Louisiana State University
LSU Digital Commons

March 2019

Disentangling the Role of Future Orientation and Callous-Unemotional Traits in the Prediction of Offending in Justice-Involved Youth

Toni Walker

Louisiana State University and Agricultural and Mechanical College, twalk68@lsu.edu

DISENTANGLING THE ROLE OF FUTURE ORIENTATION AND
CALLOUS-UNEMOTIONAL TRAITS IN THE PREDICTION OF OFFENDING
IN JUSTICE-INVOLVED YOUTH

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Arts

in

The Department of Psychology

by
Toni Walker
B.S., University of Pittsburgh, 2015
May 2019

Table of Contents

i

ABSRACT

Future Orientation and callous-unemotional (CU) traits are well established predictors of future offending. A more positive outlook on one's future goals seems to protect youth from engaging in antisocial behavior, whereas elevated CU traits predict more severe and persistent forms of delinquency. The relationship between CU traits and other aspects of psychopathy, such as grandiose self-worth, is not consistent with a pessimistic outlook towards the future. This study explored the associations among these variables in a sample of male first-time juvenile offenders ($N = 1,216$). Results indicated that future orientation predicted delinquency over a 5-year follow-up period, and this was true for both self-reported delinquency and official arrests. Further, this association was not moderated by the adolescent's level of CU traits. Additionally, individuals with CU traits tended to have a pessimistic outlook towards the future, and this was irrespective of whether this was measured as expectations and aspirations for success in prosocial outcomes (e.g., success with family, jobs, and staying out of trouble with the law) or whether it was measures as more general optimism, and self-esteem. These findings support the importance of an adolescent's future orientation for the predicting later delinquency and this is irrespective of the youth's level of CU traits.

INTRODUCTION

Future Orientation

Future orientation is an element of identity formation that typically develops during adolescence and can influence one's behavior into adulthood (Nurmi, 1991). Nurmi (1991) conceptualizes future orientation in a model that encompasses motivation, planning, and evaluation processes, in which an individual identifies, plans, and evaluates their interests for the future and the potential for the realization of these interests. Broadly defined, future orientation is one's cognitions and perceptions of the future specifically, "…an individual's thoughts, plans, motivations, hopes, and feelings about his or her future" (Stoddard, Zimmerman, & Bauermeister, 2011). One's aspirations about the future represent the importance placed on goals, while expectations refer to their perceived chances of attaining these goals (Knight, Ellis, Roark, Henry, & Huizinga, 2017).

Positive future orientation has been associated with a number of adaptive outcomes in adolescents, including fewer depressive symptoms and greater education and occupational success (Cunningham, Corprew, & Becker, 2009; Mello, 2008; Schmid, Phelps, & Lerner, 2011; Schmid, Phelps, Kiely, Napolitano, Boyd, & Lerner, 2011). In particular, there is a large volume of work linking more positive future orientation with current and future risk for antisocial and delinquent behaviors (Prince, Epstein, Nurius, Gorman-Smith, & Henry, 2016; Stoddard, Heinze, Choe, & Zimmerman, 2015; Stoddard et al., 2011). For example, in a sample of 2,984 African American adolescents, Caldwell, Weibe, and Cleveland (2006) reported that, even after controlling for socioeconomic and family risk factors, positive expectations regarding college education and life expectancy were negatively related to delinquency. Specifically, ratings of basic life expectancy (culminating from the likelihood of living to age 35, being killed by age 21,

1

and contracting HIV or AIDS) and likelihood of going to college were negatively correlated with general delinquency. Further, these expectancies predicted less delinquency when controlling for neighborhood and economic circumstances. In another sample of adolescents adjudicated for serious felony offenses, higher employment aspirations and higher expectations for staying out of trouble with the law predicted less self-reported antisocial and delinquent behavior five years later (Iselin, Mulvey, Loughran, Chung, & Schubert, 2012). Mahler, Simmons, Frick, Steinberg, and Cauffman (2017) also found negative associations between both future expectations and aspirations about school, employment, family, and law-abiding behavior and self-reported offending among first time juvenile offenders. Those who rated the importance and likelihood of achieving their goals higher were less likely to offend a year later.

Given the consistent association between future orientation and antisocial outcomes in adolescents, researchers have put forth a number of theories to explain this link. For example, if an adolescent has negative perceptions of achieving important life goals, they may be less likely to engage in prosocial behavior that will lead to the achievement of these goals, and instead seek immediate gratification in the form of antisocial behavior (Gouveia-Pereira, Gomes, Roncon & Mendonça, 2017). To support this perspective, Gouveia-Pereira et al. (2017) found that impulsivity fully mediated the negative relationship between future orientation and juvenile deviancy, such that adolescents who were less future oriented tend to be more impulsive and lack consideration for the consequences of their actions, thus leading them to engage in deviant behaviors. In addition, there may be bidirectional associations between future orientation and antisocial behavior, whereby antisocial behavior may lead to less optimistic perceptions of future success. For example, problem behavior endorsed by school age students predicted decreases in future orientation nine months later (Dubow, Arnettt, Smith, Ippolito, 2001). Prince et al. (2016)

also demonstrated a reciprocal relationship, in which delinquency in high risk, minority youth predicted decreases in positive future expectations over two years and vice versa. Thus, positive future orientation has consistently been associated with lower risk for antisocial behavior and delinquency in a number of samples and there have been a number of theories to account for this association. However, few studies have considered these self-perceptions in conjunction with other risk factors, especially other personality traits that may also influence a person's evaluation of future success.

Psychopathy, Callous-Unemotional Traits, and Delinquency

One such personality construct is psychopathy. Psychopathy is a collection of characteristics including grandiose self-worth, pathological lying, manipulation of others, lack of remorse, shallow affect, impulsivity, poor anger control, and criminal versatility (Hare & Neumann, 2005). Research has consistently shown that psychopathic traits are linked to severe and chronic patterns of antisocial and criminal behavior in adults (Leistico, Salekin, DeCoster, & Rogers, 2008; Gretton, Haire, & Catchpole, 2004; Olver & Wong, 2015). Further, such research has indicated that adults who show elevated psychopathic traits often begin showing their antisocial behavior in childhood, which has led to research extending this construct to youth (Frick, 2009). Factor analyses of measures of psychopathy in samples of children and adolescents have generally identified three dimensions: callous-unemotional (CU) traits, narcissism, and impulsivity (Frick, 2009). However, most studies have focused on the CU dimension (i.e., a lack of empathy and guilt, failure to put forth effort in important activities, restricted affect) because it seems to be most important for designating a particularly severe subgroup of children and adolescents with behavior problems (Frick & Ray, 2015).

Numerous studies have shown that the presence of CU traits designates a subgroup of individuals with conduct problems, varying in severity, course, and correlates (Frick & Dickens, 2006). For example, youth with elevated CU traits have been found to show higher rates of aggression without provocation that results in more harm to their victims compared to youth with conduct problems low on CU traits (Frick, Ray, Thornton, & Kahn, 2014). Furthermore, their trajectories of antisocial behavior and delinquency tend to be more severe and chronic (Byrd, Loeber, & Pardini, 2012; Frick et al, 2014; McMahon, Witkiewitz, Kotler, 2010; Salekin, Larrea, & Bennett, 2003). For example, in a sample of high risk, adjudicated adolescent males, group-based trajectory modeling revealed that high levels of CU traits proved to be a robust predictor of offending versatility and substance use five years later, over and above individual and family risk factors such as emotion regulation, anxiety, school dropout, peer and family deviance, and neighborhood conditions (Baskin-Sommers, Waller, Fish, & Hyde, 2015). In a sample of 754 community sample of youth, CU traits assessed in the 7th grade predicted adult arrests even after controlling for Attention-Deficit/Hyperactivity Disorder, number of conduct problems, and onset of conduct problems (McMahon et al., 2010). Thus, both studies show that the presence of CU traits can significantly add to the prediction of various forms of delinquency above other known risk factors. In light of this work, the Diagnostic Manual of Mental Disorders 5th edition included CU traits as the "Limited Prosocial Emotions" specifier to Conduct Disorder in order to highlight the enhanced impairment associated with elevations on these traits (Frick et al., 2014).

CU Traits and Self-Concept

From previous research, it is clear that CU traits in children and adolescents are a risk factor for a particularly severe and aggressive pattern behavior, including delinquency. Further, there is some evidence that CU traits are related to important aspects of a child's self-concept. In

fact, CU traits have been found to be associated with narcissistic personality traits (Jones,

Cauffman, Miller, & Mulvey, 2006). Narcissism is characterized by an inflated sense of self,

indicated by grandiose self-esteem, arrogance, and self-importance (Raskin & Terry, 1988). In

adult samples, both CU traits and narcissism are considered two components of the overall

construct of psychopathy (Hare & Neumann, 2005). In samples of children and adolescents, a

number of studies have reported a significant correlation between CU traits and measures of

narcissism. For example, in their study using a sample of middle school children, Kerig and

Stellwagon (2009) found that teacher reports of CU traits and narcissism were positively

correlated at $r = .47$ and $r = .40$ for boys and girls respectively. Self-reported CU traits and

narcissism have also been found to be significantly positively correlated in a sample of

community adolescents ($r = .36$; Lau & Marsee, 2013) and high-risk adolescents ($r = .38$; Kauten,

Barry, & Leachman, 2013).

Future Orientation, CU Traits, and Delinquency

Thus, it appears that CU traits are related to both risk for later delinquency and an

inflated self-concept and arrogance. Such self-perceptions would not seem compatible with a

pessimistic outlook towards the future. As a result, it would be important to reconcile the strong

and consistent links between a negative future orientation and risk for later delinquency, with

research showing that CU traits are also associated with later delinquency but are associated with

inflated views of one's self. There are two possible ways to reconcile these findings.

First, it is possible that there are two distinct pathways to delinquency that differ in their

causal factors, including the role of the adolescents' orientation to the future. There is a great

deal of evidence examining the distinct correlates to antisocial behavior for youth with and

without CU traits, suggesting that the two groups of youth differ on a number of biological, cognitive, emotional, personality, and social dimensions (Frick et al., 2014). Some of the most consistent differences are found for deficits in processing negative emotional stimuli, decreased sensitivity to punishment, and greater fearlessness in individuals elevated on CU traits compared to those with conduct problems only (Frick & White, 2008). For example, Pardini, Lochman, & Frick (2003) examined the social-cognitive processes in adjudicated youth and found that CU traits were correlated with increased expectations and values associated with the positive consequences (reward) of aggression and decreased expectations and values related to the negative consequences (punishment) of aggression (Pardini et al., 2003). Other studies have supported the theory that elevated CU is associated with hypersensitivity to reward and less sensitivity to punishment (O'Brien & Frick, 1996). Thus, youth high on CU may be more focused on the potential rewards of their antisocial behavior and don't consider the possible negative impact that these actions may have on their future, or they may have more positive expectations of the consequences of their behavior such that they believe even though they engage in negative behavior, their future outlook is still positive. On the other hand, for youth with conduct problems only, their problems with emotional and behavioral regulation may lead them to have less success in school and have more conflictual peer relations, leading them to develop a more pessimistic outlook on life. In summary, there is clear evidence to support the presence of unique causal processes leading to the development of antisocial behavior of youth with and without elevated CU traits. Although it has not been directly tested, this makes it possible that the link between future orientation and antisocial behavior may be different depending on the adolescent's level of CU traits.

Second, it is possible that the way adolescents' future orientation has been measured in past work could also play a role in the associations among future orientation, CU traits, and delinquency. That is, most measures of future orientation focus on the youth's aspirations and expectations for success in more conventional outcomes. For example, Jackman and MacFee (2017) studied adolescent risk engagement and future orientation, with the latter measure using the Goals and Aspirations Scale from the Healthy Kids Resilience Assessment (HKRA; Constantine, Benard, & Diaz, 1999). This scale assessed levels of optimism and pessimism towards the future, related to graduating from high school and college, getting married, and having a good job. Iselin et al., (2012) measured the youth's expectations for accomplishing their goals in the domains of employment and staying out of trouble with the law with the Perceptions of Chances for Success scale (Menard and Elliott, 1996). Mahler et al. (2017) used a similar measure to assess a youth's aspirations (i.e., how important it was) and expectations in school, work, family, and legal domains. This methodology makes it possible that children with elevated CU traits do not place as much value, and thus do not expect much success, in conventional outcomes (e.g., educational/occupational success, importance of having a family and staying out of legal trouble). However, they could still have a more inflated sense of worth and be more optimistic about their future in areas that are important to them. These potential domain specific differences in their future outlook have not been studied to date.

Statement of the Problem

When examining risk factors for delinquency, research has consistently found that low aspirations and expectations about the future are associated with delinquency and predict future delinquent acts in justice-involved youth. Callous-unemotional (CU) traits, a dimension of psychopathy extended to children and adolescents, have also been linked to later persistent and

severe delinquency. However, CU traits are associated with narcissism and inflated perceptions of self-competence. Such self-perceptions would seem to be inconsistent with low aspirations and expectations about the future. One way to reconcile these seemingly inconsistent findings would be to postulate two pathways to delinquency, such that low aspirations and expectations are related to delinquency, but only for those individuals who are not elevated on CU traits. Alternatively, measures used to assess expectations and aspirations about the future focus on prosocial outcomes, such as going to college, having a good career, having a family, and staying out of trouble with the law; these outcomes may represent conventional values that have little value to youth with CU traits and thus, fail to correlate with CU traits yet be associated with measures of optimism about the future. That is, CU traits may be negatively related to expectations and aspirations for prosocial outcomes but positively related to more general optimism for success and competence.

To test these two competing possibilities, the current project examined the relationship among CU traits, aspirations/expectations, and measures of optimism/competence in a large and ethnically diverse sample of adolescent male first-time offenders. Two different theoretical models were tested. First, I examined whether CU traits moderated the association between aspirations/expectations for the future and both concurrent and future delinquency. That is, I tested the hypothesis that aspirations/expectations would be related to delinquency but only for those low on CU traits. Second, I tested the hypothesis that CU traits would be negatively related to aspirations and expectations of the future for prosocial outcomes (i.e., family, education, legal) but positively related to general optimism about the future and their perceived self-competence.

Hypotheses:

1. First, I hypothesized that both aspirations and expectations of the future would negatively predict future self-reported offending and official arrests. Also, I predicted that levels of CU traits would positively predict future self-reported offending and arrests. It was hypothesized that both of these relationships would remain significant when controlling for baseline offending.

2. I hypothesized that aspirations and expectations for the future for prosocial outcomes would predict self-reported offending and arrests, and that this relationship would be moderated by the level of CU traits. Specifically, I predicted that aspirations and expectations for the future would be negatively related to concurrent and future self-reported offending in adolescents with low levels of CU traits, while for adolescents with elevated CU traits, aspirations and expectations for prosocial outcomes would not be significantly related to offending.

3. I hypothesized that there would be a negative relationship between CU traits and both aspirations and expectations for the future when they are limited to prosocial outcomes. However, CU traits are predicted to be positively related to measures of general optimism and self-esteem.

METHODS

Participants

Participants were 1,216 male first-time juvenile offenders from the Crossroads Study, an ongoing longitudinal study of juvenile offenders in Orange County, CA ($N = 532$), Jefferson Parish, LA ($N = 151$), and Philadelphia, PA ($N = 533$) who were reassessed at 6 months, 12 months, 18, months, 24 months, 30 months, 36 months, and 48 months following arrest. Participants were eligible for the Crossroads Study if they were English speakers, were arrested for an offense of low to moderate severity and were between the ages of 13 and 17 at the time of their first arrest. At the start of the study, the mean age of participants was 15.29 ($SD = 1.29$). The sample was primarily Hispanic (45.9%) and African American (36.9%) with a smaller proportion identifying as Caucasian (14.7%) and Other (2.5%). The highest level of education either parent obtained included less than high school (27.2%), General Education Diploma (GED) or high school (34.1%), trade school or some college (20.4%), 4-year college degree (13.5%), and graduate level education (4.8%). Participants' intelligence was on average lower than that of the general population ($M = 88.50$, $SD = 11.87$) as measured using the matrix reasoning and vocabulary sub-tests of the Wechsler Abbreviated Scale of Intelligence (WASI-II; Weschler, 1999).

Procedures

The Institutional Review Board at all three institutions (i.e. University of California, Irvine, Temple University, and Louisiana State University) approved the study procedures. Parental informed consent and youth assent were obtained at each time point for all participants before interviews were conducted. After youth turned 18 years old, parental consent was no

longer needed. Participants and their parents were informed that participation was entirely voluntary, would not influence the youth's relationship with the juvenile justice system or court, and that they were able to withdraw from the study at any time without penalty. The youth and parents were informed that the research project had obtained a Privacy Certificate from the Department of Justice, which protected their data from being subpoenaed for use in legal proceedings.

Youth completed the baseline assessment within six weeks of the disposition date for their initial arrest. They were then re-assessed every six to 12 months for 48 months (7 time points). Interviews lasted on average approximately 2-3 hours and were administered using a secured computer-based program on a laptop. Participants were able to select their preferred location to complete the interviews, often at the youth's home, a local restaurant, public library, at the respective team's university, or in a secure facility if a participant was incarcerated at the time of follow-up interview. Finally, if participants moved too far to conduct in person interviews, phone interviews were completed. Compensation started at $60 for the first interview and increased $15 for each follow-up for the first three years, stopping at the $140 each year for the last two years. Retention rates across sites ranged from 95.48% at the 6-month follow-up to 91.34% at the 36-month follow-up with an average retention rate of 93.38% across the 7 follow-up points.

Measures

Measures - Outcome

Self-Reported Offending. Self-reports of whether the youth engaged in illegal behaviors over their lifetime was assessed at baseline and whether they engaged in illegal behaviors over

the past 6 months was assessed at each follow-up point using the 24-item revised version of the

Self-Report of Offending Scale (SRO; Huizinga, Esbensen, & Weiher, 1991). Participants

indicated whether or not they have engaged in the offense and, if yes, how many times ever

(baseline) or in the last 6-months. The SRO variety score was used to evaluate the number of

different crimes (i.e. offense types) the individual endorsed over the specified period of time,

irrespective of frequency. This method is often preferred over a frequency score because the

variety score is less prone to recall errors, especially when the offense is frequently committed,

such as selling drugs (Hindelang, Hirschi, & Weis, 1981; Thornberry & Krohn, 2000), and the

variety score is correlated with other measures of seriousness and frequency of antisocial

behavior, including official arrests (Monahan & Piquero, 2009). Internal consistency was

adequate in this sample at baseline ($\alpha = .76$) and across the seven follow-up time points ($\alpha = .79$-

.82).

In the current study, only those participants with scores on the SRO with at least 4 of the

7 follow-up points were included in the analyses to ensure a stable estimate of the data. To deal

with missing data from individuals who were missing variety scores from three or fewer time

points, we created a prorated variety score, that would substitute missing values with the average

score across all available time points. Differences between participants included in the analyses

were compared to those removed due to 3 or more missing follow-up points on baseline

demographic variables (i.e., age, race/ethnicity, and IQ) and on key variables of interest

measured at baseline (i.e., CU traits, self-reported offending, future orientation, self-esteem, and

optimism). Of the full sample, 5.2% were removed due to missing offending data for at least four

timepoints. There were no significant differences between included and excluded participants on

age, race/ethnicity IQ, CU traits, self-reported offending, ratings of optimism, and self-esteem. Effect sizes for all variables were less than $\eta^2 = .01$.

Official Arrests. Data on arrests at each time point were obtained by official records from the Department of Probation at each site. These data were obtained, even if a participant did not participate and provide self-report data at any time point. Thus, there were no missing data. Information was gathered about any official arrests, the number and types of offenses, and probation violations. For the current analyses, we summed the number of arrests across the 7 time points to create a total score. Only new charges at each follow up were included (excluding probation and technical violations were excluded).

Measures - Baseline Predictors

Callous Unemotional Traits. Level of CU traits was measured at baseline by the Inventory of Callous Unemotional Traits (ICU; Frick, 2004), which is a 24-item scale which utilizes a 4-point Likert scale from 0 (*Not at all true*) to 3 (*Definitely true*) for participants to rate how well the statement describes them. This scale contains an equal number of items worded in the callous (e.g. *I do not feel remorseful when I do something wrong*) and non-callous direction (e.g. *I am concerned about the feelings of others*) with non-callous items reverse coded such that higher sum scores indicate higher levels of CU traits. This measure has been shown to be positively related with delinquency, aggression, and antisocial behavior and negatively related to prosocial beliefs in samples of incarcerated juveniles and community samples of adolescents (Kimonis et al., 2008; Roose, Bijttebier, Decoene, Claes, & Frick, 2010; Essau, Sasagawa, Frick, 2006). This scale showed acceptable internal consistency ($\alpha = .76$).

Perceptions of Opportunities. The Perceptions of Opportunities scale (adapted from

Menard & Elliot, 1996) was used to measure the degree to which an individual believes that he

or she can do well later in life in several prosocial domains. Specifically, items assess

expectations and aspirations for educational, career, family, and legal domains. The aspirations

subscale asked participants to rate how important these future goals were to them on a 5-point

Likert scale ranging from 1 (*Not at all Important*) to 5 (*Very Important*). For example, "how

important is it to you to earn a good living?" and "how important is it to you to provide a good

home for your family?". The expectations scale assessed participant's perceptions of their

chances to achieve goals in each domain on a 5-point Likert scale ranging from 1 (*Poor*) to 5

(*Excellent*). Scores on each scale were summed to create a total score used in the analyses.

Higher scores on both expectations and aspirations items of this measure have been shown to

predict engagement in positive behaviors (e.g., employment) and avoidance of negative

behaviors (e.g., antisocial behavior and delinquency) (Iselin et al., 2012; Mahler et al., 2017).

Expectations scores on this measure have also been shown to mediate the relationship between

past and future offending in serious juvenile offenders (Walters, 2016). Internal consistency in

this sample was acceptable for both the aspirations (α = .75) and expectations (α = .90) scales.

Motivation to Succeed. The Motivation to Succeed scale (Eccles, Wigfield, & Schiefele,

1998) was used to measure more general optimism at baseline. This scale includes six items

assessing the participant's view of opportunities available in their neighborhood. Four of the

items assess the youth's perceptions of opportunities in their neighborhood to succeed; for

example, "In my neighborhood, it's pretty easy for a young person to get a good paying honest

job" and "In my neighborhood, it is hard to make much money without doing something illegal".

However, two of the items more specifically tap into general optimism towards the future and

were used separately in analyses: "I'll never have as much opportunity to succeed as other people in my neighborhood" and "My chances of being successful and getting ahead are not very good". Participants respond to each statement using a 5-point Likert scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) and these items were inversely scored to have higher mean scores indicate greater optimism. The full 6–item scale displayed moderate internal consistency ($\alpha = .61$) at baseline.

EPOCH. Optimism was also assessed with the EPOCH, a 20-item measure of psychological wellbeing that asks participants to rate how well each statement describes them on a 5-point Likert scale from 1 (*Not at all*) to 5 (*Very Much*) (Kern, Benson, Steinberg, & Steinberg, 2016). Data at the 12-month follow-up was used in the analyses due to a low sample size (N = 652) at baseline. The four items that make up the Optimism scale were used in the current analyses (i.e. "I am optimistic about my future", "I think that good things are going to happen to me", "I believe that things will work out, no matter how difficult they seem", and "In uncertain times, I expect the best"). All items are positively worded so that higher scores indicate higher levels of optimism. Mean scores for this scale were used in analyses. This measure was developed in a large sample of adolescents in the United States and Australia ages 10 to 18 years old where the Optimism scale demonstrated good reliability ($\alpha = .80$) and was positively correlated with measures of life satisfaction, self-acceptance, meaning and purpose, hope, and positive affect (Kern et al., 2016). Internal consistency was acceptable in this sample ($\alpha = .79$).

Self Esteem. Self-Esteem was measured at baseline by the Rosenberg Self-Esteem scale (Rosenberg, 1989), a 10-item measure that assess the participant's general feelings about themselves. Participants rate how much they agree or disagree with each statement on a 4-point Likert scale from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*). Positively worded items include "I

feel that I'm a person of worth, at least on an equal plane with other", "I feel that I have a number of good qualities", "I am able to do things as well as most other people", "I take a positive attitude toward myself", and "On the whole, I am satisfied with myself". There are an equal number of negatively worded items which were recoded such that higher sum scores will indicate higher self-esteem (i.e. "All in all, I am inclined to feel that I am a failure", "I feel I do not have much to be proud of ", "I wish I could have more respect for myself", "I certainly feel useless at time", "At times, I think I am no good at all"). Scores on this measure have been positively associated with life satisfaction, happiness, and optimism in a community sample of Italian adolescents (Caprara, Steca, Gerbino, Paciello, & Vecchio, 2006). Scores on this measure were also related to higher perceptions of readiness for independent living in domains of education, employment, relationships, health, and normative behavior in a sample of detained adolescents preparing to leave correctional facilities (Melkman, Reaeli, Bibi, & Benbenishty, 2016). This measure displayed strong internal consistency ($\alpha = .83$).

Measures – Control Variables

Demographics. Participants self-reported their age and race/ethnicity at baseline. Race was dichotomized such that 1 was coded to indicate endorsement (1 – African American; 1 – Hispanic) and 0 indicated no endorsement (0 – not African American; 0 – not Hispanic). IQ was assessed at baseline using the matrix reasoning and vocabulary subtests of the Weschler Abbreviated Scale of Intelligence (WASI-II; Weschler, 1999). Parental education served as a proxy for socioeconomic status and was dichotomized such that 0 was coded as having less than a high school diploma or GED and 1 was coded as having a high school diploma/GED or higher.

Analytic Plan

Prior to testing the main study variables, the associations with demographic variables (i.e., age, race) and IQ were tested to determine if they needed to be controlled in the tests of study hypotheses. To test the first hypothesis that future aspirations and expectations and CU traits would all be associated with future offending, hierarchical multiple regression analyses were used. Since the outcome variables, SRO variety score and number of arrests, were over-dispersed count variables, this was done using negative binomial regressions. In the first step, self-reported offending and arrests were regressed on each predictor individually, controlling for demographic variables[1] and IQ. In the second step, baseline self-reported offending was added as a covariate. To test the hypothesis that level of CU traits would moderate the prediction of offending by aspirations and expectations for prosocial outcomes, another series of hierarchical negative binomial regression analyses were run. All predictors were mean centered based on the means of the sample and an interaction term was created with the mean centered variables. The first step of the regression included demographic variables, IQ, CU traits, aspiration/expectations (included in separate regression models), and an interaction between CU traits and the measure of aspirations/expectations (again included individually in separate regression equations). At the second step, baseline level of delinquency was added. Finally, to test the third hypothesis that CU traits would show a negative relationship with future aspirations and expectations for prosocial outcomes but a positive relationship with general optimism and self-esteem, zero order correlations were estimated and tested for significance.

1. The inclusion of parental education at baseline as a demographic variable reduced the sample size by about 150, so results are reported with parental education not included. The same analyses were run while controlling for parental education and the results did not change.

RESULTS

Preliminary Analyses

Table 1 reports the descriptive statistics for all study variables and correlations among demographics (i.e., age, race), IQ, and the main study variables. As noted in Table 1, age was positively correlated with optimism ($r = .11$, p < .01), self-esteem ($r = .08$, p < .01), and baseline offending ($r = .19$, p < .01), and negatively correlated with future expectations ($r = -.10$, p < .01). IQ was positively correlated with optimism from the Motivation to Succeed scale ($r = .16$, p < .01), self-esteem ($r = .16$, p < .01), and offending ($r = .08$, p < .01), but negatively correlated with CU traits ($r = -.08$, p < .01), the EPOCH Optimism scale ($r = -.08$, p < .01), and future expectations ($r = -.09$, p < .01). Because of these correlations, age, race, parental education, and IQ were included as covariates in the test of the main study hypotheses.

Tests of Study Hypotheses

The first hypothesis stated that future aspirations and expectations would negatively predict future offending, while level of CU traits would positively predict future offending. The results of the negative binomial regressions testing this prediction are presented in Tables 2a to 4b and largely support the hypothesized associations. When controlling for demographic variables, aspirations ($\beta = -.07$, SE. = .01, p <.001), expectations ($\beta = -.05$, SE = .01, p<.001), and CU traits ($\beta = .06$, SE = .00, p<.001) all significantly predicted future self-reported offending. These associations all remained significant when controlling for baseline offending. Similar results were found when offending was measured by official reports of arrests. That is, when controlling for demographic variables, aspirations ($\beta = -.06$, SE = .01, p < .001), expectations ($\beta = -.03$, SE = .01, p < .001), and callous-unemotional traits ($\beta = .03$, SE = .01, p

18

<.001) all significantly predicted arrests. Again, these all remained significant when controlling for self-reported baseline offending.

The second hypotheses predicted that CU traits would moderate the associations of future aspirations and expectations with future offending. Tables 5a to 6b present the results of the negative binomial regressions testing this prediction. The results of these analyses were not consistent with our hypothesis. That is, CU traits did not significantly moderate the relationship between future expectations and future offending, when measured by either self-report or arrests. Similarly, there were no significant interactions with CU traits when future aspirations were included in the regression models.

The third hypothesis predicted that CU traits would be negatively related to aspirations and expectations for the future for prosocial outcomes but would be positively related to more general measures of optimism for the future and self-esteem. The correlations to test these predictions are provided in Table 7. Consistent with our hypothesis, CU traits were negatively related to both future aspirations ($r = -.36, p < .01$) and expectations ($r = -.33, p < .01$) for prosocial outcomes. However, contrary to our hypotheses, there was also a negative relationship between CU traits and the measures of self-esteem ($r = -.34, p < .01$) and optimism ($r = -.25, p < .01$). Similarly, CU traits were negatively related to overall Motivation to Succeed scale ($r = -.30, p < .01$), as well as to the two specific items related towards optimism to the future ($r = -.28, p < .01$).

Table 1. Zero-order correlations and descriptive statistics of predictor, outcome, and covariate variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	-														
2. African American	-.10**	-													
3. Hispanic	.03	-.71**	-												
4. IQ	.05	-.15**	-.06*	-											
5.Parental Ed.	.04	.21**	-.35**	.13**	-										
6. ICU	-.02	-.08**	.11**	-.08*	-.04	-									
7. Motivation to Succeed	-.01	-.05	-.08**	.15**	.14**	-.30**	-								
8. Optimism[a]	.02	.12**	-.21**	.16**	.12**	-.28**	.69**	-							
9. Optimism[b]	.11**	.26**	-.18**	-.08*	.06*	-.25**	.17**	.21**	-						
10. Aspirations	-.05	.09**	-.05	.00	.05	-.36**	.18**	.19**	.19**	-					
11. Expectations	-.10**	.25**	-.18**	-.09**	.06*	-.33**	.29**	.36**	.36**	.47**	-				
12. Self Esteem	.08**	.19**	-.21**	.16**	.13*	-.34**	.30**	.41**	.41**	.22**	.40**	-			
13. Offending – Baseline	.19**	-.11**	-.06	.08**	.09**	.35**	-.29**	-.20**	-.20**	-.21**	-.24**	-.11**	-		
14 Offending - Future	-.02	-.11*	.08**	.01	.02	.30**	-.15**	-.14**	-.15**	-.15**	-.22**	-.12**	.48**	-	
15. Arrests	-.05	-.03	.09**	-.14**	-.11**	.16**	-.09**	-.12**	-.05	-.12**	-.11**	-.09**	.13**	.26**	-
Mean	15.28	-	-	88.50	-	26.19	3.42	3.83	4.08	32.70	26.58	31.33	3.44	6.91	1.26
Standard Deviation	1.29	-	-	11.66	-	8.05	.60	.84	.73	3.13	5.64	4.47	3.10	10.22	2.00

[a] Optimism measured by the 2 optimism items from the Motivation to Succeed scale.
[b] Optimism measured by the optimism scale on the EPOCH..
*p< .05 ** p<.01 ***p<.001.

Table 2a. Negative binomial regressions with future aspirations predicting self-reported offending.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	4.52	.56	3.42, 5.62	.000	1,154
	Aspirations	-.07	.01	-.09, -.04	.000	
	Age	-.04	.03	-.09, .01	.148	
	Black	-.23	.10	-.42, -.05	.015	
	Hispanic	.07	.09	-.11, .25	.449	
	IQ	.00	.00	-.00, .01	.697	
Model 2	Intercept	4.69	.58	3.57, 5.82	.000	1,154
	Aspirations	-.02	.01	-.04, -.00	.038	
	Baseline Offending	.20	.01	.17, .22	.000	
	Age	-.15	.03	-.19, -.10	.000	
	Black	-.25	.10	-.44, -.06	.011	
	Hispanic	-.07	.09	-.25, .12	.485	
	IQ	-.01	.00	-.01, -.00	.023	

Table 2b. Negative binomial regressions with future aspirations predicting official arrests.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	4.75	.76	3.27, 6.23	.000	1,154
	Aspirations	-.06	.01	-.08, -.03	.000	
	Age	-.08	.03	-.14, -.02	.011	
	Black	.15	.13	-.10, .40	.250	
	Hispanic	.32	.12	.92, .57	.007	
	IQ	-.02	.00	-.03, -.01	.000	
Model 2	Intercept	4.59	.76	3.11, 6.08	.000	1,154
	Aspirations	-.04	.01	-.07, -.02	.001	
	Baseline Offending	.06	.01	.03, .09	.000	
	Age	-.10	.03	-.17, -.04	.001	
	Black	.18	.13	-.07, .43	.165	
	Hispanic	.33	.12	.09, .57	.007	
	IQ	-.02	.00	-.03, -.01	.000	

Table 3a. Negative binomial regressions with future expectations predicting self-reported offending.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	4.36	.49	3.39, 5.32	.000	1,155
	Expectations	-.05	.01	-.06, -.04	.000	
	Age	-.06	.03	-.11, .01	.015	
	Black	-.21	.10	-.40, -.02	.030	
	Hispanic	-.04	.09	-.22, .13	.630	
	IQ	-.00	.00	-.01, .01	.787	
Model 2	Intercept	5.17	.51	4.16, 6.17	.000	1,155
	Expectations	-.03	.01	-.05, -.02	.000	
	Baseline Offending	.19	.01	.17, .22	.000	
	Age	-.16	.03	-.21, -.11	.000	
	Black	-.21	.10	-.40, -.02	.030	
	Hispanic	-.12	.09	-.30, .07	.218	
	IQ	-.01	.00	-.01, -.00	.010	

Table 3b. Negative binomial regressions with future expectations predicting official arrests.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	3.84	.66	2.55, 5.13	.000	1,155
	Expectations	-.03	.01	-.05, -.02	.000	
	Age	-.08	.03	-.14, -.02	.010	
	Black	.19	.13	-.07, .44	.148	
	Hispanic	.32	.12	.09 .56	.007	
	IQ	-.02	.00	-.03, -.01	.000	
Model 2	Intercept	3.88	.66	5.18, 5.176	.000	1,155
	Expectations	-.02	.01	-.04, -.01	.001	
	Baseline Offending	.06	.01	.04, .09	.000	
	Age	-.11	.03	-.17, -.04	.001	
	Black	.21	.13	-.04, .46	.103	
	Hispanic	.33	.12	.09, .56	.007	
	IQ	-.02	.00	-.03, -.01	.000	

Table 4a. Negative binomial regressions with CU traits predicting self-reported offending.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	.68	.47	-.23, 1.60	.143	1,158
	CU Traits	.06	.00	.05, .064	.000	
	Age	-.03	.03	-.08, .02	.256	
	Black	-.35	.10	-.54, -.17	.000	
	Hispanic	-.09	.09	-.27, .09	.347	
	IQ	.00	.00	-.00, .01	.286	
Model 2	Intercept	2.72	.49	1.75, 3.68	.000	1,158
	CU Traits	.03	.00	.02, .04	.000	
	Baseline Offending	.17	.01	.15, .20	.000	
	Age	-.13	.03	-.18, -.08	.000	
	Black	-.30	.10	-.49, -.11	.002	
	Hispanic	-.11	.09	-.29, .07	.246	
	IQ	-.00	.00	-.01, .00	.210	

Table 4b. Negative binomial regressions with CU traits predicting official arrests.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	1.81	.62	.59, 3.03	.004	1,158
	CU Traits	.03	.01	.02, .04	.000	
	Age	-.07	.03	-.13, -.00	.037	
	Black	.11	.13	-.14, .36	.402	
	Hispanic	.31	.12	.07 .54	.012	
	IQ	-.02	.00	-.03, -.01	.000	
Model 2	Intercept	2.23	.64	.98, 3.48	.000	1,158
	CU Traits	.02	.01	.01, .03	.000	
	Baseline Offending	.05	.01	.02, .07	.001	
	Age	-.09	.03	-.15, -.02	.007	
	Black	.14	.13	-.11, .39	.275	
	Hispanic	.32	.12	.08, .56	.009	
	IQ	-.02	.00	-.03, -.01	.000	

Table 5a. Negative binomial regressions testing the moderation of CU traits on aspirations predicting self-reported offending.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	2.26	.45	1.37, 3.15	.000	1,154
	Aspirations	-.02	.01	-.05, .00	.090	
	ICU	.05	.00	.05, .06	.000	
	ASPIRxCU	.00	.00	-.00, .00	.237	
	Age	-.03	.03	-.08, .02	.184	
	Black	-.33	.10	-.52, -.13	.001	
	Hispanic	-.07	.09	-.26, .11	.427	
	IQ	.00	.00	-.00, .01	.347	
Model 2	Intercept	3.72	.48	2.79, 4.65	.000	1,154
	Aspirations	-.00	.01	-.03, .02	.705	
	ICU	.03	.01	.02, .00	.000	
	ASPIRxCU	.00	.00	-.00, .00	.262	
	Baseline Offending	.17	.01	.15, .20	.000	
	Age	-.13	.03	-1.8, -.08	.000	
	Black	-.30	.10	-.50, -.11	.002	
	Hispanic	-.12	.09	-.31, .06	.189	
	IQ	-.00	.00	-.01, .00	.125	

Table 5b. Negative binomial regressions testing the moderation of CU traits on aspirations predicting official arrests.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	2.87	.62	1.66, 4.08	.000	1,154
	Aspirations	-.05	.02	-.08, -.02	.003	
	CU Traits	.02	.01	.01, .03	.000	
	ASPIRxCU	.00	.00	-.00, .01	.151	
	Age	-.08	.03	-.14, -.01	.016	
	Black	.13	.13	-.12, .39	.298	
	Hispanic	.29	.12	.05, .53	.018	
	IQ	-.02	.00	-.03, -.01	.000	
Model 2	Intercept	3.11	.62	1.89, 4.33	.000	1,154
	Aspirations	-.04	.02	-.08, -.01	.005	
	CU Traits	.02	.01	.01, .03	.003	
	ASPIRxCU	.00	.00	-.00, .01	.098	
	Baseline Offending	.05	.01	.02, .07	.001	
	Age	-.10	.03	-.16, -.03	.003	
	Black	.16	.13	-.09, .42	.208	
	Hispanic	.30	.12	.06, .54	.014	
	IQ	-.02	.00	-.03, -.01	.000	

Table 6a. Negative binomial regressions testing the moderation of CU traits on expectations predicting self-reported offending.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	2.29	.45	1.59, 3.38	.000	1,155
	Expectations	-.03	.01	-.04, -.02	.000	
	CU Traits	.05	.00	.04, .06	.000	
	EXPxCU	.00	.01	-.00, .00	.774	
	Age	-.04	.03	-.09, .01	.083	
	Black	-.29	.10	-.48, -.10	.003	
	Hispanic	-.12	.09	-.30, .060	.188	
	IQ	.00	.00	-.00, .01	.534	
Model 2	Intercept	3.88	.48	2.94, 4.81	.000	1,155
	Expectations	-.02	.01	-.04, -.01	.000	
	CU Traits	.03	.00	.02, .04	.000	
	EXPxCU	.00	.00	-.00, .00	.963	
	Baseline Offending	.17	.01	.15, .20	.000	
	Age	-.14	.03	-.19, -.09	.000	
	Black	-.26	.10	-.45, -.07	.009	
	Hispanic	-.14	.09	-.33, .04	.126	
	IQ	-.01	.00	-.01, .00	.080	

Table 6b. Negative binomial regressions testing the moderation of CU traits on expectations predicting official arrests.

Negative Binomial Regression		Coefficient	S.E.	95% CI	*p value*	*n*
Model 1	Intercept	2.84	.61	1.62, 4.03	.000	1,155
	Expectations	-.02	.01	-.04, -.01	.004	
	CU Traits	.03	.01	.01, .04	.000	
	EXPxCU	.00	.00	-.00, .00	.290	
	Age	-.07	.03	-.14, -.01	.022	
	Black	.17	.13	-.09, .42	.201	
	Hispanic	.29	.12	.05, .52	.019	
	IQ	-.02	.00	-.03, -.01	.000	
Model 2	Intercept	3.05	.62	1.84, 4.26	.000	1,155
	Expectations	-.02	.01	-.04, -.01	.008	
	CU Traits	.02	.01	.01, .03	.001	
	EXPxCU	.00	.00	.00, .00	.135	
	Baseline Offending	.05	.01	.02, .08	.001	
	Age	-.09	.03	-.16, -.03	.004	
	Black	.19	.13	-.06, .45	.140	
	Hispanic	.30	.12	.06, .54	.014	
	IQ	-.02	.00	-.03, -.01	.000	

Table 7. Zero-order correlations between CU traits and measures of optimism and future orientation.

	1	2	3	4	5	6
1. CU Traits	-					
2. Optimism[a]	-.28**	-				
3. Motivation to Succeed	-.30**	.69**	-			
4. Optimism[b]	-.24**	.21**	.17**	-		
5. Future Aspirations	-.36**	.19**	.18**	.25**	-	
6. Future Expectations	-.33**	.36**	.30**	.37**	.47**	-
7. Self-Esteem	-.34**	.41**	.30**	.32**	.22**	.40**

[a] Optimism measured by the 2 optimism items from the Motivation to Succeed scale.
[b] Optimism measured by the optimism scale on the EPOCH.
*p< .05 ** p<.01 ***p<.001

DISCUSSION

Past research has consistently shown that a negative outlook towards to the future is associated with greater levels of antisocial and delinquent behavior (Knight et al., 2017) and this finding was replicated in the current the study. However, in this study, we aimed to investigate the role of CU traits in this relationship, in a sample of adolescent boys involved with the juvenile justice system. Overall, we found an inverse relationship between CU traits and future orientation. As predicted, youth with higher levels of CU traits tended to be have more negative views of their future when it related to prosocial outcomes related to work, family, education, and legal involvement. Surprisingly, CU traits were also associated with less optimism about the future, even when they were not related to prosocial outcomes. CU traits were also negatively related to self-esteem. Further, lower levels of aspirations and expectations for the future predicted more offending and this was not changed by the adolescent's level of CU traits.

First, our results were consistent with a large body of research linking both CU traits (Frick et al., 2014) and a pessimistic outlook towards the future expectations (Knight et al., 2017; Mahler et al., 2017) with increased risk for future offending. Importantly, these associations held whether future offending was assessed by self-report or by number of arrests coded from official records. Further, the prediction of future offending was significant, even after controlling for lifetime levels of offending. Finally, CU traits and the child's self-perceptions contributed independently to the prediction of future offending. Thus, our findings support the importance of a child's level of prosocial emotions involving empathy and guilt (i.e., CU traits), as well as their self-concept and optimism about the future, both personality and self-concept as predictors of later offending and support multi-systemic approaches to intervention that target multiple risk

26

factors when attempting to reduce an adolescent's risk for future offending (Schaeffer & Borduin, 2005; van der stouwe, Asscher, Stams, Dekovic, & van der Laan, 2014).

In past research, CU traits has not only proven to be an important predictor of later delinquency, it has frequently moderated the role of important risk factors to delinquency (Frick et al., 2014). For example, research has consistently shown that harsh and inconsistent discipline is associated with increased antisocial behavior in juveniles low on CU traits, but this relationship is non-significant for juveniles with high CU traits. Similarly, hypo-responsiveness to cues of distress in others has been associated with antisocial behavior in those high on CU traits but emotional hyper-reactivity has been associated with antisocial behavior in youth low on CU traits. These findings have been interpreted as suggesting that youth elevated on CU traits have different causal factors leading to their antisocial behavior, relative to youth who are normative on these traits (Frick et al., 2014). Contrary to these findings and our hypotheses, CU traits did not moderate the predictive relationships between future aspirations and expectations and future offending. We had anticipated that these measures of future orientation would be highly related to future offending only in individuals who were not elevated on CU traits. Instead, low future orientation consistently predicted more offending over time, and this was not dependent on the level of CU traits. These findings support past theories suggesting that if an adolescent has negative perceptions of the likelihood of achieving important life goals, he or she may be less likely to engage in prosocial behavior that will lead to the achievement of these goals, and instead seek immediate gratification in the form of antisocial behavior (Gouveia-Pereira et al., 2017).

Also contrary to our hypotheses, CU traits were negatively associated with positive expectations for future success when measures were assessing prosocial outcomes, as well as

27

negatively associated with more general measures of optimism and self-concept. Thus, in youth who are involved with the juvenile justice system, CU traits are related to less positive views of self and a more pessimistic outlook on life. These findings are at odds with CU traits being linked to the construct of psychopathy, which includes a narcissistic or inflated view of one's self (Hare & Neumann, 2005). One possible explanation for this finding is that it is due to the use of a justice-involved sample. That is, past research suggests that engagement in delinquency negatively influences a youth's optimism towards their future (Prince et al., 2016). Thus, the youth's arrest may have led to a pessimistic outlook toward the future, even in those with elevated CU traits. However, other studies have reported a negative association between CU traits and self-esteem, even in community samples of adolescents (Fanti, 2013).

Another explanation for our findings is the failure to consider the difference between narcissism and self-esteem. That is, while studies have consistently shown an association between CU traits and measures of narcissism (Kerig & Stellwagon, 2010; Lee-Rowland, Barry, Gillen, & Hansen, 2016), some have suggested that narcissism may actually be a sign of low self-esteem. That is, while self-esteem may be related to adolescents' view of themselves as competent and having a bright future, narcissism is more specific to the desire to have others view them positively and superior to others (Lee-Rowland et al., 2016). When this need to be viewed positively by others is threatened by negative evaluations from others, this can lead individuals high on narcissistic traits to act aggressively (Barry, Frick, & Killian, 2003; Fanti & Henrich, 2015; Morf & Rhodewalt, 2001). This possible explanation cannot be tested in the current study because we did not include a measure of narcissism, but it would fit with the possibility that CU traits are related to narcissism, as well as to a poor self-concept and a pessimistic view towards the future.

Limitations

One of the primary limitations of our study was the failure to include a measure of narcissism to potentially explain the negative association between CU traits and optimism towards the future. Additionally, the Motivation to Succeed scale displayed low internal validity that was not the result of one specific item's low correlation. Given this psychometric limitation, results with this measure should be interpreted with caution. Also, the sample was limited to adolescent, male, first-time offenders who were arrested for offenses of moderate severity; therefore, the results may not generalize to other populations. As noted previously, the contact with the justice system may have influenced the youths' self-concept and expectations for future success. Future studies should also explore whether the findings generalize to girls and youth with antisocial behavior who have not had contact with the justice system. Further, future orientation has been defined in numerous ways in research, such that our measure of future aspirations and expectations reflects only one way in which future orientation can be conceptualized. In other words, our results may be limited to this one method of measuring future orientation and may not generalize to other definitions. For example, previous studies of adolescent offenders have assessed future orientation in terms of "possible selves" as a way of measuring what the adolescent would like to become, avoid becoming, and could become (Clinkenbeard & Zohra, 2012; Oyserman & Markus, 1990; Oysermann & Saltz, 1993). Compared to community youth, studies have found that juvenile delinquents have less balanced possible selves; that is, they do not have a representation of a negative feared self to serve as motivation to engage in behaviors consistent with a positive possible self (Oyserman & Markus, 1990). In addition, they are less likely to attempt to attain or create strategies to attain their

positive selves and avoid negative possible selves, thus making it more likely to engage in delinquent acts (Oyserman & Saltz, 1993).

Summary and Conclusions

Our findings suggest that both CU traits and lower aspirations and expectations for the future are somewhat independent risk factors for future delinquency in youth who are involved in the juvenile justice system. Thus, interventions focused on reducing this risk should target both types of risk factors (Frick, 2012). Interestingly, this was one of the first studies to explore how CU traits are related to future orientation in adolescents. At least in a sample of justice involved youth, CU traits are related to less positive aspirations and expectations for success in work, family, and legal outcomes, as well as to less optimism about the future and lower self-esteem. Further, CU traits did not moderate the association between future orientation and risk for later delinquency. Thus, while many correlates to delinquency differ between youth elevated and youth normative on CU traits, this does not seem to be the case for measures of future orientation. In this study, we did not disentangle whether the pessimistic view of the future was more predictive of future offending or predicted by future offending and there is evidence to support bidirectional effects (Prince et al., 2016). However, our results clearly support the need to further investigate how self-perceptions are related to CU traits, given that they may play a role in why CU traits are related to later offending.

REFERENCES

Barry, C. T., Frick, P. J., & Killian, A. J. (2003). The Relation of Narcissism & Self-Esteem to CP in Children: A Preliminary Investigation. *Journal of Clinical Child and Adolescent Psychology*, *4416*(September 2011), 37–41. https://doi.org/10.1207/S15374424JCCP3201

Barry, C. T., McDougall, K. H., Anderson, A. C., & Bindon, A. L. (2018). Global and contingent self-esteem as moderators in the relations between adolescent narcissism, callous-unemotional traits, and aggression. *Personality and Individual Differences*, *123*, 1-5.

Baskin-Sommers, A. R., Waller, R., Fish, A. M., & Hyde, L. W. (2015). Callous-unemotional traits trajectories interact with earlier conduct problems and executive control to predict violence and substance use among high risk male adolescents. *Journal of abnormal child psychology*, 43(8), 1529-1541.

Byrd, A. L., Loeber, R., & Pardini, D. A. (2012). Understanding desisting and persisting forms of delinquency: The unique contributions of disruptive behavior disorders and interpersonal callousness. *Journal of child psychology and psychiatry*, 53(4), 371-380.

Caldwell, R. M., Wiebe, R. P., & Cleveland, H. H. (2006). The influence of future certainty and contextual factors on delinquent behavior and school adjustment among African American adolescents. *Journal of Youth and Adolescence*, *35*(4), 591–602. doi: 10.1007/s10964-006-9031-z.

Caprara, G. V., Steca, P., Gerbino, M., Paciello, M., & Vecchio, G. M. (2006). Looking for adolescents' well-being: Self-efficacy beliefs as determinants of positive thinking and happiness. *Epidemiologia E Psichiatria Sociale*, *15*(1), 30–43. doi: 10.1017/S1121189X00002013

Clinkinbeard, S. S., & Zohra, T. (2012). Expectations, fears, and strategies: Juvenile offender thoughts on a future outside of incarceration. *Youth & Society*, 44(2), 236-257.

Constantine, N., Benard, B., & Diaz, M. (1999, June). Measuring protective factors and resilience traits in youth: The healthy kids resilience assessment. *In seventh annual meeting of the Society for Prevention Research, New Orleans, LA* (pp. 3-15).

Cunningham, M., Corprew III, C. S., & Becker, J. E. (2009). Associations of future expectations, negative friends, and academic achievement in high-achieving African American adolescents. *Urban Education*, *44*(3), 280-296.

Dubow, E. F., Arnett, M., Smith, K., & Ippolito, M. F. (2001). Predictors of Future Expectations of Inner-City Children: A 9-Month Prospective Study. *The Journal of Early Adolescence*, *21*(1), 5–28. doi: 10.1177/0272431601021001001

Eccles, J.S., Wigfield, A., & Schiefele, U., (1998). Motivation to succeed. In W. Damon (Series Ed.) and N. Eisenberg (Vol. Ed.), *Handbook of child psychology* (5th ed., Vol. III, pp. 1017-1095). New York: Wiley.

Essau, C. A., Sasagawa, S., & Frick, P. J. (2006). Callous-unemotional traits in a community sample of adolescents. *Assessment*, *13*(4), 454–469. doi: 10.1177/1073191106287354

Fanti, K. A. (2013). Individual, social, and behavioral factors associated with co-occurring conduct problems and callous-unemotional traits. *Journal of Abnormal Child Psychology*, *41*(5), 811–824. doi:10.1007/s10802-013-9726-z

Fanti, K. A., & Henrich, C. C. (2015). Effects of Self-Esteem and Narcissism on Bullying and Victimization During Early Adolescence. *Journal of Early Adolescence*, *35*(1), 5–29. doi:10.1177/0272431613519498

Frick, P. J. (2009). Extending the construct of psychopathy to youth: Implications for understanding, diagnosing, and treating antisocial children and adolescents. *The Canadian Journal of Psychiatry*, *54*(12), 803-812.

Frick, P. J. (2012). *Conduct disorders and severe antisocial behavior*. Springer Science & Business Media.

Frick, P. J., Cornell, A. H., Barry, C. T., Bodin, S. D., & Dane, H. E. (2003). Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology*, *31*(4), 457–470. doi: 10.1023/A:1023899703866

Frick, P. J., & Dickens, C. (2006). Current perspectives on conduct disorder. *Current psychiatry reports*, *8*(1), 59-72.

Frick, P. J., & Ray, J. V. (2015). Evaluating callous-unemotional traits as a personality construct. Journal of personality, 83(6), 710-722.

Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Annual research review: A developmental psychopathology approach to understanding callous-unemotional traits in children and adolescents with serious conduct problems. *Journal of child Psychology and Psychiatry*, *55*(6), 532-548.

Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Can callous-unemotional traits enhance the understanding, diagnosis, and treatment of serious conduct problems in children and adolescents? A comprehensive review. *Psychological Bulletin*, 140(1), 1–57. doi: 10.1037/a0033076

Frick, P. J., & White, S. F. (2008). Research Review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child

Psychology and Psychiatry and Allied Disciplines, *49*(4), 359–375. doi: 10.1111/j.1469-7610.2007.01862.x

Gretton, H. M., Hare, R. D., & Catchpole, R. E. H. (2004). Psychopathy and offending from adolescence to adulthood: A 10-year follow-up. *Journal of Consulting and Clinical Psychology*, *72*(4), 636–645. doi:10.1037/0022-006X.72.4.636

Gouveia-Pereira, M., Gomes, H. M., Roncon, F., & Mendonça, R. (2017). Impulsivity Mediates the Relationship between Future Orientation and Juvenile Deviancy. *Deviant Behavior*, *38*(1), 34–46. doi:10.1080/01639625.2016.1190591

Hare, R. D., & Neumann, C. S. (2005). Structural models of psychopathy. *Current psychiatry reports*, *7*(1), 57-64.

Hindelang, M., Hirschi, T., & Weis, J. (1981). Measuring delinquency: Beverly Hills, CA: Sage.

Huizinga, D., Esbensen, F. A., & Weiher, A. W. (1991). Are there multiple paths to delinquency. *J. Crim. L. & Criminology*, *82*, 83.

Iselin, A. M. R., Mulvey, E. P., Loughran, T. A., Chung, H. L., & Schubert, C. A. (2012). A longitudinal examination of serious adolescent offenders' perceptions of chances for success and engagement in behaviors accomplishing goals. *Journal of Abnormal Child Psychology*, *40*(2), 237–249. doi: 10.1007/s10802-011-9561-z

Jackman, D. M., & MacPhee, D. (2017). Self-Esteem and Future Orientation Predict Adolescents' Risk Engagement. *The Journal of Early Adolescence*, *37*(3), 339–366. doi: 10.1177/0272431615602756

Jones, S., Cauffman, E., Miller, J. D., & Mulvey, E. (2006). Investigating different factor structures of the Psychopathy Checklist: Youth version: Confirmatory factor analytic findings. *Psychological assessment*, 18(1), 33.

Kahn, R. E., Byrd, A. L., & Pardini, D. A. (2013). Callous-unemotional traits robustly predict future criminal offending in young men. *Law and human behavior*, *37*(2), 87.

Kauten, R., Barry, C. T., & Leachman, L. (2013). Do perceived social stress and resilience influence the effects of psychopathy-linked narcissism and CU traits on adolescent aggression? *Aggressive Behavior*, *39*(5), 381–390. doi: 10.1002/ab.21483

Kerig, P. K., & Stellwagen, K. K. (2010). Roles of callous-unemotional traits, narcissism, and machiavellianism in childhood aggression. *Journal of Psychopathology and Behavioral Assessment*, *32*(3), 343–352. doi: 10.1007/s10862-009-9168-7

Kern, M. L., Benson, L., Steinberg, E. A., & Steinberg, L. (2016). The EPOCH measure of adolescent well-being. *Psychological Assessment*, 28(5), 586.

Kimonis, E. R., Frick, P. J., Skeem, J. L., Marsee, M. A., Cruise, K., Munoz, L. C., … Morris, A. S. (2008). Assessing callous-unemotional traits in adolescent offenders: Validation of the Inventory of Callous-Unemotional Traits. *International Journal of Law and Psychiatry*, *31*(3), 241–252. doi:10.1016/j.ijlp.2008.04.002

Knight, K. E., Ellis, C., Roark, J., Henry, K. L., & Huizinga, D. (2017). Testing the Role of Aspirations, Future Expectations, and Strain on the Development of Problem Behaviors across Young and Middle Adulthood. *Deviant Behavior*, *38*(12), 1456–1473. doi: 10.1080/01639625.2016.1206716

Lau, K. S., & Marsee, M. A. (2013). Exploring narcissism, psychopathy, and Machiavellianism in youth: Examination of associations with antisocial behavior and aggression. *Journal of Child and Family Studies*, *22*(3), 355-367.

Lee-Rowland, L. M., Barry, C. T., Gillen, C. T. A., & Hansen, L. K. (2017). How do different dimensions of adolescent narcissism impact the relation between callous-unemotional traits and self-reported aggression? *Aggressive Behavior*, *43*(1), 14–25. doi: 10.1002/ab.21658

Leistico, A. M. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large-scale meta-analysis relating the hare measures of psychopathy to antisocial conduct. *Law and Human Behavior*, *32*(1), 28–45. doi: 10.1007/s10979-007-9096-6

Mahler, A., Simmons, C., Frick, P. J., Steinberg, L., & Cauffman, E. (2017). Aspirations, Expectations and Delinquency: The Moderating Effect of Impulse Control. *Journal of Youth and Adolescence*, *46*(7), 1503–1514. doi: 10.1007/s10964-017-0661-0

McMahon, R. J., Witkiewitz, K., & Kotler, J. S. (2010). Predictive validity of callous–unemotional traits measured in early adolescence with respect to multiple antisocial outcomes. *Journal of abnormal psychology*, *119*(4), 752.

Mello, Z. R. (2008). Gender variation in developmental trajectories of educational and occupational expectations and attainment from adolescence to adulthood. *Developmental psychology*, 44(4), 1069.

Menard, S., & Elliott, D. S. (1996). Prediction of adult success using stepwise logistic regression analysis. *A report prepared for the MacArthur Foundation by the MacArthur Chicago-Denver Neighborhood*.

Monahan, K. C., & Piquero, A. R. (2009). Investigating the longitudinal relation between offending frequency and offending variety. *Criminal Justice and Behavior*, 36(7), 653-673. doi: 10.1177/0093854809335527

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological inquiry*, *12*(4), 177-196.

Nurmi, J. E. (1991). How do adolescents see their future? A review of the development of future orientation and planning. *Developmental review*, *11*(1), 1-59.

O'Brien, B. S., & Frick, P. J. (1996). Reward dominance: Associations with anxiety, conduct problems, and psychopathy in children. *Journal of abnormal child psychology*, 24(2), 223-240.

Olver, M. E., & Wong, S. C. P. (2015). Short- and long-term recidivism prediction of the PCL-R and the effects of age: A 24-year follow-up. *Personality Disorders: Theory, Research, and Treatment*, *6*(1), 97–105. doi: 10.1037/per0000095

Oyserman, D., & Markus, H. R. (1990). Possible selves and delinquency. *Journal of personality and social psychology*, 59(1), 112.

Oyserman, D., & Saltz, E. (1993). Competence, delinquency, and attempts to attain possible selves. *Journal of personality and social psychology*, 65(2), 360.

Pardini, D. A., Lochman, J. E., & Frick, P. J. (2003). Callous/unemotional traits and social-cognitive processes in adjudicated youths. *Journal of the American Academy of Child & Adolescent Psychiatry*, *42*(3), 364-371.

Prince, D. M., Epstein, M., Nurius, P. S., Gorman-Smith, D., & Henry, D. B. (2016). Reciprocal Effects of Positive Future Expectations, Threats to Safety, and Risk Behavior Across Adolescence. *Journal of Clinical Child & Adolescent Psychology*, *4416*, 1–14. doi:10.1080/15374416.2016.1197835

Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of personality and social psychology*, 54(5), 890.

Roose, A., Bijttebier, P., Decoene, S., Claes, L., & Frick, P. J. (2010). Assessing the affective features of psychopathy in adolescence: A further validation of the inventory of callous and unemotional traits. *Assessment*, *17*(1), 44–57. doi: 10.1177/1073191109344153

Rosenberg, M. (2015). *Society and the adolescent self-image*. Princeton university press.

Salekin, R. T., Ziegler, T. A., Larrea, M. A., Anthony, V. L., & Bennett, A. D. (2003). Predicting dangerousness with two million adolescent clinical inventory psychopathy scales: The importance of egocentric and callous traits. *Journal of Personality Assessment*, *80*(2), 154–163. doi: 10.1207/S15327752JPA8002_04

Schaeffer, C. M., & Borduin, C. M. (2005). Long-term follow-up to a randomized clinical trial of multisystemic therapy with serious and violent juvenile offenders. *Journal of consulting and clinical psychology*, 73(3), 445.

Schmid, K. L., Phelps, E., & Lerner, R. M. (2011). Constructing positive futures: Modeling the relationship between adolescents' hopeful future expectations and intentional self regulation in predicting positive youth development. *Journal of Adolescence*, *34*(6), 1127–1135. doi: 10.1016/j.adolescence.2011.07.009

Schmid, K. L., Phelps, E., Kiely, M. K., Napolitano, C. M., Boyd, M. J., & Lerner, R. M. (2011). The role of adolescents' hopeful futures in predicting positive and negative developmental trajectories: Findings from the 4-H study of positive youth development. *Journal of Positive Psychology*, *6*(1), 45–56. https://doi.org/10.1080/17439760.2010.536777

Stoddard, S. A., Heinze, J. E., Choe, D. E., & Zimmerman, M. A. (2015). Predicting violent behavior: The role of violence exposure and future educational aspirations during adolescence. *Journal of Adolescence*, *44*, 191–203. doi: 10.1016/j.adolescence.2015.07.017

Stoddard, S. A., Zimmerman, M. A., & Bauermeister, J. A. (2011). Thinking about the future as a way to succeed in the present: A longitudinal study of future orientation and violent behaviors among African American youth. *American journal of community psychology*, 48(3-4), 238-246.

van der Stouwe, T., Asscher, J. J., Stams, G. J. J., Deković, M., & van der Laan, P. H. (2014). The effectiveness of multisystemic therapy (MST): A meta-analysis. *Clinical psychology review*, 34(6), 468-481.

Walters, G. D. (2018). Getting specific about psychological inertia: Mediating the past crime–future crime relationship with self-efficacy for a conventional lifestyle. *Criminal Justice Review*, *43*(2), 186-201.

Wechsler, D. (1999). Wechsler Abbreviated Scale of Intelligence. San Antonio, TX: Psychological Corporation.

VITA

Toni Walker earned a Bachelor of Science in Psychology with a minor in Administration of Justice from the University of Pittsburgh. She was introduced to psychological research during her time in undergrad by participating in two research labs both using longitudinal designs, one studying alcohol use disorders and the other studying the effects of preventative interventions on children's conduct problems. This sparked her interest in studying the development and progression of conduct problems and antisocial behavior in youth and young adults. Following her undergraduate training, she worked as a lab manager in a research lab at the University of Michigan. Here she assisted with the development and coordination of several studies, most notably a twin study examining the interaction between environment and brain development on risk for antisocial behavior. She is currently pursuing her Master of Arts in Clinical Psychology at Louisiana State University under the mentorship of Dr. Paul Frick.