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Predictors of Resilient Outcomes among Juvenile Offenders

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

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Abstract

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Research on resilience has almost completely bypassed the juvenile justice literature. Using data on 1,354 youth from the Pathways to Desistance study, the present study examined associations between individual, community, and familial risk and promotive factors and resilient outcomes, specifically gainful activity, in juvenile offenders. Results of both logistic and hierarchical regression models indicated significant associations between resilient outcomes in each domain: specifically individual (age at first arrest, motivation to succeed), community (geographic location, exposure to violence), and family (socioeconomic status, parental monitoring) predictors. Finally, this paper discusses reasons for non-significant findings and directions for future research on resilience among youth involved in the juvenile justice system.

Predictors of Resilient Outcomes among Juvenile Offenders

Why do some youth who encounter the juvenile detention system succeed after a brief period in detention while others come into contact with the justice system time and time again? This query persists as one of the most vital unanswered questions plaguing the juvenile justice system. As researchers, this question is important to consider because it can inform treatment policies for juvenile offenders that are linked to success and an increased likelihood of resilience. Resilience in youth who have had previous contact with the juvenile justice system has tangible benefits to the individual and to society. Juvenile incarceration is costly, averaging $240.99 USD per day, per youth, in state-funded juvenile justice centers (Youth, nd). Although the rates of juvenile justice arrests have been steadily declining over the previous two decades (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2015), it is estimated that 2.1 million youth are arrested each year and a majority of these youth are adjudicated through the juvenile court system (Youth, nd).

The federal government does not require reporting and keeping track of recidivism rates; consequently, there is some fluctuation between each state's juvenile justice system in how they define and measure recidivism (Sickmund & Puzzanchera, 2014). For example, Pennsylvania defines recidivism as a succeeding wrongdoing conviction or adjudication in criminal court for a misdemeanor or felony within two years of the original case closure (Fowler & Anderson, 2016; Sickmund & Puzzanchera,

2014), while Arizona defines recidivism as a return to custody following a first juvenile corrections stay (Arizona Department of Juvenile Corrections, 2017). The most recently reported juvenile recidivism rate for Arizona is 35.9% for juveniles released in 2015 (Arizona Department of Juvenile Corrections, 2017), while Pennsylvania averaged a 20.7% recidivism rate between 2007 and 2012 and a much higher rate of 26.33% for the county of Philadelphia during the same span (Fowler & Anderson, 2016). Whether recidivism is 20% or 35%, understanding the factors that are associated with or may facilitate resilience in this population has a large potential social and economic impact.

Recidivism is related to, but not the same concept as resilience. Resilience is not a personality trait, but rather the way individuals cope with significant, cumulative hardship (Masten, 2015). For the present study, I define resilience as engagement in gainful activity (either enrollment in school or employment) for any 6 months during the first 12 months after adjudication. The focus is not on enrollment in college as a criterion for resilience (for those in the study who were eligible) because there are a number of factors that may preclude participation in higher education. First, the stigma surrounding a criminal record is a guiding reason why youth may not finish their education (Kirk & Sampson, 2013). Beyond stigma, postsecondary education often is not easily obtained because youth who have juvenile justice system involvement are busy navigating between high school and the criminal justice system and typically are not competitive enough to gain admission into schools of higher education (Jäggi, 2016; Sharlein, 2016). Post-education there is also labeling and stigma in the workforce surrounding ex-offenders; many companies and labor unions will not hire or license former offenders, perpetuating a cycle of disadvantage from being involved in the justice

system (Sampson & Laub, 1997) and may be another reason why youth do not strive for higher education.

History of Resilience Research

The resilience literature originated in recent history, coming into focus after the conclusion of World War II (Masten, 2014; Newsome & Sullivan, 2014; Werner, 2000), when researchers became aware that some people thrived after adversity while others were not able to persist normally (Ahern, Ark, & Byers, 2008; Masten, 2014). Resilience has its roots in the Latin word *resilire*, literally to jump back or rebound (Masten, 2014; Resile, nd). Resilience research often focuses on children around the globe facing adversity (Ahern et al., 2008; Masten, 2014), rather than focusing on individual cultures or subgroups of children who meet a particular criterion. A clear limitation in the literature is the near absence of resilience research with the juvenile justice population. This subset of the population is more likely than non-offenders to be exposed to trauma at an early age (Becker & Kerig, 2011; Branson, Baetz, Horwitz, & Hoagwood, 2017). Thus knowing how these youth react and adapt to their situations is an important step in understanding what can and needs to be done to help prevent these youth from becoming or continuing to be involved in delinquent behavior.

Perspectives on Resilience

Resilience research focuses on integrating what is known regarding risk and promotive factors to determine what can help individuals to thrive after facing adversity (Duke & Borowsky, 2015; Masten, 2014; Ungar, Ghazinour, & Richter, 2013). Studying resilience is important to the juvenile justice system in order to find ways to reduce recidivism rates and reduce overall delinquent behaviors. The theories which are in

place to evaluate resilience are broad and vary widely; the literature has focused on several models and theories: social cognitive theory, which promotes resilience by having youth display positive behaviors learned from observation rather than a predisposal to negative self-belief (Bandura, 1986; Bandura, 1999); Bronfenbrenner's (1979) ecological model which states that we are influenced by the systems in our environment, from our individual self, to our home, neighborhood, community, all the way through to being influenced by the cultures, beliefs, and laws set forth by our governments; this influence can confer resilient behaviors when faced with community adversity during times of natural disaster, for example (Boon, Cottrell, King, Stevenson, & Millar, 2011); developmental systems theory which is guided by the interaction between genes and environment (Masten, 2014), focuses on an individual's strengths and plasticity, and maintains that all humans have the ability to develop positively despite challenges (Lerner, 2006); and developmental psychopathology (Masten, 2014), the study of developmental disorders, that emerge from within an individual and through environmental experience predicting future adaptation which can either be maladaptive or resilient (Kim-Cohen, 2007). There is also the Possible Selves literature (Markus & Nurius, 1986), which discusses who we may become as a natural extension of self-concept. Our personal schema of self-concept can direct our motivation toward resilience or failure depending on current evaluations of our possible selves (Markus & Nurius, 1986). However these theories fail to account for the impact of cumulative risk across multiple areas of development; developmental cascades seek to understand this phenomenon (Masten et al., 2005) and is the theory guiding this work.

Developmental growth can be hindered by what Masten and Cicchetti (2010) refer to as developmental cascades, or the cumulative consequences of the interactions that youth face both internally and through the environment, potentially impacting later development. Looking at better than expected adjustment in spite of the cumulative risk is imperative to understanding development in at-risk youth. Gene-environment interplay is salient in developmental cascade research; specifically, traumatic or negative life experiences may modify gene expression creating a downward developmental cascade (Masten & Cicchetti, 2010), which may cumulatively lead to delinquency. These traumatic effects can alter brain development, additionally creating more struggles for future generations of offspring and perpetuating the downward cascade (Masten & Narayan, 2012).

Risk Factors Hindering Positive Youth Development

Risk factors are broad and extensive and often put youth on the path to a negative trajectory that frequently includes delinquency (Duke & Borowsky, 2015; Newsome & Sullivan, 2014; Vincent, Perrault, Guy, & Gershenson, 2012). Risk is defined as any factor that elevates the likelihood of a negative or maladaptive outcome (Compas, Hinden, & Gerhardt, 1995; Shader, 2001). One such outcome is delinquent behavior. Depending on the developmental stage, youth are able to comprehend and deal with risk differently (Ahern et al., 2008; Ungar, Liebenberg, & Ikeda, 2014). During adolescence, growth is rapid and unpredictable with physical and emotional change occurring frequently (Ahern et al., 2008), which makes it hard to determine what constitutes a risk factor (Vincent et al., 2012). Some of the more common risk factors for delinquency include: being male, having low socioeconomic status (SES), coming

from a single parent home, experiencing parental separation or divorce or poor parenting, and repeated exposure to physical violence (Shader, 2001). Childhood physical aggression is the most prominent risk factor predicting delinquency (Fontaine, Brendgen, Vitaro, & Tremblay, 2016), and adult offending (Dubow, Huesmann, Boxer, & Smith, 2014). Utilizing an urban sample of 850 youth, Walters (2016) reports that young men have better outcomes, including lower rates of incarceration, when they are able to have their father as a role model; this influence is greater than the influence mothers have on daughters or other adult males have on male youth although the exact reason for this is currently unknown. In the present study, I include violence exposure (experienced or witnessed), aggressive offending, and parental hostility as risk factors that reduce the likelihood of resilience.

Aggressive behavior. In a 2014 study of 436 lifelong criminal offenders both self-report of aggression and official records of aggressive offending were higher than non-offenders (Dubow et al., 2014), suggesting that aggression stays with you throughout the lifespan and is a major risk factor for re-incarceration. Dubow and colleagues (2014) only reported on males in this study greatly diminishing the generalizability to the female population; however, males were followed from ages 8 through 48, an impressive developmental span for criminal justice literature. Typically delinquent youth should be able to begin suppressing their aggression as they mature, but there are offenders who will mature more slowly and this behavior will progress into adulthood (Schubert & Mulvey, 2014). Early life aggression, however, is consistently one of the best predictors of juvenile delinquency and adult criminal offending (Barrett & Katsiyannis, 2017; Olweus, 1979). Youth exposed to trauma may be at a greater risk of

aggressive behavior due to the fact that their brains are in survival mode and may not be able to regulate behavior as well as non-traumatized youth (Bennett & Kerig, 2014), which also influences poor academic achievement outcomes, as noted in a discussion of aggressive behaviors in the context of traumatization due to community violence exposure (Aisenberg & Herrenkohl, 2008).

Violence Exposure. A recent study of juvenile justice-involved youth, suggest that delinquent children do not communicate their trauma exposure to their parents: over 99% of youth in the delinquent sample (842 detained youth) had been exposed to traumatic events that were deemed violent or dangerous and less than 42% of parents were aware of this exposure (Holman, Chaplo, Modrowski, & Kerig, 2016). Research has suggested that at least three of every four juvenile offenders have been exposed to trauma (Abram et al., 2004; Holman et al., 2016). Examining the presence of posttraumatic stress disorder (PTSD) in juvenile justice-involved youth, Abram and colleagues determined that juvenile offenders often have been witness to or personally involved in multiple traumatic experiences. A traumatic event is any event that involves the threat of injury, death, or harm to physical integrity often leading to dismay, fear, or feelings of vulnerability (Kelley, Pransky, & Sedgeman, 2014). After a traumatic event, it is to be expected that there will be some repercussions mentally as the brain reorganizes what it knows to accommodate the new demands that have surfaced (Ungar et al., 2013). Trauma literature indicates that youth exposure to trauma increases the likelihood of delinquent behavior and incarceration (Ahern et al., 2008; Kelley et al., 2014; Ungar et al., 2014; Vincent et al., 2012). As such, being exposed to trauma at a young age can have consequences that persist into adulthood (Ahern et al.,

2008), and this highlights the importance of work on youth resilience in an adjudicated population.

Parental Hostility. The parent-child relationship is a complex structure that changes immensely from early childhood to adolescence due to the child's growing need for autonomy and the parent's need to still exert control and leadership in the family. However this relationship can be affected by other relationship dynamics in the home; when there is conflict between parents, for example, that hostility can trickle down and create conflict with the child leading to problems with aggression in youth (Fosco, Lippold, & Feinberg, 2014). Of concern is the lack of diversity in the Fosco et al., (2014) sample as nearly 90% of families (871 out of 979) self-identified as white, living in rural areas; this representation is not typical of the juvenile justice population sampled in the current study and the results therefore may not generalize. Additionally, parental hostility was reported from the parental point-of-view of their hostility in front of their child. This can be problematic for several reasons: the child may be present when the parent is unaware, the parent may not wish to disclose private information as to their familial discord, and so on; having observational reports or reporting from another family member may have resulted in different findings. Hostile parenting has the ability to impede a child's ability to properly regulate their emotions by not respecting the child's feelings and undermining a child's concept of self (Gouze, Hopkins, Bryant, & Lavigne, 2016). Poor emotion regulation is one of the largest predictors of criminal offending (Howells, Tennant, Day, & Elmer, 2010). Emotion regulation tends to improve over the course of adolescence and early adulthood as the prefrontal brain regions continue to develop (Steinberg, 2009). Hostile parenting can cause increased antisocial behavior,

additional stress, and anger through decreased emotion regulation (Samuelson et al., 2007), creating a cycle from which youth may not easily escape.

Factors that Promote Positive Youth Development

Promotive factors, when employed, can reverse some of the ill effects of being exposed to one or more risk factors and provide a lower probability of offending, by counterbalancing negative situations with positive personal attributes regardless of being at high or low risk (Gutman, Sameroff, & Eccles, 2002; Jenson & Fraser, 2015). Promotive factors are defined as attributes which foster healthy development in all youth (Sameroff, 2009). Promotive factors typically change over the lifespan and can vary in their effectiveness (Ahern et al., 2008; Duke & Borowsky, 2015). Some of the more common promotive factors linked to delinquency include high rates of optimism, social support, self-confidence, and a motivation to succeed (Mowder, Cummings, & McKinney, 2010). Current research has not determined how or when promotive factors are developed (Ahern et al., 2008) so it is important to determine from where the relationship between a promotive factor and resilient behavior stems. As previously noted, parent-child relationships also play a role as a promotive factor against delinquency with positive same-sex parent-child relationships diminishing the risk of juvenile delinquency (Walters, 2016). Attitudes toward violence and violent behavior can be reduced when role models who exhibit prosocial behavior surround adolescents; which provide a promotive aspect to at-risk youth (Duke & Borowsky, 2015; Walters, 2016). Some research shows that having a connection with influentially positive peers is important to youth during periods of trauma (Ungar et al., 2014) and thus may be a promotive factor worth researching more closely (Walters, 2016). In the present study, I

include motivation to succeed, parental monitoring, parental warmth, and family structure (having two parents in the home) as promotive factors that increase the likelihood of resilience.

Motivation to Succeed. Finding an inner drive for success is an important indicator that youth will persevere after adversity and juvenile incarceration. Thinking that you will succeed has been positively correlated with greater academic achievement (Chung, Mulvey, & Steinberg, 2011); however, the framework for this study considers neighborhood influences and does not consider other factors (particularly family contexts) linked to academic or community achievement. Motivation also has been linked to cognitive engagement in academic tasks, which often decreases the risk of delinquency as noted in a study of urban youth in Chicago (Hirschfield & Gasper, 2010). Lack of motivation has been linked to an increase in school absence (skipping class and/or suspensions from school) and a decrease in the quality of grades (Boyd-Franklin, Smith Morris, & Bry, 1997; Pulkkinen, Lyyra, & Kokko, 2009).

Parental Monitoring. Greater parental monitoring was associated with lower levels of delinquency in a cross-sectional sample of 228 urban, minority youth (Griffin, Botvin, Scheier, Diaz, & Miller, 2000). Parental monitoring also has been linked to greater self-control in youth, leading them to engage in more socially acceptable behavior (Gottfredson & Hirschi, 1990). Additionally, it has been discussed that deficits in parental monitoring are indicative of long-term deficits for child development, predicting future behaviors, possibly delinquent in nature (Pagani, Boulerice, Vitaro, & Tremblay, 1999). Within this study, parental monitoring reflects the supervision that youth have with their caregivers, rather than a disciplinarian style of monitoring.

The power-control theory asserts that parental monitoring varies across gender (Hagan et al., 1987). Hagan et al. (1987) discusses that while the family dynamic has been steadily changing over the previous century, from a predominantly patriarchal family where the father works outside of the home and the mother is the domestic caretaker inside of the home to a more egalitarian partnership, there is still pressure to raise children in line with the parents' employment status and that this will vary across sex.

Parental Warmth. Farnworth (1984) suggests that the positive perceptions of parental relationships within a family are indicative of youth abstaining from delinquency. Warm parenting often includes expressing concern for their child, dedicating time for the child, and forming an attachment to their child; in lieu of these behaviors, youth may not form a proper attachment to their parent leading to undesirable behaviors and delinquency (Ventura Miller, Jennings, Alvarez-Rivera, & Lanza-Kaduce, 2009). In a 2012 study, Benson and Buehler used structural equation modeling to test associations of parental warmth and hostile parenting with aggression; increased warmth indirectly reduced the negative consequences of increased parental hostility. This examination from Benson and Buehler may not generalize to juvenile justice youth, as families in this study were from intact, predominately white (91%), biological families, with higher than normal household income for the study year ($70,000 median as opposed to $59,548 as the national median)

Family Structure. Juvenile justice research consistently has shown that two-parent families allow youth to be better supervised and cared for than one-parent households (Anderson, 2002; Gottfredson & Hirschi, 1990) although this relationship

only holds for biological families (Harper & McLanahan, 2004). Additionally, Gottfredson and Hirschi (1990) note that this lack of supervision is accounted for by the time constraints on the parent. In a longitudinal, age-based, event-history analysis of family instability of 2,702 delinquent youth, Harper and McLanahan (2004) were able to show that the absence of biological fathers increased the risk of incarceration, but this relationship co-occurs with other disadvantages including poverty, low educational attainment, racial disparities, and overall family instability. This examination did not, however, consider other family processes such as parental monitoring or parental warmth, which may provide additional information on positive adjustment.

Sex and Racial/Ethnic Differences in Resilience Among Delinquent Youth

Sex differences in pathways to resilience have been studied infrequently (Mowder et al., 2010; Ungar et al., 2013); however, males and females internalize and externalize behaviors differently, and the effects of promotive factors on outcomes may differ across sex. In a 2015 study on risk for delinquency, Newsome, Vaske, Gehring, and Boisvert found that males were more vulnerable to cumulative risk while females tended to have more resilient outcomes. Additionally, as females are the most rapidly growing population entering the juvenile justice system currently (Youth, nd) it is relevant to look at sex differences in resilient processes. Giordano, Kerbel, and Dudley (1981) explain the boost in female crime to the change in economy; females are more often expected to function independently while holding lesser positions in the workforce (Giordano et al., 1981; Hagan, Simpson, & Gillis, 1987) which may be a contributing reason for the rise of adolescent female offenders.

Juvenile justice resilience research also should take cultural differences into consideration. The rates of youth who identify as Hispanic in the juvenile justice system has steadily increased every year since 1990 and these youth make up a significant portion of incarcerated youth (OJJDP, 2015; Youth, nd); yet Hispanic youth often are overlooked in research involving risk and promotive factors (Jennings et al., 2016). Youth who are first- or second-generation immigrants in the United States may have coping strategies that reflect their home culture or a combination of cultures. This may change how they cope and react in certain situations and this needs to be taken into account when considering resilience. Most resilience literature has not taken cultural differences into account (Masten, 2014) despite the fact that it is important to consider biological, behavioral, and cultural differences when looking at resilience, as processes will likely differ among subgroups within the juvenile justice population. Youth from this sample are diverse based on their geographic location, as such, controlling for location will be completed in the present study (Fagan & Piquero, 2007; Schubert et al., 2004). Additionally, when looking at trends of offending, younger offenders are more likely to persist in delinquency through adulthood (Loeber & Farrington, 2011) so age at first arrest will be controlled in the analyses.

Present Study

In summary, few studies have evaluated resilience among juvenile justice populations. Even fewer have followed juveniles longitudinally post-release to determine if they are meeting socially acceptable milestones (e.g., continuing education, working) (Mowder et al., 2010; Vincent et al., 2012). This study aimed to help lessen the gap by testing a model of risk and promotive factors associated with resilience

among juvenile offenders in the year following their adjudication with a correctional institution.

Risk and promotive factors measured at the first interview (baseline) were used from the Pathways to Desistance dataset. Violence exposure, aggressive offending, and parental hostility were examined as risk factors; motivation to succeed, parental monitoring, parental warmth, and family structure were examined as promotive factors. While the resilience literature does not provide detailed operational definitions of resilience (Efta-Breitbach & Freeman, 2004; Kumpfer, 1999), for this study, resilience was defined as 6 months (out of 12) of gainful activity (enrollment in school or employment) and this was measured from the 6- and 12-month follow-up interviews. Based on previous literature, I hypothesized 1) that juveniles who had committed more aggressive offenses would show lower levels of resilience; 2) juveniles with a history of trauma exposure would show lower levels of resilience; and 3) juveniles exposed to high levels of parental hostility would show lower levels of resilience. Further, I hypothesized that 4) confidence in ones' motivation to succeed, operationalized as a belief that one would be successful in the future, would be positively associated with resilience; 5) high parental warmth and 6) high parental monitoring would be positively associated with resilience; and 7) having a father present in the home would be positively associated with resilience, particularly in males.

Method

Participants

This study utilized data from the Pathways to Desistance study, a longitudinal examination of 1,354 serious adolescent offenders in two metropolitan cities in the

United States: Philadelphia, Pennsylvania, and Phoenix, Arizona. Enrollment into the study took place from November 2000 to January 2003. Participants in the study had been found guilty of a serious offense that had been committed between the ages of 14 and 18 years old. Eligibility for participation required both parental consent and youth assent. Baseline interviews were conducted within 75 days of their adjudication hearing; time-point interviews were completed at regular six-month intervals based on the date of their original baseline interview (Schubert et al., 2004). Due to a large number of juvenile drug offenders, male participants were capped at 15% of the sample if found guilty of a drug offense. All females were considered regardless of offense due to lower female incarceration rates. Four-fifths (80%) of all youth approached for inclusion into the study participated. Data were collected in a baseline interview and then follow-up interviews were conducted at 6, 12, 18, 24, 30, 36, 48, 60, 72, and 80 months after the baseline interview; retention for the 6- and 12-month interviews was 95%. Full data were collected for 92% of the sample at baseline, 6- and 12-month follow-up interviews and are the time-points examined in this study. Interviews were conducted in juvenile justice facilities, participants' homes, libraries, or other public places that were appropriate for interviews; baseline interviews were completed in two separate two-hour sessions, and follow-up interviews took approximately two hours each. Participants entered their responses on a laptop computer keypad. Self-report measures were validated and supplemented with official arrest records and through interviews with collateral reporters (typically a family member or someone close to the juvenile participant).

SES was established at baseline and reflected a mean score of both educational attainment and occupation of the mother and father. An Index of Social Position (ISP) was created using information from Hollingshead's (1971) formula ((Occupation Score x 7) + Education Score x 4)). If information was known for only one variable, the missing data was copied using the known variable; for example, if the father's education equaled 4 (high school graduate), then it was assumed that father's occupation also equaled 4 (technicians, clerical and sales workers). Higher SES scores indicated lower education and occupation attainment.

Race and ethnicity have impacted risk variability in samples of juvenile justice youth (Jolliffe et al., 2016); both of these factors were assessed at baseline. Race was self-reported by the participant and resulted in six ethnic groups: black, white, Asian, Native American, Hispanic, and other. This was later recoded into four ethnic groups: black, white, Hispanic, and other due to the low frequency of youth self-identifying as Asian and Native American. The term "Hispanic" refers to a culture/ethnicity and is not indicative of a specific race, while the other groups are more representative of race and may be important to consider when examining the results of the study.

Age at first arrest was obtained from official court record systems at both site locations. If no arrest existed prior to the baseline interview, the study used the age at baseline. This variable was chosen over self-reported first arrest because it captured official arrest information rather than relying on participant recall of the first arrest. Current study participant demographics are presented in Table 1.

Table 1

Descriptive Characteristics of Study Sample at Baseline

Variable	*N*	Column %
Demographic Characteristics		
Total (*N*, Row %)		
Race		
Black	561	41.4
Hispanic	454	33.5
White	274	20.2
Other	65	4.8
Study Site		
Philadelphia	700	51.7
Phoenix	654	48.3
Sex		
Male	1170	86.4
Female	184	13.6
Age at Baseline (Mean, *SD*)	16.04	1.14
Parental Index of Social Position (SES; Mean, *SD)*	51.41	12.30
Age at 1st arrest (Mean, *SD*)	14.93	1.64

Measures

Risk Factors*. Exposure to Violence* was assessed at baseline and all follow-up timepoints using the Exposure to Violence Inventory (Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998); data from the baseline assessment only was utilized for this study. The exposure to violence score reflected a count of lifetime exposure (either witnessed or experienced) to 13 events that were deemed violent. An example from the 6-item experienced subscale is "Have you ever been chased where you thought you

might be seriously hurt?" and from the 7-item witnessed violence subscale is "Have you ever seen someone else being raped, an attempt made to rape someone or any other type of sexual attack". Responses can range from 0 to 13, with higher scores indicating greater exposure to violence. As already noted, trauma exposure is a dangerous precursor to delinquency and other problem behaviors. Violence exposure has been widely researched in the juvenile justice literature. This combined measure of violence exposure had sufficient internal consistency at baseline with a Cronbach alpha of .67

Aggression, defined as aggressive offending behavior, was reported by youth and was assessed at all time-points; data from baseline only was used for this study. A subset of 11 items from the 24-item Self-Reported Offending measure (Huizinga, Esbensen, & Weihar, 1991) assessed aggressive behavior. Questions included "Been in a fight?" Once an item was endorsed, follow-up questions indicated how frequently this activity had taken place in the previous year, and the age at which event first took place. Follow-up time points asked how often this had happened during the previous six months. Scores were rated as a proportion: the number of items endorsed divided by the number of items queried. Aggression routinely has been studied as a risk factor in juvenile justice youth (Dubow et al., 2016; Griese et al., 2016). Aggression had good internal consistency with a Cronbach alpha of .74 across all time-points for this study.

Parental Hostility was assessed at all time points using the 24-item Quality of Parental Relationships Inventory (Conger, Ge, Elder, Lorenz, & Simons, 1994); 12 questions assessed maternal hostility and 12 questions assessed paternal hostility. Baseline scores were used for this study. Sample questions included: "How often does your mother get angry at you?" and "How often does your father throw things at you?"

Responses ranged on a 4-point Likert scale from 4 (Always) to 1 (Never) with higher scores reflecting more hostility. Composite scores for both mother and father hostility were calculated using the mean of 12 items. Parental hostility has been studied as a risk factor in juvenile justice youth (Mulvey et al., 2016). Reliability at baseline was good for both mother (α=.85) and father (α=.88).

Promotive Factors. *Motivation to Succeed* is crucial to the future success of juvenile justice youth. Lack of motivation can cause youth to question reasons to put forth effort into taking care of their health or finding resources that will help them succeed (Burt, 2002). Motivation has been linked to social identity and goal attainment (Oyserman, 2008), both considered promotive when considering future success. The overall motivation to succeed score is a mean of six items that were taken from Eccles, Wigfield, and Schiefele (1998) and was assessed at all time points; data assessed at baseline was used in the study. Higher scores on motivation to succeed indicate greater optimism regarding future achievement. Sample items include "In my neighborhood, it is easy for a young person to get a good job." Responses ranged on a 5-point scale from 5 (Strongly Agree) to 1 (Strongly Disagree)." A confirmatory factor analysis determined an acceptable fit for this information (CFI = 0.971; RMSEA = 0.049).

Parental Monitoring, sometimes referred to as parental supervision, is a consistent promotive factor for preventing later delinquency (Fontaine et al., 2016; Jolliffe et al., 2016; Mulvey et al., 2016). Parental monitoring, assessed with the 4-item Parental Monitoring Inventory (Steinberg, Lamborn, Dornbusch, & Darling, 1992), was measured at all time points. Only baseline values were used in the current study.

Questions included “How often do you have a set time to be home on weekend nights?” as well as assessing if there was a curfew on weeknights, and if parents generally know where youth are and how they spend their free time, with responses on a 4-point Likert scale ranging from 1 (Never) to 4 (Always). A confirmatory factor analysis determined good fit for the data (CFI > .92; RMSEA < .08).

Parental Warmth has been previously considered to be promotive with respect to juvenile delinquency (Mulvey et al., 2016). A 42-item adapted version of the Quality of Parental Relationships Inventory (Conger et al., 1994), assessed at baseline, was utilized to assess parental warmth. Questions included, “How often does your mother let you know she cares about you?” Items are rated on a 4-point Likert scale to from 4 (Always) to 1 (Never). Items were reverse scored and higher scores indicated more warmth. The baseline assessment had excellent reliability for mother (α=.92) and father (α=.95).

Number of *Parents in Home* significantly influences youth when two biological parents are present in the home, versus being from “disrupted” homes where there are either one or no biological parents are present in the home (Jolliffe et al., 2016). The number of parents in the home was measured at baseline and included if the biological mother and father were living in the household.

Outcome: Resilience. *Gainful Activity* has been considered in the transition from juvenile detention back into the community as a factor for future success (Jäggi, 2016). Gainful activity was created as a variable to determine positive adjustment after juvenile incarceration by consolidating school attendance and employment information into a single monthly variable. Academic achievement is critical to study in juvenile

justice youth since educational attainment or lack thereof has the potential to significantly change the life course for youth (Kirk & Sampson, 2013). High academic achievement has been linked to resilience outcomes in previous longitudinal studies involving at-risk youth (Tiet, Huizinga, & Byrnes, 2009) and consistently is linked to low levels of violence (Ttofi, Farrington, Piquero, & DeLisi, 2016). Employment consistently predicts increased life success, including improved physical and mental health and reduced recidivism (Sharlein, 2016). To be deemed "gainfully active" youth had to work at least two weeks of the month in the community or miss less than five days of school in the month. Resilience was defined as 6 months (out of 12) of gainful activity.

Data Analytic Procedures

Prior to testing the main study hypotheses, descriptive information was analyzed on all study variables using SPSS version 24 (IBM Corp., 2016), to examine demographic characteristics more closely. Before beginning analysis, all study variables were checked and cleaned. Specifically, continuous-level predictors were centered, and interaction terms with sex, coded 0 and 1, were computed. There were no issues with skewness or kurtosis on study variables with the exception of aggressive offending frequency, however, the graphic display showed a normal distribution and no transformations were performed. Running VIF and tolerance assessed multicollinearity in both hierarchical regressions; both the highest VIF (11.89 without father variables, 12.40 with father variables) and lowest tolerance (.084 without father variables, .081 with father variables) were on parental monitoring. No steps were taken to transform or remove this variable. There were no other issues with multicollinearity. Correlations were run to test associations among continuous variables within the sample at an alpha

of $p < .05$. *T*-tests also were run to compare juveniles who were resilient from those who were not resilient, using the definition above.

As this is a longitudinal study, some missing data points were expected (see Table 2); running several regression analyses, as well as conducting the analyses utilizing Multiple Imputation (MI) addressed this. MI provides consistent estimates of missing data and was chosen because of the ease of use with regression and because it is easily usable in SPSS (Allison, 2002). MI also was relevant to this analysis because Little's MCAR test was significant, $p < .05$, indicating that data are not completely missing at random. Reporting recommendations for the MI process came from Manly and Wells (2015). In order to address the missing data, MI was used on all predictors with missing values, and also missing outcome variables so as not to generate biased estimates (Graham, 2009). Although previous recommendations have suggested the use of five imputations in order to gain sufficient results (Allison, 2002), the more recent recommendation is to impute as many datasets as the percent of missing data (Bodner, 2008). Eight imputed databases were created using SPSS' MI process based on the fact that 7.88% of the data were missing from the analyses for this study. Following recommendations from Enders, Baraldi, and Cham (2014) post-imputation centering was performed in order to examine interaction effects. The interaction terms were created prior to imputation and then study variables were standardized post-imputation, followed by running the regression analyses.

In order to test the main hypothesis regarding risk and promotive factors associated with resilience, two regression analyses were conducted. In the first analysis, youth were classified as "resilient" or "not resilient" based on whether or not

they had been in school or employed for at least 6 months of the 12-month period. A logistic regression was used for this analysis. In the second analysis, hierarchical linear regression was used with the full range of scores noting the number of month's youth had either been employed or had attended school. For both analyses, race, sex, demographic location, age at first arrest, and socioeconomic status were entered first, followed by the three risk variables, the four promotive variables, and lastly, the interactions of sex by family structure and sex by parental monitoring.

Table 2

Descriptive Statistics and Extent of Missing Data on Predictor Variables

Variables	*n Missing*	*Mean(SD)*	Range
Total Exposure to Violence (Witnessed, Victim)	3	5.34(2.99)	0 - 13
Parental Hostility			
Father	515	1.52(.49)	1 - 4
Mother	48	1.61(.45)	1 – 4
Aggressive Offending	3	13.55(42.56)	0 - 412
Parental Warmth			
Father	515	2.74(.89)	1 - 4
Mother	48	3.21(.70)	1 - 4
Motivation to Succeed	1	3.25(.65)	1 - 5
Biological Parents Living at Home	0	1.02(.56)	
Biological Mother	0	.77(.42)	
Biological Father	0	.25(.43)	
Parental Monitoring	157	2.80(.86)	1 - 4

Results

Missing Data

Twelve of the 20 variables (60%; including outcome variables) contained at least one missing data point. The range of missing values was .01% for motivation to succeed through 38% for both father warmth and father hostility. Via the customary method of listwise deletion, only 555 youth were available for analysis and those results will be presented. Missing data was more extreme for the father variables as 1039 reported not living in a home with their biological father; while another majority of missing data came from youth missing their follow-up interviews. Removing father variables from the regression analyses allowed for 889 youth to be examined and those results also will be presented. Multiple Imputation (MI) then was used to provide more robust estimates of outcomes by simulating complete datasets. Univariate results will be presented first, followed by multivariate results and then results of MI.

Correlations

Table 3 presents bivariate correlations among continuous predictor variables and gainful activity in the sample. As expected, exposure to violence and aggressive offending were positively correlated with mother and father hostility, and negatively correlated with motivation to succeed and parental monitoring. Significant correlations were found with the outcome variable: exposure to violence was negatively correlated with gainful activity; motivation to succeed and parental monitoring were positively correlated with gainful activity.

Table 3

Correlations among Sample Variables

	1	2	3	4	5	6	7	8	9
1 Exposure to Violence	-								
2 Mother Hostility	.255**	-							
3 Father Hostility	.215**	.332**	-						
4 Aggressive Offending	.219**	.069*	.064	-					
5 Motivation to Succeed	-.270**	-.135**	-.142**	-.134**	-				
6 Parental Monitoring	-.254**	-.118**	-.083*	-.095**	.185**	-			
7 Mother Warmth	-.048	-.399**	-.180**	.024	.086**	.153**	-		
8 Father Warmth	-.051	.194**	-.328**	.013	.143	.122**	.432**	-	
9 Gainful Activity	-.151**	-.043	.019	-.002	.181**	.179**	-.055	-.011	-

Note. * $p < .05$; ** $p < .01$.

T-tests

Independent samples *t*-tests were run to compare youth who were classified as resilient, by having at least six months of gainful activity in the community, and those who classified as non-resilient or having less than six months of gainful activity in the community after incarceration. Significant differences were found between resilient and non-resilient youth on the following variables: study location, with youth in Phoenix more likely to be resilient; age at first arrest, with being older at first arrest more likely to be resilient; having the biological father in the home supports the hypothesis that having the father present would be indicative of resilience; having both biological parents in the home, for resilient youth; fewer instances of violence exposure are indicative of resilient youth and is supportive of the study's main hypotheses; also showing support for the main hypotheses, youth who have more motivation to succeed, have a greater chance of being resilient; greater parental monitoring is also indicative of resilient youth; and youth who come from higher SES families tend to be more resilient in this sample. For a full description of results, see Table 4.

Table 4

Independent Samples T-tests comparing Resilient and Non-Resilient Youth on Study Variables

	Resilient?						95% CI for Mean		
	Yes			No					
	M	*SD*	*n*	*M*	*SD*	*n*	Differences	*t*	*df*
Race	2.17	.88	601	2.26	.80	414	-.02, .19	1.61	939.97
Sex	.15	.36	601	.18	.39	414	-.01, .08	1.41	839.62
Location	1.58	.49	601	1.44	.50	414	-.20, -.07	-4.25***	1013
SES	50.06	12.01	599	52.49	12.35	412	.91, 3.96	3.13**	1009
Age at 1st arrest	15.13	1.54	601	14.77	1.70	414	-.57, -.16	-3.47**	828.34
Exposure to Violence	4.74	2.96	600	5.53	2.90	414	.42, 1.16	4.20***	1012
Mother Hostility	1.60	.43	580	1.62	.45	404	-.03, .08	.74	982
Father Hostility	1.51	.47	408	1.53	.48	226	-.06, .10	.54	632
Aggressive Offending	10.76	30.79	600	11.73	30.17	412	-2.87, 4.80	.49	1010
Motivation to Succeed	3.37	.65	601	3.18	.64	413	-.27, -.11	-4.69***	1012
Parental Monitoring	2.97	.80	546	2.69	.86	370	-.40, -.18	-5.21***	914
Mother Warmth	3.16	.68	580	3.19	.71	404	-.06, .12	.61	982
Father Warmth	2.68	.86	408	2.69	.92	226	-.13, .16	.24	632
Lives w/ Bio Parents	.19	.39	601	.13	.33	414	-.10, -.01	-2.55*	965.41
Lives w/ Bio Father	.28	.45	601	.20	.40	414	-.13, -.03	-3.01**	950.70

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

Logistic Regression: Predicting Dichotomized Assessment of Resilience

Two logistic regression analyses were conducted to determine the effects of the main study hypotheses that aggressive offending, trauma exposure, and parental hostility would be associated with less gainful activity in the community and motivation to succeed, high parental warmth, and having a father present in the home would be associated with increased gainful activity in the community after juvenile incarceration. Due to the significant amount of missing data on father warmth and father hostility, the first regression is presented without these variables entered.

The first logistic regression model, run without father warmth and father hostility (n=889), was statistically significant, $x^2(16) = 87.92$, $p < .001$. The model explained 12.7% (Nagelkerke R^2) of the variance in gainful activity and correctly classified 64.6% of cases. Table 5 displays the results. Resilient youth were more likely to reside in Phoenix, more likely to have been older at first arrest, come from families with higher SES, and have been exposed to less violence.

Table 5

Logistic Regression Predicting Resilient Youth, without Father Variables (n=889)

Predictor	B	SE	p	OR	95% CI
Race	.01	.09	.906	1.01	[.84, 1.21]
Sex	-.24	.22	.280	.79	[.51, 1.122]
Location	.45	.15	.004	1.56	[1.16, 2.11]
SES	-.02	.01	.007	.98	[.97, .10]
Age at 1st Arrest	.17	.05	<.001	1.19	[1.08, 1.30]
Exposure to Violence	-.07	.03	.036	.94	[.89, 1.00]
Mother Hostility	-.01	.19	.939	.99	[.68, 1.43]
Aggressive Offending	-.00	.00	.656	1.0	[.99, 1.00]
Motivation to Succeed	.23	.12	.065	1.26	[.99, 1.60]
Parental Monitoring	.41	.30	.164	1.51	[.85, 2.70]
Mother Warmth	-.05	.12	.669	.95	[.75, 1.21]
Lives w/ Biological Parents	.67	1.17	.568	1.96	[.20, 19.54]
Lives w/ Biological Father	.96	1.04	.065	2.62	[.34, 20.08]
Sex X Parental Monitoring	-.01	.24	.960	.99	[.61, 1.59]
Sex X Lives w/ Bio Parents	-.31	.98	.752	.73	[.08, 2.55]
Sex X Lives w/ Bio Father	-.77	.87	.376	.46	[.08, 2.55]

Note. CI = confidence interval for odds ratio (OR).

Logistic Regression, Including Father Variables

A second logistic regression model was run to further address the hypotheses with father warmth and father hostility (n=555) included so that it would be possible to examine the effect fathers have on gainful activity and was statistically significant, $x^2(18) = 54.67$, $p < .001$. The model explained 12.9% (Nagelkerke R^2) of the variance of gainful activity and correctly classified 68.6% of cases. When including father variables, gainful activity did not differ from the previous regression, which only included information on mothers, except geographic location, which was no longer significant. The results are presented in Table 6.

Table 6

Logistic Regression Predicting Resilient Youth, with Father Variables (n=555)

Predictor	B	SE	*p*	OR	95% CI
Race	.06	.12	.621	1.06	[.84, 1.34]
Sex	-.44	.34	.191	.64	[.33, 1.25]
Location	.36	.21	.079	1.43	[.96, 2.14]
SES	-.02	.01	.017	.98	[.96, 1.00]
Age at 1st Arrest	.18	.06	.005	1.19	[1.06, 1.35]
Exposure to Violence	-.08	.04	.033	.92	[.86, .99]
Mother Hostility	.14	.27	.609	1.15	[.68, 1.96]
Father Hostility	-.19	.24	.423	.83	[.52, 1.32]
Aggressive Offending	-.00	.00	.880	1.00	[.99, 1.01]
Motivation to Succeed	.07	.16	.673	1.07	[.78, 1.48]
Parental Monitoring	.02	.39	.969	1.02	[.47, 2.19]
Mother Warmth	-.19	.18	.304	.83	[.58, 1.18]
Father Warmth	-.03	.13	.821	.97	[.76, 1.25]
Lives w/ Biological Parents	.79	1.20	.510	2.21	[.21, 23.29]
Lives w/ Biological Father	.58	1.11	.600	1.79	[.20, 15.63]
Sex X Parental Monitoring	.34	.33	.297	1.41	[.74, 2.69]
Sex X Lives w/ Bio Parents	-.41	1.00	.682	.67	[.09, 4.70]
Sex X Lives w/ Bio Father	-.63	.92	.494	.53	[.09, 3.24]

Hierarchical Linear Regression: Predicting Continuous Assessment of Resilience

Two hierarchical multiple regressions were conducted to compare if gainful activity in the community was explained by a significant amount of variance accounting for differences at each step: covariates, risk, promotive, and interactions. Similar to the logistic regression analyses, the first regression was run without including father warmth and father hostility due to such decreased sample size, while the second regression included these variables.

For the first regression, run without father variables in the model, race, sex, location, SES, and age at 1st arrest significantly predicted gainful activity, $F(5, 883) = 13.81$, $p < .001$, $R^2 = .073$. When the risk factors, exposure to violence, mother hostility, and aggressive offending were added to the model in step two, the prediction in gainful activity significantly improved and accounted for 2.4% more of the variance beyond the covariates, $\Delta R^2 = .024$, $\Delta F(3, 880) = 7.71$, $p < .001$. When the promotive factors, motivation to succeed, mother warmth, parental monitoring, and living with both biological parents were added to the model in step 3, the prediction in gainful activity significantly improved and accounted for 3.7% more of the variance beyond steps 1 and 2, $\Delta R^2 = .04$, $\Delta F(5, 875) = 7.49$, $p < .001$. Adding the interactions between sex and having the biological parents in the home and sex by parental monitoring, the prediction in gainful activity again significantly improved, accounting for 1.0% more of the variance, $\Delta R^2 = .01$, $\Delta F(3, 872) = 3.34$, $p = .019$, however, these interactions were not statistically significant. These results partially confirm that the hypotheses that youth with greater trauma exposure would be less gainfully active, motivation to succeed would be positively associated with gainful activity, as well as parental monitoring would be

positively associated with gainful activity. Beta coefficients for the predictors are provided in Table 7.

Table 7

Hierarchical Regression Analysis Summary of Variables Predicting Resilience, without Father Variables (n=889)

	Model 1			Model 2			Model 3			Model 4		
Predictor Variables	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Race	-.02	.03	-.03	-.01	.03	-.02	.00	.03	.01	.00	.03	.01
Sex	-.07	.06	-.04	-.09	.06	-.05	-.12	.06	-.07*	-.02	.07	-.01
Location	.25	.04	.19***	.25	.04	.19***	.20	.05	.15***	.21	.05	.16***
SES	-.01	.00	-.11**	-.01	.00	-.11**	-.01	.00	-.10**	-.01	.00	-.10**
Age at 1st arrest	.06	.01	.15***	.06	.01	.15***	.06	.01	.14***	.06	.01	.14***
Exposure to Violence				-.03	.01	-.13***	-.02	.01	-.08*	-.02	.01	-.07*
Mother Hostility				-.09	.05	-.06	-.10	.06	-.06	-.09	.06	-.06
Aggressive Offending				.00	.00	-.01	.00	.00	.01	.00	.00	.01
Motivation to Succeed							.09	.04	.08*	.09	.04	.08*
Parental Monitoring							.13	.03	.16***	.25	.09	.31*
Mother Warmth							-.06	.04	-.06	-.06	.04	-.06
Lives w/ Biological Parents							.12	.10	.07	.34	.20	.20
Lives w/ Biological Father							.01	.09	.01	.27	.31	.17
Sex X Parental Monitoring										-.10	.07	-.16
Sex X Lives w/ Bio Parents										-.19	.29	-.13
Sex X Lives w/ Bio Father										-.10	.07	-.16

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

Hierarchical Linear Regression, Including Father Variables

For the second regression, run with father variables included in the model, race, sex, location, SES, and age at 1st arrest significantly predicted gainful activity, $F(5, 549) = 7.98$, $p < .001$, $R^2 = .068$. When risk factors, exposure to violence, mother hostility, father hostility, and aggressive offending were added to the model in step two, the prediction in gainful activity significantly improved and accounted for 2.2% more of the variance beyond the covariates, $\Delta R^2 = .022$, $\Delta F(4, 545) = 3.26$, $p = .012$. When the promotive factors, motivation to succeed, mother warmth, father warmth, parental monitoring, and living with both biological parents were added to the model in step 3, the prediction in gainful activity significantly improved and accounted for 3.2% more of the variance beyond steps 1 and 2, $\Delta R^2 = .032$, $\Delta F(6, 539) = 3.27$, $p = .004$. Adding the interactions between sex and having the biological parents in the home and sex by parental monitoring, the prediction in gainful activity did not significantly improve and only accounted for 1.1% more of the variance, $\Delta R^2 = .011$, $\Delta F(3, 536) = 2.17$, $p = .091$. Results of this regression analysis differed from the previous hierarchical analysis in that only the covariates, location, SES, and age at 1st arrest were significant. Beta coefficients for the predictors are provided in Table 8.

Table 8

Hierarchical Regression Analysis Summary of Variables Predicting Resilience, with Father Variables (n=555)

	Model 1			Model 2			Model 3			Model 4		
Predictor Variables	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Race	.00	.03	-.00	.01	.03	.02	.03	.03	.04	.03	.03	.04
Sex	-.13	.08	-.07	-.16	.08	-.09*	-.20	.08	-.11*	-.05	.10	-.03
Location	.21	.06	.16***	.20	.06	.15**	.16	.06	.12**	.17	.06	.12**
SES	-.01	.00	-.11*	-.01	.00	-.11*	-.01	.00	-.10**	-.01	.00	-.11*
Age at 1st arrest	.07	.02	.15***	.06	.02	.15**	.06	.02	.14**	.06	.02	.14**
Exposure to Violence				-.03	.01	-.14**	-.02	.01	-.08	-.02	.01	-.08
Mother Hostility				-.01	.07	-.01	-.03	.08	-.02	-.02	.08	-.01
Father Hostility				-.01	.06	-.01	-.01	.07	-.01	.00	.07	.00
Aggressive Offending				.00	.00	-.01	.00	.00	-.01	.00	.00	-.01
Motivation to Succeed							.06	.05	.06	.06	.05	.06
Parental Monitoring							.13	.03	.16***	.17	.11	.22
Mother Warmth							-.08	.05	-.08	-.08	.05	-.08
Father Warmth							.01	.04	.02	.01	.04	.02
Lives w/ Biological Parents							.12	.10	.08	.37	.35	.25
Lives w/ Biological Father							-.03	.10	-.02	.21	.33	.16
Sex X Parental Monitoring										-.03	.09	-.05
Sex X Lives w/ Bio Parents										-.22	.30	-.18
Sex X Lives w/ Bio Father										-.21	.28	-.19

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

Logistic Regression using Multiple Imputation with Resilience Defined as 6-months of Gainful Activity

A logistic regression was run using MI following the procedures reported above. Pooled results were examined to compare the observed logistic regression results with unbiased robust estimates of the missing data (see Table 9). Although pooled model information is not presented, every iteration was significant in improving the prediction in gainful activity at $p < .001$. Pooled results showed that after controlling for covariates in the logistic regression, only location and age at first arrest were statistically significant. This differs from the observed logistic regression results in that SES and exposure to violence were no longer significant. Location, which was only significant when fathers were excluded in the previous logistic regression, remained a significant predictor of resilience when using MI.

Table 9

Pooled results of Logistic Regression using MI with Resilience Defined as 6-months of Gainful Activity

Predictor	*B*	*SE*	*p*	*OR*	95% CI
Race	-.05	.08	.537	.95	[.81, 1.12]
Sex	-.31	.44	.477	.73	[.30, 1.76]
Location	.45	.13	.001	1.57	[1.21, 2.04]
SES	-.01	.01	.356	.99	[.97, 1.01]
Age at 1st Arrest	.10	.04	.019	1.10	[1.02, 1.19]
Exposure to Violence	-.17	.11	.136	.84	[.66, 1.06]
Mother Hostility	.05	.11	.661	1.05	[.84, 1.32]
Father Hostility	-.08	.16	.615	.92	[.65, 1.30]
Aggressive Offending	.03	.25	.905	1.03	[.58, 1.83]
Motivation to Succeed	.18	.13	.207	1.19	[.89, 1.59]
Parental Monitoring	.21	.21	.333	1.23	[.79, 1.90]
Mother Warmth	-.00	.11	.974	1.00	[.79, 1.90]
Father Warmth	-.11	.12	.379	.90	[.70, 1.15]
Lives with Bio Parents	.75	1.10	.499	2.11	[.24, 18.64]
Lives with Bio Father	.45	.94	.628	1.57	[.25, 9.94]
Sex X Parental Monitoring	.04	.20	.863	1.04	[.69, 1.54]
Sex X Lives with Bio Parents	-.19	.40	.644	.83	[.38, 1.84]
Sex X Lives with Bio Father	-.15	.41	.711	.86	[.38, 1.94]

Note. MI= Multiple Imputation. 8 iterations of Multiple Imputation were used.

Logistic Regression using Multiple Imputation with Resilience Defined as 9-months of Gainful Activity

A logistic regression was run using MI with resilience defined as 9-months of gainful activity to examine differences between 6-month and 9-month definitions of resilience (see Table 10). Each iteration was significant in improving the prediction in

gainful activity at $p < .001$. Age at first arrest and location were still significant, as evidenced in the 6-month logistic regression. Using the definition of resilience of 9-months of gainful activity, however, motivation to succeed significantly predicted resilience.

Table 10

Pooled Results of Logistic Regression using MI with Resilience Defined as 9-months of Gainful Activity

Predictor	*B*	*SE*	*p*	*OR*	95% CI
Race	-.08	.08	.354	.93	[.79, 1.09]
Sex	.07	.43	.879	1.07	[.46, 2.50]
Location	.57	.18	.002	1.76	[1.24, 2.52]
SES	-.01	.01	.141	.99	[.97, 1.00]
Age at 1st Arrest	.11	.05	.019	1.11	[1.02, 1.22]
Exposure to Violence	-.14	.11	.223	.87	[.70, 1.09]
Mother Hostility	-.15	.09	.114	.86	[.72, 1.04]
Father Hostility	.14	.11	.193	1.15	[.93, 1.43]
Aggressive Offending	.12	.15	.433	1.13	[.81, 1.57]
Motivation to Succeed	.22	.08	.010	1.25	[1.05, 1.47]
Parental Monitoring	.35	.18	.060	1.42	[1.42, .99]
Mother Warmth	-.10	.10	.359	.91	[.74, 1.12]
Father Warmth	.01	.09	.888	1.01	[.84, 1.22]
Lives with Biological Parents	1.22	1.10	.268	3.37	[.39, 28.95]
Lives with Biological Father	.08	.95	.932	1.08	[.17, 6.94]
Sex X Parental Monitoring	-.16	.22	.462	.85	[.55, 1.32]
Sex X Lives with Bio Parents	-.31	.40	.435	.73	[.34, 1.60]
Sex X Lives with Bio Father	-.10	.40	.806	.91	[.41, 1.99]

Hierarchical Regression using Multiple Imputation

The results of the hierarchical regression model using MI indicated that location, age at 1st arrest, and motivation to succeed were statistically significant in the final model. Although pooled model information is not presented each iteration of MI indicated statistical significance at each step of the hierarchical model improving the variance in gainful activity, $p < .001$. Results of this regression analysis differed from the observed hierarchical regressions in that SES was no longer significant. Despite the fact that exposure to violence and parental monitoring were significant in the hierarchical regression that did not include father data, when running MI these variables were no longer significant. Motivation to succeed remained significant in predicting gainful activity after accounting for all other covariates and risk factors in both the regression that did not include father data and MI. Beta coefficients for the predictors are provided in Table 11.

Overall Summary of Analyses

A summary of and comparison of significant results across the different hierarchical and logistic regression analyses are presented in Table 12. However, in the discussion, I will address what I believe are the most significant findings, which are the analyses using MI. MI is regarded as one of the best methods to handle data which is missing at random and provides the most robust estimates of the missing data (Alison, 2002; Graham, 2009). MI protects against biases that result from missing data and therefore provides the most confidence in reporting these results.

Table 11

Pooled Results of Hierarchical Regression using Multiple Imputation

	Model 1			Model 2			Model 3			Model 4		
Predictor Variables	B	SE B	p	B	SE B	p	B	SE B	p	B	SE B	p
Race	-.04	.02	.118	-.03	.02	.193	-.01	.02	.559	-.02	.02	.526
Sex	-.09	.07	.196	-.10	.06	.099	-.12	.06	.055	.00	.13	.981
Location	.21	.05	<.001	.20	.05	<.001	.17	.05	<.001	.17	.04	<.001
SES	-.01	.00	.094	-.01	.00	.089	-.00	.00	.203	-.00	.00	.190
Age at 1st Arrest	.04	.01	<.001	.04	.01	<.001	.04	.01	.001	.04	.01	.001
Exposure to Violence				-.07	.04	.063	-.04	.04	.317	-.04	.04	.317
Mother Hostility				-.02	.03	.622	-.02	.03	.423	-.02	.03	.468
Father Hostility				.02	.03	.622	.02	.03	.619	.02	.03	.569
Aggressive Offending				.03	.05	.488	.04	.05	.374	.04	.05	.372
Motivation to Succeed							.07	.03	.009	.07	.03	.009
Parental Monitoring							.08	.03	.033	.11	.06	.061
Mother Warmth							-.03	.03	.399	-.03	.03	.403
Father Warmth							-.01	.03	.673	-.01	.03	.666
Lives with Bio Parents							.08	.08	.352	.30	.32	.350
Lives with Bio Father							.03	.07	.723	.17	.28	.534
Sex X Parental Monitoring										-.04	.06	.504
Sex X Lives with Bio Parents										-.08	.12	.482
Sex X Lives with Bio Father										-.07	.12	.587

Table 12

Table of Statistically Significant Results Across All Analyses

	with Father *(n*=555)	without Father *(n*=889)	MI *(N*=1354)	MI 9-month GA (*N*=1354)
Logistic Regression	SES Age at 1st Arrest Exposure to Violence	Location SES Age at 1st Arrest Exposure to Violence	Location Age at 1st Arrest	Location Age at 1st Arrest Motivation to Succeed
Hierarchical Regression	Location SES Age at 1st Arrest	Location SES Age at 1st Arrest Exposure to Violence Motivation to Succeed Parental Monitoring	Location Age at 1st Arrest Motivation to Succeed	n/a

Note: MI = Multiple Imputation; GA = Gainful Activity

Discussion

Involvement in the juvenile justice system can cause long-term consequences that span from internal turmoil to lack of civic engagement to continued participation in criminal activity, creating a cascading effect that creates burden into adulthood (Kim, Park, & Kim, 2016; Moilanen, Shaw, & Maxwell, 2010) and may carry on to future progeny. Although adverse outcomes have been well documented, the predictors of positive adjustment, or resilience, in juvenile justice youth has not been well researched. The goal of the current study was to examine the relation between gainful activity, defined as 6 months of employment and/or schooling across a 12-month period, a proxy of resilience, and known risk factors for delinquency: aggressive offending, parental hostility, and exposure to violence as well as known promotive factors that help deter delinquent behaviors: parental monitoring, parental warmth, motivation to succeed, and living with both biological parents, to gain a better understanding of the factors that encourage resilient behavior in juvenile justice youth. Based on typically negative expectations for youth in the juvenile justice system to succeed, having 59.2% of the current sample classified as resilient were surprising. Below I discuss the findings from the present study, then comment on the methodology, discuss strengths and weaknesses of the design, and provide implications for future research.

There was no confirmation for the hypothesis that youth with a history of trauma exposure would be less resilient. Youth who are exposed to trauma often have increased cognitive demands and are not as efficient at processing trauma (Aisenberg & Herrenkohl, 2008; Kerig & Becker, 2010), however youth in this study may have found coping strategies to adequately deal with their specific experience. It has been

suggested that trauma exposure begins prenatally, further disadvantaging youth from the earliest stages for delinquency (McCord, Spatz Widom, & Crowell, 2001) making it relevant to study in resilience research with vulnerable populations. Additionally, traumatic experiences are likely to have differential effects on youth, depending on proximity to the exposure, as well as if the trauma is chronic or a one-time occurrence (Aisenberg & Herrenkohl, 2008). A more in-depth look at the number of traumas, types of trauma exposure, duration of trauma, etc. and its effect on resilience is warranted.

The hypothesis that higher aggressive offending would be less resilient was not supported by the results of this study. Although aggressive offending routinely predicts life-course offending (Dubow et al., 2014), there may be other unique experiences in an individual's life that predict gainful activity. Previous studies on aggressive offending have taken a gendered approach, by looking only at male offenders (Dubow et al., 2014) or noting that males are more violent because it is more acceptable for males to act violently (McAra & McVie, 2016). However, it was important to include females in this examination because studies have found females to be as aggressive as males, often choosing to aggress anonymously (Hyde, 2005; Perry & Pauletti, 2011). Hyde further mentions that there is a significant risk in overinflating sex differences by perpetuating outdated gender stereotypes. However, the null results in this study may lend support for taking a gendered approach when examining aggression in juvenile justice samples.

High parental hostility was not associated with resilience although a negative association was predicted. Non-significant values for parental hostility could be

indicative of autonomous development that occurs during adolescence (Steinberg, 2009).

Among the promotive factors, there were no associations between parental warmth or parental monitoring and resilience. However, the relationship between parental monitoring and gainful activity was significant in the third step of the hierarchical regression but was no longer significant in the final step after controlling for all other predictors. Parental monitoring is most likely being suppressed by the interaction of parental monitoring and sex since they are nearly identical constructs and highly correlated. Parental monitoring has significantly predicted youth outcomes in previous research; in a study on child behavior problems Vassallo, Edwards, and Forrest (2016) found that parental monitoring significantly protected youth from future fighting behavior at ages 15 and 16, but not at ages 17 and 18. In the present study, parental monitoring operated similarly for both males and females in this study, although it previously has been mentioned as a key contributor of delinquency in males (Hagan et al., 1987). This can likely be explained by the fact that in the current study most of the youth were not living in households with fathers and so they were not receiving the different monitoring styles that Hagan and colleagues (1987) referred to. Poor parental monitoring also has been linked back to delinquency in youth (Sampson & Laub, 1997) which may signal that parenting practices need to be scrutinized more closely in the future.

The study hypothesis that being confident in ones' motivation to succeed was supported in both the hierarchical regression and in the logistic regression in which resilience was defined as 9-months of gainful activity. As discussed by Bandura (1999)

motivation regulation influences future experience; this may explain why motivation predicted gainful activity; higher levels of motivation to succeed may lead youth to be more purposeful in their future endeavors. Interestingly, goal-directedness, a concept similar to motivation to succeed, was the only promotive factor that discriminated adjustment profiles in a sample of South African youth (McGuire et al., 2018). There has been some success implementing programs to increase self-concept through the possible selves literature (Oyserman & Markus, 1990; Oyserman, Terry, & Bybee, 2002) although limited within the justice system, this type of intervention may be worth pursuing as the programs can be implemented on a limited budget. Juvenile justice youth, in particular, may benefit from interventions targeting motivation and goals, as they may not recognize the opportunity that hope and motivation may provide in becoming successful (Clinkinbeard & ten Bensel, 2012). One note of hesitation on the interpretation of the findings is that motivation to succeed in this study represents items regarding optimism on future success through community opportunity and is not particularly indicative of internal motivation for success.

The last hypothesis that having a father living in the home promotes resilience for youth and particularly males also was not supported by this study. Leiber, Mack, and Featherstone (2009) found similar results; family structure did not predict delinquency after considering economic factors and other family processes. A possible explanation in the literature is that “broken” families may provide more attachment than some intact families resulting in less delinquency (Sokol-Katz, Dunham, & Zimmerman, 1997). Sokol-Katz and colleagues (1997) explained that attachment to one’s family might hold more salience for youth than the structure of the family. A minority of youth in the

current sample came from intact two-biological parent households. Future research should consider looking further at family attachment as it might provide valuable information in predicting resilience in juvenile justice youth.

Consistent with prior research (Loeber & Farrington, 2011), this study shows that involvement with the justice system at a younger age was indicative of the possibility of less adaptive outcomes. Being older at first arrest was associated with greater likelihood of resilient outcomes. It may be interesting to parse out education and employment outcomes separately as older youth would be more likely to be gainfully employed versus younger youth who are more likely to be engaged in education and compare results in that way; one study found that attachment to the school where youth were incarcerated positively increased attachment to their community school after release, but the effect was not as robust for older youth who returned to employment (Jäggi, 2016).

Geographic location was associated with resilience, with youth incarcerated in Arizona evidencing higher levels of resilience than youth incarcerated in Pennsylvania. Pennsylvania generally ranks higher in crime than Arizona in annual reports created by the Federal Bureau of Investigation (FBI, 2016) and may limit opportunities for youth to get out of the crime cycle. Interestingly, youth in Phoenix were more likely to report higher parental hostility, while youth in Philadelphia were more likely to report higher parental warmth. Youth in Philadelphia were more likely to be older at baseline for this study but often were younger at first arrest, suggesting they have already been involved in the justice system for a period of time, which may be driving down their ability for gainful activity in the community. Youth in Phoenix also were more likely to live with

their biological parents. As previously mentioned, the racial makeup of youth differs between these two regions, with youth in Phoenix coming from predominantly Hispanic families. Worth noting for future study is that Hispanic culture often focuses on family unity rather than individual unity (Lansdale, Oropesa, & Bradatan, 2006) and this family dynamic may be contributing additional variance in the resilience shown by youth from Hispanic backgrounds.

Methodology

Since there is no standard operationalization for resilience, this study utilized an arbitrary cutoff to examine resilience. Although no two youth will experience resilience in the same way, it is important for quantitative researchers to create a precise definition of resilience so that results can be interpreted cohesively, allowing for improved intervention efforts and understanding differences in variance. The logistic regression constrained variance to dichotomous options, requiring that youth meet the criteria for resilience or not, which limited significant outcomes. Once the constraint was lifted and gainful activity was evaluated using a continuous outcome measure there was an additional significant outcome, specifically, motivation to succeed, indicating that many youth may be on the cusp of resilience and are functioning at an acceptable level by societal standards.

Further, logistic regression was run using MI to look at resilience outcomes with 9-months of gainful activity since the cutoff was arbitrary to determine if there were any additional outcomes for the most resilient youth in this study. Motivation to succeed was significant for resilience using 9-months of gainful activity as the definition.

Interestingly, parental monitoring was marginally significant at p = .060. These additional findings further elucidate the need for a clear operationalization of resilience.

Study Strengths and Limitations

A strength of the study is that it utilized an ecological model, taking into account individual, family, and community contexts. Another strength comes from the ability to examine gainful activity over the course of one year following baseline because this allows for development over the course of the year and can provide an opportunity to see changes in behavior patterns across that time.

This study is not without limitations. First, juvenile justice youth have many indicators of risk that are not studied here because it is impossible to quantitatively include all variables that may encompass the lived experiences of each and every youth. It is important to look at the intersections of the individual, home life, community, and school risk as well as including the impact of peers on delinquency in adolescence. Additionally, this study did not examine differences related to sexual or gender identity which may explain some of the variance related to the issues facing many youth within the justice system. Future studies should take an intersectional approach to assess the nature of resilience in various social groups. Another limitation of the study is that many juvenile justice youth are in unique home environments and gathering data on parenting styles such as warmth, hostility, and monitoring likely does not capture the full essence of experiences that youth are facing in their homes every day. Including more parenting variables, as well as having data from another source, such as a parent or neighbor may more accurately capture family realities these youth are facing. Finally, this study

is limited to youth in two justice systems, in two very different parts of the country and therefore limits the generalizability to all justice-involved youth.

Implications and Future Directions

Although there is ample research on the adverse effects of juvenile incarceration, there is much less research on positive development and resilience in particular. Being incarcerated may be a protective factor for some adolescent-limited offenders as they are given a safe space. This idea might be examined in future research by qualitatively exploring reasons for why they are involved with the justice system and other salient information which may lead to new avenues of resilience research. As males are more likely to be incarcerated than females (Hagan et al., 1987) it may be relevant to separate samples by sex and to examine predictors of resilience within samples of males or within samples of females to see how they differ and to provide further resources for intervention. Future studies should consider inclusion of additional measures regarding the development of resilience, including the influence of peers and cognitive processes related to emotional development and self-regulation, for example. The present results indicate that additional research should look further into goal-directed behavior and motivations for success. There is an opportunity to parse out motivation both intrinsically and extrinsically to see where the motivation is directed for guidance on intervention efforts.

The justice system faces an immense challenge to implement training and rehabilitation programs for youth (Underwood, von Dresner, & Phillips, 2006). There are numerous challenges, including funding and transition of youth between the detention facility and their community. Evidence-based programs in the juvenile justice

system have been severely underutilized (Underwood et al., 2006). Underwood and colleagues (2006) have also discussed how evidence-based programs need to be tailored to individual "problems" presented. While that may be true, this study provides evidence that motivation or goal-directed behaviors may provide opportunities for all youth, regardless of the "problems" they come with, shifting treatment from a deficit perspective to a positive development perspective. Goal-setting has been linked to less distress in a sample of delinquent offenders (Grimsley, 2017).

There also is an opportunity for family intervention; trauma exposure often is not limited to the youth and may be experienced by the parent(s) as well, overwhelming parents into not being able to properly care for their children (Aisenberg & Herrenkohl, 2008). There has been evidence for the effectiveness of family and community interventions once youth leave the justice system, particularly using Multisystemic Therapy and Functional Family Therapy (Underwood et al., 2006).

Additionally, school-based and juvenile justice-based interventions should be targeting ways to reduce adolescent aggression and improve how youth regulate their emotion and behavior after trauma as these remain significant predictors of juvenile incarceration. Although aggressive offending in this study was not a significant predictor of resilience, rates of aggressive offending were still quite high and remain high for many juvenile offenders. The need for affordable, evidence-based practices to reduce rates of aggression in youth involved in the justice system is critical. Mindfulness trials have begun in school settings (Johnstone et al., 2016), particularly in elementary-aged youth (Mendelson et al., 2010; van de Weijer-Bergsma, Langenberg, Brandsma, Oort, & Bögels, 2014), but less work has been completed in juvenile justice facilities.

There have been recent efforts to incorporate both mindfulness and yoga into juvenile justice systems, in both Maryland (DJS, 2017; Simms, 2017) and New York (Barrett, 2017) although their effectiveness has not been fully established.

Conclusion

The present study adds to the dearth of literature on resilience in juvenile justice youth by increasing some of our knowledge on the risk and promotive factors that are associated with resilience. Future studies may help to explain further the role these and other factors have in helping juvenile justice youth to be more resilient. The life disruption that happens during the transition between society and the juvenile justice system has the potential to severely lessen the ability to become an engaged and gainfully active member of the community (Scott & Steinberg, 2008). The present findings advance our knowledge of the resilience in juvenile justice youth and can help begin to inform efforts aimed at preventing at-risk youth from becoming delinquent, and interventions for youth already involved with the justice system.

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List of References

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Vita

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