# Variants of psychopathy, and the dependence on gender, age, and ethnic background

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**Abstract**

The current study examines variants of psychopathy in a community sample of Dutch adolescents (N = 2,855, 57% male) using three dimensions of psychopathy and trait anxiety. Five subgroups were identified of which two with high levels of psychopathic traits. The first seemed consistent with primary psychopathy, high on all dimensions with additional low levels of anxiety, whereas the second variant showed elevated levels of anxiety, consistent with secondary psychopathy. Two variants low on psychopathic traits were identified: a low-risk variant, and an anxious variant. Furthermore, a moderate-risk group was found, with slightly above average psychopathy traits, and average levels of mental health problems. The secondary psychopathy and the anxious variant reported the most problem behaviors. Girls, younger adolescents, and non-Western immigrant youth were overrepresented in the secondary group. These findings show that in a community sample psychopathy is a heterogeneous phenomenon.

*Keywords*: Psychopathic traits, Youth Psychopathic traits Inventory, psychopathy variants, primary psychopathy, secondary psychopathy

Psychopathy is a personality disorder characterized by interpersonal (e.g., superficial charm, manipulation, grandiosity, and lying), affective (e.g., lack of remorse or shame, shallow emotions, and callousness), and behavioral or lifestyle traits (e.g., impulsivity, need for excitement, and irresponsibility; Cooke & Michie, 2001). Despite evidence for the existence of subtypes that differ in phenotypic expression, external correlates, and etiology, psychopathy has often been viewed as an undifferentiated construct (Arieti, 1963; Blackburn, 1975; Drislane et al., 2014; Hervé, 2007; Karpman, 1941; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003; Yildirim & Derksen, 2015). The current study aims to contribute to the literature on identifying and differentiating between variants of psychopathy in a large community sample of Dutch adolescents.

Among the first to distinguish variants of psychopathy, Karpman (1941) noted two groups that seemed largely similar with regard to phenotypic behavior. These variants could be distinguished by their etiology and thus, have different treatment needs and responses (Skeem et al., 2003). Primary psychopathy was conceptualized as a heritable deficit in emotional sensitivity, typically lacking anxiety and fear, whereas secondary psychopathy was thought to develop due to environmentally acquired affective disturbances, exhibiting high levels of anxiety and depression, anger, aggression and impulsiveness (Karpman, 1948). Secondary psychopathy was viewed as a process of adaptation to environmental disturbances such as abuse or trauma, and was deemed more susceptible to treatment compared to primary psychopathy. Other scholars also conceptualized a genetically based variant and a variant with psychopathic traits caused by competition for scarce resources (Mealey, 1995) or by other negative environmental experiences (i.e., child abuse, trauma) which cause children to become dissociated with their emotions (Porter, 1996). Blackburn (1975) empirically identified two variants of psychopathy in non-psychotic male offenders; one variant with low levels of neuroticism which represented the more genetically-based primary psychopathy, and

one variant with high levels of anxiety, depression, and impulsivity which Blackburn labeled secondary psychopathy. Further conceptualizations of primary and secondary psychopathy resulted in studies using an additional anxiety measure to distinguish individuals who score high on psychopathy into low-anxious and high-anxious variants, resembling primary and secondary subtypes respectively (e.g., Skeem, Johansson, Andershed, Kerr, & Louden, 2007).

Recent research has provided more empirical evidence for a distinction between two groups of individuals scoring high on psychopathy measures (e.g., Hicks, Markon, Patrick, Krueger, & Newman, 2004; Skeem et al., 2007). For example, Hicks et al. (2004) found two subtypes in prisoners scoring high on psychopathy, labeled emotionally stable and aggressive, that resemble primary and secondary psychopathy. However, some scholars doubt whether aggressive psychopathy should be understood as secondary or symptomatic psychopathy (Hervé, 2007; Mokros et al., 2015), or rather as a different type of idiopathic psychopathy (cf. Arieti, 1963; Karpman, 1948). Subgroups of individuals scoring high on psychopathy have been found in youth offender samples (Kimonis, Frick, Cauffman, Goldweber, & Skeem, 2012; Lee, Salekin, & Iselin, 2010; Vaughn, Edens, Howard, & Smith, 2009), and adult and youth community samples (e.g., Coid, Freestone, & Ullrich, 2012; Colins, Fanti, Salekin, & Andershed, 2016; Drislane et al. 2014; Docherty, Boxer, Huesmann, O'Brien, & Bushman, 2016; Fanti, Demetriou, & Kimonis, 2013; Falkenbach, Reinhard, & Arson, 2017; Vincent, Vitacco, Grisso, & Corrado, 2003). Compared to primary psychopathy, secondary psychopathy during adolescence has been found to be associated with emotional instability, withdrawal (Skeem et al., 2007), negative affect (Gill & Stickle, 2016), lower levels of self-esteem (Fanti et al., 2013), reactive aggression, greater histories of childhood maltreatment (Kimonis, Skeem, Cauffman, & Dmitrieva, 2011), delinquency (Vaughn et al., 2009), depression (Kimonis et al., 2012), and internalizing psychopathology (Poythress et al., 2010). Because secondary psychopathy has been found to be related to more negative outcomes,

youth with this variant have been thought to be at a higher and unique risk of clinical problems (Gill & Stickle, 2016).

Some studies that examine variants of psychopathy have taken gender into account (e.g., Colins et al., 2016; Falkenbach et al., 2017; Fanti et al., 2013; Gill & Stickle, 2016). Even though both primary and secondary variants have been found in males and females (Falkenbach et al., 2017; Hicks et al., 2004), studies suggest that males are overrepresented in the primary group, whereas females are overrepresented the secondary psychopathy group (Falkenbach, Stern, & Creevy, 2014; Fanti et al., 2013; Gill & Stickle, 2016; Meehan, Maughan, Cecil, & Barker, 2016). In addition, females with a psychopathic personality, especially secondary psychopathy, may be more pathological and aggressive (Falkenbach et al., 2017), and show less physical aggression but more relational aggression, anxiety, and PTSD symptoms (Colins et al., 2016) than males. Together these differences show the significance of taking gender into account in studies on psychopathy.

**Current Study and Hypotheses**

The current study examines whether the three dimensions of the Youth Psychopathic traits Inventory (YPI), a self-report assessing psychopathic traits (i.e., interpersonal, affective, and behavioral aspects) in community samples of adolescents (Andershed, Kerr, Stattin, & Levander, 2002), together with level of anxiety can be used to identify variants of psychopathy in a large community sample of Dutch adolescents. Studying a large community sample expands the knowledge on the total continuum of the psychopathy construct, also including the lower end of the spectrum (Falkenbach et al., 2014). To our knowledge, the present study is the first to examine variants of psychopathy using the three dimensions of the YPI and anxiety in a large community sample of adolescents. Previous studies have shown that the three dimensions of psychopathy and anxiety combined yield different variants in male juvenile offenders (Kimonis et al., 2012), and the current study can give more insight in

whether the variants are already visible in youth from the general population. Different from other studies that focused only on callous-unemotional traits among youth (e.g., Gill & Stickle, 2016; Meehan et al., 2016), the current study takes into account all three dimensions of psychopathy. By doing so, intervention efforts can be more specifically focused based on the needs of youth differentiated on the three psychopathy dimensions (i.e., interpersonal, affective, and lifestyle dimensions) in combination with different levels of anxiety. In addition, group differences between gender, age, and ethnic background will be examined to validate the relevance of the variants of psychopathy across these demographic variables (Yildirim & Derksen, 2015). Based on findings of previous studies (Docherty et al., 2016; Fanti et al., 2013), we expected to find four groups: (1) a variant high on all dimensions of psychopathic traits and low on anxiety ("PP/ANX-"), that resembles primary psychopathy; (2) a variant high on all dimensions of psychopathic traits, especially the lifestyle dimension, and high on anxiety ("PP/ANX+"), that resembles secondary psychopathy; (3) a low-risk group, low on the dimensions of psychopathic traits and low on anxiety; and (4) an anxious group, low on the dimensions of psychopathic traits, but high on anxiety.

To validate the subgroups, we compare the groups on conduct problems, hyperactivity, emotional problems, peer problems, prosocial behavior, and self-esteem. Psychopathy has been related to increased problem behavior (Dolan & Rennie, 2007), and the second hypothesis is that the two high-scoring psychopathy variants will score higher on problem behavior scales and lower on prosocial behavior than the low-risk or anxious subgroup (e.g., Fanti et al., 2013; Poythress et al., 2010; Skeem et al., 2007). Moreover, secondary psychopathy is theorized to be caused by negative environmental disturbances such as maltreatment, and low self-esteem is common among maltreated youth (e.g., Kim & Cicchetti, 2004). Therefore, our third hypothesis is PP/ANX+ to score lower on self-esteem than PP/ANX-. Fourth, we expect that youth in the PP/ANX- group does not differ from low-

risk youth on emotional problems and self-esteem. Primary psychopathy has been found to be characterized by relatively normal scores on personality measures (Hicks et al., 2004) and better adjustment than the secondary variant (Fanti et al., 2013; Meehan et al., 2016). Because anxiety, emotional problems, and peer problems are internalizing problems (Van Widenfelt, Goedhart, Treffers, & Goodman, 2003), our fifth hypothesis is that the anxious group will report more emotional problems and peer problems than the other groups.

Moreover, we aimed to distinguish the subgroups on differences in gender, age, and ethnic background. Based on previous studies, we expected that both psychopathy variants will be more representative of boys than girls (e.g., Fanti et al., 2013). Furthermore, most research has been conducted in North American and Western European males, and it is unclear how the expression of psychopathy generalizes to other cultures and ethnicities (Yildirim & Derksen, 2015). Because different ethnic groups were evenly distributed between primary and secondary variants in previous research, no differences between native Dutch, Western immigrant and non-Western immigrant youth are expected (Docherty et al., 2016; Hicks et al., 2004; Kahn et al., 2013). Furthermore, because the distinction between the variants of psychopathy has been found in both youth and adults, we do not expect differences between younger and older adolescents (Kahn et al., 2013; Lee et al., 2010).

## Methods

### Participants

Participants were 2,874 adolescent students from 21 junior vocational high schools and five senior vocational high schools across the Netherlands. Nineteen participants did not finish the questionnaire, leaving 2,855 participants who were included in the analyses. Fifty-seven percent of the participants were male ($n$ = 1,635). The average age was 14.47 years ($SD$ = 1.69). Fifty-one participants did not report their age. In the current study we distinguished younger (12 – 15 years old; $n$ = 2,152) and older (16 – 24 years old; $n$ = 640) youth.

Adolescents' ethnic background was determined based on the birthplace of the (grand)parents. In order to be classified as an immigrant, at least two grandparents had to be born in the same country outside the Netherlands. When only one grandparent was born outside the Netherlands, the participant was classified as native Dutch. There were 99 participants who did not know their grandparents' birthplace. We classified them based on their parents' or their own birthplace. The sample was diverse in ethnic background: 55% was of native-Dutch origin, 10% had a Moroccan-Dutch background, 8% had a Turkish-Dutch background, 8% was of Surinamese-Dutch origin, 4% of Antillean-Dutch origin, and 16% had other ethnic backgrounds, such as Indonesian, Chinese, or German. Following Statistics Netherlands (2000), we distinguished three groups: 1,554 adolescents were native-Dutch, 209 adolescents had a Western immigrant background (i.e., from E.U.-member states), and 1,109 a non-Western immigrant background (e.g., Surinamese or Moroccan).

**Measures**

**Youth Psychopathic traits Inventory.** The YPI (Andershed et al., 2002) is a 50-item self-report measure to assess the 'core' traits of psychopathy in youth from the general population. The measure consists of ten subscales (e.g., Dishonest Charm, Grandiosity, Lying, Manipulation, Remorselessness, Unemotionality, Callousness, Thrill Seeking, Impulsiveness and Irresponsibility), loading onto three dimensions; an interpersonal (Grandiose/Manipulative), an affective (Callous/Unemotional), and a lifestyle dimension (Impulsive/Irresponsible). Participants were asked to indicate to which degree the 50 statements applied to them on a four-point Likert scale, ranging from 1 (*does not apply at all)* to 4 (*applies very well*). Sample items are, "When I need to, I use my smile and my charm to use others", "When other people have problems, it is often their own fault, therefore, one should not help them", and "I get bored quickly by doing the same thing over and over" for the interpersonal, affective, and lifestyle dimension respectively. Higher scores indicate

higher levels of psychopathic traits. We used the Dutch translation of the YPI (Das & De Ruiter, 2003), which has adequate construct validity (Hillege, Das, & De Ruiter, 2010). Internal consistency as estimated with MacDonald's omega (ω) for the dimension scores were moderate to good. For the interpersonal dimension ω was .78, for the affective dimension ω was .63, and for the lifestyle dimension ω was .69.

**State-Trait Anxiety Inventory.** The State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) consists of two questionnaires. Only the 20 items assessing trait anxiety (STAI-T) were used. Participants answered on a four-point Likert-scale ranging from 1 (*almost never*) to 4 (*almost always*) whether they agreed with the statements. Ten items were positively stated (anxiety present, e.g., "I worry too much over something that does not really matter") and ten items were negatively stated (anxiety absent; e.g., "I am a steady person"). The official Dutch translation of the STAI was used, which has adequate construct validity (Van der Ploeg, 2000). Internal consistency of the STAI-T scores was adequate (MacDonald's ω = .87). Higher scores indicated higher trait anxiety.

**Strengths and Difficulties Questionnaire – Self-Report.** The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is a short behavioral screening instrument for youth. The official Dutch translation of the SDQ was, which has adequate concurrent validity, and moderate to good internal consistency for each subscale (Van Widenfelt et al., 2003). The 25 items of the SDQ can be divided into five subscales, each consisting of five items. The subscales are emotional problems (e.g., "I have many fears, I am easily scared"), conduct problems (e.g., "I fight a lot. I can make other people do what I want"), hyperactivity/inattention (e.g., "I am constantly fidgeting or squirming"), peer relationship problems (e.g., "I would rather be alone than with people of my age"), and prosocial behavior (e.g., "I am kind to younger children"). Participants were asked to indicate to which degree they rate an item as true for themselves on a three-point ordinal scale: (1) *not true*, (2)

*somewhat true*, or (3) *certainly true*. For emotional problems, we found an ω of .75 , an ω of .66 for conduct problems, an ω of .77 for hyperactivity, an ω of .54 for peer problems, and an ω of .73 for prosocial behavior.

**Rosenberg Self-Esteem Scale.** The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a 10-item self-report measure for global self-esteem in adolescence and adulthood. The Dutch translation of the RSES was used in the present study, which showed high congruent validity (Franck, De Raedt, Barbez, & Rosseel, 2008). The participants rated how they feel in general on a four-point scale, ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). Items were both positively stated (e.g., "I take a positive attitude toward myself") and negatively stated (e.g., "I feel I do not have much to be proud of"). Internal consistency in the present study amounted to an ω of .82. Higher scores indicated higher self-esteem.

**Procedure**

Schools across the Netherlands were approached for participation. Parents of participants in junior vocational high schools were asked to sign a consent form. Participants from senior vocational high schools were all over 16 years of age, and hence signed their own consent form. Of all adolescents and their parents who were asked for participation, 3% declined to participate. The questionnaires were digitally administered in a classroom setting. Before completing the questionnaires, students received a short instruction explaining the research aims. In addition, students were informed that completing the questionnaire was voluntary and anonymous and that the information they provided would be treated confidentially. During the administration of the questionnaire, two members of the research team were always present to answer questions. The teacher was present but not involved. The Institutional Review Board of Ethics approved of the study.

**Statistical Analyses**

Latent profile analysis (LPA) was used to identify distinct variants of psychopathy, based on the interpersonal, affective, and lifestyle dimension of the YPI, and anxiety as continuous indicators. The analyses were run using Mplus 7 statistical software (Muthén & Muthén, 2010). LPA is an extension of latent class analysis that uses continuous indicators rather than categorical indicators in that every individual gets an allocation probability assigned for each latent class. Based on the maximum allocation probabilities, individuals are categorized into manifest clusters. Several separate LPA models are specified that differ in the number of classes to examine the optimal number of groups to retain. To compare the various models, different statistical criteria were used, including the Bayesian information criterion (BIC) and the Lo-Mendel-Rubin (LMR) statistic. The model with the lowest BIC value is preferred. The LMR statistic tests $k - 1$ classes against $k$ classes, and a significant $p$-value suggests that the model with $k$ class model is preferred over the $k - 1$ class model (Lo, Mendell, & Rubin, 2001). Finally, entropy values and posterior probabilities greater than .70 are preferred, which indicates clear and more precise classification and greater power to predict class membership and degree to which classes are distinguishable (Nagin, 2005). The scores of the interpersonal, affective, lifestyle dimensions and trait anxiety were standardized ($z$-scores) for ease of interpretation, before they were used as indicator variables. Chi-square analyses were used to examine whether variants were dependent on gender, ethnic background, and age-groups. Multivariate analyses of variance (MANOVA) were performed to examine main effects of the variants on mental health problems, and gender, ethnic background, and age-groups were added to test their interaction-effects with psychopathy variants. Wilks' lambda was reported as test statistic for the MANOVA (Haase & Ellis, 1987).

## Results

Means, standard deviations and correlations for the main variables in the study are reported in Table 1. The three dimensions were correlated, and the interpersonal and lifestyle dimensions were related to trait anxiety, whereas the affective dimension was unrelated to trait anxiety. All problem behaviors were positively related to the three psychopathy dimensions and anxiety, except for emotional problems. The latter was negatively related to the affective dimension. Higher levels of prosocial behavior were related to less psychopathic traits and anxiety. General self-esteem was negatively related to the lifestyle dimension and anxiety, but positively to the affective dimension, and unrelated to the interpersonal dimension.

**Distinguishing Subgroups**

To identify the optimal number of groups to retain, models with one to six classes were estimated using LPA. The BIC statistic increased from Class 5 (BIC=12881.65) to Class 6 (BIC=12944.53) and decreased from Class 4 (BIC=13065.78) to Class 5. In addition, the LMR statistic fell out of significance for the six-class model ($p$ = .22). Thus, the 5-class model better represented the data based on the BIC and LMR statistics. The mean posterior probability scores ranged from .84 to .93 and the entropy value was .79, suggesting that the identified classes were well separated.

Figure 1 shows the standardized scores and 95% confidence intervals of the groups that were found. The majority of the youth fell into a group labeled ‘low-risk group’ ($n$ = 1,260, 44.2%), which was characterized by low scores on the three psychopathy dimensions and low anxiety scores. A second group of youth, labeled ‘moderate-risk’ ($n$ = 889, 31.1%), was characterized by slightly above average scores on the psychopathy dimensions, and low anxiety scores. A third group, labeled ‘anxious’ ($n$ = 183, 6.4%), showed scores below average on the interpersonal and affective dimension, moderate lifestyle scores, and high anxiety scores. Youth in the fourth group, ‘PP/ANX-’ ($n$ = 302, 10.6%), had high scores on

all three psychopathy dimensions and low anxiety scores. Youth in the 'PP/ANX+' group ($n$ = 219, 7.7%) scored high on all three psychopathy dimensions and also showed a higher than average score on anxiety.

Chi-square analyses showed that proportionally more girls than boys were included in the anxious group, and also, albeit to a lesser extent, in the low-risk group [$\chi^2(4, N = 2{,}855) = 283.90$, $p < .001$] (see Table 3). Boys were more likely to be in the PP/ANX-, PP/ANX+, and moderate-risk group compared to girls. Furthermore, there was significant variation by age [$\chi^2(4, N = 2{,}804) = 9.89$, $p = .042$], with older youth slightly more likely to be in the PP/ANX- group, and younger youth more likely to be in the anxious, and PP/ANX+ group. There were no differences in age in the low-risk and moderate-risk groups. Finally, there appeared significant variation by ethnic background [$\chi^2(8, N = 2{,}853) = 36.53$, $p < .001$]. Non-Western immigrants were slightly more likely than native Dutch and Western immigrants to be in the PP/ANX+ group. In addition, native Dutch youth were more likely to be in the anxious group.

**Validation of the Subgroups**

As shown in Table 2, the MANOVA results comparing differences between the groups on the subscales of the SDQ emotional problems, conduct problems, hyperactivity, peer problems, prosocial behavior, and the Rosenberg Self-Esteem Scale, identified main effects for the subgroups [Wilks' Lambda = .50, $F(24, 9901) = 89.56$, $p < .001$, $\eta^2 = .16$]. The low-risk group showed the lowest levels of problem behavior and highest levels of prosocial behavior and self-esteem compared to the other groups. The moderate-risk group showed slightly elevated levels of conduct problems, hyperactivity, peer problems, and a little less prosocial behavior compared to the low-risk group. The anxious group reported high levels of emotional problems similar to the moderate-risk group, the highest levels of hyperactivity, and the lowest self-esteem levels, but similar levels of prosocial behavior to the low-risk group. PP/ANX- showed the same low levels of emotional problems as the moderate-risk and

low-risk groups, the same low levels of peer problems as the moderate-risk group, and the same high levels of self-esteem as the low-risk group. Furthermore, the PP/ANX- group showed above average conduct problems and hyperactivity, and below average prosocial behavior. The PP/ANX+ group reported the highest levels of conduct problems and peer problems, above average hyperactivity similar to the anxious group, and above average emotional problems. Furthermore, prosocial behavior and self-esteem were low and below average.

**Group differences.** The MANOVA showed that there were no interaction-effects between subgroups and gender [Wilks' Lambda = .99, $F(24, 9884) = 1.03$, $p = .418$, $\eta^2 = .00$], and between subgroups and age-groups on mental health outcomes [Wilks' Lambda = .99, $F(24, 9706) = 1.29$, $p = .158$, $\eta^2 = .00$], indicating no differences between variants in relation to mental health measures across gender and age (means and standard deviations in supplemental Table S1). Furthermore, there was a small significant interaction-effect between subgroups and ethnic background [Wilks' Lambda = .97, $F(48, 13909) = 1.70$, $p = .002$, $\eta^2 = .01$]. In the low-risk group, native Dutch youth reported the highest level of emotional problems (see Figure 2a). In the anxious group Western immigrants reported most emotional problems, and least emotional problems were reported by non-Western immigrant youth. In the PP/ANX+ group, Western immigrants reported less emotional problems than the native Dutch and non-Western immigrants [$F(8, 2831) = 3.06$, $p = .002$, $\eta^2 = .01$]. In the anxious and PP/ANX- group the native Dutch youth reported the least prosocial behavior, whereas in the PP/ANX+ group these youth reported most prosocial behavior, and Western immigrant youth the least [$F(8, 2831) = 2.02$, $p = .040$, $\eta^2 = .01$] (see Figure 2b). In the low-risk and moderate-risk groups youth reported similar prosocial behavior for all ethnic backgrounds. In addition, in the low-risk, moderate-risk, and anxious group, native Dutch youth reported less self-esteem than the non-Western and Western immigrant youth [$F(8, 2831) = 2.68$, $p = .006$, $\eta^2 =$

.01], and in the moderate-risk group self-esteem levels were highest for Western immigrants (see Figure 2c). Furthermore, in the PP/ANX+ group, Western immigrant youth reported the least self-esteem.

## Discussion

The current study aimed to distinguish variants of psychopathy in a community sample of Dutch youth using the three dimensions of psychopathy and trait anxiety. Five subgroups were distinguished, of which two with high levels of psychopathic traits, a low-risk group, an anxious group, and a moderate-risk group. As hypothesized, one of the variants with high levels of psychopathic traits had low levels of anxiety, that seems consistent with the conceptualization of primary psychopathy. Similar to findings from earlier studies, this group showed low internalizing problems, high externalizing problems (e.g., Drislane et al., 2014), and high levels of self-esteem comparable to those in the low-risk group (Fanti et al., 2013). The other variant scored even higher on all three psychopathy dimensions and showed elevated levels of anxiety consistent with secondary (or symptomatic) psychopathy (Arieti, 1963; Karpman, 1948). This variant showed the highest mental health problems, and low self-esteem (e.g., Fanti et al., 2013; Skeem et al., 2007). This is consistent with the idea that secondary psychopathy is related to more negative outcomes than primary psychopathy (Gill & Stickle, 2016), and that treatment should be adapted to the variant of psychopathy (Skeem et al., 2003). Moreover, unlike other studies (e.g., Hicks et al., 2004), and comparable to the findings of Olver, Sewall, Sarty, Lewis, and Wong (2015), youth with a non-Western ethnic background were more likely to be found in the high-anxious psychopathy variant compared to native Dutch and Western immigrant youth. Non-Western immigrants in the Netherlands are more often unemployed, less educated, and experience a lower socio-economic status than native Dutch youth (Statistics Netherlands, 2016). These are indicators of negative environmental circumstances which have been theorized to be related to the development of

secondary psychopathic traits (Mealey, 1995; Porter, 1996). This would suggest that our findings on the group high on psychopathy and anxiety are consistent with the conceptualization of symptomatic psychopathy (Arieti, 1963; Mealey, 1995).

As expected, boys were more present in both psychopathy variants than girls, whereas girls were more likely to be in the low-risk and anxious group. This might be explained by gender differences in socialization (Fanti et al., 2013). Girls are taught to show more prosocial and empathic behavior from an early age (Eagly, 2009), not consistent with psychopathic traits. A higher proportion of girls in the anxious group is also consistent with the differential socialization hypothesis, that posits that parents and teachers show sex-differentiated responses to girls that channel girls' problems to become internalizing problems (Keenan & Shaw, 1997). Furthermore, boys and girls in the PP/ANX- and PP/ANX+ group showed similar levels of mental health problems, indicating that low-anxious and high-anxious psychopathy manifestations are similar for boys and girls.

In addition, consistent with previous research in community samples (Docherty et al., 2016; Fanti et al., 2013), a low-risk group and an anxious group were distinguished. The anxious group showed high levels of problem behaviors, but also high prosocial behavior, while the low-risk group reported the least problem behaviors. An unexpected finding in the current study was that of a fifth group that represented a moderate-risk group. This group was represented by above average levels of psychopathic traits and low anxiety levels, but did not report high levels of mental health problems. Possibly, this subgroup represents a group of youth that has a predisposition of psychopathic traits that did not develop into psychopathy. Another possible explanation is that this is a group, although not the largest, that reported typical normative adolescent levels of psychopathic traits, characteristic of the age group in this sample.

**Limitations and Future Research**

A limitation of the current study is that psychopathic traits, as well as problem behavior and self-esteem were assessed with self-report measures. Previous research has shown that parents of youth with primary psychopathy traits reported more problems for these youth than the youth reported themselves (Kahn et al, 2013). Youth in the primary variant may minimize their behavioral difficulties due to intentional deception, to indifference about the effects of their behavior on others (Kahn et al., 2013), or to youth's incapability to recognize own behavior as problematic, while other persons do perceive problems (Lilienfeld & Fowler, 2006). Future research should attempt to examine behavioral problems of youth high on psychopathic traits with multi-informant approaches (Kahn et al., 2013).

Moreover, in the current sample the group of Western immigrants was small compared to the native Dutch and non-Western immigrants. Although the percentage of Western immigrants in the sample was almost similar to the percentage in the general population (7% in the study versus 9% in the Dutch population; Statistics Netherlands, 2014), there were only twelve Western immigrants in the PP/ANX+ variant. Therefore, future research should try to oversample this group to confirm that the ethnic differences we found are stable.

Future research should examine whether current findings can be replicated in general populations in other countries. Studies should examine whether the moderate-risk group is a common phenomenon in community samples of youth. All groups, including the moderate-risk group, would be interesting to follow longitudinally and examine the continuity or change in psychopathic traits and how this stability or change is related to stability or change in youth's mental health.

**General Conclusion**

The present study demonstrates that three dimensions of psychopathy in combination with anxiety can distinguish two variants of psychopathy in a large community sample of youth. Using the three dimensions rather than only the affective dimension is in line with the

recent argument that all dimensions of psychopathy should be taken into account in youth in order to better capture the concept of psychopathy (Salekin, 2016). The variants found are in line with theory (Karpman, 1948) and previous research (Yildirim & Derksen, 2015) stating that the secondary variant is more anxious and impulsive than the primary variant. Youth characterized by high psychopathy and anxiety show more negative outcomes compared to youth characterized by high psychopathic traits and low anxiety. Thus, even in a community sample of youth, distinctions in psychopathy are possible. The different variants are related to different types and levels of problem behavior, and might have distinct etiological pathways, which suggests that each variant requires specific interventions and treatments that are different from the ones needed for the other variants (Skeem et al., 2003). Especially in a community sample, the presence of both psychopathic traits and anxiety might indicate greater risk for problem behavior, suggesting that this group of youth should be the focus for intervention efforts. In accordance with Karpman (1948), this would be the group high on psychopathic traits that is responsive to treatment. Because the anxious group reported high problem behaviors as well, it could be fruitful to focus intervention or treatment on reducing the anxiety levels by implementing evidence-based cognitive behavior therapy. In addition to the two psychopathy and anxiety groups, we identified two low- and moderate-risk groups, with findings indicating that future research should pay more attention to the moderate-risk group. From the perspective of monitoring, prevention, and intervention it seems worthwhile to further study this group and the health risks that this group encounters. Understanding distinctions in development, identification, and treatment of psychopathic traits and their manifestations is important for youth at risk for severe behavioral problems.

## References


Andershed, H., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: A new assessment tool. In E. Blaauw, & L. Sheridan (Eds.). *Psychopaths: Current International Perspectives* (pp. 131-158). The Hague: Elsevier.

Arieti, S. (1963). Psychopathic personality: Some views on its psychopathology and psychodynamics. *Comprehensive Psychiatry, 4*, 301-312.

Blackburn, R. (1975). An empirical classification of psychopathic personality. *British Journal of Psychiatry, 127,* 456-460.

Coid, J., Freestone, M., & Ullrich, S. (2012). Subtypes of psychopathy in the British household population: Findings from the national household survey of psychiatric morbidity. *Social Psychiatry and Psychiatric Epidemiology, 47*, 879-891.

Colins, O.F., Fanti, K.A., Salekin, R.T., & Andershed, H. (2016). Psychopathic personality in the general population: Differences and similarities across gender. *Journal of Personality Disorders, 30*, 1-26.

Cooke, D.J. & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment, 13*, 171-188.

Das, J., & de Ruiter, C. (2003). *Youth Psychopathic traits Inventory: Geautoriseerde Nederlandse vertaling* [Youth Psychopathic traits Inventory; Authorized Dutch translation]. Unpublished research version.

Docherty, M., Boxer, P., Huesmann, L.R., O'Brien, M., & Bushman, B.J. (2016). Exploring primary and secondary variants of psychopathy in adolescents in detention and in the community. *Journal of Clinical Child & Adolescent Psychology, 45,* 564-578.

Dolan, M. & Rennie, C. (2007). The relationship between psychopathic traits measured by the Youth Psychopathic Trait Inventory and psychopathology in a UK sample of conduct disordered boys. *Journal of Adolescence*, *30*(4), 601-611.

Drislane, L.E., Patrick, C.J., Sourander, A., Sillanmäki, L., Aggen, S.H., Elonheimo, H., Parkkola, K., Multimäki, P., & Kendler, K.S. (2014). Distinct variants of extreme psychopathic individuals in society at large: Evidence from population-based sample. *Personality Disorders: Theory, Research, and Treatment, 5,* 154-163.

Eagly, A.H. (2009). The his and hers of prosocial behavior: An examination of the social psychology of gender. *American Psychologist, 64,* 644-658

Fanti, K.A., Demetriou, C.A., & Kimonis, E.R. (2013). Variants of callous-unemotional conduct problems in a community sample of adolescents. *Journal of Youth and Adolescence, 42,* 964-979.

Falkenbach, D. M., Reinhard, E. E., & Larson, F. R. R. (2017). Theory based gender differences in psychopathy subtypes. *Personality and Individual Differences, 105,* 1-6.

Falkenbach, D.M., Stern, S.B., & Creevy, C. (2014). Psychopathy variants: Empirical evidence supporting a subtyping model in a community sample. *Personality Disorders: Theory, Research, and Treatment, 5,* 10-19.

Franck, E., De Raedt, R., Barbez, C., & Rosseel, Y. (2008). Psychometric properties of the Dutch Rosenberg Self-Esteem Scale. *Psychologica Belgica, 48,* 25-35.

Gill, A.D. & Stickle, T.R. (2016). Affective differences between psychopathy variants and genders in adjudicated youth. *Journal of Abnormal Child Psychology, 44,* 295-307.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38,* 581-586.

Haase, R.F. & Ellis, M.V. (1987). Multivariate analysis of variance. *Journal of Counseling Psychology, 34,* 404-413.

Hervé, H. (2007). Psychopathic subtypes: Historical and contemporary perspectives. In J. C. Yuille, & H. Hervé (Eds.), *The Psychopath: Theory, Research, and Practice* (pp. 431-460). Mahwah, NJ: Erlbaum.

Hicks, B.M., Markon, K.E., Patrick, C.J., Krueger, R.F., & Newman, J.P. (2004). Identifying psychopathy subtypes on the basis of personality structure. *Psychological Assessment, 16*, 276-288.

Hillege, S., Das, J., & De Ruiter, C. (2010). The Youth Psychopathic traits Inventory: Psychometric properties and its relation to substance use and interpersonal style in a Dutch sample of non-referred adolescents. *Journal of Adolescence, 33*, 83-91.

Kahn, R.E., Frick, P.J., Youngstrom, E.A., Youngstrom, J.K., Feeny, N.C., & Findling, R.L. (2013). Distinguishing primary and secondary variants of callous-unemotional traits among adolescents in a clinic-referred sample. *Psychological Assessment, 25*, 966-978.

Karpman, B. (1941). On the need of separating psychopathy into two distinct clinical types: The symptomatic and the idiopathic. *Journal of Criminal Psychopathology, 3*, 112-137.

Karpman, B. (1948). Conscience in the psychopath: Another version. *American Journal of Orthopsychiatry, 18*, 455-491.

Keenan, K. & Shaw, D. (1997). Developmental and social influences on young girls' early problem behavior. *Psychological Bulletin, 121*, 97-113.

Kim, J. & Cicchetti, D. (2004). A longitudinal study of child maltreatment, mother-child relationship quality and maladjustment: The role of self-esteem and social competence. *Journal of Abnormal Child Psychology, 32*, 341-354.

Kimonis, E.R., Skeem, J.L., Cauffman, E., & Dmitrieva, J. (2011). Are secondary variants of juvenile psychopathy more reactively violent and less prosocially mature than primary variants? *Law and Human Behavior, 35*, 381-391.

Kimonis, E.R., Frick, P.J., Cauffman, E., Goldweber, A., & Skeem, J. (2012). Primary and secondary variants of juvenile psychopathy differ in emotional processing. *Development and Psychopathology, 24*, 1091-1103.

Lee, Z., Salekin, R.T., & Iselin, A-M. R. (2010). Psychopathic traits in youth: Is there evidence for primary and secondary subtypes? *Journal of Abnormal Child Psychology, 38,* 381-393.

Lilienfeld, S. O. & Fowler, K. A. (2006). The self-report assessment of psychopathy: Problems, pitfalls, and promises. In C. J. Patrick (Ed.), *The handbook of psychopathy* (pp. 107-132). New York: Guilford Press.

Lo, Y., Mendell, N.R., & Rubin, D.B. (2001). Testing the number of components in a normal mixture. *Biometrica, 88,* 767-778.

Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences, 18,* 523-599.

Meehan, A.B., Maughan, B., Cecil, C.A.M., & Barker, E.D. (2016). Interpersonal callousness and co-occurring anxiety: Developmental validity of an adolescent taxonomy. *Journal of Abnormal Psychology,* doi: 10.1037/abn0000235

Mokros, A., Hare, R.D., Neumann, C.S., Santtila, P., Habermeyer, E., & Nitschke, J. (2015). Variants of psychopathy in adult male offenders: A latent profile analysis. *Journal of Abnormal Psychology, 124,* 372-386.

Muthén, L. K., & Muthén, B. O. (2010). *Mplus users guide* (6th ed). Los Angeles: Muthén & Muthén.

Nagin, D. S. (2005). *Group-based modeling of development*. Cambridge, MA: Harvard University Press.

Olver, M.E., Sewall, L.A., Sarty, G.E., Lewis, K., & Wong, S.C.P. (2015). A cluster analytic examination and external validaton of psychopathic offender subtypes in a multisite sample of Canadian federal offenders. *Journal of Abnormal Psychology, 124,* 355-371.

Porter, S. (1996). Without conscience or without active conscience? The etiology of psychopathy revisited. *Aggression and Violent Behavior, 1,* 179–189.

Poythress, N.G., Edens, J.F., Skeem, J.L., Lilienfeld, S.O., Douglas, K.S., Frick, P.J., Patrick, C.J., Epstein, M., & Wang, T. (2010). Identifying subtypes among offenders with antisocial personality disorder: A cluster-analytic study. *Journal of Abnormal Psychology, 119*, 389-400.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Salekin, R. T. (2016). Psychopathy in childhood: Toward better informing the DSM–5 and ICD-11 conduct disorder specifiers. *Personality Disorders: Theory, Research, and Treatment, 7*, 180–191.

Skeem, J.L., Poythress, N., Edens, J.F., Lilienfeld, S.O., & Cale, E.M. (2003). Psychopathic personality or personalities? Exploring potential variants of psychopathy and their implications for risk assessment. *Aggression and Violent Behavior, 8*, 513–546.

Skeem, J., Johansson, P., Andershed, H., Kerr, M., & Louden, J.E. (2007). Two subtypes of psychopathic violent offenders that parallel primary and secondary variants. *Journal of Abnormal Psychology, 116*, 395-409.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press

Statistics Netherlands (2000). Standaarddefinitie allochtonen [Standard definition immigrants]. *INDEX, 10*, 24-25

Statistics Netherlands (2014). *Bevolking; kerncijfers* [Population; Key figures]. Resource document http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=37296ned&D1=a&D2=0,10,20,30,40,50,60,(l-1),l&HD=130605-0924&HDR=G1&STB=T. Accessed 04 June 2015.

Statistics Netherlands (2016). *Jaarrapport Integratie 2016* [Annual report on Integration 2016]. Statistics Netherlands: The Hague.

Vaughn, M.G., Edens, J.F., Howard, M.O., & Smith, S.T. (2009). An investigation of primary and secondary psychopathy in a statewide sample of incarcerated youth. *Youth Violence and Juvenile Justice, 7*, 172-188.

Van der Ploeg, H.M. (2000). *Handleiding bij de Zelf-Beoordelings Vragenlijst* [Manual of the State-Trait Anxiety Inventory- DY]. Amsterdam: Harcourt Assessment B.V

Van Widenfelt, B.M., Goedhart, A.W., Treffers, P.D.A., & Goodman, R. (2003). Dutch version of the Strengths and Difficulties Questionnaire (SDQ). *European Child & Adolescent Psychiatry, 12*, 281-289.

Vincent, G. M., Vitacco, M. J., Grisso, T., & Corrado, R. R. (2003). Subtypes of adolescent offenders: Affective traits and antisocial behavioral patterns. *Behavioral Sciences and the Law, 21*, 695-712.

Yildirim, B.O. & Derksen, J.J.L. (2015). Clarifying the heterogeneity in psychopathic samples: Towards a new continuum of primary and secondary psychopathy. *Aggression and Violent Behavior, 24*, 9-41.

Table 1

*Descriptive statistics and correlations among the main variables in the total sample*

| Mental health | | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Interpersonal dimension | 1 | | | | | | | | | |
| 2. | Affective dimension | .58* | 1 | | | | | | | | |
| 3. | Lifestyle dimension | .63* | .45* | 1 | | | | | | | |
| 4. | Trait anxiety | .15* | -.03 | .26* | 1 | | | | | | |
| 5. | Emotional problems | .07* | -.15* | .17* | .68* | 1 | | | | | |
| 6. | Conduct problems | .51* | .43* | .52* | .34* | .23* | 1 | | | | |
| 7. | Hyperactivity | .25* | .14* | .56* | .36* | .28* | .35* | 1 | | | |
| 8. | Peer problems | .14* | .14* | .07* | .36* | .28* | .34* | .03 | 1 | | |
| 9. | Prosocial behavior | -.27* | -.40* | -.22* | -.09* | .10* | -.31* | -.15* | -.19* | 1 | |
| 10. | Self-esteem | .00 | .07* | -.10* | -.61* | -.48* | -.15* | -.20* | -.25* | .03 | 1 |
| Descriptives | | | | | | | | | | | |
| | Mean | 1.71 | 2.00 | 2.11 | 1.91 | 7.57 | 7.19 | 9.66 | 7.19 | 12.40 | 3.02 |
| | *SD* | 0.52 | 0.45 | 0.50 | 0.49 | 2.22 | 1.74 | 2.54 | 1.70 | 2.04 | 0.57 |

*Note*. * $p < .001$

Table 2

*Differences between identified variants' raw scores on the validation variables*

| | *M* (*SD*) | | | | | MANOVA | |
|---|---|---|---|---|---|---|---|
| *Validation variables* | Low-risk | Moderate-risk | Anxious | PP/ANX- | PP/ANX+ | *F*(4,2843) | $\eta_p^2$ |
| Emotional problems | 7.16 (1.96)a,b | 7.25 (1.91)a,c | 10.87 (2.28) | 7.17 (1.92)b,c | 8.97 (2.35) | 173.85* | .20 |
| Conduct problems | 6.29 (1.11) | 7.43 (1.55)a | 7.47 (1.41)a | 8.26 (1.74) | 9.67 (1.99) | 341.07* | .32 |
| Hyperactivity | 8.74 (2.34) | 9.88 (2.40) | 11.25 (2.31)a | 10.59 (2.41) | 11.50 (2.28)a | 116.05* | .14 |
| Peer problems | 6.88 (1.57) | 7.22 (1.63)a | 7.95 (1.96)b | 7.22 (1.63)a | 8.06 (1.84)b | 35.49* | .05 |
| Prosocial behavior | 12.94 (1.81)a | 12.09 (2.00) | 12.93 (1.85)a | 11.67 (2.06) | 11.09 (2.40) | 68.63* | .09 |
| Self-esteem | 3.10 (0.51)a,b | 3.06 (0.53)a | 2.30 (0.56) | 3.17 (0.60)b | 2.78 (0.58) | 106.46* | .13 |

*Note*. *F*-values do not include gender, ethnic background or age. Similar subscripts in a row indicate comparable means for those groups in post hoc Bonferroni pairwise comparisons.

* $p < .001$

Table 3

*Number of participants in the subgroups including the row percentages*

| Characteristic | | Low-risk | Moderate-risk | Anxious | PP/ANX- | PP/ANX+ | Total |
|---|---|---|---|---|---|---|---|
| Gender | Boy | 582 | 628 | 38 | 235 | 140 | 1623 |
| | | (35.9%) | (38.7%) | (2.3%) | (14.5%) | (8.6%) | (100%) |
| | Girl | 680 | 261 | 145 | 67 | 79 | 1232 |
| | | (55.2%) | (21.2%) | (11.8%) | (5.4%) | (6.4%) | (100%) |
| Ethnic | Native Dutch | 684 | 472 | 155 | 133 | 106 | 1550 |
| background | | (44.1%) | (30.5%) | (10.0%) | (8.6%) | (6.8%) | (100%) |
| | Western immigrant | 102 | 57 | 23 | 12 | 12 | 206 |
| | | (49.5%) | (27.7%) | (11.2%) | (5.8%) | (5.8%) | (100%) |
| | Non-Western immigrant | 475 | 359 | 124 | 38 | 101 | 1097 |
| | | (43.3%) | (32.7%) | (11.3%) | (3.5%) | (9.2%) | (100%) |
| Age | Younger | 1093 | 776 | 256 | 166 | 198 | 2489 |
| | | (43.9%) | (31.2%) | (10.3%) | (6.7%) | (8.0%) | (100%) |
| | Older | 144 | 98 | 44 | 15 | 14 | 315 |
| | | (45.7%) | (31.1%) | (14.0%) | (4.8%) | (4.4%) | (100%) |

*Figure 1*. The *z*-scores and confidence intervals for subgroups that were identified using latent profile analysis.

*Figure 2.* Significant subgroup x ethnic background interactions for emotional problems (a), prosocial behavior (b), and self-esteem (c).