Are there subgroups of people with psychopathic personality?

Test of the primary-secondary psychopathy theory

Maria Jakobsson & Veronika Wendt

Örebro University

Supervisor: Henrik Andershed
Criminology C
Fall 2012
Abstract

Psychopathy can be described as a constellation of three factors: the interpersonal, the affective and the behavioral. Theories suggest that there are two subtypes of psychopathy: the primary psychopaths with low anxiety and the secondary psychopaths with high anxiety. The purpose of the current study was to investigate whether subgroups that correspond to these theories could be identified. If there were subgroups in the sample, how would they differ in respect of the three psychopathy factors, various criminal behaviors, alcohol usage, depression, anxiety, ADHD and suicide attempts? The study examined 2500 individuals in a community sample and identified 167 individuals with a psychopathic personality. A cluster analysis identified one subgroup within the group of individuals with psychopathic personality with low anxiety \((n = 66)\) and one with high anxiety \((n = 101)\). The results showed that the subgroups differ significantly in their levels of anxiety and the three psychopathy factors and expectedly, there are several mean differences between these subgroups, but most differences were non-significant. To conclude, there seems to be subgroups of psychopathic personality with different levels of anxiety, but who do not differ significantly in other expected ways.

*Keywords*: Psychopathy, primary psychopathy, secondary psychopathy, anxiety
Finns det subtyper av personer med psykopatisk personlighet?
Test av teorin om primär och sekundär psykopati

Sammanfattning

Psykopati kan beskrivas som en konstellation av tre faktorer: interpersonell, affektiv och beteendemässig. Enligt teorin finns det psykopater med antingen låg eller hög ångest. Syftet med denna studie var att undersöka om det fanns subgrupper som passade in i dessa teorier. Ifall det fanns subgrupper, hur skiljde de sig i så fall åt gällande olika psyopatiska drag, kriminella beteenden, alkoholbruk, depression, ångest, ADHD och självmordsförsök? Studien undersökte 2500 individer och identifierade 167 individer med psykopatisk personlighet. En klusteranalys identifierade en subgrupp med låg ångest ($n = 66$) och en med hög ångest ($n = 101$). Resultaten visar att subgrupperna skiljer sig åt i ångestnivå och på de tre psykopatiska faktorerna och det finns flera medelvärdeskillnader mellan subgrupperna, dock inga signifikanta. En slutsats är att det finns subgrupper med olika nivåer av ångest, men att de inte skiljer sig på något mer signifikant sätt.

Nyckelord. Psykopati, primär psykopati, sekundär psykopati, ångest

Maria Jakobsson & Veronika Wendt
Handledare: Henrik Andershed
Kriminologi C
HT12
Örebro Universitet
Are There Subgroups of People With a Psychopathic Personality?

Test of the Primary-Secondary Psychopathy Theory

Psychopaths have been seen as the savages of the society that charm, manipulate and behave ruthlessly (Hare, 1997). A core characteristic, of an individual with psychopathic personality disorder, is callous unemotional traits. Karpman’s theory about subtypes of psychopathy suggests that there are two subtypes – primary and secondary – that differ from each other in several important ways (Karpman, 1941 ref in Kimonis, Frick, Caufmann, Goldwebber, & Skeem, 2012) and research has been conducted to examine these two sub-types (Kimonis et al., 2012; Skeem, Kerr, Johansson, Andershed, & Louden, 2007). Psychopathic individuals have previously been seen as untreatable but by identifying different subtypes and understanding their etiology, it might become easier to tailor treatment schemes (Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). This study tried to identify subgroups that were similar to the theoretical views of primary and secondary psychopathy. This was done by, initially, distinguishing low and high anxiety subgroups among individuals with a heightened level of psychopathic personality, and then investigate how these subgroups differed in their levels of depression, criminal behaviors, alcohol usage, attention deficit hyperactivity disorder (ADHD) and suicide attempts.

Psychopathy

Psychopathy is a disorder with extreme levels of interpersonal, affective and behavioral symptoms (Poythress, et al., 2010; Cooke & Michie, 2001). The interpersonal factor contains the symptoms glibness, grandiosity, pathological lying and manipulation. The affective factor contains the symptoms lack of regret and guilt, lack of empathy, shallow
affects and lack of responsibility and lastly, the behavioral factor contains the symptoms of impulsiveness, lack of responsibility of one’s own actions, need for excitement or getting easily bored, parasitic lifestyle and lack of realistic long-term plans (Hare, 1997).

In clinical practice, psychopathy is usually measured through the Psychopathic Checklist (PCL-R) (Hare, 2004). Items measuring psychopathy have been divided into different factor models that aim to define a psychopathic personality. Two factors have been identified to describe psychopathy: the interpersonal and affective, and the antisocial deviance (Harpur, Hakstian, & Hare, 1988). The two factor model has been useful but has been challenged by a three factor model, which describes psychopathy as the interpersonal, the affective, and the behavioral factors (Cooke & Michie, 2001). The four factor model describes psychopathy with four factors: the interpersonal, the affective, the behavioral and the antisocial (Hare, 2004). What makes the four factor model unique is that it uses violations of rules as a fourth factor, but it has been discussed whether the fourth factor is really a measure of psychopathy or if it is only a consequence of the three other factors (Coid, Freestone, & Ullrich, 2012; Salekin, Brannen, Zalot, Leistico, & Neumann, 2006). The present study defines psychopathy the three factor model.

Theories about Subtypes

There are two subtypes of psychopathy according to Karpman (1941). Firstly, there is the ‘genuine/true’ primary psychopath who has a low level of trait anxiety, shows lack of remorse and empathy and displays shallow emotions. Secondly, there is the secondary psychopath who is described as highly anxious and as displaying more neuroticism and anxiousness than the primary psychopath (Karpman, 1941, ref in Swogger & Kosson,
Blackburn et al. also suggests that there are different subtypes depending on their level of anxiety. The primary psychopath is described as having a low to average level of anxiety, whereas the secondary psychopath is described as having a high level of anxiety along with emotional disturbances (Blackburn & Coid, 1998; Blackburn, 1975, 1998b; ref in Skeem et al., 2007).

Primary and secondary psychopaths appear to be similar in their obvious traits and behaviors but differ in their genetic constellations and motivations. Primary psychopathy is thought to be genetically based and they engage in criminal behavior due to this and various other reasons, whereas secondary psychopaths develop psychopathy mainly due to environmental or adaptive reasons (e.g., stressful life events, abuse) and therefore engage in criminal behavior (Karpman 1941, 1948, ref in Lee, Salekin, & Iselin, 2009). The primary subtype seems to have some deficits in their emotional processing and the processes in the peripheral nervous system (Lorenz & Newman, 2002), while the secondary subtype has other specific cognitive deficits (Newman, Wallace, Schmitt, & Arnett, 1997, ref in Vassileva, Kosson, Abramowitz, & Conrod, 2005).

Studies have also been conducted, where subgroups of psychopaths have been identified based on their level of fearlessness. Gray’s biologically based personality model, called reinforcement sensitivity theory, consists of three brain systems: behavioral inhibition system (BIS), behavioral approach system (BAS) and the fight-flight-freeze system (FFSR). The BAS is the impulsivity system and activates reward seeking behavior to feel hope or relief, whereas the BIS is called the anxiety system and causes anxiety, inhibition, arousal and avoidance of punishment (Lykken, 1995; Pickering & Gray, 1999; ref in Hundt, Kimbrell, Mitchell & Nelson-Gray, 2008). High BAS has
predicted both primary- and secondary psychopathic personality in a non-clinical sample and low BIS was associated with primary psychopathy (Hundt et al., 2008).

It may be that different sorts of treatments are more effective on different subtypes of psychopaths. Since the secondary psychopaths are characterized by traits such as anxiety, a condition that is commonly treated with psychotherapy and/or pharmacological agents, they might benefit from such treatment. In contrast, primary psychopaths might benefit from therapy aimed at altering their cognitive and behavioral reactions (e.g., biofeedback) (Skeem, et. al, 2007).

**Differences between Low and High Anxious Subgroups of Psychopaths’**

**Psychopathic Traits**

A study consisting of 367 male jail inmates, who had committed violent offences, identified 123 individuals with a psychopathic personality. The comparison group consisted of 243 non-psychopathic individuals. To identify and cluster the individuals with psychopathic personality, the PCL-R and the four factor model was used. The items used for the cluster analysis were: arrogant and deceitful lifestyle (factor 1), deficient emotional experience (factor 2), impulsive and irresponsible behavior style (factor 3), antisocial behavior (factor 4) and anxiety. Across these variables, two clusters were found; the subgroup with high anxiety \( (n = 49) \) had fewer psychopathic traits (1, 2 and 3) in comparison with the group with low anxiety \( (n = 74) \). The subgroups did not differ from each other on the fourth factor (Skeem et al., 2007).

In another study conducted on 258 male jail inmates, a cluster analysis was conducted based on the PCL-R and the three factor model. The variables measured were: The interpersonal features of psychopathy (factor 1), deficient affective experience
(factor 2) and behavioral features of psychopathy (factor 3), trait anxiety and alcohol and drug abuse/dependence. Across these variables, four clusters were identified, where one group was low anxious psychopaths ($n = 40$) and one group was high anxious psychopaths ($n = 52$). The low anxious subgroup scored significantly higher than the high anxious subgroup on the interpersonal and affective factors (1 and 2). The two subgroups did not differ from each other on the behavioral factor (3) (Swogger & Kosson, 2007).

**Criminal Behaviors**

In one study, 226 female inmates were assigned into three groups: low anxious psychopaths ($n = 31$), high anxious psychopaths ($n = 39$) and a comparison group ($n = 70$). The participants were clustered into these subgroups by measuring psychopathic traits through PCL-R and personality traits through the Multidimensional Personality Questionnaire (MPQ). One of the scales in the MPQ was negative emotions (e.g. stress reactions and anxiety). From these variables, two clusters were identified: the low and high anxious psychopaths respectively. The study compared the three groups and showed that while the low and high anxious psychopaths did not differ significantly from each other in their crime variety index scores, they notwithstanding scored significantly higher than the comparison group. The low anxious psychopaths had a significantly higher level of non-violent charges than the high anxious psychopaths and the comparison group respectively, and the high anxious psychopaths had significantly more violent charges than the comparison group. Both the low anxious and the high anxious subgroup showed significantly higher levels of violent offences, such as fights during childhood and adulthood and violence towards partners, than the comparison group did (Hicks, Vaidyanathan, & Patrick, 2010).
Another study showed that the two subgroups did not differ in their level of criminal behavior, although they scored significantly higher than the comparison group on criminal behavior (Skeem et al., 2007). Yet another study demonstrated that low anxious psychopaths had significantly more violent charges than the other two groups in the study and that both the low anxious and high anxious subgroups had significantly higher criminal versatility than the other group (Swogger & Kosson, 2007).

In an additional study, on 200 male jail inmates, a cluster analysis was conducted, using factor 1 (interpersonal and affective traits) and factor 2 (unstable and antisocial lifestyle) of the PCL-R, the Interpersonal Measure of Psychopathy, anxiety, as well as alcohol and drug abuse and dependence. The study identified a low anxious subgroup (n = 34), which committed a significantly greater number of violent crimes compared with the high anxiety group (n = 59). It was shown that both psychopathic groups showed significantly more criminal versatility than the two comparison groups (Vassileva, Kosson, Abramowitz, & Conrod, 2005).

A study conducted on 728 juveniles, identified a group of 132 individuals high on psychopathic traits. They were differentiated into a low anxious psychopathic subgroup (n = 64) and a high anxious subgroup (n = 68). A non-psychopathic comparison group (n = 135) was used. The high anxious subgroup had a significantly higher score of total criminal behaviors (violence, property offending, self-reported delinquency) compared with the low anxious subgroup and the comparison group. Both the low- and the high anxious subgroups scored significantly higher on the use of drugs in the past year, compared with the comparison group (Vaughn, Edens, Howard, & Smith, 2012). Other studies also found that the high anxious subgroup tended to use multiple drugs to a
significantly more frequent extent, than all the other groups (Swogger & Kosson, 2007; Vassileva et al., 2005).

Another study conducted on 542 male inmates, identified a group of 96 individuals as psychopaths and a comparison group \( (n = 125) \). The prisoners were diagnosed with psychopathy by using the PCL-R and their personalities were measured by using Multidimensional Personality Questionnaire. One of the measured items was stress reactions, which included anxiety. By cluster analysis, the best fitting model yielded two clusters consisting of emotionally stable psychopaths with low stress reactions, or as appraised by the authors of this thesis: the low anxious subgroup \( (n = 30) \) and the aggressive psychopaths, characterized by negative emotionality and high stress reactions, and appraised by the authors of this thesis as the high anxious subgroup \( (n = 66) \). The results showed that the high anxious subgroup scored significantly higher on aggressive behavior and number of violent offences, such as fights, both as children and adults (Hicks, Markon, Patrick, Krueger, & Newman, 2004).

**Alcohol Usage**

Findings from a previously mentioned study showed that the high anxious subgroup had significantly more alcohol related problems than the low anxious subgroup (Vassileva et al., 2005). The high anxious subgroups showed a significantly greater usage of alcohol and seemed to be significantly more abusive of alcohol than the low anxious subgroups and the comparison groups (Hicks et al., 2004, Vassileva et al., 2005).

There is however, conflicting evidence, as at least one study found no significant difference in alcohol dependence between the high- and the low anxious subgroups of
psychopaths, although both displayed significantly higher alcohol dependence compared to the two other non-psychopathic groups in the sample (Swogger & Kosson, 2007).

**Depression and Anxiety**

One study, conducted on 375 young male offenders, used the Youth Psychopathic Traits Inventory and The Revised Children’s Manifest Anxiety Scale to identify individuals with heightened psychopathic traits and anxiety. Firstly, one psychopathy group \( n = 165 \) and a non-psychopathic comparison group \( n = 208 \) were sorted out. A cluster analysis was then conducted on the youths with a psychopathic personality, using the three Youth Psychopathic Traits Inventory (YPI) factors (interpersonal, affective and lifestyle) and anxiety as clustering variables. A low anxious subgroup \( n = 122 \) and a high anxious subgroup \( n = 43 \) were identified. The high anxious subgroup showed significantly greater symptoms of depression, social withdrawal and anxiety, than the low anxious subgroup and the comparison group (Kimonis et al., 2012).

A study conducted on jail inmates found that the high anxiety psychopaths showed significantly higher negative affect and anxiety than the other three groups in the sample (Swogger & Kosson, 2007). Another study on juveniles showed that the high anxious subgroup scored significantly higher levels of traumatic experiences, anxiety, phobic anxiety, depression and psychological rumination, than the low anxious subgroup and the comparison group (Vaughn, et al., 2012).

In another study, the high anxious subgroup showed a significantly higher level of mental illnesses, and their overall global functioning was also significantly lower than the low anxiety subgroup (Skeem et al., 2007). In sum, multiple studies support that the
subgroups differ in depression and anxiety (e.g., Hicks et al., 2004; Lykken, 1995; Skeem et al., 2007; Swogger & Kosson, 2007; Vassileva et al., 2005; Vaughn et al., 2012).

**Attention Deficit Hyperactivity Disorder (ADHD)**

ADHD is considered a neurodevelopmental disorder that is characterized by inattention, hyperactivity and impulsivity as its main symptoms (Nolen-Hoeksema, 2007). ADHD has been consistently linked to antisocial and criminal behavior (Babinski, Hartsough, & Lambert, 1999; von Polier, Vloet, & Herpertz-Dahlmann, 2005). It has been suggested that both low and high anxious subgroups are characterized by having an externalizing disorder. Because they can be both impulsive and aggressive, the externalizing pattern is the same as in ADHD and antisocial personality disorder (Blackburn, 1975; ref in Hundt, Kimbrel, Mitchell, & Nelson-Gray, 2008).

In a study mentioned previously, the high anxiety psychopaths showed a significantly higher level of ADHD, compared with the low anxiety psychopaths, as well as a comparison group (Vaughn et al., 2012). In another study, the high anxious subgroup showed significantly higher inattention than the low anxious subgroup and the non-psychopathic comparison group (Kimonis et al., 2012).

**Suicide Attempts**

Two studies mentioned earlier, investigated suicide attempts. Firstly, it was shown that the high anxious subgroup had a history of significantly more suicide attempts than the low anxious subgroup (Hicks et al., 2010). Secondly, it was shown that the high anxious subgroup had a significantly higher level of suicide attempts and self-destructive behaviors, in comparison with the low anxiety subgroup and the non-psychopathic juveniles (Vaughn et al., 2012; Hicks et al., 2010).
Summary

To summarize, previous research is not consistent in many of the fields of interest for this study, but the main findings are that there are different subgroups that differ in their level of anxiety and psychopathic personality traits. It was shown in four studies that the subgroups did not differ in criminal versatility, even though one study identified the high anxious subgroup to have a significantly higher level of criminal behavior than the low anxious subgroup. Two studies showed that the high anxious subgroup scored significantly higher on violent crimes compared with the low anxious subgroup, whereas one study showed the opposite. The research concerning alcohol usage suggests that both the subgroups use more alcohol than the comparison group, and one study suggests that the high anxious subgroup uses more alcohol. Research is more consistent regarding levels of depression and anxiety, where the high anxious subgroup scores higher than the low anxious subgroup. The high anxious subgroup also seems to have a higher level of ADHD than the low anxious subgroup. Regarding suicide attempts, studies have unanimously found that the high anxious subgroup scores higher than the low anxious subgroup and the comparison group.

Purpose of the Present Study

The purpose of the present study was to identify a subgroup of individuals with psychopathic personality in a community sample, and examine if individuals in this subgroup could be clustered into further subgroups, in line with the theories about primary and secondary psychopaths. If there were subgroups among individuals with a psychopathic personality, would they differ regarding the three psychopathy factors, i.e., criminal behaviors, alcohol usage, depression, anxiety, ADHD and suicide attempts?
The first hypothesis was that two subgroups would be identified within the group of individuals with psychopathic personality: one subgroup with high anxiety and one subgroup with low anxiety (in addition, the high anxious subgroup would have significantly higher level of anxiety than both the low anxious subgroup and the comparison group, which would not differ significantly from each other). The subgroups would differ significantly on two of the psychopathic factors: the low anxious subgroup would score significantly higher on factor 1 and 2 of the psychopathy factors compared with the low anxious subgroup. They would not differ significantly on the third factor.

Based on the theories and research described in the previous section, the second hypothesis was:

a) The low- and the high anxious subgroups respectively, would both score significantly higher on criminal behavior than the comparison group, and that the two subgroups would not differ significantly from each other. Both subgroups would score significantly higher levels of minor and major property offenses, minor and serious violence, vandalism, and crime versatility than the comparison group, but would not differ significantly from each other. This hypothesis was based on the inconsistent findings in the previously mentioned studies (Hicks et al., 2010, Skeem et al., 2007, Swogger & Kosson, 2007, Vassileva, Kosson, Abramowitz, & Conrod, 2005, Hicks et al., 2004). In regards to criminal use of drugs, the high anxious subgroup would score significantly higher than both the low anxious subgroup and the comparison group, but those two groups would not differ from each other.

b) Both subgroups would use significantly more alcohol than the comparison group, but the subgroups themselves would not differ significantly from each other in their
respective alcohol usage. This prediction was made due to inconsistent results in previous research (Vassileva et al., 2005, Hicks et al., 2004, Swogger & Kosson, 2007).

c) The high anxious subgroup would show significantly higher levels of depression than the low anxious subgroup and comparison group. The low anxiety subgroup and the comparison group would not differ significantly on depression.

d) Both subgroups would show significantly higher levels of ADHD symptoms, inattentive and hyperactive symptoms than the comparison group. The high anxious subgroup would score significantly higher than the low anxious subgroup on the ADHD total score.

e) The high anxious subgroup would show significantly higher suicide attempts than the low anxious individuals and the comparison group.

**Method**

**Participants**

The analysis of this study has been based on data collected from a randomized sample of Swedish individuals born between 1987 and 1991. A total of 2 500 individuals participated in the face-to-face interviews, as well as completed self-report questionnaires, and the male/female ratios were 1 186 (47,4%) males and 1 314 (52,6%) females. The sample had a mean age of 22.15 ($SD = 1.38$).

**Measures**

The Cronbach’s $\alpha$ measures the reliability of a scale and is a test that verifies that the scale measures what it is supposed to measure. The recommendations are not to use a Cronbach’s $\alpha$ lower than .70, but it might be necessary in some psychological constructs
(Field, 2009), for instance when there are only few items, which investigate different things.

**Psychopathy**

*The Youth Psychopathic Traits Inventory (YPI-short version).* The YPI short version is a self-reporting instrument that is based on the three factor model and consists of the three factors that measure psychopathy, with each factor having six statements. The scale used is a four-point scale (1. *Does not apply at all*, 2. *Does not apply well*, 3. *Applies fairly well*, 4. *Applies very well*) (Baardewijk, Stegge, Andershed, Thomas, Scholte, & Vermeire, 2008). Since the YPI is not used as a diagnostical instrument, the study only refers to individuals, who score over a certain threshold, as individuals with a psychopathic personality, and not as psychopaths.

*The interpersonal factor.* This factor is measured by some statements, for instance: “I have the ability to con people by using my charm and my smile”, “I have talents that far exceed other people’s talents” and "My destiny is to become a famous, important and influential person". The Cronbach’s $\alpha$ of the scale was .79.

*The affective factor.* This factor is measured by some statements, for instance: “To cry, even when no one is watching, is a sign of weakness”, “To be nervous and anxious is a sign of weakness” and “To feel guilt and remorse over things you have done that hurt other people is a sign of weakness”. The Cronbach’s $\alpha$ of the subscale was .70.

*The behavioral factor.* This factor is measured by some statements, for instance: “I see myself as a pretty impulsive person”, “I quickly become bored of doing the same thing” and “It often happens that I do things without thinking”. The Cronbach’s $\alpha$ of the subscale is .68. The Cronbach’s $\alpha$ of the whole YPI short version was .66.
Criminology

Criminality in total. Criminality in total was the total amount of crimes committed in the past 12 months, and was measured by 18 questions through different subscales (Andershed et al., 2002). All scales used the same five-point scale (1. No, that has not happened, 2. 1 time, 3. 2-3 times, 4. 4-10 times, 5. More than 10 times). Six subscales were used and will be described with examples of items.

Minor property offences. This scale consisted of three items: “Have you taken anything from a mall, news-stand or shop without paying?” “Have you stolen anything from someone’s pocket or bag?” and “Have you shied away without paying? (for instance at the cinema, café, restaurant, train, bus or other)?”

Serious property offences. This scale consisted of seven items, for example: “Have you been involved in breaking into a car, house, store, news-stand, storage or any other building, with the intention of stealing something?” “Have you been involved in taking a car without permission?” and “Have you bought or sold something that you knew or believed was stolen?”

Minor violence. This scale consisted of three items: “Have you threatened or forced someone to give you something or to do something he or she did not want, for instance money, cigarettes, sex or anything else?” “Have you been involved in a street fight?” and “Have you been carrying weapons? For instance brass knuckles, bat, knife, stiletto or something similar?”

Serious violence. This scale consisted of four items: “Have you ever been involved in physically abusing someone to the point that, according to what you believe or know, he or she needed medical attention?” “Have you purposely abused anyone
physically with a knife, stiletto, brass knuckles, or any similar weapon?”, “Have you used violence against another person, e.g., beaten, kicked, clawed, pulled hair, or burned them with a cigarette?” and “Have you threatened to kill someone? For instance, by saying: ‘I will kill you’”.

**Vandalism.** This item consisted of the following question: “Have you been involved in purposely destroying windows, lamps, posts, public benches or gardens, or painting graffiti or writing something on public walls or other public surfaces without permission?”

**Use of illegal drugs.** This item consisted of the following question: “Have you bought, sold or smuggled illegal drugs?”

**Criminal versatility.** Criminal versatility measured the numbers of different types of criminal acts committed, based on the subscales/items above (Andershed et al., 2002).

**Alcohol usage**

**The Alcohol Use Disorders Identification Test (Audit).** Audit is a ten item questionnaire. Most items are measured on a five-point scale (*1. Never, 2. Less than monthly, 3. Monthly, 4. Weekly, 5. Daily or almost daily*) but there are some that have their own rating scales, which are not mentioned here (Wennberg, Källmén, Hermansson, & Bergman, 2006).

Examples of questions included are: “How often do you have a drink containing alcohol?” “How often during the last year have you found that you were not able to stop drinking once you had started?” “How often during the last year have you had a feeling of guilt or remorse after drinking?” and “Has a relative or friend or a doctor or another
health worker been concerned about your drinking habits or suggested that you cut down on your drinking?”. The Cronbach’s $\alpha$ of the questionnaire was .66.

**Depression and Anxiety**

*Hospital and depression scale (HAD).* The HAD consists of 14 items with two subscales, one scale measuring *anxiety* (HADS-A) and one scale measuring *depression* (HADS-D). The answers are measured on a four-point scale. The scale has a good to very good validity (Bjelland, Dahl, Tangen Haug, & Neckelmann, 2002).

*Anxiety.* This subscale includes questions like: “I can sit at ease and feel relaxed”, ”Worrying thoughts go through my mind”, “I get sudden feelings of panic”, “I feel tense or wound up”. The Cronbach’s $\alpha$ of the anxiety scale was .78.

*Depression.* Examples of questions in this subscale are: “I have lost interest in my appearance” and “I feel as if I am slowed down”. The Cronbach’s $\alpha$ of the depression scale was .66.

**ADHD**

*The Adult ADHD self-report scale (ASRS)* ASRS measures ADHD and consists of 18 questions, divided in two categories concerning inattention and hyperactivity-impulsivity. The questions are answered on a five-point scale (*1. never, 2. rarely, 3. sometimes, 4. often, and 5. very often*) (Kessler, et al., 2005).

*The inattention scale.* Example of questions from the inattention scale are: “How often do you have trouble wrapping up the fine details of a project, once the challenging parts have been finished?”, “How often do you have difficulty getting things in order when you have to do a task that requires organization?” and “How often do you have
problems remembering appointments or obligations”. The Cronbach’s α of the inattention scale was .87.

The hyperactivity scale. Examples of questions from the hyperactivity-impulsivity scale: “How often do you fidget or squirm with your hands or your feet when you have to sit down for a long time?” and “How often do you leave your seat in meetings or other situations in which you are expected to remain seated?” and “How often do you feel overly active and compelled to do things, like you were driven by a motor?”. The Cronbach’s α of the hyperactivity-impulsivity scale was .83.

ADHD total. The ASRS has been considered reliable (Kessler, Adler, Gruber, Sarawate, Spencer, & van Bunt, 2007) and create the variable ADHD total in this study, with a Cronbach’s α of .90.

Suicide Attempt Item This item measured if the person had tried to commit suicide and consisted of one question: “Have you ever tried to commit suicide?” The possible answers are (1. no, 2. once, 3. a few times, 4. many times from time to time, 5. many times in a short period of time and then a long gap).

Procedure

The study was conducted on a voluntary basis and consisted of an interview, but mainly of self-report questionnaires. Firstly, the participants were contacted by telephone and were given the opportunity to choose location where they would like to be interviewed and if they wanted to be interviewed by a man or woman. Before the interview the participants were informed of the purpose of the study, as well as given written information and the possibility to ask questions to the interviewer. The interviews were conducted face-to-face, although most of the questions were answered through the self-
report questionnaires using iPads, while the interviewer was available for answering questions.

The mean time for answering the questions was 67 minutes, with variations depending on, for example the amount of follow up questions given to the participant or the amount of questions from the participant to the interviewer, as well as problems related to the technology used in the data collection. Approximately 5 to 15 minutes of the interview, both before and after the actual research questions were devoted to information. The participants each received gratuities of 400 SEK. The study has been evaluated and approved by an ethics committee (Dnr 2010/463).

**Statistical Analyses**

In the current study, a model-based cluster analysis was conducted. In this type of analysis, groups of individuals with similar constellations of the three psychopathy factors and anxiety are identifies. The model-based cluster analysis has some advantages because it uses the optimal clustering procedure to find the best-fitting model concerning for example number of clusters, i.e., groups (Boutemedjet, Ziou, & Bouguila, 2010).

To investigate if there were significant differences between the three groups, one way-ANOVA’s were conducted, and to find out where existing differences were, post-hoc tests, that had been adapted to the groups’ classifications as either homogenous or heterogeneous in variance, were used. When Levene’s test was significant (meaning the variance was not homogenous), Games-Howell post hoc test was used since it has the greatest power, especially if the sample sizes are unequal (Field, 2008). When Levene’s test was not significant, Gabriel post hoc test was used. Statistical Package for the Social Sciences (SPSS) version 20 was used for the statistical analyses.
Results

As a first step, the psychopathic personality group was identified in the total sample of 2500 individuals. On the 50-item version of the YPI, a score of 121.5, representing 60.75% of the maximum score was used as a cut off between individuals with and without psychopathic personality. The present study used a 18-item questionnaire with three subscales, with a maximum score of 72, meaning that 43.74 represents 60.75% of the maximum score. Hence, individuals with a score of 43.74 and more were considered as having a psychopathic personality, since it matches 30 points on the PCL which is considered to be the cut off for psychopathy (Kimonis, et al., 2012). A total of 167 individuals scored high enough on the questionnaire to be considered as having a psychopathic personality.

As a second step, a model-based cluster analysis was conducted on the 167 individuals with psychopathic personality, using the three psychopathic factors and the anxiety variable in the cluster analysis. Results showed that a two-cluster solution fitted the data best (as indicated by the lowest so called BIC value for this model). The two resulting clusters, a High Anxious subgroup of 101 individuals and a Low Anxious subgroup of 66 individuals, are displayed in Figure 1 and Table 1, alongside the rest of the sample of 2333 individuals, functioning as the Comparison group.

Differences between the Groups

Psychopathic Traits and Anxiety

As seen in Table 1 (and Figure 1), the High Anxious subgroup scored significantly higher on the three psychopathy factors (interpersonal, affective and behavioral) and total psychopathy compared with the Low Anxious subgroup. Both subgroups scored
Description of the two subgroups of psychopathic individuals and the Comparison group across the three psychopathy factors and anxiety (the figure shows z-scores - a value of zero corresponds to the sample mean and the unit is standard deviation).

Table 1

Test of mean differences (standard deviations) between the low anxiety, the high anxiety and the comparison group on the Interpersonal, Affective and Behavioral factors, Anxiety and the Total with using ANOVAs with post-hoc tests.

<table>
<thead>
<tr>
<th></th>
<th>Low Anxious Psychopathic (n = 66)</th>
<th>High Anxious Psychopathic (n = 101)</th>
<th>Comparison (n = 2433)</th>
<th>Df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal</td>
<td>2.70 (0.43) ^bc</td>
<td>3.07 (0.54) ^ac</td>
<td>1.67 (0.53) ^ab</td>
<td>2, 113.60</td>
<td>465.95***</td>
</tr>
<tr>
<td>Affective</td>
<td>2.26 (0.50) ^bc</td>
<td>2.51 (0.58) ^ac</td>
<td>1.39 (0.39) ^ab</td>
<td>2, 108.93</td>
<td>268.68***</td>
</tr>
<tr>
<td>Behavioral</td>
<td>2.64 (0.52) ^bc</td>
<td>3.03 (0.45) ^ac</td>
<td>1.96 (0.51) ^ab</td>
<td>2, 2497</td>
<td>226.04***</td>
</tr>
<tr>
<td>Anxiety</td>
<td>5.48 (2.94) ^b</td>
<td>8.64 (4.90) ^ac</td>
<td>5.21 (3.77) ^b</td>
<td>2, 112.74</td>
<td>15.98***</td>
</tr>
<tr>
<td>Total</td>
<td>45.62 (1.38) ^bc</td>
<td>51.61 (4.55) ^ac</td>
<td>30.05 (6.20) ^ab</td>
<td>2, 151.21</td>
<td>3740 ***</td>
</tr>
</tbody>
</table>

Not. Df = degrees of freedom. Superscript letters (a, b, c) show where the significant groups differ. *** p < .001; ** p < .01; *p < .05
significantly higher than the Comparison group. The results also showed that the two subgroups differed significantly in their level of anxiety compared with the Comparison group, whereas the Low Anxious subgroup and the Comparison group did not differ significantly on their level of anxiety.

**Criminal behaviors, Alcohol usage, ADHD, Depression and Suicide Attempts**

On the measurement of criminality, (see Table 2) it was shown that the Low and High Anxious subgroups did not differ significantly from each other on their levels of total criminality, serious property offences, minor violence, serious violence, drug use and criminal versatility, although both the subgroups scored significantly higher than the Comparison group.

The Low Anxious subgroup scored significantly higher on vandalism than the Comparison group. On the level of alcohol usage, depression, ADHD total, inattention, hyper impulsivity and suicide attempts both the Low and High Anxious subgroup scored significantly higher than the Comparison group, but they did not differ from each other (see Table 2).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Anxious Psychopathic (n = 66)</th>
<th>High Anxious Psychopathic (n = 101)</th>
<th>Comparison (n = 2433)</th>
<th>Df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Criminality</td>
<td>0.97 (0.90) ^c</td>
<td>1.05 (0.92) ^c</td>
<td>0.46 (0.74) ^ab</td>
<td>2, 109.74</td>
<td>27.79***</td>
</tr>
<tr>
<td>Minor property offences</td>
<td>0.26 (0.44)</td>
<td>0.24 (0.43)</td>
<td>0.17 (0.38)</td>
<td>2, 110.38</td>
<td>2.58</td>
</tr>
<tr>
<td>Serious property offences</td>
<td>0.22 (0.41) ^c</td>
<td>0.24 (0.43) ^c</td>
<td>0.08 (0.27) ^ab</td>
<td>2,108.01</td>
<td>9.75***</td>
</tr>
<tr>
<td>Minor violence</td>
<td>0.20 (0.40) ^c</td>
<td>0.30 (0.46) ^c</td>
<td>0.08 (0.27) ^ab</td>
<td>2, 107.88</td>
<td>11.75***</td>
</tr>
<tr>
<td>Serious violence</td>
<td>0.22 (0.41) ^c</td>
<td>0.32 (0.47) ^c</td>
<td>0.07 (0.25) ^ab</td>
<td>2, 107.43</td>
<td>15.28***</td>
</tr>
<tr>
<td>Vandalism</td>
<td>0.18 (0.38) ^c</td>
<td>0.12 (0.33)</td>
<td>0.06 (0.24) ^a</td>
<td>2, 108.33</td>
<td>5.57**</td>
</tr>
<tr>
<td>Drugs</td>
<td>0.22 (0.41) ^c</td>
<td>0.23 (0.42) ^c</td>
<td>0.06 (0.24) ^ab</td>
<td>2, 107.44</td>
<td>5.57***</td>
</tr>
<tr>
<td>Versatility</td>
<td>1.29 (1.42) ^c</td>
<td>1.45 (1.63) ^c</td>
<td>0.53 (0.99) ^ab</td>
<td>2, 108.07</td>
<td>24.38***</td>
</tr>
<tr>
<td>Alcohol usage</td>
<td>10.97 (5.94) ^c</td>
<td>10.00 (7.04) ^c</td>
<td>7.20 (4.31) ^ab</td>
<td>2, 99.48</td>
<td>22.12***</td>
</tr>
<tr>
<td>Depression</td>
<td>3.66 (3.09)</td>
<td>5.06 (3.54) ^c</td>
<td>2.82 (2.60) ^b</td>
<td>2, 109.45</td>
<td>16.363***</td>
</tr>
<tr>
<td>ADHD total</td>
<td>1.73 (0.70) ^c</td>
<td>1.94 (0.76) ^c</td>
<td>1.21 (0.60) ^ab</td>
<td>2, 109.85</td>
<td>56.75***</td>
</tr>
<tr>
<td>Inattention</td>
<td>1.86 (0.81) ^c</td>
<td>2.08 (0.87) ^c</td>
<td>1.34 (0.70) ^ab</td>
<td>2, 109.96</td>
<td>41.76***</td>
</tr>
<tr>
<td>Hyper impulsivity</td>
<td>1.61 (0.74) ^c</td>
<td>1.81 (0.85) ^c</td>
<td>1.07 (0.63) ^ab</td>
<td>2, 109.53</td>
<td>48.82***</td>
</tr>
<tr>
<td>Suicide attempts</td>
<td>1.09 (0.35) ^c</td>
<td>1.38 (0.82) ^c</td>
<td>1.06 (0.32) ^ab</td>
<td>2, 108.44</td>
<td>5.04**</td>
</tr>
</tbody>
</table>

*Not.* Df = degrees of freedom. Superscript letters (a, b, c) show between which groups there is a significant difference, demonstrated by the post hoc test Games Howell. ***p < .001; **p < .01; *p < .05.
Discussion

This study has focused on identifying subgroups among people exhibiting a psychopathic personality, and examining if they differed regarding the three psychopathy factors, various criminal behaviors, alcohol usage, depression, anxiety, ADHD and suicide attempts. In accordance with our hypothesis, we identified one subgroup with a high level of anxiety and one subgroup with a low level of anxiety, among individuals with a psychopathic personality. These groups corresponded to the pattern of primary and secondary subtypes in the manner of the three psychopathy factors and anxiety, but not in any other variables. The mean differences seemed to be more in line with previous research, but due to low power these mean differences were not significant. It was unexpected that the two subgroups would differ so little (at least significantly) from each other in most variables, except from in their level of anxiety and the three psychopathy factors.

The High Anxious subgroup had a significantly higher level of anxiety compared with the Low Anxious subgroup and Comparison group, which is in line with previous research (Kimonis et al., 2012). However, our results were not in line with research suggesting that the low anxious subgroup and the comparison group would differ significantly in their anxiety level, although research has also found different directions in these differences (Skeem et al., 2007, Kimonis et al., 2012). Because of the inconsistent findings in previous research, our hypothesis was that no difference would be found between the low anxious subgroup and the comparison group in their anxiety level and thus the results were consistent with our hypothesis. Our hypothesis that the Low Anxious subgroup would score significantly higher on factor 1 and factor 2, than the
High Anxious subgroup, was not in line with the results and some previous research (Skeem et al., 2007 & Swogger & Kosson, 2007).

Our hypothesis, that both the subgroups would have significantly higher levels of criminal behaviors (major property offences, minor and serious violence, vandalism, criminal use of drugs, crime versatility and total criminality), than the Comparison group, was in line with the results of the study as well as previous research. The results of the variable measuring total criminality were not in line with some previous research (Vaughn et al., 2012), which suggested that the high anxious subgroup would have a significantly higher score of total criminal behavior compared with the other groups.

Our results were in line with studies, which found that both subgroups would commit significantly more violent offenses than the comparison group (Hicks et al., 2010; Vassileva et al., 2005), but our results differed from research that suggested that the low anxious subgroup would commit significantly more violent crimes than the high anxious subgroup (Swogger & Kosson, 2007; Vassileva et al., 2005). Instead, the High Anxious subgroup had a higher mean score than the Low Anxious subgroup on this variable, although it was not significant. Previous research has shown inconsistent results regarding differences in violent offences between the groups, and therefore our hypothesis was that no significant difference between the subgroups would be found. Hence, the results of the present study were not surprising.

Previous research suggests that the high anxious subgroup would score significantly higher than the other two groups on drug use, which was the same as our hypothesis (Hicks et al., 2004; Hicks & Patrick 2006; Vassileva, 2005). Our results showed that the High Anxious subgroup did have a slightly higher mean score compared
with the Low Anxious subgroup but no significant differences were found. If the groups in our sample had been homogenous in variance and size, a less conservative post hoc test might have shown a significant difference between the groups. Now, our findings rather support a study showing that both subgroups score significantly higher on drug use than the Comparison group (Vaughn et al., 2012), but this could also be a consequence of the conservative post hoc test used in our study.

The item regarding vandalism showed a significantly higher score for the Low Anxious subgroup compared to the Comparison group, but no significant difference was found between the High Anxious subgroup and the Comparison group. Due to lack of previous studies about differences in vandalism between the subgroups, it is difficult to have any further discussion about the results. Our results were in line with our hypothesis and previous research suggesting that both the high and low anxious subgroups score significantly higher than the comparison group/groups regarding criminal versatility (Hicks et al., 2004; Hicks et al., 2010; Swogger & Kosson, 2007; Vassileva et al., 2005).

If one only looks at the mean score, the High Anxious subgroup had a higher score than the Low Anxiety subgroup on total criminality, serious property offences, minor and serious violence, and criminal versatility, whereas the Low Anxious subgroup had a higher score than the High Anxious subgroup on minor property offences and vandalism. These mean differences were not significant, though. In general, it was unexpected that the two subgroups would not differ significantly from each other in regards to criminal behavior.

Our hypothesis was consistent with some previous research, in the prediction that both subgroups would have a significantly higher level of alcohol usage compared with
The mean score showed that the Low Anxious subgroup scored higher on alcohol usage than the High Anxious subgroup but the results did not differ significantly from each other, supporting findings in a study mentioned earlier (Swogger & Kosson, 2007). It was surprising that the two subgroups did not differ significantly in their level of alcohol usage since previous research indicated that they would, but again, the results are in line with most previous research although no significant differences were found.

Previous research implies that the high anxious subgroup has a significantly higher level of depression than the low anxious subgroup and comparison group (e.g., Kimonis et al., 2012; Vaughn et al., 2012), which was consistent with our hypothesis. Our study did not find a significant difference in the level of depression in the two subgroups, although the High Anxious subgroup did differ significantly from the Comparison group and the mean score was also higher in the High Anxious subgroup compared with the Low Anxious subgroup. Our research differed from previous research, by the use of a normal population where other studies have used juveniles and inmates as a sample, so this could be a reason why our hypothesis was rejected. One explanation might be that the high anxious subgroups feel worse than the low anxious subgroups in prison environments.

Our results were in line with theory and with our hypothesis that both the subgroups would have high levels of ADHD symptoms (Blackburn, 1975; ref in Hundt et al., 2008). The mean score also showed that the High Anxious subgroup scored slightly higher, but not significantly higher, than the Low Anxious subgroup, which is in line with a previous study (Vaughn et al., 2012). So, our results seem to be in line with previous
research on the ADHD total variable. It is shown in previous research that the high anxious subgroup has significantly higher levels of inattention than the low anxious subgroup and the comparison group (Kimonis et al., 2012) but this was not supported by our study, which found no significant differences in any of the ADHD variables between the subgroups. There is not a lot of research in regards to ADHD and the subgroups of psychopathy and therefore these results contribute with more knowledge in the area, but it is difficult to speculate about the cause of the results.

Our hypothesis regarding suicide attempts, based on previous research (Hicks & Patrick, 2006; Hicks et al., 2010; Vaughn et al., 2012), predicted the High Anxious subgroup to score significantly higher than the Low Anxious subgroup and the Comparison group. Our results showed that the subgroups did not differ significantly from each other, even though the High Anxious subgroup had a higher mean score, but both the subgroups did differ significantly from the Comparison group. These results were unexpected, considering previous research. One explanation could be, as with depression, that previous studies have been conducted on juveniles and inmates, as opposed to our sample which was non-institutional. It could be that the high anxious subgroup is more sensitive to the prison environment than the low anxious subgroup.

One possible explanation to the general lack of significant differences between the subgroups may be the use of the post hoc test Games Howell. This test was used since equal variances were not assumed between the groups. If we had made a comparison between the high and low anxious subgroup only, the sample would probably have been more homogenous in variance and size, and a t-test could have been conducted. There are also less conservative post hoc tests to use to compare the three groups, for instance
Tukey’s (Hicks et al., 2004, Hicks et al., 2010, Kimonis et al., 2012), Bonferroni (Vassileva et al., 2005) or Fisher’s LSD. The post hoc test Fisher’s LSD is the most liberal test (Field, 2009) and would probably show more differences between the subgroups, since there are existing mean differences. By looking only at the mean scores, the subgroups do seem to differ in more expected directions, even though the differences are not significant. The results might indicate that doing research on a normal population will give different results from research conducted on an inmate population, for instance that the primary and secondary subgroups do not differ as much in a community as they do at an institution.

**Strengths**

This study was conducted on a stratified randomized sample of 2 500 individuals, both men and women, meaning this sample is remarkably larger than the samples in most other studies in the field. Most studies in the field use a referred population, such as juveniles or jail inmates, making it harder to draw any conclusions from previous research to normal populations. This study uses a non-institutional population, which possibly makes the results more useable and generalizable. Also, a psychopath is not necessarily institutionalized, so research on non-institutional samples enables us to reach psychopaths who are well-functioning in society. Another advantage of doing research on a normal population is the possibility to understand the pattern and development of the disorder, including the risk factors and the protective factors, which enables development of better prevention and treatment methods. In this study the participant meets an interviewer, but they got to fill out the self-report anonymously on an iPad. There is a possibility to partly avoid bias by using the iPad since it might make the participant less
inclined to answer in a certain way in front of the test leader, compared with in a face to face interview. The questionnaire consisted of many items of sensitive character and therefore a self-report could have been advantageous since the participants might feel more anonymous.

**Limitations**

This study is cross sectional, which means that we cannot claim anything about the causation between the variables and what might be expected from the subgroups in the future. Another limitation might be that self-reports are used, since the individuals with psychopathic personality might try to manipulate the results to seem like a “normal person”. A professional clinician would possibly assess differently among the individuals with psychopathic personality than the self-report. Only a certain age group has been used in the sample, which renders the generalizability limited to young adults. Another possible limitation is the statistical power of the two subgroups, which might be a reason to the non significant results, even though there are differences in the mean score.

**Future Research**

Future research should focus on prevention and treatment alternatives for the two subgroups. To understand these individuals better, one field to study could be abuse and neglect history amongst psychopaths, and investigate if these variables can predict levels of criminal behaviors, alcohol usage, depression and suicide within and between the subtypes.

Future research may supplement the profiles of the subtypes with psychological indicators such as cortisol level and brain structure, and for instance, how deficits in the frontal lobe can affect the executive functions such as impulsivity. Also, the different
emotional processing the primary psychopaths exhibit could be a subject for further research. An investigation about whether the subgroups differ in this field is useful knowledge for the development of treatment alternatives to the different subtypes, the literature mentions some optimism about treating secondary psychopaths and therefore it is important to understand more details about them.

Conclusions

To conclude, the results of the present study show that there are two subgroups of individuals with a psychopathic personality that differs in their level of anxiety and the three psychopathy factors. However, the two subgroups do not differ significantly regarding various criminal behaviors, alcohol usage, depression, anxiety, ADHD and suicide attempts, although there were many mean differences (albeit non-significant) in line with previous research. Therefore, the conclusion from this study is that the two subgroups cannot really be seen as subtypes because they do not differ on the several dimensions on which they are assumed to, according to existing theories.
References


Cookie, D.J., Michie C. (2001). Refining the construct of Psychopathy: Towards a
hierarchical Model. *Psychological Assessment, 13* (2), 171-188.


Downloaded 2012–11–29 from:

http://www.kfsk.se/download/18.2eb7f7b2125205646208000341/AUDIT_svensk_manual_1_0.pdf