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ORIGINAL PAPER

Relationships Among Callous-Unemotional Traits, Future Orientation, Optimism, and Self-Esteem in Justice-Involved Adolescents

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Abstract

Both negative future orientation and elevated callous-unemotional (CU) traits are well-established predictors of delinquency during adolescence. However, CU traits have been related to a grandiose self-worth, which is not consistent with a pessimistic outlook towards the future. We examined whether the association between future orientation and CU traits differs depending on whether the optimism was specific to prosocial outcomes (e.g., success with family, jobs, and education) or whether it was measured as more general optimism for success or self-esteem. We also examined the association between future orientation and CU traits controlling for the main and interactive effects of delinquency. The sample included male adolescents ($n = 1216$) who were arrested for the first time for a moderate level offense. Results revealed that CU traits were negatively related to future optimism and self-esteem, irrespective of whether this outcome was measured as expectations ($r = -0.33$, $p < 0.01$) and aspirations ($r = -0.38$, $p < 0.01$) for success in prosocial outcomes or as a more general indicator of optimism ($r = -0.24$, $p < 0.01$) and self-esteem ($r = -0.34$, $p < 0.01$). Further, CU traits continued to be negatively associated with an optimistic view of the future ($\beta = -0.24$, $p < 0.001$), even when considering both the main and interactive effects of self-reported delinquency. Thus, this negative cognitive style needs to be considered as possibly contributing to the risk for later antisocial behavior experienced by youth with elevated levels of CU traits.

Keywords Callous-unemotional traits (CU) · Future orientation · Optimism · Self-esteem · Delinquency

Highlights

- Callous-unemotional (CU) traits were related to more negative views of oneself and one's future success.
- CU traits were associated with self-perceptions after controlling for delinquency.
- CU traits were related to less optimism at lower levels of delinquency.
- Treatment for CU traits should target negative self-perceptions.

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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 as 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 et al. 2011). Future orientation can typically be divided into one's aspirations about the future, which represent the importance placed on goals, and one's expectations, which represent a person's perceived chances of attaining these goals (Knight et al. 2017).

A positive future orientation (i.e., aspirations for success and expectations for being successful) has been associated with a number of adaptive outcomes in adolescents, including fewer depressive symptoms as well as greater education and occupational success (Cunningham et al. 2009; Mahler et al. 2018; Mello 2008; Schmid et al. 2011a; Schmid et al. 2011b). In particular, there is a large volume of work linking more positive future orientation with reduced current and future antisocial and delinquent behaviors (Prince et al. 2019; Stoddard et al. 2015). For example, in a sample of African American adolescents, Caldwell et al. 2006 reported that, after controlling for socioeconomic and family risk factors, positive expectations regarding college education and life expectancy were negatively related to delinquency. In 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 5 years later (Iselin et al. 2012).

Researchers have put forth a number of theories to explain the negative association between future orientation and antisocial outcomes among adolescents. One hypothesis is that, if an adolescent has negative perceptions 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 through antisocial acts (Gouveia-Pereira et al. 2017). To support this perspective, studies have reported that impulsivity mediated the negative relationship between future orientation and juvenile delinquency (Gouveia-Pereira et al. 2017; Mahler et al. 2017). It is also possible that there are bidirectional associations between future orientation and antisocial behavior, whereby antisocial behavior may lead to less optimistic perceptions of future success, as well as the reverse. For example, Prince et al. (2019) reported that delinquency predicted decreases in positive future expectations over two years and having more negative future expectations predicted higher levels of later delinquency over this same time period in a sample of high-risk adolescents.

Another strong and consistent risk factor for delinquency is the presence of elevated levels of callous-unemotional (CU) traits, defined by a lack of empathy and guilt, failure to put forth effort in important activities, and shallow and restricted affect (Frick and Ray 2015). Numerous studies have shown that CU traits are related to a severe and persistent pattern of antisocial behavior (Frick et al. 2014). As a result, CU traits are now included in the most recent editions of both the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association 2013) and International Classification of Disease (ICD-11: World Health Organization, 2018) as specifier for the diagnosis of Conduct Disorder. Further, CU traits are included in many of the more commonly used measures used to assess risk for delinquency and violence in justice-involved adolescents (Borum et al. 2003).

Unfortunately, the association between CU traits and a person's future orientation has not been studied. That is, although there is strong evidence that both CU traits and future orientation are risk factors for antisocial behavior, how these factors are related to each other is unclear. CU traits have been associated with narcissistic personality traits in community (Lau and Marsee 2013), high-risk (Kauten et al. 2013), and justice-involved (Jones et al. 2006) adolescents. Because narcissism is characterized by an inflated sense of self and one's importance, it is often associated with an optimistic view of one's future, even if such expectations are not warranted by objective experiences (Raskin and Terry 1988). As a result, it is difficult to reconcile the findings that both negative future orientation and CU traits, which are associated with narcissistic traits, are both strong predictors of risk for delinquency.

In the current study, we examined the association between CU traits and future orientation and tested two possible ways to explain past findings. First, most measures of future orientation that have been related to adolescents' antisocial behavior focus on the youth's aspirations and expectations for success in conventional prosocial outcomes, such as graduating from high school and college, getting married, having a good job, and staying out of trouble with the law (Iselin et al. 2012; Jackman and MacPhee 2017). It is possible that children with elevated CU traits do not place as much value, and thus do not expect much success, in conventionally prosocial outcomes but are more optimistic about their future in areas that are important to them. Therefore, in the current study we tested the association between CU traits and adolescents' future outlook, assessing both aspirations and expectations for prosocial outcomes but also using a general measure of optimism about the future that is not tied to specific outcomes. We also included a scale assessing self-esteem as a

second measure of more general expectations of positive outcomes. We 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 self-esteem.

Second, given that CU traits are strongly related to antisocial behavior, this relationship may obscure associations with adolescents' future outlook. That is, children with CU traits may be more pessimistic about their future success *because* of their high level of antisocial behavior. Thus, CU traits may be related to a pessimistic outlook toward the future but only if accompanied by a high rate of antisocial behavior. In the current study, we tested the association between CU traits and adolescents' perceptions of the future, while accounting for both the main and interactive effects of the adolescents' self-reported delinquency. We hypothesized that CU traits would be related to a negative future orientation, but this association would no longer exist after controlling for the adolescent's level of delinquency. When testing the interaction between CU traits and level of delinquency, we hypothesized that adolescents with elevated CU traits would be more pessimistic and have more negative future orientation when they have high initial levels of delinquency, as opposed to individuals with lower levels of delinquency.

Method

Participants

Participants were 1,216 male youth from the Crossroads Study, an ongoing study of youth who were recruited after their first arrest in Orange County, CA ($n = 532$), Jefferson Parish, LA ($n = 151$), and Philadelphia, PA ($n = 533$). Participants were eligible for the Crossroads Study if they were English speakers, were arrested for an offense of low to moderate severity (e.g., theft of goods, simple assault, possession of marijuana) and were between the ages of 13 and 17 ($M = 15.20$, $SD = 1.29$) at the time of their first arrest. The sample was primarily Latino (45.9%) and African American (36.9%) with a smaller proportion identifying as White (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%).

Procedure

The Institutional Review Board at all three institutions approved the study procedures. Parental informed consent and youth assent were obtained for all participants. 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 baseline assessment was completed within six weeks of the disposition date of their first arrest. Additional sample characteristics and study procedures have been published elsewhere (Ray et al. 2017).

Measures

Self-reported offending

Self-report of whether the youth engaged in illegal behaviors over their lifetime was assessed at baseline using the 24-item revised version of the Self-Report of Offending Scale at baseline (SRO; Huizinga et al. 1991). Participants indicated if ($0 = No$, $1 = Yes$) they engaged in each offense. The number of different crimes (i.e. offense types) the participant endorsed were summed to create an overall variety score of offending. 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 et al. 1981; Thornberry and Krohn 2000). Internal consistency was moderate in this sample (Cronbach's $\alpha = 0.76$).

Callous unemotional traits

Level of CU traits was measured at baseline by the Inventory of Callous Unemotional Traits (ICU; Kimonis et al. 2008), which is a 24-item scale that utilizes a 4-point Likert scale ranging from 0 (*Not at all true*) to 3 (*Definitely true*) for participants to rate how well each 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 (e.g. "I am concerned about the feelings of others") directions, with non-callous items reverse coded such that higher sum scores indicate higher levels of CU traits. This scale showed moderate internal consistency in this sample (Cronbach's $\alpha = 0.76$).

Future orientation

The Perceptions of Opportunities scale (adapted from Menard and Elliott 1996) was used at baseline 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 assessed expectations and aspirations for success in educational, career, family, and legal domains. The aspirations scale asked participants to rate how important these future goals (e.g. "How important is it for you to earn a good living?") were to them on a 5-point Likert scale

ranging from 1 (*Not at all Important*) to 5 (*Very Important*). The expectations scale assessed participant's perceptions of their chances to achieve goals in each domain (e.g. "How likely are you to graduate from college?") on a 5-point Likert scale ranging from 1 (*Poor*) to 5 (*Excellent*). Internal consistency in this sample at baseline was moderate for the aspirations (Cronbach's $\alpha = 0.75$) subscale and high for the expectations (Cronbach's $\alpha = 0.90$) subscale.

Optimism

More general optimism was measured at baseline using the four-item optimism scale from the EPOCH Measure of Adolescent Wellbeing (Kern et al. 2016). Participants rate how well each statement describes them on a 5-point Likert scale from 1 (*Not at all*) to 5 (*Very Much*). The four items that make up the Optimism subscale include: "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". Internal consistency was moderate in this sample (Cronbach's $\alpha = 0.79$).

Self Esteem

Self-Esteem was measured at baseline by the Rosenberg Self-Esteem scale (Rosenberg 1989), which is a 10-item measure that assessed the participant's general feelings about themselves and their competence. 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*). There are an equal number of positive (e.g. "I feel that I have a number of good qualities") and negatively worded items (e.g. "All in all, I am inclined to feel that I am a failure") which were recoded such that higher sum scores will indicate higher self-esteem. This measure displayed strong internal consistency (Cronbach's $\alpha = 0.83$) in the current sample at baseline.

Covariates

In the analyses, we controlled for age, IQ, and ethnicity. IQ ($M = 88.43$, $SD = 11.59$) was assessed with the matrix reasoning and vocabulary subtests of the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler 1999). Ethnicity was dichotomized based on whether the participant identified as White (0 – *White*) or as a minority (1 – *Latino, Black, or Other*).

Data Analyses

To test the first hypothesis that CU traits would be negatively associated with future orientation for prosocial outcomes but positively associated with general optimism and self-esteem, we computed zero-order correlations testing the associations among CU traits and the various measures of future orientation, optimism, and self-esteem. To test the second hypothesis that CU traits would not be related to the measures of self-concept after controlling for delinquency, we conducted series of simultaneous multiple regression analyses with self-reported offending, CU traits, and their interaction as the predictors (with age, ethnicity, and intelligence as covariates) and the measures of future orientation, optimism, and self-esteem as the dependent variables. The form of any significant interaction was explored using the post-hoc probing procedures recommended by Holmbeck (2002). In this procedure, the regression equation from the full sample is used to calculate predicted values of the dependent variable of interest at high (1 *SD* above the mean) and low levels (1 *SD* below the mean) of the two predictors and to test the slope of the regression lines of the predictor (i.e., CU traits) at different levels of the potential moderator (i.e., self-reported delinquency).

Results

The first 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 descriptive statistics and correlations to test these predictions are provided in Table 1. Consistent with our hypothesis, CU traits were negatively related to both future aspirations ($r = -0.38$, $p < 0.01$) and expectations ($r = -0.33$, $p < 0.01$) for prosocial outcomes. However, contrary to our hypotheses, CU traits were also negatively correlated with the measures of self-esteem ($r = -0.34$, $p < 0.01$) and optimism ($r = -0.24$, $p < 0.01$). Further, the strength of the association was fairly consistent across all of the measures of future orientation, optimism, and self-esteem.

Table 2 presents the linear regression analyses with CU traits predicting future orientation, optimism, and self-esteem but controlling for self-reported delinquency and covariates (i.e., age, ethnicity, and intelligence). Contrary to predictions, CU traits were significantly related to all measures of future orientation, optimism, and self-esteem in the negative direction, even after controlling for self-reported delinquency. Further, there was a significant interaction between CU traits and self-reported delinquency when optimism was the dependent variable ($\beta = 0.07$, $p < 0.05$). Figure 1 shows the form of this interaction. Contrary to expectations, CU traits were negatively related to scores on the optimism measure at both high and low levels of self-reported delinquency. The interaction emerged because

Table 1 Zero-order correlations and descriptive statistics of main study variables

	1	2	3	4	5	6
1. CU Traits	–					
2. Delinquency	0.35**	–				
3. Aspirations	−0.38**	−0.21**	–			
4. Expectations	−0.33**	−0.24**	0.47**	–		
5. Optimism	−0.24**	−0.11**	0.25**	0.37**	–	
6. Self-esteem	−0.34**	−0.11**	0.22**	0.40**	0.32**	–
Mean	26.19	3.44	32.70	26.58	4.08	31.33
Standard deviation	8.05	3.10	3.13	5.64	0.73	4.47

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 2 Multiple regression testing the main and interactive effects of CU traits and delinquency on future orientation, optimism, and self-esteem

	Aspirations			Expectations			Optimism			Self-esteem		
	b	SE	β	b	SE	β	b	SE	β	b	SE	β
Age	−0.08	0.07	−0.04	−0.34	0.12	−0.08**	0.08	0.02	0.13***	0.27	0.10	0.08**
Ethnicity	0.64	0.25	0.07*	0.99	0.45	0.06*	0.19	0.06	0.09**	0.24	0.36	0.02
IQ	0.00	0.01	0.00	−0.04	0.01	−0.08**	−0.01	0.00	−0.07*	0.05	0.01	0.14***
SRO	−0.07	0.03	−0.06	−0.20	0.06	−0.11**	−0.02	0.01	−0.08*	−0.06	0.05	−0.04
CU	−0.13	0.01	−0.33***	−0.21	0.02	−0.30***	−0.02	0.00	−0.24***	−0.18	0.02	−0.32***
SROxCU	−0.00	0.00	−0.04	−0.00	0.01	−0.01	0.00	0.00	0.07*	0.01	0.01	0.03
R^2		0.14**			0.15**			0.10**			0.14**	
F		31.636			33.306			19.548			31.038	

IQ = scores on WASI

SRO self-reported offending (delinquency), *CU* callous-unemotional traits

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

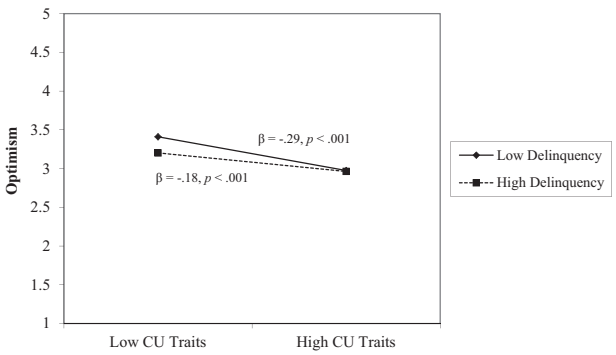

Fig. 1 The interaction between CU traits and self-report delinquency in predicting optimism controlling for age, ethnicity, and IQ

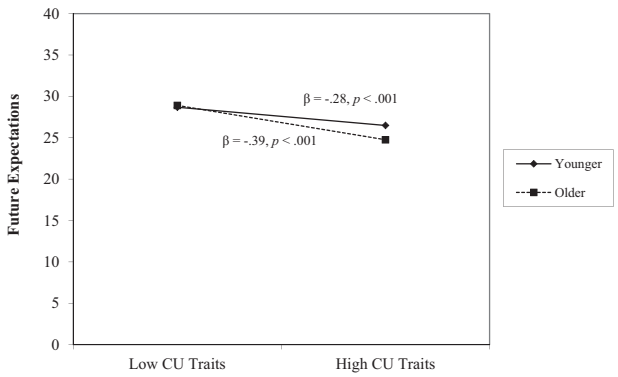

Fig. 2 The interaction between CU traits and age predicting future expectations

the association (i.e., slope) was stronger at low levels of self-reported delinquency than at high levels of delinquency, such that CU traits were associated with a more pessimistic outlook for the future when the youth had lower levels of delinquency at baseline.

Several post-hoc analyses were run to further examine the associations among CU traits and the measures of future orientation. The results of these analyses need to interpret cautiously because they were not based on a priori hypotheses. First, we explored the potential moderation of age at the time of initial arrest by testing the interaction between age and CU traits in multiple regression analyses using the measures of future orientation as the dependent variables. The inclusion of the interaction term led to a

significant increase in the amount of variance explained for only one outcome variable: future expectations (change in $R^2 = 0.01$; $p < 0.05$). The form of this interaction was explored using procedures suggested by Holmbeck (2002) and is provided in Fig. 2. In both younger and older children, there was a negative association between CU traits and future expectations. However, this slope was more negative in older youth, leading to the significant interaction.

Further, the potential moderation of ethnicity was also examined through the inclusion of an interaction between ethnicity and CU in multiple regression analyses. The inclusion of the interaction term did not reach significance for any of the outcome variables.

Possible non-linear associations between CU traits and future orientation variables were also explored using post-hoc analyses. Specifically, we tested whether the linear relationships between CU traits, future aspirations, future expectations, optimism, and self-esteem were qualified by higher-order trends. A quadratic trend added significantly to the estimation of the association between CU traits and future aspirations (change in $R^2 = 0.008$; $p < 0.001$) and between CU traits and self-esteem (change in $R^2 = 0.006$; $p < 0.001$). There was a similar association for both variables and the scatter plot for the association between CU traits and aspirations is provided in Fig. 3. As evident from this figure, the negative association between CU traits and future aspirations became stronger at higher levels of CU traits.

Discussion

In this study, we investigated the association between two common risk factors for delinquency–future orientation and CU traits–in a sample of adolescent boys involved with the juvenile justice system. Investigating these associations was important because, despite CU traits being a strong risk factor for serious patterns of antisocial behavior (Frick et al. 2014) and now being included in the most common systems used to diagnose serious behavior problems (American Psychiatric Association 2013; World Health Organization 2018), little research has focused on adolescents with elevated CU traits and their perceptions of the future and, in particular, their estimation of their future success.

Overall, our findings clearly and consistently indicated that CU traits are associated with less positive views of oneself and more pessimism about future success. Further, this negative future outlook was similar whether it focused on prosocial outcomes (e.g., success in education, family, and legal outcomes) or whether it reflected more general optimism and self-esteem. In fact, the association was remarkably similar in strength across the various measures of self-concept used in this study. This negative association remained even when accounting for levels of delinquency. 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 and one's future (Hare and Neumann 2005). One possible explanation for this finding is the use of a justice-involved sample. That is, past research suggests that contact with the justice system can negatively influence youths' optimism towards their future (Prince et al. 2019). Importantly, the present data were collected after the youth's first arrest; thus, participants' contact with the justice system was minimal in the current study. However, the experience of this first arrest may have led to a pessimistic outlook toward the future, although it is unclear why this would be greater in youth with CU traits. Further, given the nature of the sample, it is possible that these youth may have experienced adversities, such as exposure to

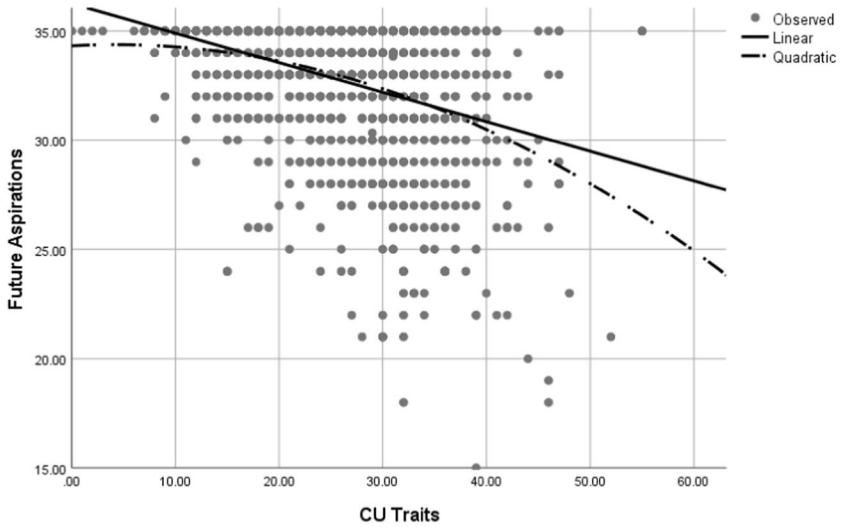

Fig. 3 Scatter plot for the association between future aspirations and CU traits

violence (Wasserman and McReynolds 2011), and structural inequalities, such as harsher sentencing by the justice system (Piquero 2008), that could contribute to the development of a pessimistic outlook on life, especially after the first contact with the justice system.

An important issue for interpreting our results is the difference between the constructs of narcissism and self-esteem. That is, self-esteem focuses on the adolescent's view of themselves and their perceived self-worth and competence, whereas narcissism focuses on the need to be viewed by others as important and competent (Lee-Rowland et al. 2017). 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 et al. 2003; Fanti and Henrich 2015; Morf and Rhodewalt 2001). Thus, it is possible that persons could score high on narcissism but not on measures of self-esteem and they could feel the need for others to view them as important and successful, even if they do not view themselves as competent and as having a high likelihood of success.

Limitations

From this discussion, it is clear that one of the primary limitations of our study was the failure to include a measure of narcissism. Also, the findings need to be replicated in non-justice involved adolescents to determine if the findings would generalize to adolescents who have not experienced an arrest. In addition, the sample was limited to adolescent males who were arrested for offenses of moderate severity. Therefore, the results also need to be replicated in samples of girls and other justice-involved youth. 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. Future research should explore the extension (length of time envisioned), density (number of positive and negative future events anticipated), belief of control (internal and external belief of control over future), and exploration (extent to which they have planned their future in a certain domain) of future orientation in youth with elevated CU traits (Lamm et al. 1976; McCabe and Barnett 2000; Nurmi et al. 1995).

Within the context of these limitations, our findings clearly suggest that the self-concept and future orientation of youth elevated on CU traits require further study. Our findings suggest that, contrary to what may be assumed from research linking these traits to narcissism, youth with CU traits seem to show lower aspirations and expectations for the future, less optimism in general, and lower self-esteem. Further, this pessimistic view of self and the future is independent of their level of antisocial behavior. Given the strong link between future orientation and later delinquency, it will be important to determine how this negative outlook toward the future develops in youth with elevated CU traits and how it can be changed, to hopefully reduce their risk for future antisocial behavior (Frick et al. 2014). Implications of the current study suggest the need for interventions to reduce risk for delinquency that target youth's self-concepts and view of their future. For example, the Good Lives Model (GLM; Fortune et al. 2014; Ward and Fortune 2013) is a strength-based intervention framework for justice-involved youth that addresses their interests, abilities, and aspirations and helps them build personally meaningful goals for the future to reduce risk. Marsay et al. (2018) implemented a pilot study of a future-orientation focused intervention based on the GLM framework in juveniles convicted of a sexual offense. Though their study was based on qualitative data, they found positive results in the improvement of hope in the juveniles. However future research is needed to examine the efficacy of this framework, and possibly integrating it with other evidence-based interventions that have proven effective for reducing antisocial behavior in adolescents (Frick 2012).

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee (Louisiana State University 3650, University of California-Irvine 2010-7867, and Temple University – 13566) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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