nurturing relationships, but instead indicated a less supportive and less nurturing parental relationship. For example, a score of 4 (e.g., always) to questions such as "how often does your mother get angry with you" indicates more parental hostility rather than less.

To address this issue, we reverse the coding scheme for the Parental Warmth - Mother variable so that higher scores on this variable would indicate less warm relationships and therefore be consistent with the scoring for Parental Hostility – Mother so that higher scores on both measures were indicative of less positive family communications or relationships and lower scores were indicative of more positive family relationships. Specifically, we transformed the Parental Warmth – Mother variable by creating a new variable that was (5 – Parental Warmth – Mother). Thus, a score of 4 on the original Parental Warmth – Mother factor (i.e. always) was then coded as a 1 (i.e., never). After reverse coding the Parental Warmth – Mother variable, we found these two variables had acceptable internal reliability or consistency (α = .456) and that both factors had high loadings on the Positive Family Communication factor (.812 for both Parental Hostility – Mother and Parental Warmth – Mother).

Other Adult Relationships

At the start of our analysis, developmental asset #3 Other Adult Relationships was comprised of three measured variables: 1) Domains of Social Support – Non Family (S0CADNFM), 2) Depth of Non-Family Support (S0DEPNFS) and 3) Diversity of Non-Family Support (S0CADNFD) (α = .778). Like the Domains of Social Support – Family (S0CADFM) variable, these items were also derived from The Contact with Caring Adults inventory (Nakkula et al., 1990; Phillips & Springer, 1992**;** Institute of Behavioral Science, 1990**)** to determine the presence of supportive adults in the adolescent's life and were assessed across the same eight domains (i.e., adults you want to be like, adults you could talk to if you need information or advice about something, adults you could talk to if you needed information or advice about something, adults you could talk to about trouble at home, adults you would tell about an award or if you did something well, adults with whom you can talk about important decisions, adults you can depend on for help, adults you feel comfortable talking about problems with, social adults who care about your feeling).

The Domains of Social Support – Non Family (S0CADNFM) variable was the "count of number of domains with at least one non-family member mentioned" (Mulvey, 2013, p. 53) and therefore scores on this item ranged from 0 to 8. A score of 0 indicated that a youth did not endorse having a non-familial support in any of the eight social support domains and a score of 8 indicated that the youth endorsed having non-familial supports in all eight domains. Thus, "higher scores indicate a greater number of relationships with adults who spend time with the adolescent and provide support" (Mulvey, 2013, p. 54).

The Depth of Non-Family Support (S0DEPNFS) variable was the "count of unique adults mention in 2 or more domains" and responses on this item ranged from 0 (i.e., no adults were mentioned as supports in more than two domains) to 6 (i.e., 6 adults were mentioned as supports

in more than 2 domains). The Diversity of Non-Family Support (S0CADNFD) represents the

total "count of unique non-family adults mentioned across all domains" (Mulvey, 2013, p. 59).

Therefore this variable is a total count of non-family adults the youth identified as providing

support across the eight domains. Scores on Diversity of Non-Family Support (S0CADNFD)

ranged from 0 to 10. Again, high scores on Depth of Non-Family Support (S0DEPNFS) and

Diversity of Non-Family Support (S0CADNFD), "indicate a greater number of relationships

with adults who spend time with the adolescent and provide support" (Mulvey, 2013, p. 59).

We ran a principal component analysis for the Other Adult Relationships factors and

found that Domains of Social Support (S0CADNFM) appeared to have the highest loading

(0.913) as compared to Diversity of Non Family Support (S0CADNFD) (0.795) and Depth of

Non-Family Support (S0DEPNFS) (0.785). When we omitted the factor with the lowest loading

on the Other Adults Relationships factor (i.e., Depth of Non-Family Support), we found that

reliability is only slightly improved ($\alpha = 0.806$ versus $\alpha = .778$ for all three variables) and

therefore we chose to include all three variables for Other Adult Relationships.

Caring Neighborhood

Developmental asset #4 Caring Neighborhood is comprised of one measured variable:

Social Capital – Closure and Integration (S0SCCLINT). In the Pathways to Desistance study,

this item was based on the Social Capital Inventory that measures the connectedness the

adolescent feels toward his/her community (Nagin & Paternoster, 1994) across three dimensions:

intergenerational closure (e.g., "How many of the parents of your friends known your parents?"),

social integration (e.g., "How many of your teachers do your parents know by name?" and

perceived opportunity for work (e.g., "How many of your teachers do your parents know by

name?"). Scores on these items ranged from 1 (none) to 4 (most) and higher scores indicated a greater degree of community connectedness.

In the present study we only considered the closure and integration dimension as we felt scores on the perceived opportunity for work did not relate to Search Institutes' definition of Caring Neighborhood, which focuses on whether or not a youth experiences caring neighbors. Although intergenerational closure and social integration do not represent perfect matches to the developmental asset Caring Neighborhood, both of these items touch on the connections between proximal adults in the youths' lives which we feel provides an indication of the level of caring of neighbors and other adults in the community with ties to the youth.

In the Pathways to Desistance study, the Social Capital – Closure and Integration variable was the mean of the eight items from the intergenerational closure and social integration sections of the Social Capital Inventory. Therefore, scores ranged from 1 to 4, with higher scores again indicating more community connectedness.

Caring School Climate

Developmental asset #5 Caring School Climate is comprised of one measured variable: Satisfaction – Community School (SchlSatR). In the Pathways to Desistance study, the Satisfaction – Community School variable was part of a group of questions that measured youths' education including their school bonding, attendance, activities and orientation. In the Pathways study, school attachment items included were taken from the work of Cernkovich and Giordano (1992) and were used to evaluate the adolescents' educational experience along two dimensions: Bonding to Teachers (e.g., "Most of my teachers treat me fairly") and School Orientation (e.g., "Schoolwork is very important to me"). Respondents rated 13 statements using a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree" with higher scores

indicating a greater degree of academic commitment. Although Satisfaction – Community School does not specifically address the Search Institute's definition of Caring School Climate (i.e., "school provides a caring, encouraging environment"), we felt that high level of school satisfaction is indicative of a caring school environment as youth with caring school environments and positive school experiences would have high levels of satisfaction with his or her school and therefore that this item was an appropriate proxy for Caring School Climate.

Specifically, Satisfaction – Community School was the mean of two items. We presume that higher scores were indicative of greater level of school satisfaction as, according to the Pathways to Desistance codebook, higher scores on items from the measure: Education - School Bonding Attendance Activities and Orientation. Higher scores indicated a greater degree of academic commitment, though they did not specify the specific questions that comprised the Satisfaction – Community School variable, nor did they mention its coding. Unfortunately, even after an exhaustive work of the Pathways to Desistance materials including the baseline codebook, website, etc. and the original work of Cernkovich and Giordano, we could not identify which two question items were used to assess Satisfaction – Community School. After reviewing the work of Cernkovich and Giordano (1992), it seems that Pathways to Desistance study utilized questions from their work that focused on school attachment, however, there was no specific mention of school satisfaction by Cernkovich and Giordano (1992). Consequently, we infer that the two items addressing satisfaction – with community and school – in the Pathways study were included in addition to the questions developed by Cernkovich and Giordano.

Safety

Developmental asset #10 Safety is comprised one measured variable: Exposure to Violence -Total (S0EXPTOT). In the Pathways to Desistance study, the Exposure to Violence

Inventory (ETV; Selner-O'hagan, Kindlon, Buka, Raudenbush, & Earls, 1998) was modified in order to assess the frequency of youths' exposure to violent events. In the Exposure to Violence inventory, the ETV document the types of violence the adolescent has experienced both as a victim (6 items, e.g., "Have you ever been chased where you thought you might be seriously hurt?") and as an observer/witness (7 items, e.g., "Have you ever seen some else being raped, an attempt made to rape someone or any other type of sexual attack?"). High scores on this inventory indicate a greater exposure to violence. In the Pathways to Desistance study, Exposure to Violence – Total was the sum of the victim and witness scales endorsed by the youth and therefore scores ranged from 0 to 13. Again, higher scores of Exposure to Violence -Total were indicative of greater exposure to violence.

Family Boundaries

Developmental asset #11 Family Boundaries is comprised of one measured variable: Parental Monitoring (S0PARMNT). In the Pathways to Desistance study, the Parental Monitoring Inventory (Steinberg, Dornbusch, & Darling, 1992) was adapted to assess parenting practices that were related to the supervision of the adolescent (i.e., study participant). Overall, the scale was composed of nine items. Five variables assess parental knowledge ((E.g., How much does X (i.e., individual who is primarily responsible for the youth) know about how you spend your free time)) and are answered on a 4-point Likert scale ranging from "doesn't know at all" to "knows everything." Youth who lived with their primary caretaker were asked four additional items that assessed parental monitoring of their behavior, which were answered on a 4-point Likert scale from "never" to "always." In the Pathways to Desistance study, Parental Monitoring was coded as the mean of the four items related to parental monitoring of the youth's

behavior. Though not explicitly stated in the Pathways to Desistance codebook, we infer that higher scores on this item were indicative of higher level of parental monitoring.

Positive Peer Influence

Developmental asset # 15 Positive Peer Influence (i.e., "Young person's best friend models responsible behavior") was comprised of two measured variables: Peer Delinquency – Antisocial Behavior (PRBEHV) and Peer Delinquency – Antisocial Influence (PRINFL) (α = .807). In the Pathways to Desistance study, both the Peer Delinquency – Antisocial Behavior and Peer Delinquency – Antisocial Influence were pulled from the Peer Delinquent Behaviors items used by the Rochester Youth Study (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994) to assess the level of antisocial activity among the youth's peers. In this scale, there were two dimensions: antisocial behavior (e.g., "How many of your friends have sold drugs?" and antisocial influence ("e.g., "How many of your friends have suggested you should sell drugs?"). In total, the scale contains 19 items to which the participants respond on a 5-point Likert scale ranging from 1 "none of them" to 5 "all of them."

According to the Pathways to Desistance codebook, scores on the Peer Delinquency – Antisocial Behavior (PRBEHV) represent the "mean rating of the prevalence of friends who engaged in the 12 behaviors listed in this section" (Mulvey, 2013, p. 350). Thus scores ranged from 1 to 5 on this item. Again, though not explicitly stated in the handbook, it is clear that higher scores on this item indicate that the youth has more friends who engage in delinquent behaviors and more friends who engage in a greater range of delinquent activities. According to the Pathways to Desistance codebook, scores on Peer Delinquency – Antisocial Influence (PRINFL) represent the "mean rating of the prevalence of friends who encourage the youth to engage in the 7 items in this section" (Mulvey, 2013, p. 352). Scores on this item ranged from 1

"none of them" to 5 "all of them." Again, though not explicitly stated in the codebook, we can infer that higher scores indicate that the youths' peers had more friends who encouraged their participation in delinquent behaviors and more friends who encouraged their participation in a greater number of delinquent behaviors.

A principal components analysis demonstrated that both Peer Delinquency – Antisocial Behavior and Peer Delinquency – Antisocial Influence had high loadings on our constructed Positive Peer Influence factor (.916 for both Peer Delinquency – Antisocial Behavior and Peer Delinquency – Antisocial Influence).

Youth Programs

Developmental asset #18 Youth Programs was comprised of three measured variables: 1) Days per week spent on attending athletic events, plays or school dances (DayEvent), 2) Importance to participate in school activities (S0SCH26), and 3) Total number of extracurricular activities – community school (S0TOTEXA) ($\alpha = 0.585$). Days per week spent attending events, plays or school dances were counted from 0 to 7. For importance to participate in school activities, youth were asked to indicate how important it was for them to participate in school activities on a 5-point Likert scale ranging from 1 "not at all important" to 5 "very important." Total number of extracurricular activities – community school asked to report the total number of extracurricular school activities they participated in. Responses on this item ranged from 0 to 8. Overall, we found that the Cronbach's alpha for the Youth Programs measure was ($\alpha = .663$).

In addition, we also chose to run a principal component analysis for this construct. We found that Total number of extracurricular activities – community school (SOTOTEXA) also had a relatively high loading on youth programs (0.901). In addition, we found that Days per week spent on attending athletic events, plays or school dances (DayEvent) appeared to have a high

loading on the youth program factor as well (0.855). In addition, however, importance to participate in school activities (S0SCH26) had a weaker loading on the Youth Programs factor in comparison (.601). Therefore, we chose to omit this variable, leaving Total number of extracurricular activities community school (S0TOTEXA) and Days per week spent on attending athletic events, plays or school dances (DayEvent) as the measured variables for the latent Youth Programs factor (α = .819). Thus, by removing importance to participate in school activities for this measure, we improve the reliability of the Youth Programs construct such that it now demonstrates questionable, rather than poor internal consistency.

Religious Community

Developmental asset #19 Religious Community was comprised of one measured variable: Past year how often attend church (S0RLG1). Past year how often attended church (S0RLG1) was taken from the Importance of Spirituality measure developed by Maton (1989). Specifically, this single item asked youth "during the past year, how often did you attend church, synagogue, or other religious activities" on a scale from 1 "never" to 5 "several times per week." Though the Search Institute defined Religious Community as "young person spends one hour or more per week in activities in a religious institution," we felt that this Pathways questionnaire item which asked youth about attendance in religious activities sufficiently captured this developmental asset.

Time at Home

Developmental asset #20 Time at Home is comprised of one measured variable: Unsupervised Routine Activities (S0ROUT). Unsupervised Routine Activities were evaluated using items drawn from the Monitoring the Future Questionnaire (Osgood, Wilson, O'Malley, Bachman, & Johnson, 1996) to assess the "frequency of unstructured socializing" (Mulvey,

2013, p. 419). According to the Pathways to Desistance codebook, this item assesses activities that occur in the absence of an authority figure (e.g., "How often did you get together with friends informally?"). The scale was comprised of three items to which participants respond on a 5-point Likert scale ranging from 1 "never" to 5 "almost daily." In the Pathways to Desistance study, an additional item asked youth to "specify the number of evenings in a typical week they spent on fun activities" (Mulvey, 2013, p. 419). In the Pathways to Desistance study, the Unsupervised Routine Activities variable was the mean of these four questions. Responses to this item ranged from 1 to 5, with higher scores indicating greater involvement in unstructured activities.

Excluded External Asset Constructs

Other external developmental assets such as #7 Community Values Youth (e.g., "Young person perceives that adults in the community value youth") could not be captured through items in the Pathways to Desistance study and therefore were not considered in this analysis. In addition, we did find Pathways items that we felt corresponded to two developmental assets: #14 Adult Role Models (e.g., "Parent(s) and other adults model positive, responsible behavior") and #17 Creative Activities (e.g., "Young person spends three or more hours per week in lessons or practice in music, theater, or other arts"), however, reliabilities for these constructs were very low and therefore we choose not to include these items in our analyses. In the Pathways to Desistance study, we felt two items from the baseline questionnaire were representative of youths' participation in creative activities: Days per week spent on music/band (DayMusic) and Days per week spent on newspaper/yearbook (DayYrbk) (α = .418).

Similarly, we found six variables we felt represented developmental asset #14 Adult Role Models: 1) Biological mother arrested or jailed (S0ARRMOM), 2) Biological father arrested or

jailed (SOARRDAD), 3) Parents education level (S0PAEDUC), 4) Parent index of social position (SOPARENT_ISP), 5) Known history of parents physical fights (PARFIGHT) and lastly, 6) History of drug/alcohol problems – mother (MOMSUBR) (α = .100). When we ran a principal component analysis of this construct, we found that History of drug/alcohol problems – mother and Biological mother arrested or jailed had the highest loadings on the latent variable adult role models (0.637 and 0.596, respectively). Unfortunately, however, even after deleting indicators with weak loadings, the reliability of this item was still low (α = .427). This low Cronbach's alpha indicates that this measure has unacceptable internal consistency and therefore, was choose to exclude the Adult Role Models construct from our analyses.

Table 1. Descriptive statistics for External Asset Factors (*N*=562)

Latent Variable	Measured Variable(s)	M(SD)	Skewness	Kurtosis
1) Family Support (1)	- Domains of Family Support	6.24(2.105)	-1.651	2.037
2) Positive Family Communication (2)	- Maternal Warmth	1.64(.640)	1.179	1.028
(α = 0.456)	- Maternal Hostility	1.56(.429)	1.561	3.826
3) Other Adult Relationships (3)	- Domains of non-familial social support	1.35(2.159)	1.609	1.412
(α =0.778)	- Depth of Non-Family Support	.24(.558)	2.673	7.765
	- Diversity of non-familial social support	.80(1.326)	2.753	11.281
4) Caring Neighborhood (1)	- Social capital – closure and integration	2.69(.499)	-.208	.412
5) Caring School Climate (1)	- Satisfaction community school	3.22(1.017)	-.627	-.332
6) Safety (1)	- Exposure to Violence –Total	5.68(2.664)	-.109	-.740
7) Family Boundaries (1)	- Parental Monitoring	2.72(.800)	-.127	-.697
8) Positive Peer Influence (2)	- Peer Delinquency – Antisocial Behavior	2.30(.892)	.506	-.333
(α =0.807)	- Peer Delinquency – Antisocial Influence	1.66(.821)	1.609	2.486
9) Youth Programs (2)	- Days per week spent on attending athletic events, plays or school dances	.48(1.073)	3.080	11.267
(α =0.819)	- Total number of extracurricular activities community school	.72(1.058)	1.943	5.058
10) Religious Community (1)	- Past year how often attend church	2.18(1.290)	.684	-.866
11) Time at Home (1)	- Unsupervised Routine Activities	3.90(.788)	-1.042	1.175

Internal Developmental Assets

Achievement Motivation

Three Pathways to Desistance items related to developmental asset #21 Achievement Motivation: 1) work orientation (S0PSMIWK), 2) what were grades like in school (Grades) and 3) school orientation – non-facility school (S0SCHATCH) (α = .315).

In the Pathways study, work orientation was scored as the mean of ten items in the work orientation subscale of the Psychosocial Maturity Inventory (i.e., pride in the successful completion of tasks, e.g., "I hate to admit it, but I give up on my work when things go wrong {reverse coded}) (PSMI Form Dl; Greenberger, Josselson, Knerr, & Knerr, 1974). Participants respond to PSMI items on a 4-point Likert scale ranging from 1 "strongly agree" to 4 "strongly disagree" and all but one PSMI item are reverse coded such that higher scores indicate more responsible behavior (Mulvey, 2013, 403-404). Therefore, higher scores on this item indicate greater levels of work orientation.

What were grades like in school was answered on an 8-point Likert scale ranging from 1 "Mostly As" To 8 "Mostly below Ds," however, we reverse coded this item so that higher scores would indicate higher academic achievement and therefore be in line with the other achievement motivation factors for which higher scores indicated greater work orientation and school orientation. To reverse code the grades variable, we computed a new variable by subtracting scores on the grades variable from 9 (i.e., 9 - grades) so a score of 8 in the original item became a score of 1, a score of 7 became a 2 and so on. Therefore, higher scores on this recoded grades variable indicated higher academic achievement (higher grades), and thus, this item was in line with the other school as now a 1, a score of high grades would have higher values and thus be in line with the other achievement motivation items where higher scores indicated greater work orientation and school orientation.

The school orientation – non-facility school item was the mean of seven items. Specifically, these items were derived from work of Cernkovich and Giordano (1992). An examples of school orientation item is "schoolwork is very important to me." School orientation

items were scored on a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree" and higher scores on these items indicate a greater degree of academic commitment.

We ran a principal component analysis and found that school orientation and what were grades like in school had the highest loadings on the Achievement Motivation construct (.822 and .669 respectively) and work orientation had the lowest loading on the Achievement Motivation construct (.574). After removing work orientation, we found that the internal reliability for the Achievement Motivation was slightly improved ($\alpha = .344$); however, the internal reliability for this item was still quite low and failed to meet cutoff standards for acceptability.

School Engagement

Developmental asset #22 School Engagement was comprised of one measured variable: Engagement – community school (SchlEngR). In the Pathways to Desistance study, engagement community school was the mean of four items, two of which were reverse-coded. In the Pathways to Desistance codebook, it states that school attachment items included were taken from the work of Cernkovich and Giordano (1992); however, the codebook does not specify what specific items were used to assess school engagement. The codebook does specify that this item was coded on a 5-point Likert scale from 1 "strongly disagree" to 5 "Strongly agree" and that higher scores indicated a greater degree of academic commitment.

Homework

Developmental asset #23 was comprised of one measured variable: Number of hours spend doing homework outside of school hours (HoursHW). This item was scored on a 5-point Likert scale, ranging from 1 "none (i.e., no hours per week)" to 6 "more than 10 hours."

Caring

Developmental asset #26 Caring was comprised of one measured variable: Consideration of Others (WAI) (S0CONSID). Consideration of Others was scored as the mean of seven items from the Weinberger Adjustment Inventory (WAI; Weinberger & Schwartz, 1990). The WAI is an assessment of individuals' social-emotional adjustment within the context of external constraints. This measure asks participants to rank how much on a 5-point Likert scale from 1 "false" to 5 "true" their behavior in the past six months matches a series of statements. The scale consists of four areas: impulse control (e.g., "I say the first thing that comes into my mind without thinking about it", suppression of aggression (e.g., "People who get me angry better watch out"), consideration of others (e.g., "Doing things to help other people is more important to me than almost anything else" and temperance (Combines items from impulse control and suppression of aggression). Overall, higher scores on the WAI and on the WAI subscales indicate more positive behavior (i.e., greater impulse control, temperance, and consideration for others).

Restraint

Developmental asset #31 Restraint was comprised of three items: 1) what's most ever used alcohol (SOSUBUSE), 2) number of drugs used in lifetime (S0EVERUS), and 3) How many people have you had sex with (SOREL94) (α= .072). What's most ever used alcohol asked respondents to answer "what is the most that you have ever used alcohol (such as beer, wine, wine coolers, hard liquor, vodka, gin, or whisky)?" Responses were on a 9-point Likert scale ranging from 1 "not at all/not used in lifetime" to 9 "everyday." This item was one of several from the Substance use/Abuse inventory, which is a modified version of a substance use measured that was developed by Chassin, Rogosch, and Barrera (1991) for use in a study of children of alcoholics. The measure considers the adolescents' use of illegal drugs and alcohol

over the course of his or her lifetime as well as the use of illegal drugs and alcohol during the past six months. The self-report measure is comprised of several subscales including: substance use and social consequences, dependence and treatment. In addition to these subscales, parental substance use is also assessed in this measure. Number of drugs used in lifetime asked youth to indicate "how many drugs did you use in your lifetime?" Responses ranged from 0 to 9. How many people have you had sex with asked youth to identify the "number of different sex partners (by sex I mean intercourse)." Responses to this question item ranged from 0 to 300.

When we ran a principal component analysis of the three factors of Restraint, we found that none of the factors had particularly high loadings on the Restraint construct. However, we found that S0EVERUSE had the highest loading on Restraint (0.541). S0SUBUSE demonstrated the second highest loading on Restraint (0.464) and S0REL94 demonstrated the weakest loading on the Restraint construct (.345). Therefore, we chose to omit S0REL94 from this construct. After removing S0REL94, the internal consistency or reliability of this construct was improved considerably (α= .615).

Planning and Decision-Making

Developmental asset #32 Planning and Decision Making was comprised of one measured variable: Future Orientation Inventory Scale (S0FUTURE). In the Pathways to Desistance study, the Future Outlook Inventory was the mean of seven items from the 15-item Future Outlook Inventory. The Future Outlook Inventory used in the Pathways to Desistance study was developed by Cauffman and Woolard (1999; unpublished) using items from the Zimbardo Time Perspective Scale (Zimbardo, 1980), the Life Orientation Task (Scheier & Carver, 1985) and the Consideration of Future Consequences Scale (Strathan, Gleicher, Boninger, & Edwards, 1994).

Specifically, this inventory asks participants to rate from 1 "never true" to 4 "always true" the degree to which each statement reflects how they usually are (e.g., "I will keep working at difficult, boring tasks if I know they will help me get ahead later"). Higher scores on this item indicate a greater level of consideration for the future and planning.

Interpersonal Competence

Developmental asset #33 Interpersonal Competence is comprised of three measured variables: 1) Friendship – quality of relationship (S0FRDQLT), 2) Number of close friends (S0REL253) and 3) Moral disengagement count (S0MORAL) (α= .029). In the Pathways to Desistance study, Friendship – quality of relationship (S0FRDQLT) and Number of close friends (S0REL23) were items in the Friendship Quality scale which were adapted from items in the Quality of Relationships Inventory (Pierce, 1994). The original scale made by Pierce (1994) was designed to measure interpersonal support from a single romantic partner, however the Pathways adaptation changed the focus to a global rating regarding and participants are asked to average the rating across their five closest friends. Specifically, the scale contains ten items that vary the context of support offered (e.g., "How close do you think you will be to these people in ten years" and "How much can you count on the people for help with a problem"). Responses to these items were on a 4-point Likert scale with scores ranging from 1 "not at all" to 4 "very much." Friendship – quality of relationship was the mean of ten items in the scale with higher scores indicating higher quality friendships.

Number of close friends asked youth to indicate the "number of close friends the subject reports having." Responses to this item ranged from 0 to 95. In the Pathways to Desistance study, the Mechanisms of Moral Disengagement (Bandura, Barbanelli, Capara, & Pastorelli, 1996) was used to measure adolescents' attitudes towards the treatment of others. This self-

report measure contains 32 items to which participants respond on a 3-point Likert scale ranging from "disagree" to "agree" with higher scores indicating greater levels of moral detachment. This measure is comprised of eight dimensions: moral justification, euphemistic language, advantageous comparison, displacement of responsibility, diffusion of responsibility, distorting consequences, attribution of blame, and lastly, dehumanization. In total, the moral disengagement item in the Pathways to Desistance Study was a count of all items for which the subject responded agree. Scores on this item range from zero to 32 and again, higher scores were indicative of higher levels of moral detachment.

When we ran a principal component analysis of the interpersonal relationship construct, we found that friendship – quality of relationship (S0FRDQLT) and number of close friends had the highest loadings on the interpersonal competence factor (.760 and .701 respectively) and moral disengagement count had the lowest loading on interpersonal competence factor (-.234). When moral disengagement was excluded, the internal consistency of this item improved slightly (α=.033).

Resistance Skills

Developmental asset #35 Resistance Skills is comprised of one item: Resistance to peer influence (S0PEER). In the Pathways to Desistance study, resistance to peer influence was tabulated from the mean across ten dimensions. The Resistance to Peer Influence (Steinberg, 2000) measure was developed for the Pathways study in order to assess the degree to which adolescents act autonomously in their interactions with their peers. First, participants are presented with two conflict scenarios (e.g., "Some people go along with their friends just to keep their friends happy" and "Other people refuse to go along with what their friends want to do, even though they know it will make their friends unhappy") and then, they are asked to choose

the scenario which most loosely reflects their own behavior. Then, participants are asked to rate the degree to which each statement is accurate from 1 "it's really true I'm influenced by my peers" to 4 "it's really true I prefer to be an individual." Then sequences are presented to participants, each explores one of ten dimension of potential influence: 1) go along with friends, 2) fitting in with friends, 3) changing their mind, 4) knowingly doing something wrong, 5) hiding true opinion, 6) breaking the law, 7) changing the way you usually act, 8) taking risk, 9) saying things you don't really believe, and 10) going against the crowd. In total, the resistance to peer influence item was the mean of scores across these ten items. Higher scores on this item are indicative of greater resistance to peer influences.

Peaceful Conflict Resolution

In total, we found two Pathways to Desistance items that corresponded with developmental asset #36 Peaceful Conflict Resolution: 1) Aggressive offending frequency in past year (S0AGGFRQ) and 2) Suppression of aggression (WAI) (S0SUPAGG). The aggressive offending frequency in the past year (S0AGGFRQ) was part of the Self-Reported Offending (SRO) measure. The Self-Report of Offending (SRO; Huizinga, Esbensen, & Weihar, 1991) was adapted for the Pathways to Desistance study to measure adolescents' account of involvement in both antisocial and illegal activities. This measure consists of 24 items, which elicit subject involvement in various types of crime. For each endorsed item, there is a set of follow-up questions that collect more information regarding the endorsed offense (e.g., "How old were you the first time you did this?"). These follow-up items can be used to identify whether the individual reports doing a particular act within the past six months or only prior to that period, as well as the age of onset of behaviors and whether that act was committed independently or with a group. Though the SRO is comprised of 24 items, it should be noted that two of these items (e.g.,

"ever went joyriding" and "ever broke into a car to steal") were added after a large number of

Pathways' subjects had completed either baseline or six month-follow up interviews, which

produced a large amount of missing data for these time points, making calculation of a

consistently meaningful score difficult across all time points. For this reason, Pathways

researchers chose to report all SRO scores based on 22 items instead of the full 24.

Suppression of aggression was the mean of seven reverse coded items from the

Weinberger Adjustment Inventory (WAI; Weinberger & Schwartz, 1990). As stated previously,

the WAI is an assessment of individuals' social-emotional adjustment within the context of

external constraints. This measure asks participants to rank how much on a 5-point Likert scale

from 1 "false" to 5 "true" their behavior in the past six months matches a series of statements.

The scale consists of four areas: impulse control (e.g., "I say the first thing that comes into my

mind without thinking about it"), suppression of aggression (e.g., "People who get me angry

better watch out"), consideration of others (e.g., "Doing things to help other people is more

important to me than almost anything else" and temperance (combines items from impulse

control and suppression of aggression). Overall, higher scores on the WAI and on the WAI

subscales indicate more positive behavior (i.e., greater impulse control, temperance, and

consideration for others). Thus, scores on the suppression of aggression item ranged from 1 to 5,

with higher scores indicating greater suppression of aggression.

In the current study, the suppression of aggression item was reverse coded so that higher

scores on this item indicated less, rather than more suppression of aggression. Specifically, we

computed a new variable by subtracting scores on the suppression of aggression from 6 (i.e., 6 -

WAI suppression of aggression score). Thus, a score of 5 on the original suppression of

aggression item became a 1 and a score of 4 became a 2 and so on. On this reverse coded

suppression of aggression item, higher scores indicated less suppression of aggression. We chose to reverse code this variable as the other measured variable included in our peaceful conflict resolution construct (e.g., Aggressive offending frequency in past year (S0AGGFRQ)) was such that higher scores indicated higher levels of aggressive offending; therefore, by reverse coding suppression of aggression, both the suppression of aggression and aggressive offending frequency items were in the same direction as higher scores on both items indicated greater levels of aggression and/or aggressive behaviors and thereby suggesting lower levels of peaceful conflict resolution. In contrast, lower scores on both of these indicate lower levels of aggressive offending and greater levels of suppression of aggression, which are indicative of youths' adherence to peaceful conflict resolution.

Personal Power

Developmental asset # 37 Personal Power is comprised of one measured variable: Self-reliance (PSMI) (S0PSMISR). In the Pathways to Desistance study, the self-reliance (PSMI) item was the mean of ten items in self-reliance subscale of the Psychosocial Maturity Inventory (PSMI) (PSMI Form D; Greenberger et al., 1974) (i.e., feelings of internal control and the ability to make decisions without extreme reliance on others, e.g., "Luck decides most things that happen to me" {reverse coded}). The PSMI items are scored on a 4-point Likert scale ranging from 1 "strongly agree" to 4 "strongly disagree" and all but one PSMI item are reverse coded such that higher scores indicate more responsible behavior (Mulvey, 2013, p. 400). Though not explicitly stated in the Pathways to Desistance codebook, we can infer that higher scores on this item indicate greater levels of self-reliance.

Self-Esteem

Developmental asset #38 Self-esteem is comprised of one measured variable: Rate self-esteem on a scale of 1 to 10 (S0PCLO33). This item was taken from the Psychopathy Checklist Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003), which assesses psychopathic characteristics in youth. As stated in the Pathways to Desistance codebook, PCL-YV authors advocate administration procedures that include a 60-90 minute, semi-structured interview that allow interviewers to assess the youths' interpersonal style, obtain information on a variety of aspects of his or her history and current function, and assess the credibility of his or her statements; however, the Pathways study was not able to accommodate an interview of this length (p. 390). Instead, all questions from the PCL-YV were incorporated into the Pathways baseline interview battery and nearly all questions were asked in the open-ended format recommended by the PCL-YV authors. In addition, following baseline interviews, interviewing staff generated reports that pulled all PCL-related answers from the full interview. Interviewers utilized this information in conjunction with information from court records and the parent collateral interviews, to complete PCL-YV rating forms for participants.

Positive View of Personal Future

Developmental asset #40 Positive View of Personal Future is comprised of four measured variables: 1) How old do you think you will live to be (S0OPP131), 2) Expectations to have work, family and law (S0EXPECT), 3) Chances of getting ahead/being successful not very good (S0SCH45) and 4) How far do you think you will go in school (S0SCH47) (α= 0.031).

How old do you think you will live to be (S0OPP131) was an open-ended questioned that asked youth "How old do you think you will live to be?" (Mulvey, 2013, p. 364). Responses to this item ranged from 17 to 200. Expectations to have work, family and law was reported as the

mean of six items from the Perceptions of Chances for Success measure (also called perceptions of opportunity). The Perceptions of Chances for Success measure was adapted from the work of Menard and Elliot (1996) in order to assess adolescents' prediction of his or her future adult success. Items in the measure tap the youths' investment in and perceived likelihood for achievement in several areas. Specifically, this scale taps expectations for work, family, and law-abiding behavior (e.g., "what do you think your chances are to earn a good living?") and aspirations for work, family and law abiding behavior (e.g., "how important is it to you to have a good job or career?"). In total, the measure is comprised of 14 questions (seven expectation questions and seven aspiration questions) which are answered on a 5-point Likert scale ranging from 1 "poor/not at all important" to 5 "excellent/very important." (Mulvey, 2013, pp. 366 – 367). Though not explicitly stated in the Pathways to Desistance codebook, we can infer based on their description that higher scores on the expectations to have work, family and law item indicate higher expectations for work, family, and law abiding behavior.

Both the chances of getting ahead/being successful not very good (S0SCH45) and how far do you think you will go in school (S0SCH47) were from the motivation to succeed measure of the Pathways to Desistance study. As noted in the Pathways to Desistance codebook, motivation to succeed items (Eccles, Wigfield & Schiefele, 1998) are the subject's assessment of opportunities youth in his or her neighborhood have to succeed in school and/or the work force (p. 317). Specifically, the chances of getting ahead/being successful not very good (S0SCH45) item asked youth to indicate to what extent they agreed with the statement "My chances of getting ahead and being successful are not very good" from 1 "strongly disagree" to 5 "strongly agree." Thus, higher scores indicated that participants had more negative views of their personal

future as higher scores indicated that they strongly agreed with the statement "my chances of getting ahead and being successful are not very good."

In the present study, we chose to reverse the chances of getting ahead/being successful not very good item so that higher scores indicated more positive feelings about youths' attitudes towards their own chance of getting ahead and being successful. Again, we reverse coded this item by subtracting scores on the chances for getting ahead and being successful item from 6 (i.e., 6 – chances of getting ahead/being successful not very good) such that scores of 1 became 5, 2 became 4 etc. Thus, a score of 5 on the reverse coded item indicated that the youth strongly disagreed with the statement "My chances of getting ahead and being successful are not very good." By recoding this item, for all of the positive view of personal future items (i.e., How old do you think you will live to be (S0OPP131), Expectations for work, family, and law abiding behavior, Chances of getting ahead/being successful not very good (S0SCH45) and How far do you think you will go in school (S0SCH47)), higher scores indicated more positive views towards youths' individual personal future.

"How far do you think you will go in school?" was asked on a 5-point Likert scale (1 "drop out before graduation," 2 "graduate from high school," 3 "go to business, tech school or junior college, 4 "graduate from college" 5 "go to graduate or professional school") (Mulvey, 2013, p. 319). Thus, higher scores on this item indicated higher expectations for how far youth would go in school.

We ran a principal component analysis of the Positive View of Personal Future construct and found that overall, expectations to have work, family, and law (EXPECT) and how far do you think you will go in school (S0SCH47) had the highest loadings on Positive View of

Personal Future (0.767 and 0.675 respectively). In addition, we also found that Chances of

getting ahead/being successful not very good also had a high loading on the Positive View of

Personal Future construct (.621). In comparison, How old do you think you will live to be

(OPP131) had a relatively weak loading on the Positive View of Personal Future construct

(0.566) and therefore this item was excluded from the Positive View of Personal Future construct

in subsequent analyses. After removing the factor with the weakest loading (i.e., How old do you

think you will live to be), we find that the internal reliability of this construct is greatly improved

(α = .545).

Table 2. Descriptive statistics for Internal Asset Factors (N = 562)

Latent Variable	Measured Variable(s)	M(SD)	Skewness	Kurtosis
1) Achievement Motivation (2) (α = .344)	- What were grades like in school	4.01(1.888)	.096	-.779
	- School orientation – non-facility school	3.63(.679)	-.571	.450
2) School Engagement (1)	- Engagement – community school	3.41(.964)	-.888	.487
3) Homework (1)	- Number of hours the subject spend doing homework outside of school hours	2.00(1.103)	.704	-.493
4) Caring (1)	- Consideration of others	3.57(.902)	-.470	-.104
5) Restraint (2) (α = .615)	- What's most ever used alcohol	3.61(2.528)	.652	.103
	- Number of drugs used in lifetime	1.47(1.358)	1.697	3.461
6) Planning and Decision-Making (1)	- Future orientation inventory	2.43(.551)	.097	-.097)
7) Interpersonal Competence (2) (α = .033)	- Friendship – quality of relationship	3.34(.610)	-2.143	5.563
	- Number of close friends	5.42(8.412)	5.482	40.429
8) Resistance Skills (1)	- Resistance to peer influence	3.09(.529)	-.370	-.290
9) Peaceful Conflict Resolution (2) (α = .020)	- Aggressive offending frequency in past year	12.38(37.064)	8.227	81.182
	- Suppression of aggression (WAI)	3.23(.984)	-.328	-.670
10) Personal Power (1)	- Self-reliance (PSMI)	3.19(.545)	-.713	.673
11) Self-Esteem (1)	- Rate self-esteem on a scale of 1 to 10	8.15(2.085)	-1.201	1.200
12) Positive View of Personal Future (3) (α = .545)	- Expectations to have work, family, and law	3.48(.791)	-.089	-.540
	- Chances of getting ahead/being successful not very good	3.86(.882)	-1.125	1.139
	- How far do you think you will go in school	3.01(1.043)	.064	-1.267

Outcome Measures in the Current Study

In the present study, as previously discussed, youth convicted of serious criminal offenses

were surveyed over the course of 84 months. As with baseline interviews, follow up interviews

covered six domains including: 1) indicators of individual functioning (e.g., work and/or school

status and performance, substance abuse, mental disorder, antisocial behavior), 2) psychosocial

development and attitudes (e.g., impulse control, susceptibility to peer influences, perceptions of

procedural justice and opportunity, moral disengagement), 3) family context (e.g., household

composition, quality of familial relationships), 4) personal relationships (e.g., quality of romantic

relationships, quality of platonic relationships, peer delinquency, contact with caring adults), 5)

community context (e.g., neighborhood conditions, personal capital, social ties, community

involvement), and 6) monthly account of changes across multiple domains (e.g., education,

income generating activities, legal status, etc.).

For the purposes of the current study we chose to consider four outcome variables related

to positive youth development that captured youth's development across various domains.

Specifically, we considered the following outcomes: High Risk Behaviors, Offending (i.e., future

recidivism), Employment, and Interpersonal Relationships (please note that we also considered

mental/physical health, however, we did not find adequate reliability for items related to this

construct and therefore we chose not to include mental/physical health as out of our outcomes of

interest in the present study). Outcome measures were derived from questions from youths' final

follow-up assessment. Due to a large amount missing data in the final follow-up, mainly due to

attrition of participants over the course of the study from the initial baseline interviews to the

final follow-up at 84 months, note that the sample size of participants at final follow-up (and

used in our path analyses) is 420. (See Appendix B for table of means and standard deviations

for internal and external assets for CFA analyses (N=562) and Path Analysis (N=320).

High Risk Behaviors
The High Risk Behaviors construct consists of four measured variables: 1) Number of

drugs used during recall period (SA6MOUSE), 2) How often had alcohol to drink in recall

period (SASUBUSE1), 3) Number of different partners had unprotected sex with during recall

period (PartUnpr) and 4) Number of times had unprotected sex in recall period (SAHIV1) (α=.027).

Number of drugs used during recall period was the count of endorsed items. Responses on this item ranged from 0 to 9. How often had alcohol to drink in recall period asked youth to identify how often they have had alcohol to drink during the recall period. Responses for this item were on a 9-point Likert scale with 1 representing "not at all" and 9 representing "every day." Both Number of drugs used during the recall period (SA6MOUSE) and How often had alcohol to drink in recall period (SASUBUSE) were items on the Substance Use/Abuse Inventory which was a modified version of a substance use measure developed by Chassin et al. (1991) for use in study of children of alcoholics. The Substance Use/Abuse Inventory evaluates youths' use of illegal drugs and alcohol over the recall period. Specifically, the self-report measure is comprised of three subscales: 1) substance use (e.g., "How often have you had alcohol to drink"), 2) social consequences, dependency, and treatment (e.g., "have you had problems or arguments with family or friends before because of alcohol or drug use?") and 3) parental substance use (e.g., "Has your mother gotten into trouble at work because of drinking?").

Number of different partners had unprotected sex with (PartUnpr) was measured as a count item that asked youth who indicated that they had had unprotected sex more than once during the recall period to report how many different partners they had unprotected sex with in the recall period. Responses ranged from 1 to 111. Number of times had unprotected sex in recall period (SAHIV1) asked you to indicate how many times in the recall period they have had unprotected sex (i.e., sex without a condom). Responses on this item ranged from 0 to 172.

A principal components analysis of the latent High Risk Behaviors construct demonstrated that SASUBUSE, SA6MOUSE and SAH1V1 had the highest loadings the Risky Behavior construct (SASUBUSE = .708, SA6MOUSE = .656, and SAHIV1 = .642). However, all four variables were found to have factor loadings over 0.40 (PartUnPR = 0.452) and therefore all variables were retained in the present study.

Offending (Recidivism)

Five items from the 84-month follow-up interview addressed the latent dependent variable Offending: 1) Frequency of offending during recall period (SASROFRQ), 2) Frequency of offending – non drug – during recall period (SASROFRQND), 3) Aggressive offending frequency – during recall period (AGGFRQ), 4) Income offending frequency – recall period (SAINCFRQ) and 5) Income offending frequency – non drug – during recall period (AICFQND) ($\alpha = .672$).

When we performed a principle component analysis, we found that there were two components extracted from this analysis. The first component however, had high loadings from SROFRQ (.916), SROFRQND (.700), INCFRQ (.849) and AGGDRQ (.534). AICFQND, however, had a low loading of .393 and as it did not meet the .400 cutoff, and this item was excluded from the Offending construct. After removing AICFQND, the remaining four variables related to Offending were found to have high internal consistency, or reliability ($\alpha = .710$). These four variables constitute the latent dependent construct Offending in the present.

Employment

The latent dependent variable Employment is comprised of one variable - Total weeks work in recall period across all community and under the table jobs (SAJOBCAL_NWEEKSCU). Scores on this item ranged from 0 to 60.67.

Interpersonal Relationships

Originally, we found three variables from the final Pathways to Desistance interview that addressed the latent dependent variable Interpersonal Relationship: 1) Friendship – quality of relationship (FrndQual), 2) Number of close friends (NumFrnd) and 3) Quality of relationship (RelQual) (α = .258). In the Pathways to Desistance study, FrndQual and NumFrnd were items in the Friendship Quality scale, which were adapted from items in the Quality of Relationships Inventory (Pierce, 1994). The original scale made by Pierce (1994) was designed to measure interpersonal support from a single romantic partner, however the Pathways adaptation changed the focus to a global rating, asking participants to average the rating across their five closest friends. Specifically, the scale contains ten items which vary the context of support offered (e.g., "How much can you count on the people for help with a problem" and "How close do you think you will be to these people in ten years"). Responses to these items were on a 4-point Likert scale with scores range from 1 "not at all" to 4 "very much."

RelQual (Quality of relationship) was based on the Quality of Romantic Relationships inventory (Pierce, 1994; Pierce, Sarason, Sarason, Solky-Buzel, & Nagle, 1997), which was adapted for the Pathways study in order to "evaluate the support, conflict, and depth of the adolescent's romantic relationship." The Quality of Romantic Relationships inventory assesses individuals' relationships along five dimensions: 1) quality of relationship (e.g., "In general, how happy are you with your relationship?"), 2) knowledge of behavior and deviance (e.g., "How much does {name} know who you spend time with?"), 3) tolerance of deviance (e.g., "Would {name} know if you have been using drugs?"), 4) antisocial influence (e.g., "Has X suggested that you should sell drugs?") and 5) antisocial behavior (e.g., "Has X damaged/destroyed property?"). According to the Pathways to Desistance codebook, higher scores on the first three

substances indicate a more symbiotic romantic relationship and higher scores for the last two subscales indicate greater levels of antisocial influence, antisocial behavior and monitoring, respectively (pg. 365). Specifically, RelQual was the mean of seven items. Though not explicitly stated in the Pathways codebook, we can infer these seven items were taken from the quality of relationship dimension of Quality of Romantic Relationships inventory. Scores on this item ranged from 1 to 5. Again, though not explicitly stated, we can infer that higher scores on this item indicated greater level of relationship quality as it was stated in the Pathways codebook that higher scores on the first three subscales indicated more symbiotic romantic relationships.

A principal component analysis found that FrndQual and NumFrnd had the highest loading on the interpersonal relationships construct (.809 and .695 respectively). However, the principal components analysis demonstrated that RelQual also had a relatively high loading (.532). When RelQual (variable with the weakest loading) was removed from this construct, the internal reliability improved slightly but remained low (α = .265). Despite the low reliability, we choose to include the interpersonal construct with FrndQual and NumFrnd in our analyses as we felt that interpersonal relationships represented an important outcome of interest among youthful offenders.

Table 3. Descriptive statistics for Outcome Measures (N=420)

Latent Variable	Measured Variable(s)	M(SD)	Skewness	Kurtosis
High Risk Behaviors (4) (α =.027)	- Number of drugs used during recall period	.57(1.044)	3.801	22.018
	- How often had alcohol to drink in recall period	3.10(2.422)	.781	-.836
	- Number of different partners had unprotected sex with during recall period	.69(1.676)	13.354	226.294
	- Number of times had unprotected sex in recall period	46.21(101.309)	2.554	5.535
Offending (4) (α = .710)	- Frequency of offending during recall period	53.77(192.467)	6.335	52.461
	- Frequency of offending – non drug – during recall period	11.28(47.430)	5.386	30.763
	- Aggressive offending frequency – during recall period	.90(2.948)	5.278	32.102
	- Income offending frequency – recall period	40.26(171.590)	8.036	81.447
Employment (1)	- Total weeks work in recall period across all community and under the table jobs	18.80(21.029)	.589	-1.296
Interpersonal Relationships (2) (α =.265)	- Friendship – quality of relationship	2.52(1.176)	-.313	-1.578
	- Number of close friends	2.07(4.616)	9.073	97.766

PRELIMINARY ANALYSES

For our first set of preliminary analyses, we ran confirmatory factor analyses (CFA) of our developmental asset factors to verify the factor structure of our observed, measured variables. Specifically, we conducted these analyses in order to test the hypothesis that the internal developmental assets are indeed distinct factors. Unfortunately, due to limitations in the data available (as previously discussed), we did not have access to measured variables for all twenty internal developmental assets listed by the Search Institute. Instead, we tested the 11 external assets and the 12 internal assets we had constructed from the Pathways to Desistance baseline data.

In the present study, we had both ordinal and continuous data and therefore needed to conduct robust diagonally weighted least-squares estimation. Although maximum-likelihood (ML) estimation is the most commonly used method of estimation in SEM analyses, ML estimation assumes continuous, equal interval measurement of measured variables so that item variances and covariances are interpretable and multivariable normality can be established or confirmed (Bollen, 1989; Kline, 2011). Numerous health and psychosocial measurement instruments, including many used in the Pathways to Desistance study, however, consist of items that are assed using ordinal response scales that have unequal intervals. These ordinal measurement scales use only a limited number of discrete response categories that are arranged in order of increasing magnitude to assess level of agreement (Bollen, 1989; Finney & DiStefano, 2006). Though often analyzed as if they were continuous measures, the univariate and

 multivariable distributions of such Likert scale items are likely to be non-normal due to the non-continuous nature of ordered categorical data.

Though some evidence suggests that ML factor analysis is robust with respect to normality (Benson & Fleishman, 1994; Fuller & Hammerle, 1966), using confirmatory factor analysis with maximum likelihood estimation to analyze continuous data that have been recoded into a subset of a lesser number of ordered categories often produces underestimates of actor loadings, unreliable standard errors of parameter estimates, as well as inflated goodness-of-fit chi-square vales, which comprise the validity of statistical inferences (Coenders, Satorra, & Saris, 1997; Dolan, 1994; Flora & Curran, 2004; Green, Akey, Fleming, Hershberger, & Marquis, 1997; Muthen & Kaplan, 1985; West, Finch, & Curran, 1995). Given these shortcomings, a variety of alternative estimation methods have been developed in order to analyze ordinal data, however, full weighted least-squares estimation, diagonally weighted least-squares (DWLS) estimation, and their robust counterparts are currently accepted as the most appropriate estimation methods for confirmatory factor analysis with ordinal data (Finney & DiStefano, 2006).

In order to use robust DLWS estimation to analyze data using a polychoric correlation matrix (PM) among ordinal variables weighted by an asymptotic covariance matrix (AC), we had to create these matrices from our internal and external asset datasets. The minimum sample size for which PRELIS will allow you to compute an asymptotic covariance matrix is K [number of measured variables][number of measured variables +1]/2. As we only had only 562 participants with baseline data, the maximum number of measured variables we could include when creating these matrices was 33 ([33(33+1)]/2=561) and therefore we could not assess both our internal developmental asset factors and external developmental asset factors simultaneously. We had 16

measured variables for external assets and 18 measured variables for internal assets for a total of 34 measured variables at time 1 (baseline). Thus, we chose to begin our analysis by conducting CFAs of our external developmental asset factors and internal developmental assets separately.

Although we did not have a complete list of 40 Developmental Assets (Search Institute, 1997; 2007), our hope was to explore the factor structure of internal developmental assets and external developmental assets in the Pathways sample. Specifically, we wanted to test the Search Institute's model that these assets were distinct, independent factors. Therefore, we conducted confirmatory factor analyses to see if the present data supported an 11-factor model of external developmental assets and/or a 12- factor model of internal developmental assets.

PRELIMINARY RESULTS

Confirmatory Factor Analysis – External Assets

Model 1

First, we tested an orthogonal (independent) 11-factor model of external assets. Overall, we found that this model did not have good fit to the data Maximum Likelihood Ratio χ^2 (104, *N* = 562) = 821.740. The obtained goodness of fit statistics indicated that the model had poor fit (RMSEA = 0.111, SRMR = 0.136, CFI 0.694, NNFI = 0.647). The obtained RMSEA (0.111) exceeds .10 and therefore represents unacceptable model fit (Browne & Cudek, 1993). Similarly, the obtained SRMR value (0.136) is also quite large and exceeds the .08 cutoff for acceptable fit (Hu & Bentler, 1998). We also found that the obtained values for CFI (0.694) and NNFI (0.647) further demonstrate poor model fit as both values are quite small, and fail to meet the .90 cutoff indicating acceptable fit for CFI and NNFI (Marsh, Hau, & Wen, 2004). Overall, we found that the orthogonal (independent) 11-factor model of external assets did not have good fit to the data as all goodness of fit statistics demonstrated poor model fit. Thus, it seems that the independent 11-factor model of external assets is not supported by the data.

Model 2

For our second model, we chose to run a modified orthogonal (independent) 11-factor model that accounted for the fact that seven of our latent external asset constructs were comprised of a single measured variable. As noted by Kelloway (1998), constructs with only one indicate are problematic as they create an identification problem by "trying to estimate both a

unique and a common factor loading as well as the variance for one construct using only one indicator" (p. 135). The structural equation for single-item factors cannot be solved with only one known element (and two unknowns). In this case, the factor solution will be under-identified (i.e., there are more unknowns than knowns).

To address the issue of under-identification in instances where there are single indicators for latent variables, Kelloway (1998) proposes two solutions. First, one can separate, or divide, scale items to produce multiple indicators or, alternatively, you can declare a latent variable with a single indicator "is to fix the common (LY) and unique (TE) factor loadings at predetermined values and to estimate only the variance of the latent variable" (pg. 135). Broadly, in order to evaluate single indicator latent variables, you need to include constraints in order to address the identification issue. Thus, you need to fix the value of one of the two unknowns (i.e., the factor loading of the single measured variable on the factor *or* the unique error variance of the single measured variable) in order for the single-item factor to be identified. One solution, proposed by Bryant (2017), is to make a decision regarding how much of the variance in the single measured variable you want to assume is unique error and fix the unique error variance term (TD) of the single measured variable to this value, thereby allowing you to freely estimate the loading of the single item on the factor with only one unknown (i.e. the factor loading), allowing for a solution for the single-item factor that is exactly identified.

In this case, we chose to assume that none of the variance in the single items was unique error. Therefore, we assumed that the measured variables were perfectly reliable and fixed the unique error variance terms for our seven single indicator latent variables (i.e., 1) family support (domains of family support), 2) caring neighborhood (social capital – closure and integration), 3) caring school climate (satisfaction community school), 4) safety (exposure to violence total), 5)

family boundaries (parental monitoring), 6) religious community (past year how often attended church), and 7) time at home (unsupervised routine activities) to 0 [TD(1,1) TD(7,7), TD(8,8) TD,(9,9) TD(10,10) TD(15,15) TD(16,16) fixed at 0].

Overall, we found that the 11-independent factor of external assets was slightly improved after addressing the identification issue of our single measure item constructs; however, this model failed to show good fit to the data Maximum Likelihood Ratio χ^2 (111, $N = 562$) = 821.740. Specifically, for this model, we obtained the following goodness of fit statistics (RMSEA = 0.107, SRMR, = 0.136, CFI = 0.697, NNFI = 0.673). Therefore, we found that the obtained SRMR stayed the same from the first model to the second (0.136), which again indicates poor model fit as this value exceeds the standard cutoff of less than .08 for acceptable model fit (Hu & Bentler, 1998). Although the SRMR stayed the same from the original model to the modified 11 independent factor model of external assets accounting for single measured item factors, we see that in the modified model, the RMESEA was smaller (0.107). Although this value is still high at 0.107, it represents unacceptable model fit (Browne & Cudeck, 1993); this value is much smaller than the RMSEA value obtained in the original model and as smaller RMSEA values indicate better fit (Steiger, 1989), it appears that the modified 11 independent factor model of external assets has better fit as compared to the original model.

In addition, we also found that the CFI was slightly larger in the modified model (0.697) as compared to original model (0.694). This trend was also observed in the obtained NNFI value (0.647 in original independent 11-factor model and 0.697 in the modified model). Although the obtained CFI and NNFI values were still less than .09 (i.e., the cutoff of acceptable model fit (Marsh et al., 2004), the increase in these values from the original model to the modified independent 11 factor model of external assets indicates that the modified model did have

improved fit as compared to the original model as higher CFI values (Bentler, 1990) and NNFI values indicate better fit (Tucker & Lewis, 1973; Bentler & Bonett, 1980).

Model 3

For our next model, we chose to run an oblique (correlated) 11-factor model of external assets with the unique error variance terms for our seven single indicator latent variables fixed at 0 (See Appendix C for Path Diagram), as was done in the previous model, which would allow us to identify whether the 11-factor model is improved by allowing these factors to correlate with one another, meaning that we defined the variance units of latent variables by standardizing [their] variance (PH=ST). Overall, we found the fit of the oblique (correlated) 11-factor model was good Maximum Likelihood Ratio χ^2 (56, $N = 562$) $= 138.566$, $p = 0.0000$, Satorra-Bentler Scaled χ^2 (56, $N = 562$) $= 63.218$, $p = 0.2340$. For the oblique 11-factor model, we found the following goodness of fit statistics: RMSEA $= 0.0512$, SRMR $= 0.0346$, CFI $= 0.965$, NNFI $= 0.925$. Therefore, the obtained RMSEA (0.0512) is between .05 and .08 indicating reasonably close fit, and approaches .05, which is the cutoff for close fit (Browne & Cudeck, 1993). The obtained SRMR (0.0346) is also less than .09, indicating acceptable model fit (Hu & Bentler,1998) and the obtained CFI and NNFI values are both greater than .90, again indicating acceptable model fit (Marsh et al., 2004). Moreover, as you can see from the table above/below, the correlated 11 factor model of external assets fit the data significantly better than the uncorrelated 11 factor model $\Delta \chi^2$ ($\Delta df = 55$, $N = 562$) $= 683.174$, $p < .00001$.These findings provide stronger evidence that the 11 identified external asset factors models are separate, but related aspects of developmental assets.

The data further indicate that the 11 external asset factors are *not* independent of one another. Specifically, we found in the oblique (correlated) 11-factor solution, that the correlation

between Safety and Family Boundaries was -0.240 (z = -7.618, p < 0.00001), indicating that these two factors share about 6 percent of their variance (-0.240*-0.240 = 0.0576). In addition, we found that the correlation between Safety and Religious Community was 0.160 (z = 3.870, p = 0.000109), indicating that these two factors share about 3 percent of their variance (0.160*0.160 = 0.0256). We also found that the correlation between Safety and Time at Home was -0.145 (z = -5.174, p < 0.00001), indicating that these two factors share about 2 percent of their variance (-0.145*-0.145 = 0.0210).

We also found that the correlation between Family Boundaries and Time at Home was 0.367 (z = 11.074, p < 0.0001), indicating that these two factors share about 13 percent of their variance (0.367*0.367=0.1347). In addition, we found that the correlation between Religious Community and Positive Peer Influence was 0.190 (z = 2.998, p= 0.002718), indicating that these factors share about 4 percent of their variance (0.190*0.190 = 0.0361). Although these correlations may be small, it is worth noting that we found several of the correlations between factors to be significant. The significant correlations between external asset factors in addition to the strong goodness of fit statistics obtained in the correlated 11-factor model of external assets and the finding that allowing the 11 external asset factors to correlate did significantly improve the fit of the 11-factor model, provide evidence that the 11 external asset factors are separate, but related factors.

Lastly, we also considered the squared multiple correlations from our correlated 11-factor model of external assets. The obtained squared multiple correlations from the oblique (correlated) 11 factor solution reveal that the Positive Family Communication factor explained 21.5% of the variance in maternal warmth and 47.5% of the variance in maternal hostility. Likewise, the Other Adult Relationships factor explained 81.1% of the variance in Domains of

non-familial social support, 61.3% of the variance in Depth of Non-Family Support, and 63.8%

of the variance in Diversity of non-familial social support. In addition, we found that the Positive

Peer Influence factor explained 75.6% of the variance in Peer delinquency – antisocial behavior

and 61.0% of the variance in Peer delinquency – antisocial influence. Lastly, we found that the

Youth Programs factor explained 77.4% of the variance in Days per week spent on attending

athletic events, plays or school dances and 69.6% of the variance in total number of

extracurricular activities community school. Note, however, we did not obtain squared multiple

correlations for the remaining variables as those variables were comprised of a single measured

variable. Therefore, all of the variance in those measured variables was accounted for by

corresponding external asset construct and therefore those items all had squared multiple

correlations of 1.0.

Table 4. Confirmatory Factor Analysis Results Summary – External Developmental Assets

Model	Maximum Likelihood Ratio χ^2	Satorra-Bentler Scaled χ^2	df	Measures of Absolute Fit		Measures of Relative Fit	
				RMSEA	SRMR	CFI	NNFI
Orthogonal (Independent) 11 Factor Model	821.740	-	104	0.111	0.136	0.694	0.647
Orthogonal (Independent) 11 Factor Model – TD(1,1) TD(7,7) TD(8,8) TD(9,9) TD(10,10), TD(15,15) TD(16,16) fixed at 0	821.740	-	111	0.107	0.136	0.697	0.673
Oblique (Correlated) 11 Factor Model – TD(1,1) TD(7,7) TD(8,8) TD(9,9) TD(10,10), TD(15,15) TD(16,16) fixed at 0	138.566	63.318	56	0.0512	0.0346	0.965	0.925

Contrasting Nested CFA Models (External Assets)	$\Delta \chi^2$	Δ df	p <
Model 2 vs. Model 3: 11 uncorrelated factors vs. 11 correlated factors	683.174	55	0.00001

Note. RMSEA = root mean square error of approximation. SRMR = standardized root mean residual. CFI = comparative fit index. NNFI = nonnormed fit index

Confirmatory Factor Analysis – Internal Assets

Model 1

The first model of internal asset factors we ran was an orthogonal (independent) 12 factor

model, which we found had poor fit to the data Maximum Likelihood Ratio χ^2 (135, $N = 562$) =

1357.029. The obtained goodness of fit statistics for this model indicated poor model fit (RMSEA = 0.127, SRMR = 0.151, CFI = 0.269, NNFI = 0.171). The obtained RMSEA value (0.127) is greater than .10 and therefore represents "unacceptable model fit" (Browne & Cudeck, 1993). Similarly, the obtained SRMR (0.151) is also quite high and does demonstrate acceptable fit. We do find, however, that both the obtained CFI and NNFI values are greater than .90 and therefore they indicate acceptable model fit (Marsh et al., 2004). Overall, we were not surprised to find that this initial model demonstrated poor goodness of fit as we did not account for the single measure items in this model, which could result in an identification issue as discussed previously.

Model 2

To address the single measured items, as we did in in the second external assets model, we chose to fix the unique error variance term (TD) of the single measure variables, which allowed us to freely estimate the loadings of our single items on our factors with only one unknown (i.e., the factor loading) and thereby producing solutions for the single-item factors that were exactly identified. Specifically, we chose to assume that none of the variance in the single items was unique error and assumed that the measured variables were perfectly reliable. Therefore, we fixed the unique error variance terms for our seven single indicator latent variables (i.e., 1) school engagement (engagement-community school), 2) homework (number of hours the subject spent doing homework outside of school hours), 3) caring (consideration of others), 4) planning and decision-making (future orientation inventory), 5) resistance skills (resistance to peer influence), 6) personal power (self-reliance (PSMI)), and 7) self-esteem (rate self-esteem scale of 1 to 10) to 0 [TD(3,3) TD(4,4) TD(5,5) TD(8,8) TD(11,11)TD(14,14) TD(15,15) fixed at 0].

Overall, we found that the modified orthogonal (independent) 12-factor model accounting for single measure items did not have good fit Maximum Likelihood Ratio χ^2 (142, N = 562) = 1357.029. The obtained goodness of fit statistics for this model did not indicate good fit (RMSEA = 0.123, SRMR = 0.151, CFI = 0.273, NNFI = 0.256). Although the obtained RMSEA value did drop slightly from the original model (0.127 in model 1 versus 0.123 in model 2), indicating improved fit from the original model, this value was still quite large and exceeded .10, therefore indicated "unacceptable model fit" (Browne & Cudeck, 1993). In the second model, we found that the SRMR value stayed constant at 0.151, again indicating unacceptable fit (Hu & Bentler, 1998). However, we did observe that both the CFI and NNFI values did increase, which provide further evidence that the second model had improved fit over the first model as expected. Despite, indications of improved model according to changes in the obtained RMSEA, CFI and NNFI, only two of our goodness of fit statistics (CFI and NNFI) indicated acceptable model fit and therefore we conclude that the modified orthogonal (independent) 12-factor model accounting for single measure items did not demonstrate good fit to the data.

Model 3

For our third model, we choose to run an oblique (correlated) 12-factor model wherein we included the single measure item modifications used in our second model (See Appendix D for Path Diagram). Overall, we found that this model demonstrated good fit Maximum Likelihood Ratio χ^2 (76, N = 562) = 152.687, Satorra-Bentler Scaled χ^2 (76, N = 562) = 0.106 p = 1.0000. Specifically, we found that the obtained RMSEA (0.0424) was less than .05, indicating that the model had close fit (Browne & Cudeck, 1993). In addition, the obtained SRMR (0.0338) was also quite small and as it was less than .08, indicating acceptable model fit (Hu & Bentler, 1998). The obtained CCFI and NNFI values in this model were both greater than .90 (CFI =

0.954, NNFI = 0.908), which also indicated that this model had acceptable fit (Marsh et al., 2004). Therefore, all obtained goodness of fit statistics indicated acceptable or better than acceptable model fit, indicating that the oblique (correlated) 12-factor model of internal assets has good fit to the data. Moreover, as you can see in Table 5, the correlated 12-factor model of internal assets fit the data significantly better than the uncorrelated 12-factor model $\Delta \chi^2 (\Delta df = 66, N = 562) = 1204.342, p < .00001$. This finding provides further evidence that the 12 identified internal asset factors are separate, but related aspects of developmental assets, or protective factors.

The results further indicate that the 12 internal asset factors are not independent of one another. Specifically, we found in the oblique (correlated) 12-factor solution, that the correlation between Achievement Motivation and School Engagement was .719 ($z = 10.967, p < 0.00001$), indicating that these two factors share approximately 52 percent of their variance ($0.719*0.719 = 0.5170$). In addition, we found that the correlation between Achievement Motivation and Homework was 0.376 ($z = 6837, p < 0.00001$), which indicated that these factors share approximately 14 percent of their variance ($0.376*0.376 = 0.1414$). Moreover, we found that the correlation between Achievement motivation and Caring was equal to 0.277 ($z = 7.114, p < 0.00001$), which indicate that these factors share approximately 8 percent ($0.277*0.277 = 0.0767$). We also found the correlation between Achievement Motivation and Restraint was equal to -0.315 ($z = -4.707, p < 0.00001$), which indicated that these factors share approximately 10 percent of their variance ($-0.315*-0.315 = 0.0992$). The correlation between Achievement Motivation and Planning and Decision Making was equal to 0.262 ($z = 8.321, p < 0.00001$), which indicated that these factors shared approximately 7 percent of their variance ($0.262*0.262 = 0.0686$). In addition, the correlation between Achievement Motivation and Personal Power was

0.102 (z = 5.251, p < 0.00001), which indicated that these variables shared approximately 1

percent of their variance (0.102*0.102 = 0.0104). The correlation between Achievement

Motivation and Self-Esteem was 0.094 (z = 2.032, p = 0.042154), which indicated that these

variables shared approximately .88 percent of their variance (0.094*0.094 = 0.0088). In addition,

we found the correlation between Achievement Motivation and Positive View of Personal Future

was 0.513 (z = 8.672, p < 0.00001), indicating that these variables share approximately 26

percent of their variance (0.513*0.513 = 0.2631).

In addition, we also considered the correlations between School Engagement and the

other internal asset constructs/factors. Specifically, we found that the correlation between School

Engagement and Homework was equal to 0.473 (z =8.911, p < 0.00001), indicating that these

variables share approximately 22 percent of their variance (0.473*0.473 = 0.2237). Moreover,

the correlation between School Engagement and Caring was 0.236 (z = 5.930, p < 0.00001),

indicating that these factors share approximately six percent of their variance (0.236*0.236 =

0.0557). The correlation between School Engagement and Restraint was -0.254 (z = -4.073, p =

4.6E-05), indicating that these variables share approximately 6 percent of their variance (-

0.254*-0.254 = 0.0645). The correlation between School Engagement and Planning and

Decision-Making was 0.205 (z = 8.344, p < 0.00001), which indicated that these variables shared

approximately 4 percent of their variance (0.205*0.205 = 0.0420). The correlation between

School Engagement and Positive View of Personal Future was 0.372 (z = 6.970, p < 0.00001),

which indicated that these variables share approximately 14 percent of their variance

(0.372*0.372 = 0.1384).

We also explored the correlations between Homework and the other internal asset

constructs. Overall, we found the correlation between Homework and Caring was 0.191 (z =

4.684, $p < 0.00001$), indicating that these variables share approximately four percent of their variance (0.191*0.191 = 0.0365). In addition, we found that the correlation between Homework and Restraint was -0.243 ($z = -4.884$, $p < 0.00001$), indicating that these variables shared approximately 6 percent of their variance (-0.243*-0.243 = 0.0590). The correlation between Homework and Planning and Decision-Making was 0.183 ($z = 3.630$, $p = 0.000283$), which indicated that these variables share approximately three percent of their variance (0.183*0.183 = 0.0335). We also observed that the correlation between Homework and Resistance Skills was -0.083 ($z = -2.159$, $p = 0.03085$), which indicated that these variables shared approximately .70 percent of their variance (-0.083*-0.083 = 0.0069). The correlation between Homework and Personal Power was equal to -0.072 ($z = -2.046$, $p = 0.0408$), indicating that these variables shared approximately .5 percent of their variance (-0.072*-0.072 = 0.0052). Additionally, the correlation between Homework and Positive View of Personal Future was equal to 0.259 ($z = 4.605$, $p < 0.00001$), which indicated that these variables share approximately seven percent of their variance (0.259*0.259 = 0.0671).

Regarding the correlation between Caring and other internal asset constructs, we found that the correlation between Caring and Restraint was -0.178 ($z = -3.130$, $p = 0.001748$), which indicated that these variables share approximately 3 percent of their variance (-0.178*-0.178 = 0.0317). We also found that the correlation between Caring and Planning and Decision-Making was 0.409 ($z = 11.684$, $p < 0.00001$), which indicated that these variables shared approximately 17 percent of their variance (0.409*0.409 = 0.1673). The correlation between Caring and Personal Power was -0.076 ($z = -3.220$, $p = 0.001282$), indicating that these two variables shared approximately .6 percent of their variance (-0.076*-0.076 = 0.0058). The correlation between Caring and Positive View of Personal Future was 0.294 ($z = 6.607$, $p < 0.00001$), which

indicated that these variables shared approximately 9 percent of their variance (0.2940*0.294 = 0.0864).

In regards to the correlations between Restraint and other internal asset constructs, we found the correlation between Restraint and Planning and Decision-Making was -0.156 (z = -3.887, p = 0.000101), which indicated that these two variables shared approximately 2 percent of their variance (-0.156*-0.156 = 0.0243). We also found that the correlation between Restraint and Self-Esteem as -0.128 (z = -2.269, p = 0.023268), indicating that these variables share approximately 2 percent of their variance (-0.128*-0.128 = 0.0164). The correlation between Restraint and Positive View of Personal Future was -0.213 (z = -3.155, p = 0.001605), indicating that these two variables shared approximately 5 percent of their variance (-0.213*-0.213 = 0.0454).

In addition, we also found that the correlation between Planning and Decision-Making and Resistance Skills was -0.031 (z = -2.246, p = 0.024704), which indicated that these two variables shared approximately .1 percent of their variance (-0.031*-0.031 = 0.0010). Moreover, we found the correlation between Planning and Decision-Making and Self-Esteem was 0.126 (z = 3.027, p = 0.00247), indicating that these variables share approximately 2 percent of their variance (0.126*0.126 = 0.0159). Lastly, the correlation between Planning and Decision-Making and Positive View of Personal Future was 0.463 (z = 11.267, p < 0.00001), which indicated that these two variables share approximately 21 percent of their variance (0.463*0.463 = 0.2144). Although many of the observed correlations were relatively small, the fact that we observed many significant correlations between internal asset constructs in addition to the goodness of fit statistics of the correlated 12-factor model as well as the finding that the 12-factor model was

significantly improved from the uncorrelated 12-factor model provides evidence that the 12 internal asset factors are in fact separate, but related constructs.

Finally, we also considered the squared multiple correlations obtained from our correlated 12-factor model of internal assets. The obtained squared multiple correlations from the oblique (correlated) 12-factor solution reveal that the Achievement Motivation factor explained 93.2% of the variance in school orientation – community school and only 12.5% of the variance in grades. In addition, we also found that the Restraint factor explained 45.2% of the variance in what's most ever used alcohol and 65.7% of the variance in number of drugs used in lifetime. However, we found that the Interpersonal Competence factor seemed to explain very little of the variance in its related measured variables. Specifically, we found that the Interpersonal Competence factor explained only 17.0% percent of the variance in Friendship – quality of relationship and 8.1% of the variance in number of close friends. In addition, we observed that the Peaceful Conflict Resolution factor explained only 11.6% of the variance in aggressive offending frequency in the past year and 32.9% of the variance in suppression of aggression. Lastly, we found that the Positive View of Personal Future factor explained 38.1% of the variance in expectations to have work, family, law, 32.7% of the variance in chances of getting ahead/being successful not very good and 29.8% of the variance in how far do you think you will go in school. Again, note that we did not obtain squared multiple correlations for the remaining variables as those were comprised of a single measured variable. Therefore, all of the variance in those measured variables was accounted for by the corresponding internal asset construct and thus, all of those items had squared multiple correlations of 1.0.

Table 5. Confirmatory Factor Analysis Results Summary – Internal Developmental Assets

Model	Maximum Likelihood Ratio χ^2	Satorra-Bentler Scaled χ^2	df	Measures of Absolute Fit		Measures of Relative Fit	
				RMSEA	SRMR	CFI	NNFI
Orthogonal (Independent) 12 Factor Model	1357.029	-	135	0.127	0.151	0.269	0.171
Orthogonal (Independent) 12 Factor Model – TD(3,3) TD(4,4) TD(5,5) TD(8,8) TD(11,11) TD(14,14) TD(15,15) fixed at 0	1357.029	-	142	0.123	0.151	0.273	0.217
Oblique (Correlated) 12 Factor Model – TD(3,3) TD(4,4) TD(5,5) TD(8,8) TD(11,11) TD(14,14) TD(15,15) fixed at 0	152.687	0.106	76	0.0424	0.0338	0.954	0.908

Contrasting Nested CFA Models (Internal Assets)	$\Delta \chi^2$	Δ df	$p <$
Model 2 vs. Model 3: 12 uncorrelated factors vs. 12 correlated factors	1204.342	66	.00001

Note. RMSEA = root mean square error of approximation. SRMR = standardized root mean residual. CFI = comparative fit index. NNFI = nonnormed fit index

MAIN RESULTS

Path Analysis - External Assets

 After running CFAs for both the external and internal developmental assets, we then ran a path analysis model for external developmental assets and the outcome measures specified earlier. Overall, we found that this model does appear to fit the data well χ^2 (df =220) = 597.479 (See Appendix E for Path Diagram). Specifically, the model produced the following goodness of fit statistics: RMSEA = 0.0639, SRMR = 0.0627, CFI = 0.902, and NNFI = 0.843. Our obtained RMSEA value (0.0639) indicates reasonably close fit (Steiger, 1989) and our obtained SRMR value (0.0627) indicates good fit (Jöreskog & Sörbom, 1981). In addition, the obtained CFI value (0.902) does surpass .90 (i.e., the acceptable value for good fit (Bentler, 1990) and therefore suggests acceptable model fit. Although our obtained NNFI (0.843) was slightly low and did not meet the standard .90 cutoff for good fit (Tucker & Lewis, 1973; Bentler & Bonnett, 1980) this value was close to .90 suggesting that our model does have acceptable fit.

Table 6. 27 Variable Path Model (16 external asset variables and 11 outcome variables)

Parameter	Unstandardized Estimate	Standard Error (SE)	Standardized Estimate	p-value
Family Support -> High Risk Behaviors GA(1,1)	**.820**	**0.061**	**2.082**	**< 0.00001***
Positive Family Communication -> High Risk Behaviors GA(1,2)	.510	0.070	0.708	< 0.00001*
Other Adult Relationships -> High Risk Behaviors GA(1,3)	**.516**	**0.057**	**1.022**	**<0.00001***
Caring Neighborhood -> High Risk Behaviors GA(1,4)	-.038	0.045	-0.091	0.394214
Caring School Climate -> High Risk Behaviors GA(1,5)	-.399	0.074	-0.854	<0.00001*
Safety -> High Risk Behaviors GA(1,6)	.008	0.046	0.019	0.860294
Family Boundaries -> High Risk Behaviors GA(1,7)	-.148	0.046	-0.339	0.001291*
Positive Peer Influence -> High Risk Behaviors GA(1,8)	.077	0.044	0.201	0.075076
Youth Programs-> High Risk Behaviors GA(1,9)	.043	0.057	0.114	0.443676
Religious Community -> High Risk Behaviors GA(1,10)	-.102	0.030	-0.255	0.000841*
Time at Home -> High Risk Behaviors GA(1,11)	**-.480**	**0.052**	**-1.076**	**<0.00001***
Family Support -> Offending GA(2,1)	**.656**	**0.049**	**0.564**	**<0.00001***
Positive Family Communication -> Offending GA(2,2)	-.205	0.050	-0.096	3.6E-05*
Other Adult Relationships -> Offending GA(2,3)	-.140	0.045	-0.094	0.00179*
Caring Neighborhood -> Offending GA(2,4)	.422	0.045	0.342	<0.00001*
Caring School Climate -> Offending GA(2,5)	**.544**	**0.044**	**0.395**	**<0.00001***
Safety -> Offending GA(2,6)	-.017	0.044	-0.014	0.695797
Family Boundaries -> Offending GA(2,7)	.130	0.048	0.101	0.006648*
Positive Peer Influence -> Offending GA(2,8)	.313	0.042	0.276	<0.00001*
Youth Programs -> Offending GA(2,9)	.273	0.050	0.244	<0.00001*
Religious Community -> Offending GA(2,10)	**-1.840**	**0.059**	**-1.566**	**<0.00001***
Time at Home -> Offending GA(2,11)	-.226	0.044	-0.172	<0.00001*
Family Support -> Employment GA(3,1)	**.966**	**0.064**	**1.872**	**<0.00001***
Positive Family Communication -> Employment GA(3,2)	.555	0.078	0.589	<0.00001*
Other Adult Relationships -> Employment GA(3,3)	**.688**	**0.059**	**1.042**	**<0.00001***
Caring Neighborhood -> Employment GA(3,4)	-.194	0.049	-0.355	7.6E-05*
Caring School Climate -> Employment GA(3,5)	.170	0.051	0.277	0.000916*
Safety -> Employment GA(3,6)	-.158	0.053	-0.283	0.002691*
Family Boundaries -> Employment GA(3,7)	-.262	0.052	-0.459	<0.00001*
Positive Peer Influence -> Employment GA(3,8)	.039	0.055	0.076	0.481433
Youth Programs -> Employment GA(3,9)	-.290	0.052	-0.583	<0.00001*
Religious Community -> Employment GA(3,10)	-.067	0.040	-0.129	0.091989
Time at Home -> Employment GA(3,11)	**-.367**	**0.057**	**-0.629**	**<0.00001***
Family Support -> Interpersonal Relationships GA(4,1)	**.538**	**0.052**	**1.158**	**<0.00001***
Positive Family Communication -> Interpersonal Relationships GA(4,2)	-.046	0.051	-0.054	0.368653
Other Adult Relationships -> Interpersonal Relationships GA(4,3)	.407	0.054	0.685	<0.00001*
Caring Neighborhood -> Interpersonal Relationships GA(4,4)	-.085	0.047	-0.172	0.074749
Caring School Climate -> Interpersonal Relationships GA(4,5)	**.548**	**0.090**	**0.995**	**<0.00001***
Safety -> Interpersonal Relationships GA(4,6)	-.084	0.050	-0.168	0.091796
Family Boundaries -> Interpersonal Relationships GA(4,7)	-.271	0.051	-0.527	<0.00001*
Positive Peer Influence -> Interpersonal Relationships GA(4,8)	.461	0.072	1.017	<0.00001*
Youth Programs -> Interpersonal Relationships GA(4,9)	-.433	0.067	-0.968	<0.00001*
Religious Community -> Interpersonal Relationships GA(4,10)	-.050	0.032	-0.106	0.117583
Time at Home -> Interpersonal Relationships GA(4,11)	**-.524**	**0.065**	**-0.998**	**<0.00001***

As you can see in the table above, we found overall the paths from our 11 developmental asset constructs to our four outcome constructs were significant, suggesting that these developmental assets have an impact on outcomes among this sample. Overall, we found that of the 44 specified paths, all but 11 were found to be significant. We did not find the following

paths to be significant: 1) Caring Neighborhood to High Risk Behaviors, 2) Safety to High Risk Behaviors, 3) Positive Peer Influence to High Risk Behaviors, 4) Youth Programs to High Risk Behaviors, 5) Safety to Offending, 6) Positive Peer Influence to Employment, 7) Religious Community to Employment, 8) Positive Family Communication to Interpersonal Relationships, 9) Caring Neighborhood to Interpersonal Relationships, 10) Safety to Interpersonal Relationships, and 11) Religious Community to Interpersonal Relationships.

To compare the relative impact of our designated latent independent factors (i.e., developmental assets) on our latent dependent constructs, we consulted the gamma matrices which show the regression coefficients prediction endogenous variables from exogenous variables and thus will allow us to compare the relative impact of our independent variable constructs on our four dependent variable constructs to see which factors have the largest impact on these outcomes.

Overall, we found that several external developmental assets appeared to be related to decreased participation in high-risk behaviors later in life. In particular, we found that caring school climate was negatively associated with participation with high risk behaviors, such higher ratings of caring school climate (which again was assessed using youths' ratings of satisfaction with school) were associated with lower levels of participation in high risk behaviors later in life. In addition, we also found that family boundaries and religious community were also negatively associated with future participation in risky behaviors, as higher levels of family boundaries and religious community were also negatively associated with participation in high-risk behaviors. These results mirror previous work that have demonstrated that family routines and parental monitoring (e.g., Beyers et al., 2003; Hair et al., 2008) and participation in religious institutions are protective factors for youth (Wagener, Furrow, King, Leffert & Benson, 2003; Good &

Willoughby, 2006; Sinha, Cnaan, & Gelles, 2007, Walker, Ainette, Wills & Mendoza, 2007; Johnson, Jang, de Li, & Larson, 2000).

We also found that external developmental assets were also related to reductions in future offending. These findings emphasize that the developmental assets may play a critical role in facilitating the desistance of criminal or antisocial behaviors among youthful offenders. In reviewing our results, again we see that religious community seems to be an important developmental asset as this factor demonstrated the largest impact on future offending among the external developmental assets. In addition to religious community, we also found that positive family communication was negatively related with future offending, indicating that more positive family communication patterns during adolescence are a protective factor against recidivism, or continued participation in criminal behaviors. We also found that other adult relationships had a negative relationship with future offending. This finding suggests that positive relationships with non-parental adults can be a protective factor against future offending among serious juvenile offenders. This result seems to support other research that have demonstrated the important role that non-parental adults can play in fostering positive development among youth, including youth who may be at-risk for adverse outcomes.

In regards to employment, we see that external assets also appear to be protective factors facilitating positive development among the youth surveyed in this study as several external assets were positively related to future employment, indicating that higher levels of these assets were related to greater levels of employment. In particular, our findings suggest that family support, other adult relationships, and positive family communication during adolescence may be among the developmental assets that have the largest impact on youths' future employment. These findings suggest that positive relationships with parents and other adults have broad

implications for delinquent youth as these factors appear to aid youth in their ability to find and maintain employment, which is critical as youth transition into adulthood and are responsible for supporting themselves. The ability to maintain employment is especially relevant in regards to juvenile offenders it is assumed that former offenders who are unable to find or maintain employment are likely to turn to illegal means to support themselves if left with no other options (Nally, Lockwood, Ho & Knutson, 2014). Indeed, several studies have found that released offenders are likely to recidivate post-release from prison if they fail to secure employment (Allen, 1988; Batiuk, 1997; Blomberg, Bales, & Piquero, 2012; Burke & Vivian, 2001; Fabelo, 2002; Harlow, 2003; Nuttall, Hollmen, & Staley, 2003; Vacca, 2004; Wilson, Gallagher, & MacKenzie, 2000).

We also found that external developmental assets are important in regards to youths' social outcomes. Overall, we found that caring school climate, family support, and positive peer influence were strongly related with improved interpersonal outcomes later in life. These findings demonstrate the fact that diffuse nature of domains of influence in an adolescents' life as positive experiences in one domain can have benefits for outcomes that may originally seem unrelated. For example, our findings suggest that positive academic experiences (namely caring school climate) during adolescence appear to have important implications for youths' future social relationships. Similarly, our findings suggest that having relationships with pro-social peers also seems to be related to more optimal social related outcomes in adulthood. These findings provide further evidence of the importance of these developmental assets as they have the ability to influence youths' development in multiple domains. Moreover, the finding that the most impactful assets derive from multiple domains of influence (i.e., school, family, and peers) highlight the need for interventions for youthful offenders to be multifaceted, targeting building

strengths in multiple domains. Lastly, it is also important to note that our findings appear to suggest the diffuse nature of developmental assets as developmental assets do not necessarily exert the largest impacts on outcomes that appear to be directly related. Rather, our findings suggest that assets in one domain have important implications for other domains. For example, a school related developmental asset (i.e., caring school climate) and a peer level developmental asset (i.e., positive peer influence) were highly related to youths' future social outcomes. Thus, it is important to acknowledge that the influence of developmental assets may not be broader or different from people's expectations. Therefore it is important to consult research to identify which developmental assets are related to specific outcomes when designing intervention programs rather than assuming which assets will be most positively related to the desired outcome(s) of intervention or treatment programs.

Path Analysis - Internal Assets

Next, we ran a path analysis for internal developmental assets and the outcome measures. Overall, we found that this model does appear to fit the data well χ^2 (*df*=275) = 646.27 (See Appendix F for Path Diagram). Specifically, the model produced the following goodness of fit statistics: RMSEA = 0.0567, SRMR = 0.0549, CFI = 0.882, and NNFI = 0.826. Our obtained RMSEA value (0.0567) indicates reasonably close fit (Steiger, 1989) and our obtained SRMR value (0.0549) indicates good fit (Jöreskog & Sörbom, 1981). In addition, although the obtained CFI value (0.882) and NNFI (0.826) do not exceed .90 (i.e., the acceptable value for good fit (Bentler, 1990)), both values closely approach .90 and therefore suggest that this model does have acceptable fit.

Table 7. 29 Variable Path Model (18 internal asset variables and 11 outcome variables)

Parameter	Unstandardized Estimate	Standard Error (SE)	Standardized Estimate	p-value
Achievement Motivation -> High Risk Behaviors GA(1,1)	**-5.483**	**0.658**	**-6.128**	**<0.00001***
School Engagement -> High Risk Behaviors GA(1,2)	**1.491**	**0.194**	**4.427**	**<0.00001***
Homework -> High Risk Behaviors GA(1,3)	-0.052	0.053	-0.156	0.32758
Caring -> High Risk Behaviors GA(1,4)	0.093	0.059	0.276	0.115719
Restraint -> High Risk Behaviors GA(1,5)	-0.210	0.132	-0.423	0.112966
Planning and Decision-Making -> High Risk Behaviors GA(1,6)	0.034	0.058	0.100	0.563264
Interpersonal Competence -> High Risk Behaviors GA(1,7)	-0.087	0.271	-0.077	0.74821
Resistance Skills -> High Risk Behaviors GA(1,8)	0.130	0.054	0.386	0.015865*
Peaceful Conflict Resolution -> High Risk Behaviors GA(1,9)	-0.549	0.203	-0.697	0.006688*
Personal Power -> High Risk Behaviors GA(1,10)	-0.176	0.059	-0.522	0.002799*
Self-Esteem -> High Risk Behaviors GA(1,11)	-0.193	0.058	-0.575	0.000829*
Positive View of Personal Future -> High Risk Behaviors GA(1,12)	**1.423**	**0.282**	**2.337**	**<0.0001***
Achievement Motivation -> Offending GA(2,1)	**-22.193**	**0.975**	**-7.164**	**<0.00001***
School Engagement -> Offending GA(2,2)	**6.382**	**0.383**	**5.471**	**<0.00001***
Homework -> Offending GA(2,3)	-0.736	0.174	-0.635	2.3E-05*
Caring -> Offending GA(2,4)	1.182	0.200	1.014	<0.00001*
Restraint -> Offending GA(2,5)	-4.610	0.331	-2.685	<0.00001*
Planning and Decision-Making -> Offending GA(2,6)	-0.131	0.217	-0.112	0.54784
Interpersonal Competence -> Offending GA(2,7)	-8.147	0.573	-2.084	<0.00001*
Resistance Skills -> Offending GA(2,8)	1.249	0.191	1.069	<0.00001*
Peaceful Conflict Resolution -> Offending GA(2,9)	3.640	0.477	1.335	<0.00001*
Personal Power -> Offending GA(2,10)	-0.823	0.162	-0.704	<0.00001*
Self-Esteem -> Offending GA(2,11)	-0.964	0.181	-0.828	<0.00001*
Positive View of Personal Future -> Offending GA(2,12)	**10.187**	**0.532**	**4.832**	**<0.00001***
Achievement Motivation -> Employment GA(3,1)	**-8.122**	**1.018**	**-3.049**	**<0.00001***
School Engagement -> Employment GA(3,2)	2.251	0.348	2.344	<0.00001*
Homework -> Employment GA(3,3)	0.004	0.121	0.004	0.97527
Caring -> Employment GA(3,4)	0.195	0.123	0.195	0.112966
Restraint -> Employment GA(3,5)	2.094	0.271	1.418	<0.00001*
Planning and Decision-Making -> Employment GA(3,6)	0.636	0.135	0.634	<0.00001*
Interpersonal Competence -> Employment GA(3,7)	**-2.667**	**0.500**	**-0.793**	**<0.00001***
Resistance Skills -> Employment GA(3,8)	-0.094	0.130	-0.094	0.467839
Peaceful Conflict Resolution -> Employment GA(3,9)	**-6.281**	**0.238**	**-2.678**	**<0.00001***
Personal Power -> Employment GA(3,10)	-0.523	0.128	-0.521	4.1E-05*
Self-Esteem -> Employment GA(3,11)	-0.624	0.123	-0.623	<0.00001*
Positive View of Personal Future -> Employment GA(3,12)	1.769	0.588	0.976	0.00263*
Achievement Motivation -> Interpersonal Relationships GA(4,1)	**-3.231**	**0.618**	**-3.439**	**<0.00001***
School Engagement -> Interpersonal Relationships GA(4,2)	**0.842**	**0.198**	**2.373**	**2.1E-05***
Homework -> Interpersonal Relationships GA(4,3)	0.073	0.069	0.207	0.289145
Caring -> Interpersonal Relationships GA(4,4)	0.035	0.065	0.098	0.591268
Restraint -> Interpersonal Relationships GA(4,5)	-0.129	0.146	-0.246	0.379944
Planning and Decision-Making -> Interpersonal Relationships GA(4,6)	0.017	0.068	0.049	0.797951
Interpersonal Competence -> Interpersonal Relationships GA(4,7)	0.373	0.350	0.314	0.286424
Resistance Skills -> Interpersonal Relationships GA(4,8)	0.099	0.063	0.280	0.115026
Peaceful Conflict Resolution -> Interpersonal Relationships GA(4,9)	-0.434	0.198	-0.523	0.028743*
Personal Power -> Interpersonal Relationships GA(4,10)	-0.304	0.069	-0.856	1.1E-05*
Self-Esteem -> Interpersonal Relationships GA(4,11)	-0.093	0.064	-0.264	0.145946
Positive View of Personal Future -> Interpersonal Relationships GA(4,12)	**1.054**	**0.344**	**1.644**	**0.002177***

In looking at the specific pathways, or path coefficients, from our latent exogenous variables to our latent endogenous variables, we find that 32 of the path coefficients are significant, suggesting that internal developmental assets do in fact have a significant impact on the outcomes evaluated in the current study. Interestingly, however, we find that the distribution of significant path coefficients are not equal, such that it appears that certain outcomes are more or less dependent on internal developmental assets. As you can see in Table 7 above, among the path coefficients for our high-risk behaviors outcome variable, seven out of 12 path coefficients are significant. Among offending outcomes, however, 11 out of 12 path coefficients are significant. For employment outcomes, we find that nine out of 12 path coefficients are significant and for interpersonal relationships, only five out of the 12 path coefficients were found to be significant. These results indicate that in general, internal developmental assets appear to have more of an impact on employment and offending and less of an impact on high-risk behaviors and interpersonal relationships.

Next, we evaluated the significant path coefficients observed among individual outcome measures to see which of the developmental assets appeared to have the greatest impact on that individual outcome by looking at the standardized estimates of path coefficients, which allow you to directly compare path coefficients, or the direct effects, among variables with different scoring metrics.

Overall, we see internal assets that appear to have a large, significant impact on reducing participation in high risk behaviors are achievement motivation, peaceful conflict resolution, and restraint. Overall, it seems that achievement motivation had the largest impact on reducing youths' participation in high risk behaviors as we found that a one-unit increase in one's level of achievement of motivation was produced a 5.483 unit decrease in participation in high risk

behaviors. In contrast, both peaceful conflict and restraint also were associated with lower participation in high risk behaviors, but to a lesser extent. For example, a one unit increase in peaceful conflict resolution was associated with a.549 unit decrease in high risk behaviors and a one unit increase in restraint was associated with a .210 decrease in high risk behaviors. These findings are consistent with other work that has demonstrated the importance of restraint and self-control for youth in regards to their ability to choose not to engage in risky or dangerous behaviors. However, it is interesting that we found that achievement motivation seems to have such a strong protective influence. This finding suggests that intervention efforts aimed at reducing juvenile offenders' likelihood of engaging in risky behaviors, such as unsafe sexual practices and alcohol and other substance use, will likely benefit from incorporating elements that have been shown to increase youths' achievement motivation.

In addition, we found that achievement motivation also seemed to have a strong impact on reducing youth's future offending. Specifically, as you can see in Table 7, we found that a one-unit increase in youths' achievement motivation was found to produce a 22.193 unit decrease in future offending. Although achievement motivation seemed to be the strongest internal developmental asset that was protective against future offending, we also found that high levels of interpersonal competence were also protective against future offending.

In regards to employment, we found that school engagement, restraint, and positive view of personal future appeared to be internal assets that were protective as higher levels of these assets were positively related with future employment. Employment is one of the most critical outcomes relating to juvenile offenders as employment status is closely connected to their future offending. Identifying that school engagement, restraint and positive view of personal future are all internal assets that relate to more positive employment outcomes among serious juvenile

offenders again demonstrates that employment related interventions would likely benefit from fostering these assets among delinquent youth.

Lastly, we also found that school engagement had a positive impact on future interpersonal relationships. This mirrors our finding that the external developmental asset caring school climate was positively related to interpersonal relationships later in life. Again, this finding demonstrates the importance of school-related factors in domains beyond offending and employment as it appears that school-related assets also have impacts on delinquent youths' social outcomes.

In addition to school engagement, we also found that interpersonal competence was positively related with more positive interpersonal relationships later in life. It would seem likely that adolescents with strong interpersonal skills would continue to have strong interpersonal skills and thus stronger and more satisfying relationships with others as adults. However, this finding stresses the need for intervention efforts for juvenile offenders to include social skill development as that will likely have a positive impact on their relationships with others later in life and may buffer against the desire to engage in antisocial behaviors. Much of the work in criminological research has focused on social bonds as mechanisms through which delinquent or criminal behavior can occur, such that researchers have found that strong social bonds inhibit criminal behavior. Individuals with strong social bonds essentially have more to lose from participating in these behaviors while individuals without strong social bonds do not have these social relationships to serve as buffers. (Hirschi, 1969).

Lastly, in regards to interpersonal relationships, we also found that positive view of personal future is positively related to impersonal relationships later in life. One possible explanation may be that youth with more positive views of personal future may have more

optimistic dispositions, which may make it easier for them to have relationships with others. More negative youth, on the other hand, may have attitudes that be less desirable to others, which in turn may result in weaker ties to others who may choose to limit contact with people if they are negative. Additional research should explore how positive view of personal future encourages positive interpersonal relationships later in life. Alternatively, it may be that youth who are more positive about their future may be more inclined to continue pursuing relationships with others whereas less optimistic youth may disengage, feeling that there is no reason to continue reaching out to others and maintaining social relationships. Additional research should explore how attitudes towards one's personal future relates to interpersonal relationships later in life to determine how intervention efforts can best use this information to foster social ties among delinquent youth and encourage more rewarding social relationships through adulthood.

MAIN RESULTS – UNEXPECTED FINDINGS

One of the most striking findings of the present study was that in addition to the protective influence we found for many of the individual external and internal developmental assets described in the previous section, we also found that there were several developmental assets that appeared to operate as risk factors rather than protective factors among our sample. Although most of the developmental assets appeared to facilitate more optimal outcomes, certain developmental assets seemed to have the opposite effect, such that they were positively related with youths' participation in high risk behaviors and future offending among our sample. These findings provide evidence that although developmental assets generally are protective for serious juvenile offenders as they are for other at-risk youth, not all developmental assets outlined by the Search Institute are protective among this group. Furthermore, it seems that the relationship between developmental assets and outcomes may not be the same for juvenile offenders and other youth which provides additional support to the findings of Asscher and colleagues (2014). Again, the finding that the relationship between protective factors and outcomes differs for delinquent youth and non-delinquent youth emphasize the importance that interventions and treatment programming for delinquent youth should be based on studies of delinquent youth as it is not possible generalize research on protective factors among at-risk youth to delinquent populations. In the next section we will provide more detailed explanation of the developmental

assets that appear to encourage negative outcomes among serious juvenile offenders and provide potential explanation for the observed relationships.

Individual level developmental assets that were found to have a negative affect on certain outcomes included positive view of personal future, positive peer influence and youth programs, and achievement motivation.

Although achievement motivation was a protective factor in regards to certain outcomes (i.e., high risk behaviors and offending), we found that it seemed to have negative influence in regards to youth future employment as higher levels of achievement motivation were related with lower levels of employment. It is important to note that in the present study, we did not account for whether or not youth were enrolled in school or planned to enroll in school, which could account for the negative relationship between achievement motivation and employment in the present study. It may be that youth with high achievement motivation were pursuing higher education. At the final follow-up interview, youth in the current study were in their early to mid-twenties, an age during which highly motivated youth may pursue an education in lieu of employment. In future studies it may be useful to include school or college enrollment in the employment outcome.

In addition, we also found that achievement motivation during adolescence appeared to be a risk factor for lower quality interpersonal relationships in the present study. One possible explanation for this observed relationship may again relate to the age of youth at final follow-up. In the present study, youth were, as previously mentioned, in their early and mid-twenties. This development period is frequently one in which youth pursue education or employment over interpersonal relationships, such as romantic relationships and relationships with peers, which are more important in other life stages. It may be that youth with high achievement motivation

may be pursuing opportunities for further education or related to employment, which limit their ability to have strong social relationships during this period. Therefore, future studies may wish to consider interpersonal outcomes among delinquent youth at a later stage in life when education and employment may be more stable and individuals may be more focused on relationships with others including romantic partners, family members, etc.

Another individual level developmental asset that was found to be a risk factor for certain outcomes was positive view of personal future. Again, we found that although positive view of personal future appeared to have a protective influence on employment and interpersonal relationships, it appeared to be a risk factor in regards to participation in high-risk behaviors and offending. As you can see in Table 7, for a one-unit increase in positive view of personal future, there was a 1.423 increase in high-risk behaviors and a 10.187 unit increase in offending.

The finding that positive view of personal future was associated with greater levels of high-risk behaviors later in life was also surprising and seems to contradict previous work that has demonstrated that positive future orientation was a protective factor against problem behaviors among at risk-youth, including youth living in residential care settings (Melkman, 2015). However, this finding may be reflective of an underlying relation between adolescent's feelings of invulnerability or invincibility and their participation in risky behaviors.

As noted by Lapsley and Hill (2009), the idea that adolescents and emerging adults engage in risky behaviors in part due to their sense of invulnerability to injury, and danger is widespread and deeply entrenched in the field of psychology and numerous studies. Hill, Duggan, and Lapsley (2011) found that among adolescent youth, feelings of invulnerability positively predicted risky behavior such as delinquency and drug use.

Within developmental literature, two general approaches to adolescent invulnerability can be identified. One approach argues that adolescent feelings of invulnerability is a problem of cognitive development, specifically that the feelings of invulnerability result from cognitive egocentrism that fosters an over-differentiation of feelings that contribute to adolescents' sense of uniqueness and immortality (Elkind, 1967, p. 1,031). This disposes adolescent youth to falsely believe in a personal fable that harmful outcomes are more likely to occur for others than for themselves.

Our findings also demonstrate that certain family-level developmental assets may be related to negative outcomes among juvenile offenders. In particular, we found that family support and positive family communication appeared to be positively related to participation in high-risk behaviors. The results are striking in that they seem to be counterintuitive. We would anticipate higher levels of family support would be associated with lower levels of participation in high-risk behaviors and similarly, that higher levels of other adult relationships or having non-parental supportive adults would be associated with lower, rather than higher, levels of risk behaviors.

A possible explanation for this observed effect may be due to the characteristics of the current sample. The youth in the study were serious juvenile offenders and many of them came from disenfranchised backgrounds wherein they came from communities where things like violence, substance use/abuse and incarceration were common. Therefore, it is possible that the parents of these youth and the other adults they interact with may have engaged in such behaviors, in which case close relationships with these adults and more time spent with them or communicating with them may have served as a mechanism wherein these youth were modeled negative, or risky behaviors. Future studies should explore whether the relationship between

family support and high-risk behaviors is mediated by factors such as parental substance use, level of domestic violence in the home, and parental participation in criminal activities or incarceration. Similarly, future studies should explore whether the relationship between other adult relationships and youths' participation in high-risk behaviors is mediated by factors that capture whether the adults the youth interacts with, such as extended family members and neighbors, model positive or negative behaviors. Such studies may demonstrate that the relationship between family support and other adult relationships and youth's level of participation in high-risk behaviors may depend on the behaviors of those adults themselves. For youth who have close ties with adults who model positive behaviors, these relationships may be associated with lower rates of risk behaviors whereas relationships with adults who model negative behaviors may be associated with higher levels of risky behavior among these youth.

Two school-related developmental assets also appeared to be risk factors in the current sample – caring school climate and school engagement. Both caring school climate and school engagement were positively associated with increased offending and school engagement was also found to be positively related to participation in high-risk behaviors. The observed positive relationship between these school-related protective factors and negative outcomes is striking and contrasts previous findings that demonstrate that positive attitudes towards school and positive educational experiences are associated with reduced levels of offending. Moreover, it was also interesting to see that while school engagement appeared to be protective in regards to certain outcomes (i.e., future employment and interpersonal relationships), it appeared to be a risk factor in regards to youth's future participation in risky behaviors and their level of recidivism. A potential explanation could be that youth who had previously had positive school

satisfaction may have been more negatively impacted by involvement in the justice system, which often corresponds with changes in educational settings.

Many justice-involved youth are removed from their community schools and receive educational services in institutional schools or other settings. Thus, it may be that youths who had previously had positive academic experiences in community schools may have less school satisfaction post-adjudication. The educational experiences of these youth following adjudication may be strikingly different from their previous experiences, which may produce higher levels of dissatisfaction later on, which could then lead to increases in recidivism and involvement in criminal behavior. In contrast, youth who had never had a positive school experience may have little reaction from being removed from school. Alternatively, youth who have negative school experiences may actually have positive emotional experiences if they are removed from academic institutions where they were dissatisfied. These possibilities may explain the positive relationship between caring school climate and offending in the present study. Thus, future studies should explore the educational experiences of youth following adjudication, as post-adjudication educational experiences may mediate the relationship between caring school environment pre-adjudication and their future offending.

Utilizing the data obtained in the Pathways to Desistance study, one potential way to measure youth's level of dissatisfaction or negative feelings associated with a change in academic environment may be to compare ratings of caring school climate (i.e., satisfaction with community school) at time one with another time point. Larger differences in rating from time one to a later time point may indicate greater levels of dissatisfaction. For example, youth had

originally had high levels of satisfaction with community school at time one and then lower levels at a later time point versus youth who do not demonstrate changes in their rating of satisfaction in community school between time points likely do not have dissatisfaction or negative feelings such as resentment related to changes in the academic experiences and setting. Again, exploration of the impact of relative deprivation or dissatisfaction with learning environments post-adjudication goes beyond the scope of the current study, but should be explored as a potential mediator in the relationship between youths' caring school climate, or satisfaction with school, and their participation in offending later in life.

DICUSSION

Overall, the results from the present study demonstrate the impact that both external and internal developmental assets have on outcomes among serious juvenile offenders. However, the results indicate that some developmental assets have larger impacts on these outcomes than others. Among external developmental assets, Family Support, Other Adult Relationships, Caring School Climate, and Time at Home were found to be especially significant, as these assets had large, significant effects on multiple outcome measures. Family support was found to have a large significant impact on all four measured outcomes. Time at Home was found to have a large significant impact on three of our four measured outcomes. And finally, Other Adult Relationships and Caring School Climate were found to have a large significant impact on two measured outcomes.

Among internal assets, we found that Achievement Motivation, School Engagement and Positive View of Personal Future appear to have the largest impact on outcomes for these youths. Achievement Motivation had a large significant impact on all four of our measured outcomes. Both School Engagement and Positive View of Personal Future had a large significant impact on three of the four measured outcomes. These factors suggest that Achievement Motivation, School Engagement and Positive View of Personal Future are internal assets that are especially important regarding outcomes among serious juvenile offenders.

It is important to note, however, that many of the relationships between developmental assets and outcomes in the current study seem to differ from those observed in at-risk samples of youth in the general population. In particular, we found that developmental assets across a range of domains including family, school and individual appear to have negative effects on outcomes among the serious juvenile offenders surveyed in the current study.

Concerning familial level factors, we found that Family Support and Other Adult Relationships appear to have a negative impact on outcomes among the youth in the current study as higher levels of Family Support and Other Adult Relationships were found to be associated with higher levels of engagement in risky behavior and greater levels of offending at follow-up. These findings stress the fact that serious juvenile offenders are not the same as other youth and are likely to come from environments where the adults around them may not be engaged in the pro-social behaviors that are typically associated with supportive and warm familial environments. Future studies should explore possible mediators such as parental and non-parental engagement in criminal or antisocial behavior to assess how these factors may influence the relationship between family support and other adult relationships and the perpetuation of risky behaviors and offending behaviors among serious juvenile offenders. Such work may provide evidence that suggest that exposure to non-parental adults (or parental adults) who engage in criminal behaviors may make these relationships maladaptive rather than protective. Thus, this information may be useful for those planning treatment or intervention efforts with youth who have engaged in serious delinquency in order to optimize their chances for positive outcomes later in life.

In addition to familial level factors, we also found that some school-level factor developmental assets appeared to have negative rather than positive effects among the youth in

the present sample. In particular, we found that higher levels Positive School Climate were found to be associated with higher levels of offending and higher levels of School Engagement were found to be associated with higher levels of both risky behaviors and offending later in life. Again, these results were striking as Positive School Climates and School Engagement are protective factors among youth generally. These results once again indicate that protective factors do not operate the same way for serious juvenile offenders and therefore emphasize the fact that more research is needed to see how these factors may be related to outcomes among these youth.

As previously discussed, one possible explanation for this observed relationship may be dissatisfaction with academic experiences following adjudication which should be explored in future studies. Identifying the casual mechanisms by which school related factors relate to negative outcomes later in life may help provide useful information that may inhibit these pathways. For example, if dissatisfaction or resentment related to changes in academic institutions account for the positive relationships between traditionally beneficial educational experiences and negative outcomes among delinquent youth, efforts can be made to address these feelings in youth adjudicated for serious offenses. For example, therapeutic interventions for these youth may include discussions of changes in educational settings to address negative emotions that may accompany transitions in educational settings. Moreover, efforts can be made to maintain positive school experiences for adjudicated youth which would prevent the creation of dissatisfaction related to changes to educational settings. If educational dissatisfaction is found to be a mediator accounting for the relationship between school-related developmental assets and negative outcomes among serious juvenile offenders, this would indicate that efforts should be made to focus on building positive educational experiences for youth post-adjudication, which

would build upon early positive academic experiences rather than derail the potential benefit of such experiences.

In addition, we also found that one individual level developmental asset, Positive View of Personal Future, was related to more negative outcomes among youth in the current study as we found that Positive View of Personal Future was positively related to both risky behaviors and offending later in life. The finding that Positive View of Personal Future may be a risk factor rather than a protective factor suggests that serious juvenile offenders may be overly optimistic about their futures at a detriment to their well-being. Consequently, interventions aimed at targeting these youth may benefit from incorporating efforts to make consequences related to engaging in risky behaviors and offending behaviors personally relevant to youth as they may otherwise feel they are invulnerable to possible negative consequences and therefore are likely not to be deterred by more general warnings.

Beyond these unusual relationships, we also found that several of the developmental assets outlined by the Search Institute did appear to have positive effects on the outcomes for serious juvenile offenders later in life. Our results indicate that less time at home, or less participation in unsupervised activities, was associated with reduced levels of participation of risky behaviors later in life and that greater level of participation in religious community was related to lower rates of offending later in life. These findings provide support encouraging parents or other adults responsible for monitoring of delinquent youth to minimize time spent in

unstructured or unsupervised activities. In addition, the finding that participation in religious community seems to have a protective influence reducing youths' likelihood to offend later in life suggests that efforts to encourage serious juvenile offenders to engage in religious activities may be beneficial as well as it may reduce their likelihood of recidivating later in life.

Moreover, our finding that Achievement Motivation has a strong positive affect on risky behaviors and offending later in life suggests evidence that supports the idea that achievement motivation in particular should be fostered among young serious offenders. To that effect, interventions aimed at helping serious juvenile offenders will likely benefit by incorporating activities or other strategies that have been shown to foster the development of Achievement Motivation.

Overall, the current study provides a useful starting point to understand how developmental assets may affect outcomes among male serious juvenile offenders. Although more research is needed to fully elucidate these mechanisms, our findings emphasize the fact that developmental assets do not operate in the same way for serious juvenile offenders as they do for other youth.

LIMITATIONS

One major limitation of the present study is the lack of data on all forty of the developmental assets outlined by the Search Institute. Though matches were made between the survey data provided by the Pathways study and many developmental assets, we were unable to find appropriate data to evaluate 17 of the developmental assets specified by the Search Institute.

Another limitation of the study is that final follow-up interviews were conducted 84 months past baseline interviews. Although it is useful that the Pathways study was longitudinal and surveyed participants over the duration of four years following their initial interviews, 84 months is a relatively short period of time. Evaluating youths' outcomes after only four years seems to be somewhat premature to evaluate their outcomes and overall positive development, particularly due to the age of the participants, which again ranged from 14-18 years at the time they committed their offense. Especially among younger participants, this period may not be optimal in evaluating their outcomes because these participants would be around 18 years of age at final follow-up. We know that youth continue to have significant developmental changes throughout adolescence and into emerging adulthood and consequently, an assessment of outcomes at 18 or 19 years of age may not fully capture the outcomes of these participants as significant changes may continue to occur as they mature. Future studies would benefit from surveying youths' outcomes through the end of adolescence and through early adulthood to better evaluate their outcomes.

Moreover, an additional limitation of this study pertains to measurement of outcome variables in the Pathways to Desistance study. As is often the case with follow-up interviews, it is difficult to measure people at exactly the same time, thus the time between interviews may vary among participants. In the Pathways to Desistance study, several measures at baseline asked participants to report the frequency with which they engaged in various behaviors across the recall period. It is important to note, however, that among the 420 participants who were included in time 2, the recall period ranged from 9 to 14 months (M=11.98, SD=1.017). Therefore, there are some issues in comparing outcomes among youth regarding the frequency (i.e., total count) of their offending, number of drugs used, participation in unprotected sex, unprotected sexual partners, etc., as some youth may have artificially inflated scores due to having a longer recall period.

Lastly, a final limitation of the current study is the large age range of youth in the study. As discussed previously, at the first data point when youth were initially assessed, they were between the ages of 14 and 19; however, the current study does not differentiate youth who had engaged in delinquency previously, nor does it consider when youth began engaging in delinquency. Work on the trajectories of male delinquents have found that there are generally two pathways: an adolescent-limited pathway in which youth begin engaging in delinquent behavior during adolescence and then desist as they mature into adulthood, and the life-course persistent pathway in which youth generally start engaging in delinquent behaviors during childhood and do not know how old they were when they first engaged in antisocial behaviors earlier in life (i.e., during childhood) and then engage in delinquency during adolescence that continues through adulthood. Though all of the youth in the current study did engage in serious offending, it is possible that some of the youth in this study were adolescent-limited offenders

who may have engaged in a small number of serious offenses during adolescence but would have desisted engaging in such behaviors anyway.

Moreover, risk factors for the two different pathways are different. For example, risk factors for the life-course persistent pathway include harsh, inconsistent parenting and underlying neuropsychological deficits whereas risk factors for adolescent-limited pathway are social factors, in particular affiliations with delinquent peers

In the current study, it is important to note that there is such a large age range among the participants and it is possible that the different age at which youth were convicted of serious offenses may relate to different relationships between developmental assets and outcomes. Youth who engage in serious delinquency at the beginning of adolescence may be different than youth who engage in serious offending during middle adolescence or late adolescence or the beginning of emergent adulthood. For example, it may be that some of the youngest youth in this sample may represent youth who are on the life course trajectory as they had engaged in serious delinquency at earlier age than older youth in the sample. Future studies may benefit from exploring whether there are differences in the relationship between developmental assets and outcomes among younger and older youth to see whether their levels of adverse outcomes vary or if the relationship between developmental assets and outcomes differs between young and older serious juvenile offenders. It may be that even within serious juvenile offenders, differences exist between youth who are adjudicated in the justice system at earlier or later periods in adolescence. To address these questions, future studies should consider splitting the sample of serious juvenile offenders into two groups (i.e., younger versus older) and then use multi-group confirmatory factor analysis and multi-group path analysis to evaluate whether the

pattern of developmental assets vary between these groups and whether the relationship between

developmental assets and outcomes differs according to the age of young offenders.

CONCLUSION

Evidence asserts that protective factors play a critical role in outcomes among serious juvenile offenders, but findings from this study suggest that certain developmental factors may not be beneficial for offenders as they are in other populations. Continued work to evaluate the impact of these factors on outcomes and evaluate the mechanisms through which protective factors lead to improved outcomes can help provide enhanced understanding on how intervention efforts can best meet the needs of these youth. In addition, further understanding of circumstances in which traditional protective factors may be counterproductive among serious juvenile offenders also needs additional consideration so that this information can also be used to tailor interventions to address the potential for these negative effects.

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APPENDIX A

SEARCH INSTITUTE'S LIST OF 40 DEVELOPMENTAL ASSETS

40 Developmental Assets®

Search INSTITUTE — Practical research benefiting children and youth

Search Institute℠ has identified the following building blocks of healthy development that help young people grow up healthy, caring, and responsible.

HEALTHY COMMUNITIES • HEALTHY YOUTH®

| Category	Asset Name and Definition
External Assets	
Support	1. **Family Support**-Family life provides high levels of love and support. 2. **Positive Family Communication**-Young person and her or his parent(s) communicate positively, and young person is willing to seek advice and counsel from parents. 3. **Other Adult Relationships**-Young person receives support from three or more nonparent adults. 4. **Caring Neighborhood**-Young person experiences caring neighbors. 5. **Caring School Climate**-School provides a caring, encouraging environment. 6. **Parent Involvement in Schooling**-Parent(s) are actively involved in helping young person succeed in school.
Empowerment	7. **Community Values Youth**-Young person perceives that adults in the community value youth. 8. **Youth as Resources**-Young people are given useful roles in the community. 9. **Service to Others**-Young person serves in the community one hour or more per week. 10. **Safety**-Young person feels safe at home, school, and in the neighborhood.
Boundaries & Expectations	11. **Family Boundaries**-Family has clear rules and consequences and monitors the young person's whereabouts. 12. **School Boundaries**-School provides clear rules and consequences. 13. **Neighborhood Boundaries**-Neighbors take responsibility for monitoring young people's behavior. 14. **Adult Role Models**-Parent(s) and other adults model positive, responsible behavior. 15. **Positive Peer Influence**-Young person's best friends model responsible behavior. 16. **High Expectations**-Both parent(s) and teachers encourage the young person to do well.
Constructive Use of Time	17. **Creative Activities**-Young person spends three or more hours per week in lessons or practice in music, theater, or other arts. 18. **Youth Programs**-Young person spends three or more hours per week in sports, clubs, or organizations at school and/or in the community. 19. **Religious Community**-Young person spends one or more hours per week in activities in a religious institution. 20. **Time at Home**-Young person is out with friends "with nothing special to do" two or fewer nights per week.
Internal Assets	
Commitment to Learning	21. **Achievement Motivation**-Young person is motivated to do well in school. 22. **School Engagement**-Young person is actively engaged in learning. 23. **Homework**-Young person reports doing at least one hour of homework every school day. 24. **Bonding to School**-Young person cares about her or his school. 25. **Reading for Pleasure**-Young person reads for pleasure three or more hours per week.
Positive Values	26. **Caring**-Young person places high value on helping other people. 27. **Equality and Social Justice**-Young person places high value on promoting equality and reducing hunger and poverty. 28. **Integrity**-Young person acts on convictions and stands up for her or his beliefs. 29. **Honesty**-Young person "tells the truth even when it is not easy." 30. **Responsibility**-Young person accepts and takes personal responsibility. 31. **Restraint**-Young person believes it is important not to be sexually active or to use alcohol or other drugs.
Social Competencies	32. **Planning and Decision Making**-Young person knows how to plan ahead and make choices. 33. **Interpersonal Competence**-Young person has empathy, sensitivity, and friendship skills. 34. **Cultural Competence**-Young person has knowledge of and comfort with people of different cultural/racial/ethnic backgrounds. 35. **Resistance Skills**-Young person can resist negative peer pressure and dangerous situations. 36. **Peaceful Conflict Resolution**-Young person seeks to resolve conflict nonviolently.
Positive Identity	37. **Personal Power**-Young person feels he or she has control over "things that happen to me." 38. **Self-Esteem**-Young person reports having a high self-esteem. 39. **Sense of Purpose**-Young person reports that "my life has a purpose." 40. **Positive View of Personal Future**-Young person is optimistic about her or his personal future.

APPENDIX B

TABLE OF MEANS AND STANDARD DEVIATIONS OF DEVELOPMENTAL ASSETS

FOR CONFIRMATORY FACTOR ANALYSES AND PATH ANALYSES

Table 8. Means and standard deviations for developmental assets for CFAs and Path Analyses
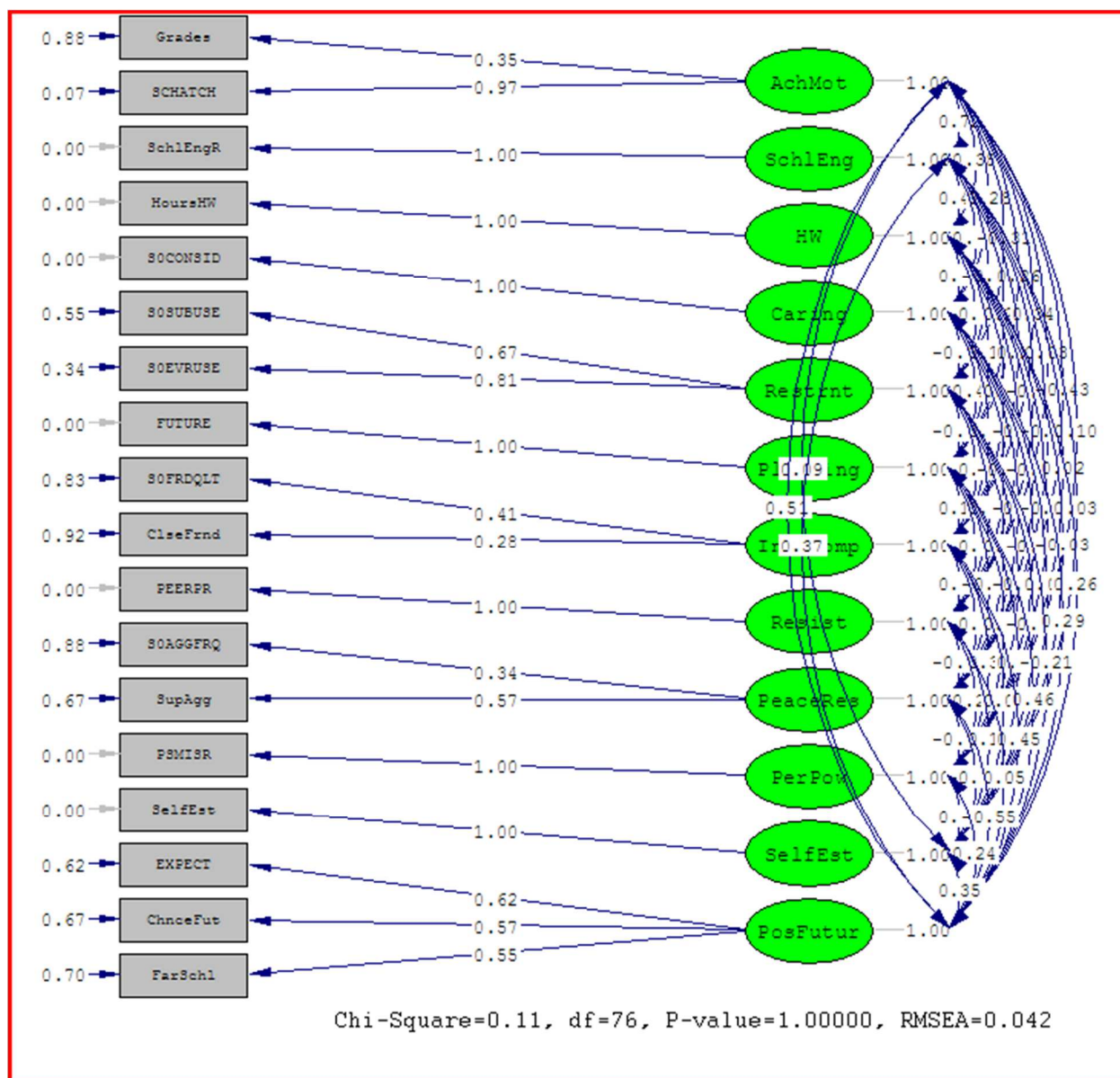
Latent Variable	Measured Variable(s)	Full Sample (N=562) M(SD)	Partial Sample (N=420) M(SD)
External Developmental Assets			
Family Support (1)	Domains of Family Support	6.24(2.105)	6.23(2.086)
Positive Family Communication (2) (α = 0.456)	Maternal Warmth	1.64(.640)	1.64(.625)
	Maternal Hostility	1.56(.429)	1.54(.403)
Other Adult Relationships (3) (α = 0.778)	Domains of non-familial social support	1.35(2.159)	.83(1.413)
	Depth of Non-Family Support	.24(.558)	.25(.569)
	Diversity of non-familial social support	.80(1.326)	1.36(2.209)
Caring Neighborhood (1)	Social capital – closure and integration	2.69(.499)	2.71(.494)
Caring School Environment (1)	Satisfaction community school	3.22(1.017)	3.21(1.028)
Safety (1)	Exposure to Violence –Total	5.68(2.664)	5.68(2.628)
Family Boundaries (1)	Parental Monitoring	2.72(.800)	2.78(.793)
Positive Peer Influence (2) (α = 0.807)	Peer Delinquency – Antisocial Behavior	2.30(.892)	2.27(.882)
	Peer Delinquency – Antisocial Influence	1.66(.821)	1.65(.829)
Youth Programs (2) (α = 0.585)	Days per week spent on attending athletic events, plays or school dances	.48(1.073)	.41(1.224)
	Total number of extracurricular activities community school	.72(1.058)	.71(1.089)
Religious Community (1)	Past year how often attend church	2.18(1.290)	2.20(1.306)
Time at Home (1)	Unsupervised Routine Activities	3.90(.788)	3.88(.821)
Internal Developmental Asses			
Achievement Motivation (2) (α = .344)	What were grades like in school	4.01(1.888)	4.03(1.847)
	School orientation – non-facility school	3.63(.679)	3.67(.640)
School Engagement (1)	Engagement – community school	3.41(.964)	3.42(.984)
Homework (1)	Number of hours the subject spend doing homework outside of school hours	2.00(1.103)	2.03(1.118)
Caring (1)	Consideration of others	3.57(.902)	3.59(.915)
Restraint (2) (α = .615)	What's most ever used alcohol	3.61(2.528)	3.53(2.505)
	Number of drugs used in lifetime	1.47(1.358)	1.48(1.398)
Planning and Decision-Making (1)	Future orientation inventory	2.43(.551)	2.44(.555
Interpersonal Competence (2) (α = .033)	Friendship – quality of relationship	3.34(.610)	3.35(.588)
	Number of close friends	5.42(8.412)	5.59(8.861)
Resistance Skills (1)	Resistance to peer influence	3.09(.529)	3.09(.529)
Peaceful Conflict Resolution (2) (α = .020)	Aggressive offending frequency in past year	12.38(37.064)	13.29(41.77)
	Suppression of aggression (WAI)	3.23(.984)	3.19(.993)
Personal Power (1)	Self-reliance (PSMI)	3.19(.545)	3.21(.533)
Self-Esteem (1)	Rate self-esteem on a scale of 1 to 10	8.15(2.085)	8.11(2.097)
Positive View of Personal Future (3) (α = .545)	Expectations to have work, family, and law	3.48(.791)	3.50(.780)
	Chances of getting ahead/being successful not very good	3.86(.882)	3.90(.854)
	How far do you think you will go in school	3.01(1.043)	3.02(1.047)

APPENDIX C
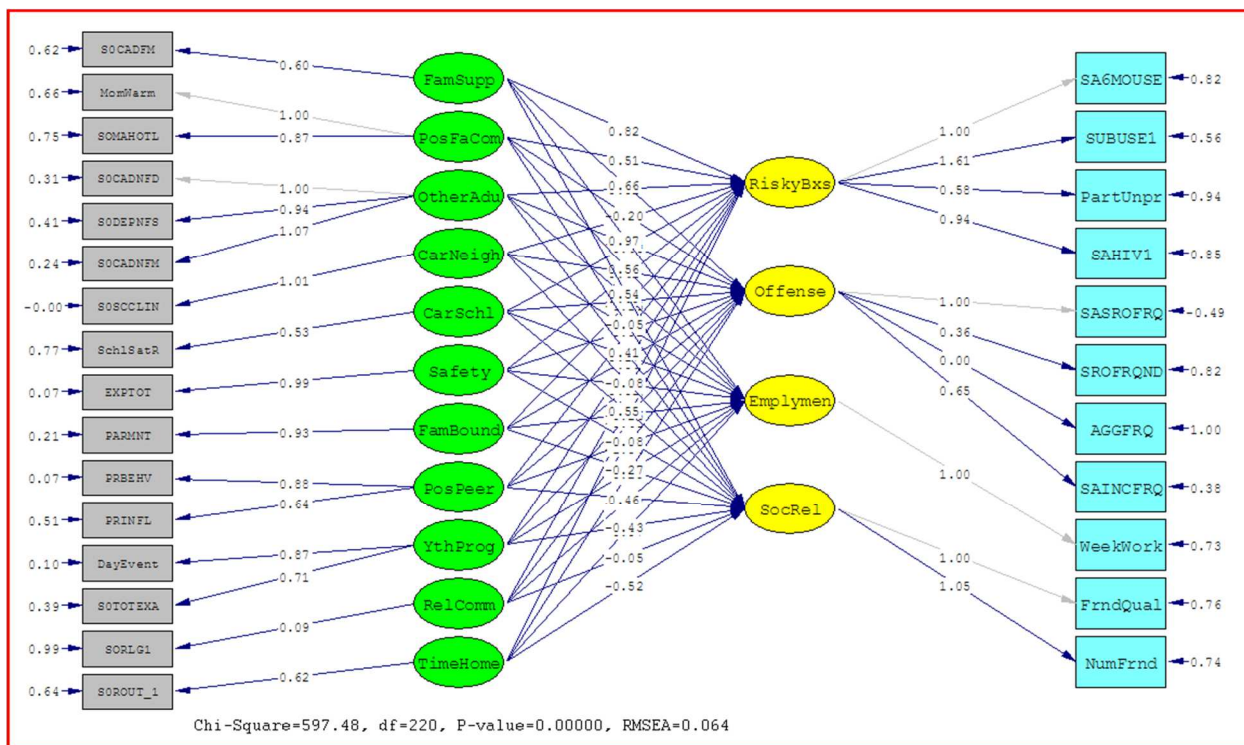
EXERNAL DEVELOPMENTAL ASSETS

CORRELATED 11-FACTOR MODEL

Chi-Square=63.32, df=56, P-value=0.23395, RMSEA=0.051
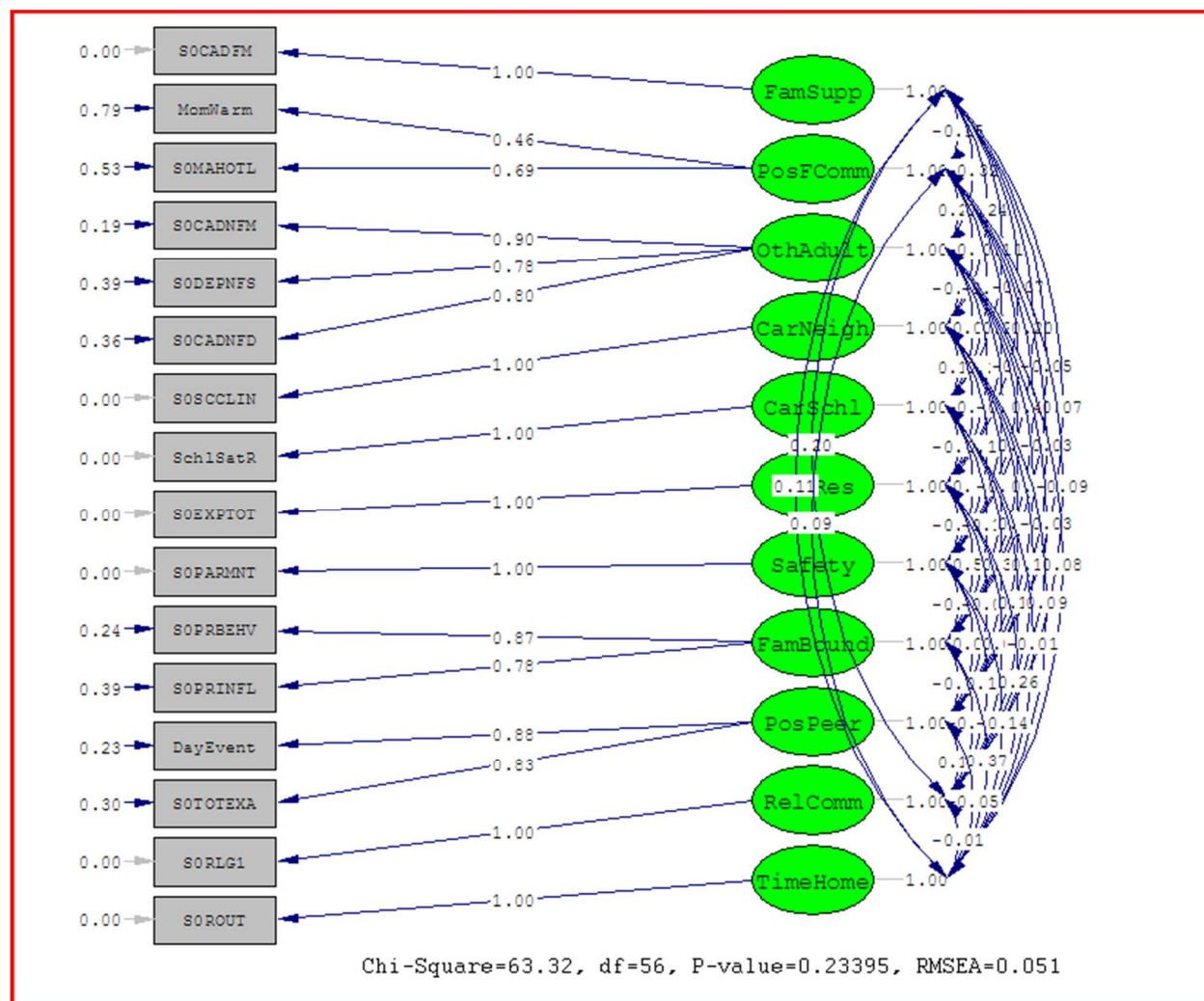
APPENDIX D

INTERNAL DEVELOPMENTAL ASSETS

CORRELATED 12-FACTOR MODEL

Chi-Square=0.11, df=76, P-value=1.00000, RMSEA=0.042

APPENDIX E

LATENT PATH MODEL OF EXTERNAL DEVELOPMENTAL ASSSETS AND

OUTCOMES

Chi-Square=597.48, df=220, P-value=0.00000, RMSEA=0.064

APPENDIX F

LATENT PATH MODEL OF INTERNAL DEVELOPMENTAL ASSETS AND OUTCOMES

Chi-Square=646.27, df=275, P-value=0.00000, RMSEA=0.057

VITA

Daniele Nesi was born and raised in New York. Before beginning doctoral studies at Loyola University Chicago, she attended the University of Wisconsin-Madison where she earned her Bachelor of Arts in Sociology and received an additional certificate in Criminal Justice in 2010. After college, Danielle also received a Master's degree in Criminal Justice at CUNY John Jay College where she worked in the research laboratories or Drs. Angela Crossman, Beverly Frasier and Philip Yanos.

At Loyola, Danielle studies under the mentorship of Dr. James Garbarino. Their work together focuses on risk and opportunity related to individuals involved in the criminal and juvenile justice systems. In addition to her collaboration with Dr. Garbarino, Danielle has also worked in the research laboratory of Dr. Catherine Haden and served as a teaching assistant for undergraduate and graduate courses in Psychology, including Globalization, Research Methods, and Risk and Opportunity. Danielle has presented at several academic conferences including the American Psychology-Law Society, the Eastern Psychological Association in 2013 and the Academy of Criminal Justice Sciences in 2012.