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Psychopathic Traits in Adolescence and the Five Factor Model of Personality

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Abstract The present study aimed to expand work on psychopathic traits and the Five Factor Model (FFM; Costa and McCrae 1992). The associations between the three factors of psychopathy and personality traits—assessed by means of the Youth Psychopathic Traits Inventory (YPI, Andershed et al. 2002) and the Neuroticism, Extraversion, Openness Personality Inventory-Revised (NEO PI-R; Costa and McCrae 1992)—were explored in a community sample of 152 male adolescents and young adults. The unique relations of each YPI subscale with the NEO domains/facets were examined by computing partial correlations controlling for the scores on the other two YPI psychopathy subscales. The YPI Callous/Unemotional dimension exhibited negative associations with Extraversion, Openness, and Agreeableness. The YPI Impulsive/Irresponsible factor was positively associated with Extraversion and negatively with Conscientiousness. The YPI Grandiose/Manipulative factor displayed positive associations with Openness and Conscientiousness. We discuss the implications of the differential associations of the three psychopathy factors with the Five Factor domains/facets for theories of the etiology of psychopathy.

Keywords Five factor model · Psychopathic traits · YPI · NEO-PI-R

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Introduction

Psychopathy is a disorder composed of interpersonal (e.g., grandiose sense of self-worth), affective (e.g., shallow affect), and behavioral (e.g., proneness to boredom) traits (Hare 1991). The presence of psychopathic traits is an important predictor of severe antisocial behavior (Leistico et al. 2008). Although psychopathy *per se* has not been officially recognized as a personality disorder in the last three editions of the Diagnostic and Statistical Manual of Mental Disorders [American Psychiatric Association (APA, 1980, 1987, 1994, respectively)], some authors consider it as "perhaps the most reliable and well-validated diagnostic category in the field of personality disorders" (Harpur et al. 1994, p. 169). Although most of the early work on this condition focused on adults, research on psychopathic traits has focused increasingly on earlier developmental stages. There is accumulating evidence that psychopathy-like traits can be identified in childhood and that their presence predicts dimensions of psychopathy in early adulthood (see Salekin and Lynam 2010, for a comprehensive review).

Contemporary personality theorists agree that most personality disorders can best be conceptualized as extreme variants of normal-range personality traits (Widiger and Costa 2002). Consistent with this view, several authors have studied psychopathy within the context of normal-range personality traits (Miller et al. 2001; Widiger and Lynam 1998). The most frequently used and best-validated model

of general personality traits is the Five Factor Model (FFM; Costa and McCrae 1992). The FFM provides a dimensional description of personality along five higher-order personality domains (Neuroticism, Extraversion, Openness to Experiences, Agreeableness, and Conscientiousness), each of which is further differentiated into lower-order facets.

Using the FFM, psychopathy can be meaningfully described in terms of a configuration of basic personality dimensions. Different approaches have been used to identify the basic elements of psychopathy in adults/adolescents and relatively good agreement across approaches has been reported (Lynam and Widiger 2007). A consensus personality profile of psychopathy emerges whether one relies on expert ratings (adult samples: Miller and Lynam 2003; Miller et al. 2001; youth samples: Decuyper et al. 2009a), the PCL-R translation into FFM facets (Widiger and Lynam 1998) or correlations between FFM and psychopathy measures (undergraduate samples: Derefinko and Lynam 2006; Gaughan et al. 2009; Hicklin and Widiger 2005; youth samples: Lynam et al. 2005; Salekin et al. 2010). Specifically, negative associations between psychopathic traits and Agreeableness and Conscientiousness have consistently been reported across different measurement approaches. Somewhat less consistent evidence emerges for the other FFM domains, probably due to the differential associations with underlying facets, with some facets showing positive associations with psychopathy and other facets showing negative associations.

Psychopathy is generally considered to be a multidimensional construct. Most studies investigating the FFM's associations with psychopathy factors have relied on a two-dimensional conceptualization of psychopathy, which comprises an interpersonal/affective facet (Factor 1) and a behavioral/impulsive facet (Factor 2). Lynam and Derefinko (2006) conducted a meta-analysis on eight studies investigating the correlations between measures of FFM and psychopathy and found that low Agreeableness is associated with both factors, whereas low Conscientiousness and, to a lesser extent, high Neuroticism and low Extraversion are mainly associated with Factor 2. It is important not only to consider subcomponents of psychopathic traits, but also to distinguish among facets of the five broad personality domains while investigating the FFM's associations with psychopathy. The exclusive reliance on broad personality domains of the FFM may conceal significant heterogeneity because opposite associations with different facets within one factor of psychopathy can emerge.

Only a few studies, mostly performed in (young) adult samples, have examined (bivariate) correlations between the FFM-facet scores and the factors of psychopathy (Derefinko and Lynam 2006; Gaughan et al. 2009; Ross et al. 2009; Ross et al. 2004; Salekin et al. 2010). Across studies, a relatively consistent pattern of bivariate associations has emerged for Factor 2 of psychopathy. All facets of both Agreeableness and Conscientiousness are negatively correlated with Factor 2 across studies. In addition, several facets of Neuroticism (N2: Angry Hostility, N3: Depression, N5: Impulsivity, N6: Vulnerability) are positively related to Factor 2. Concerning Extraversion, high scores on Factor 2 are negatively related to Warmth (E1) and positively to Excitement-Seeking (E5), with negative associations emerging for more "communal" components of Extraversion reflecting social closeness, and positive associations emerging for more "agentic" components reflecting social potency and interpersonal risk taking (see also Lilienfeld and Andrews 1996). For Factor 1, all facets of Agreeableness have displayed negative associations with this factor, especially Straightforwardness (A2), Compliance (A4), and Modesty (A5). Facets of both Conscientiousness and Openness have been largely unrelated to Factor 1, although, the results of studies have not been entirely consistent. However, at the facet level, Openness for Feelings (O3) is consistently negatively associated with Factor 1. In general, the pattern of associations across facets of the NEO-PI-R for Factor 1 has been relatively inconsistent (especially concerning Extraversion and Neuroticism). Nevertheless, at the facet level, some consistency across studies has emerged: low levels of Anxiety (N1) and high levels of Assertiveness (E3) tend to be associated with Factor 1. In addition to zero-order correlations, several of the aforementioned studies used regression analyses to examine which FFM facets predict the psychopathy factors. However, across studies, different types of regression analysis were used (Ross et al. 2004: hierarchical multiple regression with simultaneous entry; Salekin et al. 2010: backwards regression) and various subsets of FFM facets were examined (depending on which facets emerged as significant correlates of psychopathy dimensions in the zero-order correlations). As a consequence, it is difficult to compare results across studies.

In youth samples, many researchers consider psychopathy to be a three-dimensional construct comprising Callous/Unemotional, Grandiose/Manipulative, and Impulsive/Irresponsible factors (YPI: Andershed et al. 2002; PCL-YV: Forth et al. 2003; APSD: Frick et al. 2001). Both the Callous/Unemotional factor and the Grandiose/Manipulative factor partly overlap with Factor 1, whereas the Impulsive/Irresponsible factor mainly reflects Factor 2. Thus far, only one study (Salekin et al. 2010) has examined the differential associations between the three-factor model of psychopathy and the FFM facets in a youth sample (recruited from a youth detention center). Several facets of Conscientiousness (e.g., C2: Order, C6: Deliberation) and of Agreeableness (A2: Straightforwardness, A3: Altruism, A5: Modesty and A6: Tender-Mindedness) showed negative associations with all three psychopathy factors. Neuroticism and Openness showed small or no associations across the psychopathy factors, although at the facet level strong negative associations between Openness

of Ideas (O5) and the Callous/Unemotional factor appeared. Several facets of Extraversion (E1: Warmth and E2: Gregariousness) showed modest negative correlations across the Callous/Unemotional and Grandiose/Manipulative factors, whereas Assertiveness (E3) was positively related to all three psychopathy scales. Because Salekin et al. (2010) assessed the FFM domains/facets using the Interpersonal Adjective Scale Revised Big Five Version (IASR-B5; Trapnell and Wiggins 1990), which does not allow researchers to extract all of the FFM facets, questions concerning the relations between psychopathy factors and these facets remain.

The present study extends research on the personality underpinnings of psychopathy by examining the differential associations with the three factor solution of psychopathic traits in a youth sample. Lynam and Derefinko (2006, p. 151) noted that relatively little work has been done conducted on the FFM correlates of psychopathy using indices other than the PCL-R. Lynam and Derefinko (2006, p. 151) also highlighted the need to examine the FFM correlates of psychopathy across different ages and that "…more research in adolescence would be helpful." The application of the construct of psychopathy to childhood and adolescence remains controversial (e.g., Edens et al. 2001; Salekin 2006). In particular, a number of researchers have raised questions about whether psychopathy as assessed in adolescence is the same construct as psychopathy assessed in adulthood. Hence, research on the personality correlates of psychopathy in adolescents is important; if these correlates are similar to those in adults, this would bolster the argument for extending the psychopathy construct "downward" to adolescents. Alternatively, if these correlates differ from those in adults, this might raise further questions regarding the applicability of the psychopathy construct to adolescents. Moreover, examining these correlates at the facet level in a youth sample is especially important given that these facets may contain developmentally-important unique variance missed at the domain level. For example, Excitement-Seeking (E5) might be mistaken as "psychopathic" sensation-seeking in adolescents when in fact it may merely reflect developmentally normative risk-taking; Angry Hostility (N2) might be mistaken as reflecting "psychopathic" aggression when in fact it may merely reflect adolescent sullenness. Therefore, examining these correlates at the full facet level as well as the domain level may help to identify areas in which developmental factors could produce differences between adolescents and adults in the personality correlates of psychopathy.

Drawing upon previous findings as well as on the conceptual differences between the three factors of psychopathic traits, several predictions can be made. Both the Grandiose/Manipulative factor and the Callous/Unemotional factor are related to Factor 1 of psychopathy, therefore we expected negative associations for these two factors with most facets of Agreeableness. Furthermore, since the Callous/Unemotional factor is tapping the affective deficits, we anticipated that this factor will be inversely related to anxiety (N1: Anxiety), warmth (E1: Warmth) and interests in emotions (O3: Openness to Feelings). The Grandiose/Manipulative factor taps interpersonal features of psychopathy, such as being self-confident, boastful, conning and self-centered. This interpersonal style overlaps considerably with the narcissistic personality disorder, of which the personality profile is characterized by low scores on Agreeableness and high scores on Extraversion (e.g. Assertiveness, E3) and Openness (Paulhus and Williams 2002). Therefore, we expected negative associations with Agreeableness and positive associations with Extraversion and Openness for the Grandiose/Manipulative factor. Given that the Impulsive/Irresponsibility factor of psychopathy is largely similar to Factor 2, we expected negative associations with all facets of Agreeableness and Conscientiousness. Additionally, we expected the Impulsive/Irresponsibility factor to be associated with high levels of Excitement-Seeking (E5) and low levels of friendliness towards others (E1: Warmth). Furthermore, we predicted that factor 2 would be related to psychological distress (N2: Angry Hostility, N3: Depression, N5: Impulsivity, N6: Vulnerability).

Method

Participants

Participants were recruited from a technical education school in Flanders, Belgium and assessments were part of a broader study on personality and antisocial behavior in adolescence. The sample consisted of 152 male adolescents and young adults between 15 and 20 years old (mean age= 204.95 months, SD=14.92).[1] All participants were Dutch speaking and most were of Belgian nationality (95.40%). Only male participants were included in the present study.

Measures

The Youth Psychopathic Traits Inventory (YPI; Andershed et al. 2002*)* assesses psychopathic traits in youths age 12 and older. It consists of 50 items using a four point Likert-

[1] Comparison with population-based norms for the domains of the NEO-PI-R provide further insight into our participants. Our sample was average on Neuroticism and Extraversion (Stanine score=5), considerably below average on Openness and Agreeableness (Stanine score=3), and low on Conscientiousness (Stanine score=2). To compute the stanine scores we used a Flemish norm group of adults, as no norms for adolescents were available. It should be noted that during the transition from adolescence to adulthood, Neuroticism, Extraversion and Openness tend to decline, whereas Agreeableness and Conscientiousness tend to increase (McCrae et al. 2005).

type scale. Its items are written in a positive or neutral manner to reduce the impact of social desirability. The factor structure of the YPI yields ten subscales that load on three higher-order factors: Callous/Unemotional (which includes Callousness, Unemotionality, and Remorselessness), Impulsive/Irresponsible (which includes Impulsivity, Thrill-Seeking, and Irresponsibility) and Grandiose/Manipulative (which includes Dishonest Charm, Grandiosity, Lying, and Manipulation). A study by Hillege et al. (2009) supported the internal consistency, factor structure, and construct validity of the Dutch YPI version.

Neuroticism, Extraversion, Openness Personality Inventory-Revised (NEO PI-R; Costa and McCrae 1992*).* The NEO-PI-R assesses five dimensions of personality (with each 6 lower-order facets): Neuroticism (N1: Anxiety, N2: Angry Hostility, N3: Depression, N4: Self-Consciousness, N5: Impulsivity, N6: Vulnerability), Extraversion (E1: Warmth, E2: Gregariousness, E3: Assertiveness, E4: Activity, E5: Excitement-Seeking, E6: Positive Emotions), Openness to Experience (O1: Fantasy, O2: Aesthetics, O3: Feelings, O4: Actions, O5: Ideas, O6: Values), Agreeableness (A1: Trust, A2: Straightforwardness, A3: Altruism, A4: Compliance, A5: Modesty, A6: Tender-Mindedness), and Conscientiousness (C1: Competence, C2: Order, C3: Dutifulness, C4: Achievement-Striving, C5: Self-Discipline, C6: Deliberation). Participants are asked to respond to 240 statements on a five-point Likert scale, ranging from '*strongly disagree*' to '*strongly agree*.' Although the NEO-PI-R was originally constructed for use in adulthood, recent research supports its reliability and validity in adolescence (De Fruyt et al. 2009).

Procedure

School approval, participants' oral assent, and parental written informed consent were obtained. Participation was voluntary and those who participated could win a gift voucher. The participants completed a broader set of questionnaires at different test sessions over the course of the academic year. The questionnaires used in the current study (YPI and NEO-PI-R) were administered at two different assessment occasions with a 12-month interval.[2] At the first assessment point, all students of the school between 9th and 11th grade were invited to participate. At the second assessment point, 63% (N=180) of the total sample at the first assessment point (N=285, initial response rate: 80.4%) still attended the same secondary school. They were invited to participate at the second assessment point; 89% (N=171) of the participants who were invited participated. Reasons for not participating were lack of parental permission or absence on the day of data collection. Only boys were included in the analysis; data from females (only 6%) were excluded. The data from nine young adults were excluded because their age exceeded 20 years, resulting in a total sample of 152 participants.[3] Research assistants were present during assessments to ensure that the adolescents/ young adults completed the questionnaires individually. They were also available to answer any questions regarding vocabulary or other queries about the questionnaires. Participants were encouraged to request clarification if any items were unclear.

Results

Descriptives

Internal consistencies (Cronbach's αs), means, and standard deviations for all measures in the correlational analyses are shown in Table 1.[4] The internal consistency of most (sub) scales can be considered as 'acceptable' to 'good', although some subscales showed an inadequate alpha (N5: Impulsivity, O4: Actions, O6: Values, A3: Altruism, A4: Compliance, A6: Tender-Mindedness, C3: Dutifulness). The three subscales of the YPI correlated moderately to highly (r's ranging from .38 to .65).

[2] A questionnaire that assesses the affective factor of psychopathic traits [The Inventory of Callous-Unemotional Traits (ICU); Frick 2004] was administered at both test sessions within the scope of the broader study. A correlation of r=.58 emerged between the ICU score at time 1 and the ICU score at time 2, suggesting that psychopathy scores were moderately stable. In general, the patterns of associations between the ICU and the NEO-PI-R facets were not affected by the time span between assessment points, but the magnitude of the correlations declined when measures were administered at different times. This finding suggests that the time span between the NEO-PI-R and the YPI administration would mainly affected the magnitude rather than the nature of the associations.

[3] An analysis of variance (ANOVA) was performed to compare the representativeness of the smaller subsample included in Time 2 to the original larger sample of Time 1. Questionnaires concerning temperament (BIS/BAS scales, Carver, and White 1994) and psychopathic traits (YPI: Andershed et al. 2002; ICU: Frick 2004) were filled in at Time 1. No significant differences in temperamental and psychopathic traits emerged between the participants participating at Time 2 and those who didn't [Behavioral Inhibition System (BIS): $F(1,284)=.02$, $p=.88$; Behavioral Activation System (BAS): $F(1,284)=.00$, $p=.99$; YPI Grandiose/Manipulative: $F(1,284)=.07$, $p=.79$; YPI Callous/Unemotional: $F(1,284)=1.47$, $p=.23$; YPI Impulsive/Irresponsible: $F(1,284)=.33$, $p=.57$; YPI Total : $F(1,284)=.02$, $p=.88$; ICU ($F(1,284)=1.75$, $p=.19$].

[4] Because only few differences emerged across age, the data were collapsed across age groups. Only two facets of the NEO-PI-R Assertiveness (E3) and Modesty (A5) were significantly associated with age (respectively $r=.30$, $p=.005$; $r=-.20$, $p=.014$). To further investigate age differences, we constructed younger and older participants groups, based on a median split (Me=203 months). A Box M test was performed to assess the homogeneity of the intercorrelations matrices of YPI and NEO-PI-R. The Box M test [$F(581, 65248)=1.04$; $p=0.25$], showed that the correlations matrixes between the YPI factors and NEO-PI-R facets/ domains did not differ significantly for the younger and the older participants.

Table 1 Means (M), standard deviations (SD) and internal consistency coefficients (α) of NEO-PI-R and YPI

		M	*SD*	α
YPI	Callous/Unemotional	1.00	0.44	.80
	Impulsive/Irresponsible	1.18	0.52	.83
	Grandiose/Manipulative	0.71	0.49	.90
NEO-PI-R				
Neuroticism		91.32	16.98	.86
	N1: Anxiety	15.18	4.56	.72
	N2: Angry Hostility	14.66	4.14	.63
	N3: Depression	15.05	4.55	.72
	N4: Self-Consciousness	15.21	4.66	.70
	N5: Impulsivity	18.47	3.75	.49
	N6: Vulnerability	12.76	3.71	.61
Extraversion		114.82	19.26	.89
	E1: Warmth	19.60	3.74	.64
	E2: Gregariousness	19.74	5.23	.76
	E3: Assertiveness	15.53	4.68	.76
	E4: Activity	17.54	4.75	.75
	E5: Excitement-Seeking	21.76	4.26	.63
	E6: Positive Emotions	20.65	4.28	.66
Openness		101.03	16.54	.83
	O1: Fantasy	19.52	5.38	.81
	O2: Aesthetics	15.06	4.92	.69
	O3: Feelings	18.96	3.93	.63
	O4: Actions	14.24	3.59	.43
	O5: Ideas	14.67	5.48	.75
	O6: Values	18.60	3.11	.31
Agreeableness		107.97	14.11	.81
	A1: Trust	17.17	3.96	.70
	A2: Straightforwardness	17.65	4.60	.67
	A3: Altruism	20.86	3.21	.55
	A4: Compliance	14.75	3.64	.47
	A5: Modesty	18.47	4.30	.74
	A6: Tender-Mindedness	19.07	3.21	.44
Conscientiousness		103.91	17.44	.88
	C1: Competence	18.76	3.30	.60
	C2: Order	15.69	4.41	.66
	C3: Dutifulness	19.83	3.69	.50
	C4: Achievement-striving	18.26	4.26	.69
	C5: Self-Discipline	17.02	4.26	.70
	C6: Deliberation	14.36	4.87	.77

In order to make the results of the Dutch/Flemish NEO PI-R directly comparable to the US means. the scores were re-scaled from 1 to 5 to a 0 to 4 scoring format.

Zero-order Correlations

To ascertain the relations between the psychopathy factors and the NEO-PI-R facets, we first computed the correlations between the NEO-PI-R domains/facets and the YPI psychopathy factors (Table 2). The zero-order correlations revealed numerous significant associations between the psychopathy factors and the FFM domains/facets without a clear differentiation for the three psychopathy factors. Given the high correlations of the three subscales of the YPI, clearer insight into the differential associations can be obtained by using partial correlations.

Partial Correlations

After partialling out scores on the other psychopathy subscales (Table 2), more distinct patterns of associations emerged, suggesting the presence of suppressor

Table 2 Bivariate and partial correlations between psychopathy factors and the NEO-PI-R domains and facets

	Callous/Unemotional		Grandiose/Manipulative		Impulsive/Irresponsible	
	Bivariate	Partial	Bivariate	Partial	Bivariate	Partial
Neuroticism	−.10	−.16*	.05	.03	.10	.11
N1: Anxiety	−.19*	−.23***	.02	.10	−.01	−.00
N2: Angry Hostility	.18*	.09	.20*	.05	.22**	.10
N3: Depression	−.10	−.16*	.04	.01	.10	.12
N4:Self-Consciousness	−.11	−.10	.00	.12	−.10	−.12
N5: Impulsivity	.02	−.08	.10	−.09	.27***	.29***
N6: Vulnerability	−.18*	−.14	−.17*	−.14	−.04	.11
Extraversion	−.10	−.23***	.14	.02	.26***	.26***
E1: Warmth	−.21**	−.29***	.08	.14	.06	.06
E2: Gregariousness	.24***	−.26***	−.16	−.25***	.12	.35***
E3: Assertiveness	.18*	.03	.31***	.18**	.25***	.06
E4: Activity	.02	−.09	.18*	.07	.21**	.14
E5:Excitement-Seeking	−.03	−.15	.12	−.07	.31***	.32***
E6: Positive Emotions	−.15	−.24***	.08	.06	.13	.14
Openness	−.25***	−.46***	.26***	.27***	.25***	.21*
O1: Fantasy	−.05	−.24***	.28***	.16*	.32***	.23***
O2: Aesthetics	−.27***	−.38***	.13	.21**	.09	.08
O3: Feelings	−.30***	−.43***	.11	.15	.15	.19*
O4: Actions	−.20*	−.23***	−.03	−.02	.06	.14
O5: Ideas	−.06	−.24***	.33***	.37***	.14	−.07
O6: Values	−.10	−.15	.01	−.07	.14	.21*
Agreeableness	−.44***	−.33***	−.33***	−.12	−.28***	−.02
A1: Trust	−.27***	−.18*	−.23***	−.09	−.19*	−.02
A2:Straightforwardness	−.24***	−.11	−.33***	−.17*	−.27***	−.05
A3: Altruism	−.43***	−.43***	−.09	.12	−.12	−.01
A4: Compliance	−.24***	−.18*	−.17*	−.02	−.17*	−.05
A5: Modesty	−.15	−.04	−.26***	−.21**	−.14	.06
A6: Tender-Mindedness	−.33***	−.33***	−.08	.08	−.11	−.02
Conscientiousness	.03	.08	.04	.29***	−.28***	−.42***
C1: Competence	.05	.06	.09	.22**	−.13	−.26***
C2: Order	.02	.10	−.03	.18*	−.28***	−.35***
C3: Dutifulness	−.04	−.02	.04	.19*	−.15	−.23***
C4: Achievement-Striving	.06	.01	.21**	.35***	−.09	−.31***
C5: Self-Discipline	.04	.06	.04	.15	−.14	−.23***
C6: Deliberation	−.03	.11	−.14	.11	−.36***	−.37***

*$p<.05$; ** $p<.01$; *** $p<.005$

effects. To minimize the possibility of Type I error, all partial correlations were evaluated against a critical alpha of .005.

At the domain level, the Callous/Unemotional factor showed negative associations with Extraversion, Openness and Agreeableness. At the facet level, the negative association with Extraversion was due mainly to the negative associations with Warmth (E1), Gregariousness (E2), and Positive Emotions (E6). The negative association of the Openness domain with the Callous/Unemotional dimension generalized across all Openness facets, except for Values (O6). Concerning Agreeableness, negative associations with Altruism (A3) and Tender-Mindedness (A6) emerged. Furthermore, a significant negative partial correlation between Anxiety (N1) and the Callous/Unemotional factor appeared.

At the domain level, the Grandiose/Manipulative dimension was positively related to Openness and Conscientiousness. At the facet level, the positive association with Openness was due mainly to positive correlations with Ideas (O5). The association with Conscientiousness facets was most strongly with Achievement-Striving (C4). Furthermore, a negative association for the Grandiose/Manipulative factor with Gregariousness (E2) emerged.

At the domain level, the Impulsive/Irresponsible factor showed a positive association with Extraversion and a negative association with Conscientiousness. At the facet level, the correlations revealed that all facets of Conscientiousness were inversely related to the Impulsive/Irresponsible dimension. The positive association between Extraversion and the Impulsive/Irresponsible factor was due mainly to positive associations with Gregariousness (E2) and Excitement-Seeking (E5). Furthermore, positive associations for the Impulsive/Irresponsible dimension with Impulsivity (N5) and Fantasy (O1) emerged.

Discussion

In a line with a dimensional model of personality disorders, the present study aimed to investigate psychopathic traits in youth as extreme variants of common dimensions of personality (Edens et al. 2006; Marcus et al. 2004; Murrie et al. 2007). Our study was among the first to examine relations at both the domain and facet levels, thereby providing a more complete and differentiated picture of the personality correlates of the three major psychopathy dimensions in a male sample of adolescents/ young adults.

The pattern of bivariate correlations between psychopathy factors and the FFM domains revealed a fairly undifferentiated picture for the three psychopathy factors. Negative associations with Agreeableness emerged across all three factors of psychopathy, which is consistent with the finding of Ross et al. (2009) that "Agreeableness is the FFM personality trait most related to overall psychopathy" (p. 74). As expected, Conscientiousness was associated mainly with the Impulsive/Irresponsible dimension.

Across previous studies, inconsistencies were found for the domains of Neuroticism, Openness to experience, and Extraversion (Lynam et al. 2005; Salekin et al. 2005). These inconsistencies could be due to the fact that (a) a focus on domain-level scores alone may mask opposing associations at the facet level, (b) the zero-order correlations may obscure differential associations at the construct level due to moderate to high associations between the three psychopathy factors, or both. As a consequence, we focused not only on the FFM higher-order domains but also on their constituent lower-order facets. In addition, to obtain a clearer insight into the correlates of the three factors of psychopathy, we computed partial associations between the three psychopathy factors and the FFM domains.

Partial Correlations Between Psychopathy Factors and FFM Domain/Facets

The Callous/Unemotional Dimension At the domain level, the Callous/Unemotional dimension was as expected negatively associated with Agreeableness, Extraversion and Openness. Further inspection of the results at the facet level shows that the Callous/Unemotional factor is associated with personality traits of being callous (e.g., negative associations with A6: Tender-Mindedness), uncaring (e.g., negative associations with N1: Anxiety, E1: Warmth, O2: Aesthetics, A3: Altruism) and unemotional (e.g., negative associations with E2: Gregariousness, E6: Positive Emotions, O1: Fantasy, O3: Feelings). This finding is consistent recent conceptualizations of CU traits as comprising callousness, lack of caring and lack of emotional reactivity (see, e.g., Essau et al. 2006). The negative association with Anxiety (N1) requires further comment. Although Cleckley (1976) described psychopaths as low in anxiety, this trait has been excluded from most widely used psychopathy instruments (e.g., the PCL-R; but see Lilienfeld and Andrews 1996, for the construction of the Psychopathic Personality Inventory's Stress Immunity subscale). Some previous studies revealed a suppression effect, in which the Callous/Unemotional factor bears a significant association with anxiety only after the variance shared with other psychopathy factors is removed (e.g., Frick et al. 1999). In the present study, this suppression effect was not marked. The negative association supports the longstanding contention that primary psychopathy, ostensibly marked by Callous/Unemotional traits in adolescents, is characterized by low anxiety.

The Grandiose/Manipulative Dimension Concerning the Grandiose/Manipulative factor at the domain level, the expected negative zero-order correlation with Agreeableness became nonsignificant after partialling out the other psychopathy factors. Furthermore, the expected positive association with Openness was confirmed. In the present study, no significant association for the Extraversion domain was found at the domain level. This finding may reflect opposing associations at the facet level (negative with E2: Gregariousness, and positive with E3: Assertiveness). Strikingly, positive partial correlations emerged for the Conscientiousness domain (perhaps reflecting the planning and forethought involved in manipulating others), whereas for the Impulsive/Irresponsible factor, negative associations emerged as expected. The YPI Grandiose/Manipulative factor, like the Psychopathic Personality Inventory factor of Machiavellian Egocentricity (Lilienfeld and Andrews 1996), can be described by such traits as confidence, boastfulness, and a conning and self-centered interpersonal style. This result is consistent with Cleckley's (1967) conceptualization of psychopathy as marked by a grandiose sense of self and a pervasive style of acting against others (Ross et al. 2004). Furthermore, the Grandiose/Manipulative factor can be described as associated with an openness to ideas and an achievement-oriented style.

The Impulsive/Irresponsible Dimension At the domain level, the expected negative association between the Impulsive/Irresponsible factor and Conscientiousness was found. The positive zero-order correlation with Agreeableness became non-significant after partialling out the other psychopathy factors. No significant association between the Impulsive/Irresponsible factor and Neuroticism emerged at the domain level. A possible explanation for this negative finding is our reliance on self-report. The meta-analysis of Decuyper et al. (2009b) showed that the associations between psychopathic traits and Neuroticism depend on the informant: significant (positive) associations emerged for maternal ratings, but not for self-reports. Additionally, a positive association with Extraversion emerged, which is in line with the results from expert ratings in Lynam and Widiger (2007). Whiteside and Lynam (2001) argued that the FFM provides a vehicle for describing different forms of impulsivity. They proposed four FFM facets situated on three separate higher order domains that represent distinct pathways to impulsive behavior: Impulsivity (N5), Excitement-Seeking (E5), Self-Discipline (C5), and Deliberation (C6). As could be expected, all four of these personality facets showed significant partial correlations with the Impulsive/Irresponsible factor of psychopathy. This factor also includes other facets related to an irresponsible lifestyle (negative associations with the other facets of Conscientiousness) and includes being sociable, outgoing (positive association with E2: Gregariousness), and holding unrealistic and imaginative ideas (positive association with O1: Fantasy).

Implications and Advantages of the Conceptualization of Psychopathic Traits in Terms of the FFM

Several of the predicted associations between the facets of the FFM and the psychopathy factors were not confirmed in the present study and several of the associations that emerged were not predicted. These discrepancies could stem from the fact that our hypotheses were formulated on previous studies that used zero-order rather than partial correlations. The discrepancies could also reflect the finding that different self-report psychopathy measures display different patterns of associations with the FFM facets (Ross et al. 2009). Therefore, the differences between the personality correlates of different psychopathy measures require further exploration. Nevertheless, the conceptualization of psychopathic traits in terms of general personality traits has several implications and advantages.

First, the associations with the FFM facets may provide further insight into both the maladaptive and adaptive characteristics associated with psychopathic traits in youth. Widiger (1993) argued that dimensional models of personality disorders are more veridical than categorical models. Using normal-range personality traits to describe children could also temper ethical objections about labeling them as psychopathic.

Second, the FFM perspective could provide further clarification concerning the factor structure of psychopathy. The differential associations with the FFM facets can be important in the ongoing discussion of how many factors underlie the psychopathy construct. The results of the present study refine the differential personality correlates captured in a three factor structure of psychopathic traits. The differential pattern of associations with FFM facets for the Callous/Unemotional and Grandiose/Manipulative factors suggests that the affective and the interpersonal features of psychopathy may need to be separated in studies of youths.

Third, the FFM could provide insight into the etiology of psychopathy in that different disturbed processes related to psychopathy could be related to different FFM facets. Widiger and Lynam (1998) suggested that the finding that psychopathy is characterized by low levels of Conscientiousness (especially C5: Self-Discipline and C6: Deliberation) fits with the response modulation deficits of psychopathy. Conscientiousness may be partially related to aspects of inhibitory control (Depue 1996), which is posited to be dysfunctional in psychopathy in the influential response modulation model (Patterson and Newman 1993). In the present study, negative associations were especially evident for the Impulsive/Irresponsible factor, consistent with Ross et al.'s (2004) assertion that "If Conscientiousness is a trait manifestation underlying response modulation deficits, then it would appear that deficits in passive avoidance may be more of a problem for secondary psychopaths than primary psychopaths" (p. 220). Moreover, theories regarding the lack of empathic understanding in psychopathy (Williamson et al. 1991) might predict negative associations with Openness (and especially with Openness to O3: Feelings) and Agreeableness (especially A1: Trust, A3: Altruism, A6: Tender-Mindedness). In the present study, this pattern of associations emerged especially for the Callous/Unemotional factor.

Limitations of the Current Study

The current study suffers from several limitations. First, because the results were solely derived from self-report measures, the reported correlations may have been inflated due to mono-method bias.

Second, some of the subscales assessing FFM facets demonstrated insufficient internal consistency, which may have attenuated the magnitudes of the correlations. Furthermore, to minimize the possibility of Type I error, all partial correlations were evaluated against a critical alpha of .005.

Third, there was a time span of 12 months between two assessment occasions, potentially decreasing the magnitude

of the correlations. Nevertheless, the present subsample was representative for the larger original sample with regard to scores on psychopathy and temperamental traits. Nevertheless, given the long time interval between the administrations of YPI and NEO-PI-R, comparisons of the magnitude of correlations with those of studies in which personality traits and psychopathic traits are measured concurrently should be made with caution. Both the NEO-PI-R and the YPI (Costa and McCrae 1992; Forsman et al. 2008), however, show high test-retest reliability over lengthy intervals (respectively 6 years and 3 years), suggesting that scores derived from these measures would be expected to display reasonably high consistency after a 1 year administration.

Fourth, the data were gathered in a male community sample with relatively low levels of psychopathy. However, as noted by Harpur et al. (1994), it is important to extend research on psychopathic traits to community samples, which are presumably more representative of the broader population. In addition, despite the importance of studying psychopathic traits in girl samples, only male participants were included in the present study. Silverthorn et al. (2001) found that the etiology of conduct disorder and role of psychopathic traits may differ in boys and girls. Specifically, they found that the adolescent-limited conduct disorder in girls showed similarities (with respect to associations with CU traits and other dimensions of child psychopathy) with early-onset conduct disorder (which may be highly associated with risk for psychopathy) in boys. In addition, because the present sample was Flemish, further examination of the generalizability of our findings to other cultures is warranted. Nevertheless, preliminary evidence suggests that psychopathy findings from Flemish and other European samples may generalize well to North American samples (e.g. Decuyper et al. 2009a; see also Sullivan and Kosson 2006).

Fifth and finally, partial correlations were used to investigate the differential associations among the three correlated factors of psychopathy. Lynam et al. (2006) contended that researchers should interpret the results from partialling analyses with caution. As they noted, by carving out substantial variance from each factor that is relevant to the underlying construct(s) assessed by each factor, partial correlations may miss theoretically important bivariate relations. Nevertheless, such partial correlations offer distinctive and theoretically useful information about how the unique variance in each psychopathy dimension is related to the FFM. In this way, they may further inform ongoing efforts to clarify the correlates and meaning of psychopathy in youth (Salekin and Lynam 2010).

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