SUBCLINICAL PSYCHOPATHY
AND EMPATHY

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Subclinical Psychopathy and Empathy

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I hereby certify that all material in this final year project which is not my own work has been identified and that no work is included for which a degree has already been conferred on me.

Signature: ________________________________
Abstract
Psychopathy is a severe personality disorder that results in antisocial, manipulative, and callous behavior. The main diagnostic instrument for assessing psychopathy is the Psychopathy Checklist-Revised. This thesis will introduce the psychopathy construct, including what is known as subclinical psychopathy. Subclinical psychopathy refers to individuals who exhibit many of the characteristics of psychopathy, except for some of the more severe antisocial behaviors. This constellation of traits allows the subclinical psychopath to avoid incarceration. The fundamental difference between clinical and subclinical psychopaths is a major question in the field of psychopathy and is the main theme of this thesis. Impaired empathy is one of the key aspects of psychopathy and it may be a significant factor in both clinical and subclinical psychopaths. Subclinical psychopathy may be related to a moderated or altered expression of empathy. Hence, the empathy construct is a secondary concern in this thesis. This thesis has two aims: (a) to argue that the conceptualization of subclinical psychopathy is flawed and needs revision in accordance with less ambiguous criteria; and (b) to present data in support of the hypothesis that subclinical psychopaths have intact, or even enhanced, cognitive capacities in contrast to clinical psychopaths.

Keywords: psychopathy, clinical psychopathy, subclinical psychopathy, cognitive empathy, affective empathy
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Subclinical Psychopathy and Empathy

Psychopathy is a severe personality disorder characterized by self-centeredness, callousness, and a profound lack of empathy, which hinders the individual to form warm emotional relationships with others (Hare, 1999b). The psychopathy construct is a complex issue, and even amongst professionals there remains doubt as to what a valid, working description of psychopathy really encompasses (Hare & Neumann, 2006; Skeem, Polaschek, Patrick, & Lilienfeld, 2011). In 1941, Hervey Cleckley published the first edition of The Mask of Sanity, which became a milestone in the field. Cleckley presented a description of the typical psychopath by the use of countless clinical observations of adult male patients categorized as “psychopathic”. Cleckley (1941/1988) introduced 16 characteristics distinguishing the psychopath: superficial charm, absence of delusions, absence of nervousness or psychoneuroticism, unreliability, insincerity, lack of remorse, antisocial behavior, poor judgment, pathologic egocentricity and incapacity for love, lack of affect, specific loss of insight, unresponsiveness in interpersonal relations, fantastic and uninviting behavior, suicides rarely carried out, impersonal sex life, and failure to meet life plans.

These criteria were used as a starting point for Robert D. Hare during the creation of the Psychopathy Checklist (PCL; Hare, 1985) and in the subsequent development of the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003). The PCL-R has since become the premier assessment instrument in the area of psychopathy (Patrick, 2006). In contrast to the PCL-R, the current edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association [APA], 2000) equates psychopathy with the term antisocial personality disorder (ASPD), which has sparked controversy because such a distinction inevitably creates unnecessary construct ambiguity (Hare, 1996; Hare & Neumann, 2006).

The public image of a psychopath is very broad, including conceptions such as the corporate psychopath, the manipulative boss who achieves what he wants at any cost. The con artist, the charismatic, and highly intelligent individual with chameleon-like qualities. The chronic offender, who from an early age is burdensome
to society by causing all sorts of trouble, perpetually coming and going to and from detention centers, and later in life, prisons; and the serial killer. These descriptions overlap in part, but they are also very distinct (Skeem et al., 2011). Psychopathy is dissociable from violence, but the key measure of psychopathy, namely the PCL-R (Hare, 2003), contain items that predict violence.

The main focus of this thesis is subclinical psychopathy, or what is sometimes referred to as successful psychopathy. The subclinical psychopath is described as an individual that embody most of the psychopathic behaviors, but refrains from serious antisocial traits, and is therefore rarely imprisoned or institutionalized (Hall & Benning, 2006). The term has its root in Cleckley’s previously mentioned book, which described individuals that had the essential characteristics of a clinical psychopath, but without behaving in a way that led to frequent arrests or convictions (Cleckley, 1988). Current research suggests that the subclinical psychopath, like the clinical psychopath, is devoid of affective empathy (Gao & Raine, 2010), which is a related concern in this thesis. Relatively little empirical research has been conducted on subclinical psychopathy (Hall & Benning, 2006), but when the material permits, the two groups will be contrasted.

This thesis first outlines psychopathy as a construct and its relation to ASPD. Second, there is a brief overview of the conceptual frameworks regarding the differences between the clinical and subclinical psychopath. Third, an outline of the empathy construct and its relation to psychopathy is presented. Lack of affect is a significant part of the psychopathy construct, and empathy is therefore a relevant and related construct. Fourth, empirical evidence pertaining to both empathy and psychopathy will be reviewed, which includes subsequent discussion regarding the state of the psychopathy construct. The main argument presented in this thesis concerns the conception of subclinical psychopathy, and it is argued that the current conception is problematic in several different ways. The conclusion states that the conception of subclinical psychopathy needs revision in terms of more objective criteria.
Clarifying the Psychopathy Construct

Antisocial Personality Disorder

ASPD was first introduced in the third edition of the DSM (DSM-III; APA, 1980), and contrary to both Cleckley’s and Hare’s criteria of psychopathy, the DSM relied solely on behavioral characteristics (e.g., aggressive outbursts and impulsivity) rather than affective or interpersonal traits, such as: egocentricity, deceit, shallow affect, manipulativeness, selfishness, and lack of empathy, guilt or remorse; which have been key in the conceptualization and diagnosis of psychopathy (Hare, 1996).

The DSM-IV-TR (APA, 2000), describes an individual with ASPD as someone with: “a pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood. This pattern has also been referred to as psychopathy, sociopathy, or dyssocial personality disorder.” (pp. 701-702). (Complete diagnostic criteria are available in Table 1.) It is important to note that the quite rigid terminology of the DSM-IV-TR is not necessarily a rule of law within contemporary psychiatry. For instance, DeWall and Anderson (2011) defines antisocial behavior via reference to actions that violate personal or cultural standards for appropriate behavior. Thus, antisocial behavior often encompasses violence and aggression, but it also includes behavior such as cheating, stealing and breaking other laws. This clarification does not make a very significant difference in relation to subclinical psychopathy. The subclinical psychopath is not necessarily devoid of antisocial behavior as such, but rather of the more severe antisocial traits (LeBreton, Binning, & Adorno, 2006).

According to DSM-IV-TR (APA, 2000) psychopathy and ASPD can be considered synonymous constructs, which has since been a point of controversy (Hare & Neumann, 2006). Personality traits were deemed too difficult for clinicians to gauge, and were therefore disqualified from the ASPD diagnosis (Hare, 1996; Hare & Neumann, 2006). Hare has argued that the creation of ASPD resulted in an entirely new construct which is related to – but not synonymous with – psychopathy, as measured by the PCL-R (Hare & Neumann, 2006). The evidence to support this claim
Table 1

Diagnostic criteria for antisocial personality disorder (DSM-IV-TR)

A) There is a pervasive pattern of disregard for and violation of the rights of others occurring since age 15 years, as indicated by three or more of the following:
   1. failure to conform to social norms with respect to lawful behaviors as indicated by repeatedly performing acts that are grounds for arrest;
   2. deception, as indicated by repeatedly lying, use of aliases, or conning others for personal profit or pleasure;
   3. impulsiveness or failure to plan ahead;
   4. irritability and aggressiveness, as indicated by repeated physical fights or assaults;
   5. reckless disregard for safety of self or others;
   6. consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations;
   7. lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another;

B) The individual is at least age 18 years.

C) There is evidence of conduct disorder with onset before age 15 years.

D) The occurrence of antisocial behavior is not exclusively during the course of schizophrenia or a manic episode.

can be found in forensic populations, in which there is an asymmetric association between ASPD and PCL-R, that is to say, most inmates that score high on the PCL-R meet the criteria for ASPD, but most with high scores of ASPD do not meet the criteria for PCL-R psychopathy (Hare, 1996; Hare & Neumann, 2006).

The prevalence of psychopathy in the general public is a much debated issue. Hare (1999a) estimated that the prevalence rates are around 1%. Blair, Mitchell, and Blair (2005) has estimated that the prevalence of psychopathy .75% in the general population. The authors do not specify in which part of the world these measurements were carried out. This is significant because there are cultural differences in the prevalence of psychopathy traits (Cooke, 1998), however, details in regards to that subject is beyond the scope of this thesis. Furthermore, Blair et al. (2005) inferred their results from the prevalence rates of ASPD, which in turn has been estimated at a rate of 3% in the general population (APA, 2000), and 50-80% in prison populations (Ogloff, 2006). Coid and colleagues (2009) conducted a study which estimated that the prevalence rate of psychopathy in Great Britain is 0.6% (95% CI: 0.2–1.6).
There are a number of difficulties with providing an exact prevalence rate. One such difficulty is that psychopaths are almost exclusively studied inside prisons. Psychopathy is also much more frequent in prison populations (about 25%) than in the general population, thus making the numbers difficult to generalize from one paradigm to another (Hare, 1996; Hare & Neumann, 2006). Furthermore, the difficulties surrounding the construct have led to dubious data regarding prevalence rates. The studies of psychopathy prevalence in prison populations have varied depending on the cut-off score used on the PCL-R questionnaire. Thus, it has been argued that the cut-off score has an element of arbitrariness, and is essentially as good as the knowledge and ability of the researcher (Blackburn, 2009).


Recently, Coid and Ullrich (2010) hypothesized that ASPD and psychopathy belong on the same continuum because they may share etiology. The researchers were unable to show that ASPD and psychopathy are distinct diagnostic entities, and accordingly, they found no evidence to suggest that individuals with both ASPD and psychopathy constitute a specific subcategory. Instead they suggested that psychopathy is too complex to measure dichotomously, based on an arbitrary cut-off point.

**The Psychopathy Checklist**

Robert D. Hare created a diagnostic tool (the PCL) which corresponds more closely to Cleckley’s original definition of psychopathy (Hare, 1996; Hare & Neumann, 2006). Originally, Hare and his colleagues rated prison inmates along a 7-point (low to high) rating scale based on Cleckley’s criteria for psychopathy. This yielded over 100 items, some of which were deemed too vague or difficult to score. A series of subsequent statistical analyses determined which items had the best psychometric
properties. These items were used in the original PCL questionnaire, which consisted of 22 items. Each item was measured on a three point (0, 1, 2) ordinal scale, where 0 indicated that the characteristic was not present or did not apply, 1 indicated uncertainty as to whether it applied or not, and 2 indicated that the characteristic was definitely present. Each item is scored on the basis of an interview and file information, which is the standard PCL procedure (Hare & Neumann, 2006).

Over the years, the PCL has been subject to minor revisions, including the removal of two items due to scoring difficulties and reliability issues. The current (2\textsuperscript{nd}) edition of the PCL-R (Hare, 2003), contains 20 items (See Table 2), yielding a maximum score of 40, with a cut-off score typically set to 30 (Hare & Neumann, 2005). The cut-off score is generally adjusted depending on the purposes of the procedure (e.g., research, forensic, or risk assessment). Adjusting the cut-off scores has been seen as problematic, because it potentially renders the PCL-R measurements arbitrary (Leygraf & Elsner, 2008). In order to understand any psychological construct, a clear underlying dimensionality needs to be developed.

In the case of psychopathy, recent exploratory factor analytic research has shown that between two to five factors (Cooke & Michie, 2001; Hare, 2003; Hare et al., 1990; Hare & Neumann, 2008; Widiger & Lynam, 1998) can be amassed from psychopathy measurements (Hare & Neumann, 2006). There is an ensuing debate as to whether or not psychopathy is a unitary or multifarious construct or in other words, if there is a single underlying etiology or multiple etiologies (Lilienfeld & Fowler, 2006; Skeem et al., 2011).

Most researchers adhere to a two-factor model (viz. interpersonal-affective and social deviance) which divides into four facets (viz. interpersonal, affective, lifestyle, and antisocial), but whether or not the factors diverge in different directions has been called into question (Skeem et al., 2011). There is some evidence that the two major factors (i.e., interpersonal-affective, and social deviant) correlate to external variables in different directions. An example of this is that the interpersonal factor is negatively associated with emotional distress, and the social deviance factor is positively
### Table 2

**Psychopathy Checklist–Revised (PCL-R) Factors, Facets, and Items**

<table>
<thead>
<tr>
<th>Factor 1: Interpersonal-affective scale</th>
<th>Factor 2: Social deviance scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facet 1</strong></td>
<td><strong>Facet 2</strong></td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Affective</td>
</tr>
<tr>
<td>Glibness or superficial charm;</td>
<td>Lack of remorse or guilt;</td>
</tr>
<tr>
<td>Grandiose sense of self-worth;</td>
<td>Shallow affect;</td>
</tr>
<tr>
<td>Pathological lying;</td>
<td>Callous or lack of empathy;</td>
</tr>
<tr>
<td>Conning or manipulative</td>
<td>Failure to accept responsibility</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From (Hare, 2003)

*Note. Two PCL-R items are not included in this factor structure: namely “promiscuous sexual behavior”, and “many short-term marital relationships”, because they do not load onto any specific factor (Hare & Neumann, 2006). Hare and Neumann (2008) refer to this model as a two factor higher-order representation of a four factor correlated model.*

Associated with emotional distress (Hicks & Patrick, 2006). This aspect of the construct has not been conclusively proved either way, thus the field remains divided (Skeem et al., 2011).

### Gender Differences in Psychopathy

Gender differences in psychopathy will generally not be taken into account in this thesis, in large part due to that the overwhelming majority of empirical research has been on male offenders and psychiatric patients. However, there are a few interesting differences that relate to subclinical psychopathy and problems with assessment. One of these issues is the prevalence of psychopathy in women, which has been estimated (in prisons and institutions) at 9% to 23% in women, compared to 15% to 30% in men (Nicholls, Ogloff, Brink, & Spidel, 2005; Vitale, Smith, Brinkley, & Newman, 2002). The relatively high percentage span is because measurements were made in different cultures, in which different cut-off scores are utilized for reasons that are beyond the scope of this thesis (Logan & Weizmann-Henelius, 2012).
Another gender related issue regarding psychopathy is that women tend to present with slightly different characteristics than men. The stereotypical gender roles of men and women tend to be amplified in psychopaths. This means that psychopathic men are more physically aggressive, dominant, are less anxious and emotional. Psychopathic women are to a lesser extent physically violent, but instead rely more on relational aggression (including child abuse and sexual coercion). Emotionally, psychopathic men and women are believed to be very similar, with the difference being that women are more emotionally unstable and anxious (Logan & Weizmann-Henelius, 2012).

Hare (2003) argued that it is likely that the PCL-R score represents much the same level of psychopathy in both male and female psychiatric patients and offenders. This assumption may be erroneous, because the behavior related to the antisocial items (Facet 4) may present more infrequently in women (Logan & Weizmann-Henelius, 2012). Women also have a lower rate of criminal convictions and reconvictions (Forouzan & Cooke, 2005; Gelsthorpe, 2004; Verona & Vitale, 2006), which is interesting in relation to subclinical psychopathy, and especially in regards to the criticism portrayed in this thesis.

Psychopathic women are also reported to be more flirtatious. More specifically, it has been reported that they are charmed by the psychiatrist performing the PCL-R interview, whereas psychopathic men tend to try to impress and charm the interviewer (Forouzan & Cooke, 2005). Applying the PCL-R criteria to women may also have the disadvantage of inferring behavior that has different social and psychological meaning for men and women. One such example relates to sexual promiscuity, which in psychopathic women may relate to manipulation and securing partners one can exploit; the same criteria in psychopathic men on the other hand, may relate more to sensation- or status-seeking efforts (Quinsey, 2002).

The PCL-R manual lack guidance when it comes to interpreting some of the items in relation to women. For instance, the item parasitic lifestyle is ambiguous, because women have a material and financial dependency on men to a larger extent than the
reverse scenario. In many societies, this is a social norm that is broadly accepted. The opposite is not broadly accepted, and therefore, male financial dependency on women is sometimes interpreted as parasitic behavior (Logan & Weizmann-Henelius, 2012). The various facts mentioned here has led some researchers to conclude that gender equivalence in the expression of psychopathy cannot be assumed (Forouzan & Cooke, 2005), which in turn may have a significant effect on prevalence scores, both in the community and in forensic settings (Logan & Weizmann-Henelius, 2012).

**Clinical and Subclinical Psychopathy**

The subclinical psychopath is defined by the quite blunt criterion of whether or not the individual has been imprisoned or institutionalized. Practically, the difference between the clinical and subclinical psychopath is a behavioral one. The subclinical psychopath is engaged in behaviors that breach social norms – but are not necessarily illegal – such as achieving personal or professional success at the expense of others, which is why the term successful psychopathy is often employed as a synonym (Hall & Benning, 2006). There are two important caveats that need mentioning: first, subclinical psychopaths are considerably less antisocial than the clinical psychopath, but this does not mean that they are always non-violent. Second, the clinical or unsuccessful psychopath is not defined simply by where the individual is currently located, but rather by looking at criminal history etc. Thus, a psychopath that has been convicted of several crimes, but is currently residing in the community is not considered a successful psychopath (Gao & Raine, 2010).

There are several difficulties with studying subclinical psychopathy. First, it has been argued that the focus on antisocial behavior in DSM-III, and DSM-IV have led to an under-representation of other behaviors, and traits (Lilienfeld, 1998; Messick, 1995). Second, identifying subclinical psychopaths has proven a difficult task. Third, the PCL-R was developed primarily based on data from incarcerated inmates (Hare, Clark, Grann, & Thornton, 2000), and this data may not generalize onto psychopaths (either clinical or subclinical) residing in the community (Hall & Benning, 2006).
Additionally, another difficulty relates to the screening of psychopaths in subclinical environments, being that the PCL-R employs a semi-structured interview and inmate conviction history etc. This level of rigor in screening procedure is not possible in the general population (Hall & Benning, 2006). This led to the creation of alternative instruments, such as the *Psychopathic Personality Inventory* (PPI; Lilienfeld & Andrews, 1996). These are some of the reasons for the low output of studies regarding subclinical psychopathy (Hall & Benning, 2006).

At least three important reasons have been proposed for studying the clinical and subclinical psychopaths (Gao & Raine, 2010). First, the fact that an overwhelming majority of the research on psychopathic individuals has been based on clinical psychopaths means that the collected data may not generalize to subclinical psychopaths. This is very important because, as stated previously, the prevalence of psychopathy is estimated at around 0.6-1% in the general population (Coid, Yang, Ullrich, Roberts, & Hare, 2009; Hare, 1999a) and 3.5% in the business world (Babiak & Hare, 2009). Thus, subclinical psychopaths may outnumber clinical psychopaths. Second, studying subclinical psychopaths may lead to etiological insights, and they may function as a “control group”, in the sense of excluding, or diminish criminality as a criterion. Third, the etiology of subclinical psychopathy may be different from clinical psychopathy, and the factor, or factors that shield the subclinical psychopath from incarceration may be relevant for rehabilitation and proactive purposes (Gao & Raine, 2010). Researchers disagree about how the clinical and subclinical aspects of psychopathy can converge. Hall and Benning (2006) have provided descriptions of the three main conceptual perspectives.

**Subclinical Psychopathy as a Manifestation of the Disorder**

Subscribers of this perspective argue that the same etiological differences can be found in the subclinical psychopath, but at reduced severity, in comparison to the clinical psychopath (Hall & Benning, 2006). Gustafson and Ritzer (1995) argue that clinical and subclinical psychopaths differ only in *degree*, not in *type*. Their research rebranded the subclinical psychopath as an *aberrant self-promoter* which is
conceptualized as an individual that is exploitative, lack empathy, violate social norms, and have highly narcissistic behavior, although the ASP's behavior need not technically be illegal. The purpose of this distinction is to find patterns between individuals who are not necessarily psychopaths according to the PCL-R, and yet are socially destructive in their everyday lives.

**Subclinical Psychopathy as a Moderated Expression of the Full Disorder**

This approach proposes that clinical and subclinical psychopaths share not only a common etiology but also equivalent severity of the basic underlying pathology. Lykken (1995) proposed that some of the heroes, leaders and adventurers of a society have the same predisposition to fearlessness that can be found in psychopaths. Albeit, with the difference of having an adequate level of socialization during their upbringing, thus ridding them of antisocial behavior. The theory suggests that expression of antisocial behavior may be reduced if an individual has compensatory factors, such as a special talent, high intelligence, high socioeconomic status etc. (Hall & Benning, 2006).

**Subclinical Psychopathy from a Dual-Process Perspective**

In this conceptualization, the interpersonal–affective features of psychopathy are considered to be etiologically distinct from the antisocial behavior component, it has been referred to as the dual-process, or dual-deficit model of psychopathy (Fowles & Dindo, 2006). Being that these two trait dimensions are thought to reflect distinct etiologies, certain individuals could exhibit an elevation in one dimension but not the other (Hall & Benning, 2006). Thus, the subclinical psychopath would have elevated levels of interpersonal-affective traits, but have about normal levels of traits related to antisocial deviance. This model draws inspiration from the two factor model of psychopathy, which in this framework allows for the possibility of diverging behavior, which allows the possibility of scoring high on one factor, but low on the other. Accordingly, if one scored high on the interpersonal-affective factor, but not the antisocial factor, one would perhaps fit into this conception of subclinical psychopath (Hall & Benning, 2006). It should be noted that the three distinctions presented here
are not necessarily mutually exclusive, but rather, different approaches to the same problem (Hall & Benning, 2006). Furthermore, the first and second perspectives can be interpreted as advocating that the psychopathy construct belongs on a spectrum, whereas the third perspective argues that there is a difference in etiology between the two groups.

These three conceptualizations are interesting in relation to current research. For instance, Gao and Raine (2010) postulated that the subclinical psychopath is successful because of a number of factors: “...intact or enhanced neurobiological processes, including better executive functioning, increased autonomic reactivity, normative volumes of prefrontal gray and amygdala, and normal frontal functioning” (p. 194), which may serve as “...factors that protect successful psychopaths from conviction and allow them to attain their life goals, using more covert and nonviolent approaches” (p. 194). Surprisingly little has been said about these matters, that is, what makes the successful psychopath successful. A skeptic could argue that imprisonment is an arbitrary point of measure when it comes to such things as behavior and personality, because imprisonment is in part dependent on culture, socioeconomic status, skin color, age, etc. In other words, the skeptic would appeal to a stronger conceptualization that utilizes something like biological or neuronal empirical data.

Gao and Raine (2010) comment that serial killers who evade justice for a very long time, but eventually get caught, could constitute a form of “semi-successful” psychopathy. One could argue that such a conceptualization goes against all three perspectives, because all three attempt to retain that subclinical psychopaths are not as severely antisocial as clinical psychopaths. Serial killers constitute the very epitome of severe antisocial behavior, and thus, calling them semi-successful yields serious consequences for the traditional notions of a subclinical psychopath.
Empathy

In Cleckley’s (1988) original description of the psychopath, a key characteristic was lack of remorse, and a poverty of emotional reactions. This notion has since become a major part in the psychopathy construct (Baron-Cohen, 2012; Blair, 2005; Hare, 1999b, 2003). Empathy has been defined by Baron-Cohen (2012) in the following way: “Empathy is our ability to identify what someone else is thinking or feeling, and to respond to their thoughts and feelings with an appropriate emotion” (p. 12), which suggests two stages of empathy: recognition and response. From a conceptual perspective, empathy can be regarded a very broad term which is related to a plethora of more finely defined terms used for a more comprehensive categorization (e.g., mimicry, emotional contagion, sympathy, and compassion) (Singer & Lamm, 2009).

Singer and Lamm (2009) stress the importance of the self-other distinction, in other words, our ability to distinguish between whether or not the source of an emotional response lies within ourselves or was triggered by the other. They further distinguish between, on the one hand, empathy – and sympathy, empathic concern, and compassion, on the other. Empathy allows one to “feel with” someone, whereas the latter terms allow one to feel “for someone”. The practical difference between these two is: feeling sadness for someone who is sad, rather than merely feeling pity, or concern, for someone who is sad. Pity is not the appropriate empathic response, but it may be a compassionate response. Also, if an observer notices that someone is jealous of him, feeling jealousy towards that person is not an appropriate response, feeling sorry for that person would be more appropriate (Singer & Lamm, 2009; for similar arguments, cf. de Vignemont & Singer, 2006).

Singer and Lamm (2009) argue the self-other distinction is crucial, and that many researchers have used these terms synonymously, thus creating both confusion, and widely used psychometric measuring tools, which rely solely on self-report. Ultimately, “empathy is conceived to be a first necessary step in a chain that begins with affect sharing, followed by understanding the other person’s feelings, which then
motivates other-related concern and finally engagement in helping behavior” (Singer & Lamm, 2009, p. 84). For a comprehensive list of distinctions currently used by researchers in this field, see Batson (2009).

The terms empathy and sympathy have been used in various different ways in scientific literature (cf. Dolan & Fullam, 2007), however, sympathy is not a concept that this thesis will take into consideration. This thesis will treat empathy in accordance with Blair’s (2007a) tripartite division into motor empathy, cognitive empathy – also referred to as theory of mind (ToM; Premack & Woodruff, 1978), or mentalizing (Frith, Morton, & Leslie, 1991) – and affective, or emotional empathy. Motor empathy refers to where the individual mirrors the motor responses of the observed actor; cognitive empathy refers to where the individual represents the internal mental state of the other; and affective empathy refers to an individual’s congruent emotional response to another individual’s emotional state (Blair, 2007a).

**Cognitive and Affective Empathy**

The scientific consensus is that the severe empathic dysfunction evident in psychopaths is mainly due to lack of emotional (or what is also referred to as affective) empathy, but with intact cognitive empathy (Blair, 2005, 2007a; Cox et al., 2012). However, this is a complicated subject, partly due to the lack of scientific consensus regarding the composition of the empathy construct (Blair, 2005; Mullins-Nelson, Salekin, & Leistico, 2006). Happé and Frith (1996) found similarities between autistic children and children with conduct disorder (CD) – which is a diagnosis similar to that of adult ASPD – specifically, that both groups have difficulties with cognitive empathy in comparison to control groups. Partly based on this finding, Söderström, Blennow, Sjödin, and Forsman (2003) argue that psychopathic individuals are empathically deficient in more aspects than the affective department. Blair (2007a) disagrees with this conclusion. He argues that both ASPD and CD are flawed diagnoses, being that the diagnostic rate of CD can reach more than 16% of boys in the general population (DSM-IV; American Psychiatric Association, 1994). The same imprecision is found in ASPD, which can reach a diagnostic rate of 50-80% in adult forensic institutions.
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(Ogloff, 2006). Blair (2007a) caveats that because of these imprecisions, researchers need to be careful not to treat the constructs as more similar than they actually are.

Dolan and Fullam (2004) proposed that the deficits in cognitive empathy in individuals with ASPD are subtle. They performed a variety of ToM tasks and found significant differences during the so-called faux pas task. The faux pas task is described in the following way:

A faux pas occurs when someone says something that they should not have said without realizing that they should not have said it. An understanding of faux pas requires a person to represent the mental state of both the speaker and hearer of the faux pas, i.e., it requires an understanding that the speaker does not realize they should not have said it, and that the person on the receiving end of the faux pas will feel hurt or insulted (Dolan & Fullam, 2004, p. 1096).

The subjects were asked a series of questions pertaining to the mental state of both the speaker and listener. An additional control question was asked in order to make sure that the subjects were able to follow and understand the elements of the story, and further, their ability to recognize how the people in the story might have felt. Results showed significant differences between criminals (both psychopathic and non-psychopathic) and controls, regarding the assessment of the mental state of both the speaker and listener. There were no significant group differences in the control question, indicating that the subjects were able to follow the story in a similar fashion. Regarding the empathy-related question, both psychopathic and non-psychopathic criminals were impaired in comparison to controls. In conclusion, Dolan and Fullam (2004) argue that the deficits found in psychopaths seem to relate to a general lack of concern regarding the impact of their actions, rather than an inability to understand that their actions impact others.

Very few studies have been conducted regarding empathy in subclinical psychopaths – only one, according to Mullins-Nelson et al. (2006) – but at least one more study has been conducted since then (viz. Gao & Raine, 2010). Mullins-Nelson
et al. (2006) studied psychopathy in a college population, and its relation to both cognitive and affective empathy. The measuring instrument used was the *Psychopathic Personality Inventory–Short Form* (PPI–SF; Lilienfeld & Andrews, 1996), an abridged version of the PPI (Lilienfeld & Andrews, 1996), both of which are self-report instruments. Both components of empathy were measured with the *Interpersonal Reactivity Index* (IRI; Davis, 1983), which is also a self-measurement instrument. The participant sample was composed of 44 males (25%) and 130 females (75%), which is important to note due to the significant gender differences regarding subjective reporting in both cognitive and emotional empathy (Baron-Cohen & Wheelwright, 2004; Schulte-Rüther, Markowitsch, Fink, & Piefke, 2007). As expected, the results showed that the high scorers on the PPI–SF did not differ in their perspective-taking ability (cognitive empathy), but they were also less likely to demonstrate affective empathy, thus reinforcing the picture of the psychopath as someone who simply does not care about negative consequences (Mullins-Nelson et al., 2006).

The original version of the PPI was based on eight subscales which, in the PPI–SF, are condensed into two factors: stress immunity, social potency, fearlessness, and coldheartedness (PPI–SF–I); and impulsive nonconformity, blame externalization, Machiavellian egocentricity, and carefree non-planfulness (PPI–SF–II). Upon studying the specific factors, the researchers found that high scorers on the psychopathy measurement that also scored highly on the PPI–SF–II evidenced deficits in almost all aspects of emotional functioning, including cognitive empathy. In accordance with these findings, the researchers argue that the successful psychopath may be one that scores high on the first factor but not on the second factor (Mullins-Nelson et al., 2006).

Lilienfeld and Fowler (2006) have discussed several drawbacks with the PPI instrument. Self-report instruments are always problematic, but especially when dealing with psychopaths, who in their very nature are manipulative, and dishonest. Psychopaths tend to lie either for some personal gain, or simply because they find it entertaining, a phenomenon Ekman (1985) referred to as *duping delight*. A second
problem is the lack of insight any person may have into one's personality, but with psychopaths, who tend to have an unrealistic world view (e.g., lack of realistic long term goals), the problem becomes even more significant. Third, asking individuals who have an inherent lack of emotions (or at least an inability to utilize their emotions in any meaningful way) what they feel is in and of itself problematic. For a lengthier discussion of these matters, see Lilienfeld and Fowler (2006).

**Motor Empathy**

In relatively recent years, a further constructional division of empathy, known as motor empathy, has been made (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003). This account has its basis in the discovery of mirror neurons (Di Pellegrino, Fadiga, Fogassi, Gallese, & Rizzolatti, 1992; Rizzolatti, Fadiga, Gallese, & Fogassi, 1996), which are neurons that show activity during the execution of an action, and also during the observation of the same or a similar action (Iacoboni, 2009). Evidence suggests that motor empathy is when we understand what others feel, as relayed by a mechanism of action representation. Our empathic emotions are therefore, at least partially, moderated by the emotions associated with a specific movement (Carr et al., 2003). The motor mirror neuron system is believed to be composed of regions in the posterior inferior frontal gyrus (IFG) the ventral premotor cortex, and the rostral inferior parietal lobule (IPL) (Shanton & Goldman, 2010). Whether or not psychopathic individuals have deficient motor empathy is under debate. However, Blair (2005) argues that this is unlikely, and that their empathic deficiencies are limited to marked facial expressions and selective emotional empathy.

Avenanti, Bueti, Galati, and Aglioti (2005) studied what happens with motor responses when a normal person (as opposed to a psychopath) observes a model hand being pricked by a needle. They used *transcranial magnetic stimulation* (TMS)-induced *motor evoked potentials* (MEP) to measure motor cortex excitability and the results showed a reduction of MEP amplitude that was specific to the muscle that subjects observed being pricked. The increase of reduction correlated with the observer’s subjective empathic rating of the sensory, but not affective, qualities of the pain
ascribed to the model. Fecteau, Pascual-Leone, and Théoret (2008) used the PPI (Lilienfeld & Andrews, 1996) in conjunction with the TMS-MEP methodology, in an endeavor to find out whether or not psychopathic individuals would show the same reduction. Their results showed that high scores on a PPI subscale called coldheartedness correlated significantly with reduction in MEP amplitude, which suggests that individuals with specific psychopathic characteristics (those related to the coldheartedness subscale) are, at a sensorimotor level, more responsive than individuals with a lower coldheartedness score. Lilienfeld and Andrews (1996) define coldheartedness as “a propensity toward callousness, guiltlessness, and unsentimentality” (p. 495). The coldheartedness factor correlates significantly to Factor 1 of the PCL-R (Hare, 1991), but not to Factor 2 (Poythress, Edens, & Lilienfeld, 1998). The finding of Fecteau et al. (2008) gives credence to Blair’s (2005) conjecture that psychopaths have intact motor empathy and that their lack of guilt or remorse must be attributed to some other cognitive faculty.

**Empathizing–Systemizing Theory**

Simon Baron-Cohen has developed a theory known as the empathizing–systemizing theory (*E–S Theory*; Baron-Cohen, Knickmeyer, & Belmonte, 2005). The systemizing component of the theory incorporates the notion that the brain looks for patterns in order to figure out how the world is connected, and how to predict the future. The empathizing component is simply one’s ability and interest in empathizing with someone else; both aspects conform to normal distribution. The theory states that psychopathy is the polar opposite of autism. The hypothesis being that autistic individuals have difficulties in understanding the emotional states of others, but if and when they do understand them, they have the capacity to empathize. The psychopath on the other hand, has the ability to understand that the observer feels, but not how or what it feels (Baron-Cohen, 2012).

In 2006, Auyeung et al. examined fetal testosterone levels and its relation to systemizing ability. The study found a significant difference in systemizing quotient (SQ) between boys (mean = 27.79 ± 7.64) and girls (mean = 22.59 ± 7.53), thus
confirming the hypothesis that boys systemize to a larger extent than girls (Auyeung et al., 2006), which connects to the fact that male fetuses are exposed to higher levels of testosterone than are female fetuses (Knickmeyer & Baron-Cohen, 2006). Another study found a significant negative correlation between fetal testosterone and measures on an empathy task. The authors concede that levels of empathy are likely to be influenced by post-natal experience that may override the pre-natal biological environment (Chapman et al., 2006).

Testosterone has been proposed as an important part of psychopathy, due to its relation to aggression – which is defined as behaviors that are intended to inflict harm (Nelson & Trainor, 2007). However, very few studies have been published on the subject to this date. Glenn, Raine, Schug, Gao, and Granger (2011) investigated the ratio between cortisol and testosterone, because it had been suggested that the cortisol-testosterone-ratio was associated with psychopathy (Terburg, Morgan, & van Honk, 2009). The researchers were unable to find significant results when manipulating the participants with stress, but they did observe a significant relationship between baseline cortisol, and testosterone, which accounted for about 5% of the variance in psychopathic traits.

Söderström et al. (2001, 2003) conducted two consecutive studies that showed a correlation between psychopathy and an increased ratio between serotonin (5–HIAA), and dopamine (HVA) metabolites. This may have an effect on the disinhibition of aggressive impulses that is typical of psychopaths. Thus, combining dopamine and serotonin regulation may improve impulse control in psychopaths. The neurotransmitter serotonin (5–HT) has been proposed to – in combination with a high testosterone-cortisol ratio – facilitate between instrumental (i.e., associated with premeditation, and not merely violence as a consequence of an affective reaction), and impulsive aggression. Specifically, low cortisol, high testosterone and low levels of 5–HT is believed to predispose impulsive aggression (Montoya, Terburg, Bos, & van Honk, 2012; Terburg et al., 2009; van Honk, Harmon-Jones, Morgan, & Schutter, 2010). For a review of the neuroanatomy of aggression, see Nelson and Trainor (2007).
Furthermore, studies have shown that increased serotonin in the hypothalamus may increase the production of cortisol (Glenn & Raine, 2008); thus, dysregulation of serotonin may be connected to the low levels of cortisol observed in psychopaths. It is also a possibility that serotonin interacts with testosterone levels and increase the probability of aggression. One such study showed that high testosterone and low serotonin may correlate to both intensity, and rates of aggression (Higley et al., 1996). Glenn and Raine (2008) caution readers that the neuroendocrinology of psychopathy is in its early stages: thorough understanding of the neurobiology of psychopathy requires not only knowledge of brain region involvement, genetics, neurotransmitters, and hormones, but rather, an assembly of all of these aspects. An important criticism has been raised by Ellis, Beaver, and Wright (2009). In a discussion regarding testosterone, they comment that most studies either use blood or saliva to measure testosterone, neither of which are ideal measurements when it comes to behavior. The brain causes behavior, blood and saliva do not. Therefore, they argue that it is important to measure the levels of testosterone (and possibly many other hormones) in the brain, which is most effectively carried out by performing a lumbar puncture, which is a painful and invasive procedure that researchers often do not use.

At least 13 brain regions have been suggested to be part of the empathy network (Baron-Cohen, 2012), which sheds some light on how complex the empathy construct is. Empathy has been studied in a wide variety of ways, across several different domains. Neuroimaging studies have been performed for a multitude of different aspects of empathy, such as pain (Coll, Budell, Rainville, Decety, & Jackson, 2012; Singer et al., 2004), disgust (Jabbi, Swart, & Keysers, 2007), touch (Keysers et al., 2004), anxiety (Morelli, Rameson, & Lieberman, 2012), happiness, and anger (Dimberg & Thunberg, 2012). In addition, empathy induction procedures are traditionally either simple observation (Keysers et al., 2004), imagination (Jackson, Brunet, Meltzoff, & Decety, 2006), or evaluation (Jackson, Meltzoff, & Decety, 2005).

The high variation in these studies do not make it clear, which, if any, underlying neural regions that are consistently active in all, or most, scenarios. This was
subsequently investigated by Fan, Duncan, de Greck, and Northoff (2011), who identified several clusters relevant for different empathy paradigms: the anterior midcingulate cortex, dorsal anterior cingulate cortex (ACC), supplementary motor area, and bilateral anterior insula (AI). The researchers confirmed their hypothesis that these four areas are the core networks that lays the foundation for empathy. However, the affective–perceptual and cognitive–evaluative forms of empathy are believed to have different neural bases, but with extensive interconnections between the two areas, which suggests a detailed division of specific functions. The affective network has been suggested to be comprised of the right AI, thalamus, and periaqueductal gray (PAG) (Kober et al., 2008). The cognitive-evaluative form of empathy seems to be carried out by the left AI alone, but more thorough research is yet to be carried out (Fan et al., 2011).

Additionally, based on the findings of the mirror neuron system (Di Pellegrino et al., 1992; Rizzolatti et al., 1996), some researchers have proposed simulation as an intimate component of empathy (Gallese, 2001, 2003; Schulte-Rüther et al., 2007). Fan et al. (2011) did not find any evidence to suggest that the areas believed to be involved in simulation (e.g., the left IFG and IPL) were consistently active during empathizing. The researchers make caution that this discovery is by no means final, and that simulation may be a core part of empathy, though not in terms of consistent neural activity.

Shamay-Tsoory (2011) has hypothesized that the cognitive and affective components of empathy are dissociable systems. Evidence is support of this claim comes from ethological, psychiatric, and developmental studies. There is also evidence that suggests that the neurotransmitter oxytocin plays a large role in emotional empathy, but not in cognitive empathy (Hurlemann et al., 2010). Shamay-Tsoory (2011) further suggests that the IFG and IPL are involved in simulation, which along with the insular cortex and ACC makes up the emotional empathy network. The cognitive network is believed to be comprised of the ventromedial prefrontal cortex (VMPFC), dorsomedial prefrontal cortex (DMPFC), temporoparietal junction, and
medial temporal lobe (MTL). This network is believed to be involved with both
cognitive and affective mentalizing processes.

Thoma, Friedmann, and Suchan (2013) has commented that studies on
psychopathy has provided some support for the hypothesis that they are cognitively
impaired and that little has been done to investigate emotional empathy. Further, they
urge researchers to differentiate between subclinical and clinical psychopaths, because
of their importance in relation to cognitive and emotional empathy.

The Neurophysiological Basis of Psychopathy

Neuroscientists have looked for brain abnormalities in psychopaths since the
time of Phineas Gage. In 1848, Gage was severely injured by an iron rod which passed
through his skull, penetrating his prefrontal cortex (PFC) — mainly the orbitofrontal
cortex (OFC) — leaving Gage with profound personality changes (O’Driscoll & Leach,
1998). Gage, as well as other patients with similar damage, has been diagnosed as
having acquired sociopathy or pseudopsychopathy, which is categorized by impulsive
and antisocial behavior. Blair (2003) has commented that pseudopsychopaths do not
exhibit the instrumental violence typical of psychopaths, which is consistent with the
behavior of Gage, who became aggressive and exhibited reactive (impulsive) violence
Raine and Yang (2006b). Further evidence for this theory has been provided by
Broomhall’s (2005) finding that pseudopsychopaths tend to score highly only on
PCL-R factor 2, whereas clinical psychopaths score highly on both factors.

Structural Deficits and Abnormalities in Psychopaths

Amygdala. The amygdala has played a major role in hypotheses regarding the
psychopathy construct (Baron-Cohen, 2012; Blair, 2003, 2008; Kiehl, 2006; Raine &
Yang, 2006a; Yang, Glenn, & Raine, 2008). The amygdala is known to play a major
role in fear condition and emotion recognition (Adolphs, Tranel, Damasio, & Damasio,
1994; Adolphs & Tranel, 2003), as well as both increasing and decreasing aggressive
behavior (Blair, 2004). The decrease in aggression was seen in a patient after a
bilateral amygdalectomy (Ramamurthi, 1988), and increases in aggression have been
seen in patients with temporal lobe epilepsy (Van Elst, Woermann, Lemieux, Thompson, & Trimble, 2000). Deficits in the amygdala have further been linked to both social behavior and moral emotion (Adolphs, Tranel, & Damasio, 1998; Blair, 2007b). Specifically, studies have shown that psychopaths demonstrate a lower level of amygdala activation when looking at fearful faces (Dolan & Fullam, 2009), or moral violations (Harenski, Harenski, Shane, & Kiehl, 2010), in comparison to controls. In terms of anatomical structure, Ermer, and colleagues (2012) conducted a large-scale study involving 296 participants. The researchers found decreased regional gray matter in several paralimbic and limbic areas, including bilateral parahippocampal, amygdala, and hippocampal regions, bilateral temporal pole, posterior cingulate cortex, and OFC. These findings were still relevant after controlling for substance abuse, brain size, and age. Furthermore, they argue that these results suggest that psychopathy may have its basis in a broader system of neural regions than expected (Ermer, Cope, Nyalakanti, Calhoun, & Kiehl, 2012).

Thus, the amygdala may be intimately related to many aspects of psychopathic behavior. Because both clinical and subclinical psychopaths have deficiencies in affective empathy, it may be the case that damage to the amygdala will be distinguishable only in comparison to controls, but not to subclinical psychopaths. This question was investigated by Yang, Raine, Colletti, Toga, and Narr (2010). They hypothesized that clinical psychopaths, but not subclinical psychopaths, would show significant volume reductions in the OFC, dorsolateral prefrontal cortex (DLPFC), and the amygdala, compared to controls. The group confirmed their hypothesis in finding structural deficits in both prefrontal areas and the amygdala pertaining to clinical psychopaths, but not subclinical psychopaths. Furthermore, clinical psychopaths showed a 26% volume reduction in the left amygdala, and 20% reduction in the right amygdala, compared to controls. In the subclinical psychopaths, the observed volume reduction was smaller, notably 9.3% in the left, and 12.7% in the right amygdala. Follow up analysis revealed that socioeconomic status or substance abuse was unlikely to have an effect on the results.
There is a related question regarding whether there are different brain deficits associated with different types of psychopathic behavior, specifically, whether, and how, variations in neurological disposition relate to instrumental versus affective violence. Psychopathic offenders display a higher rate of both community, and institutional violence than forensic patients, and the more general offender (Hart & Hare, 1997; Hill, Rogers, & Bickford, 1996). A study by Woodworth and Porter (2002) revealed that psychopaths show a much higher degree of instrumental violence than non-psychopaths. Their study showed that nearly all (93.3%) of the homicides committed by psychopaths was primarily instrumental, compared to 48.4% in non-psychopaths. It should be noted that definitions and evaluations of instrumental and affective violence are problematic, in the sense that they do not conform to a scientific consensus.

Prefrontal cortex. Yang et al. (2005) found a negative correlation between higher total PCL-R score and low gray matter volume in the PFC. Clinical psychopaths had 22.3% reduction in prefrontal gray matter volume in comparison to controls. Subclinical psychopaths, on the other hand, showed very little reduction (non-significant) in prefrontal gray matter, which is evidence of an important difference between the two. Increase in PCL-R score has also been found to be related to reduction of cortical thickness in both temporal, and prefrontal gray matter (Yang, Raine, Colletti, Toga, & Narr, 2009). A few studies found similar results in psychopaths, and in alcoholics with antisocial personality disorder (Dolan, Deakin, Roberts, & Anderson, 2002; Laakso et al., 2002). However, after controlling for education and alcoholism, these significant differences in brain volume disappeared, which has led to questions as to whether only clinical psychopaths are afflicted by such structural impairments (Yang et al., 2009).

The OFC is the most common prefrontal region implicated neuroimaging investigations of psychopathy (Anderson & Kiehl, 2012). Yang et al. (2010) published the first study that found significant structural differences between clinical and subclinical psychopaths in relation to the medial frontal cortex (MFC), and OFC. They
defined subclinical (they refer to it as successful) psychopaths as individuals with high PCL-R scores that managed to escape detection for their crimes. A PCL-R cutoff score of 23 and above was used. It should be noted that both groups reported that they had committed the same number of crimes on average, 9.88 for the clinical group, and 9.37 for the subclinical group. In this case, the clinical psychopaths had higher socioeconomic status than the subclinical group, although the difference was not statistically significant ($p = 0.06$). The results showed structural deficits in MFC, OFC, and amygdala in clinical psychopaths, but not in subclinical psychopaths. Interestingly, the subclinical psychopaths had higher gray matter volume in the left middle frontal cortex and superior frontal cortex than normal controls (Yang et al., 2010).

Though not directly related to psychopathy, Raine et al. (1998) observed that impulsive murderers have lower prefrontal activity than predatory murderers. Common to both groups were increased subcortical activity (midbrain, amygdala, hippocampus, and thalamus) in comparison to controls. This supports the intuitive hypothesis that the deficient prefrontal functioning prohibits the impulsive murderer from regulating, and controlling aggressive impulses (Raine & Yang, 2006b).

**Temporal lobe.** Dolan et al. (2002) revealed a 20% volume reduction of the temporal cortex in incarcerated personality-disordered offenders. These offenders corresponded more closely to the ASPD criteria, which makes the finding difficult to generalize, especially against the population of subclinical psychopaths. As noted above, Yang et al. (2009) reported reductions in gray matter thickness in the anterior and MTL, and also in the superior temporal regions and the insula. Müller et al. (2008) found significant gray matter reductions in frontal and temporal brain regions in psychopaths compared with controls. A specifically high volume loss was found in the right superior temporal gyrus. In contrast to the prefrontal, and the left temporal finding, right temporal volume loss was not because of other correlates, such as education, alcohol, or drug consumption (Müller et al., 2008).

**Hippocampus.** Raine et al. (2004) reported an exaggerated anterior hippocampal volume asymmetry (right $>$ left) in clinical psychopaths, relative to both
control, and subclinical psychopaths. Neither environmental factors nor diagnostic confounds could explain the phenomenon, which led the researchers to propose that the asymmetry is probably a developmental problem.

**Corpus callosum.** Raine et al. (2003) investigated the potential differences in the corpus callosum between 15 male subjects with high psychopathy scores, and ASPD, as compared to controls. The ASPD subjects showed 22.6% increase in estimated callosal white matter volume, 6.9% increase in callosal length, 15.3% reduction in callosal thickness, and increased functional interhemispheric connectivity. Larger callosal volumes were associated with affective and interpersonal deficits, low autonomic stress reactivity, and low spatial ability.

**Neuroimaging and Empathy**

According to Decety, Skelly, and Kiehl (2013), the neural processes linked to empathy have only been investigated with functional magnetic resonance imaging (fMRI) once, in psychopaths. The group of researchers used a total of 80 men incarcerated in a medium security correctional facility. The participants underwent a full PCL-R investigation, including file reviews, and interviews. Those scoring 30 or more on the PCL-R were assigned to a high-psychopathy group (n=27). Scores of 21-29 (n=28) were assigned to a medium-psychopathy group. The third group was low-psychopathy scorers (n=25), with a score of 20 or less. Furthermore, second-level analyses were conducted in order to compare PCL-R extremes. Participants with 30 or more were selected for the psychopathy group, and 20 or less for the control group. The subsequent testing involved two tasks for examining the neural processes linked to empathy when observing others being harmed, or making pained facial expressions. Participants in the psychopathy group showed less activation in the VMPFC, lateral OFC, and PAG, in comparison to controls. Interestingly, the lateral, and medial parts of the OFC are extensively interconnected with the amygdala, and hypothalamus, which are involved in the mediation of emotional and affective behavior (Blair, 2003; Decety, 2010a; Weber, Habel, Amunts, & Schneider, 2008). The psychopaths also exhibited greater activation in the insula, which positively correlated with scores on
both PCL-R factors. The participants also showed greater activation in the anterior insula (AI), dorsal striatum, dorsomedial prefrontal cortex, and posterior superior temporal sulcus, where the latter three are involved in the cognitive aspect of empathy, or ToM (Abu-Akel & Shamay-Tsoory, 2011; Carrington & Bailey, 2009; Van Overwalle & Baetens, 2009). Decety et al. (2013) find the high activity in the AIC surprising, due to it being the most consistently active brain region across all studies concerning pain related empathy (Decety, 2010b; Lamm, Decety, & Singer, 2011).

Discussion

In the introduction, two hypotheses were stated which have by now been discussed both theoretically and empirically. The first hypothesis regards the current conceptualization of subclinical psychopathy, specifically, that the conceptualization of subclinical psychopathy is flawed, because the criterion for being a subclinical psychopath is arbitrary. The second hypothesis is that there is some difference between clinical and subclinical psychopaths, and by this, I do not simply mean a difference of location (institutionalized or not), but rather, that there is a substantial difference in behavior.

The empirical evidence supporting the second thesis is, I think, convincing. The structural deficits found in clinical but not subclinical psychopaths are a solid foundation in support of the claim that there must be a significant difference. In a few of the studies reviewed, the subclinical psychopath has been found to have more gray matter than both clinical psychopaths and non-psychopathic controls. This suggests that the subclinical psychopath may be anatomically different in a way that allows him to, for one reason or another, behave in a significantly less antisocial manner. However, the behavior of an individual is not possible to simply reduce to how much white or gray matter there is in a given brain area. Due to factors such as neural plasticity, the brain may utilize alternative pathways and thus the same function (i.e., behavior) may be retained. Ultimately, concluding that structural deficits of up to 26% in the amygdala in clinical psychopaths (Yang et al., 2010) do not mean anything
whatsoever, is quite a stretch. Furthermore, at least one study has shown that psychopaths may be different on a sensorimotor level, specifically in regards to motor empathy (Fecteau et al., 2008). This study relied on self-measurement instruments in order to assess psychopathy, which renders the study a bit more problematic. In any case, studies such as these are important because they prod the important questions and return valuable information; which brings me to the second hypothesis.

The first hypothesis is the chief concern of this thesis, and relates to the issue of how subclinical psychopathy is currently discussed. The conceptualization of subclinical psychopathy has, to my knowledge, not been established in any finer detail than by how it has been presented in this thesis. Accordingly, subclinical psychopathy refers to individuals that refrain from criminal activity for one reason or another. The value of a distinction comes from what the distinction is supposed to be used for. Gao and Raine (2010) proposed three reasons for studying subclinical psychopathy. The first reason is to determine, with a greater degree of certainty, what the prevalence rate of psychopathy is. Second, subclinical psychopaths may not be exactly like clinical psychopaths, and hence, studying subclinical psychopaths may lead to etiological insights. Third, understanding how subclinical psychopaths operate may help with rehabilitation of all psychopaths. These three reasons are all good reasons for studying subclinical psychopathy. The problem is that the current conceptualization is ambiguous and depends on poorly chosen criteria.

To illuminate what I am referring to, one particular comment by Gao and Raine (2010) can be analyzed. They proposed that serial killers who evade law enforcement for long periods of time could constitute a form of semi-successful psychopathy. In my opinion, this terminology speaks volumes about the intrinsic flaw in the clinical-subclinical distinction, because subclinical psychopaths are supposedly not as intensely antisocial as clinical psychopaths. It is difficult to imagine a group of people that are more severely antisocial than serial killers, and thus, even amongst researchers, there exists a conceptual inconsistency that needs resolution.

There is a long standing tradition amongst psychopathy researchers to regard the
entire construct as a subset of ASPD, as seen in Herpertz and Saß (2000). Coid and Ullrich (2010) even goes so far as to suggest that ASPD and psychopathy belong on the same spectrum. They argue that the cut-off point used when diagnosing psychopaths with the PCL-R is arbitrary and that this has created a gap between the constructs which is uncalled for. It should be noted that this is a controversial position that does not conform to consensus. Other researchers have argued for the exact opposite position, namely, that ASPD and psychopathy are two very different constructs (Hare, 1996; Hare & Neumann, 2006; Perez, 2012). However, subclinical psychopathy is very rarely mentioned in conceptual debates and it is not obvious that subclinical psychopathy is simply a subset of psychopathy. The consequence of the current conceptualization is that subclinical psychopaths are forced into the same category as both clinical psychopaths, and in some conceptualizations, in the ASPD category. This categorization must result in that subclinical psychopaths are categorized as severely antisocial, which they, by definition, should not be.

The issue is that the behavior of subclinical psychopaths must be put into question. Is there such a thing as a subclinical psychopath with a pervasive pattern of antisocial behavior? The only criterion for determining whether or not an individual is a clinical or subclinical psychopath depends on that individual’s location (i.e. mental institution or prison), and this is problematic. As long as a psychopathic individual behaves in a way that is tolerated (in the sense that he is able to get away with whatever it is he is doing) within a given context and circumstance – the result must be that the individual is classified as a subclinical psychopath. This is not a problem at all if the point of the clinical-subclinical distinction is to determine where an individual is located, but this hardly requires extra terminology. The conceptual problem arises when one reflects about the reasons for studying subclinical psychopaths. If these two groups are behaviorally different, which it stands to reason that they are, then it may be possible to base the criteria on behavior.

In the subsequent discussion two things will be discussed: the problems of psychopathy and empathy research, and a few areas where more research is needed.
The empathy construct is an incredibly complex one, believed to involve at least 13 brain regions (Baron-Cohen, 2012). Apart from the terminology, which definitely plays a role in the ambiguous nature of empathy, measuring empathy is very problematic. Most research relies on self-measurement instruments, the problems of which have been discussed previously. In relation to psychopathy, the main problem with empathy is arguably that surprisingly few studies have been conducted, especially concerning emotional empathy (Thoma et al., 2013). This is very peculiar, because many theorize that lack of empathy is the key component of psychopathy. Thus, breakthroughs in the field could lead to improvements in terms of rehabilitation. Treatments need to distinguish between different empathic deficits, because antisocial behavior has been linked to deficits in cognitive empathy to a larger extent than affective empathy (Jolliffe & Farrington, 2004), and hence, interventions in antisocial behaviors may need to focus on the former type.

The recently published fMRI-study by Decety et al. (2013) is an important one, because it is a starting point when it comes to studying empathy with imaging techniques in psychopaths. There remain many elusive facts regarding empathy that are crucial in order to understand both psychopathy and empathy. Without a thorough understanding of the relation between cognitive and affective empathy, drawing conclusions regarding psychopathy will be problematic.

In order to improve insight into subclinical psychopathy, it may be beneficial to control for PCL-R scores (on all four PCL-R facets) between groups. Other possible confounding factors include intelligence, personality traits, socioeconomic status, education, parenting (or other protective environmental factors), alcohol, and drug abuse. Most of these factors have been studied regarding clinical psychopathy, but remain unexplored concerning subclinical psychopathy. Furthermore, discussing all of these topics is beyond the scope of this thesis, but a few words will be written about gender, intelligence and personality.

Most psychopathy research is conducted with male participants, but studies on female psychopaths have shown quite significant behavioral differences. These
differences may play a role in the difficulty of delineating the psychopathy construct, as well as making it difficult to establish prevalence rates. Female psychopaths are interesting in relation to subclinical psychopaths, because their behavior seems to be less severely antisocial (in terms of violence and aggression); but they are also interesting in relation to empathy and emotions in general. It may be the case that female psychopaths are less callous than male psychopaths and thus, it is a possibility that empathy is a moderating factor.

Intelligence and personality are interesting aspects of psychopathy that could yield significant etiological insight. However, very few studies have been conducted regarding both topics in relation to clinical psychopathy, and there is no study known to the author regarding subclinical psychopaths in particular. Costa and MacCrae’s (1992) five factor model of personality has been used to study psychopaths, but the results of such studies are not of relevance to this topic, because no contrasting results in subclinical psychopaths have been studied. Neuroscience has not yet reached a stage at which it is possible to meaningfully infer behavior based on brain scans. Hence, a social psychological perspective may be an efficient way of establishing specific behavioral differences between the two psychopathy groups, which in turn may lead to the possibility of clarifying the concepts involved.

Three frameworks for assessing the status of subclinical psychopathy have been presented. Proponents of the first framework argue that the difference between clinical and subclinical psychopaths is one of degree, not of type. Advocates of the second suggest that both types share etiology and pathology, which means that the essential difference is a matter of socialization. Good parenting, special talent, high intelligence etc. is said to hinder the individual from fully developing into a clinical psychopath. The third framework posits that there are two distinct etiologies, which allow for the possibility of scoring high on one, and low on the other. This approach converges well with the two factors of the PCL-R.

The second framework can be interpreted in a variety of ways, depending on how strong of a claim one infers. The very strong claim would be to say that a good
upbringing will inevitably result in a well-functioning, pro-social individual. There is quite a lot of anecdotal evidence to suggest that while a bad upbringing can have its negative consequences, many also overcome such diversities. The same can be said about a good upbringing, which in some cases ultimately results in antisocial behavior. The weaker claim would be to say that the influence of socialization is significant, but is not, in itself, enough to moderate the behavior of a significant neuroanatomical deficit. Furthermore, these frameworks are not mutually exclusive. At the moment it is very difficult to assess the epistemic status of the three frameworks, due to a lack of research. The little evidence that do exist can be used in support of all three.

The frameworks spark the debate of difference as degree versus type. A significant contribution to this debate can be foreseen in substantial advancements in neuroscience, in terms of finding a double dissociation (e.g., Broca's area and Wernicke's area). If one can demonstrate that damage to brain structure P impairs affective empathy, but does not cause antisocial behavior, and that damage to brain structure Q causes antisocial behavior, but spares affective empathy, one could infer that the two areas are dissociable. With such evidence, the inference for a difference in type would be very strong.

Studies pertaining to the neuroendocrinology of psychopathy may also prove significant in the future. The field is currently in its infancy, but with continued research and technical advancement, one can be hopeful about seeing significant group differences in hormones and neurotransmitters. This includes Baron-Cohen's research regarding empathy and testosterone, which may one day prove to be important aspects of psychopathy.

In conclusion: it has been argued that the conceptualization of subclinical psychopathy is flawed and ultimately, my suggestion is that a better definition of subclinical psychopathy would rely on both the available and the forthcoming empirical data. Being that lack of empathy is a key aspect in both clinical and subclinical psychopathy it needs to be studied extensively. Both the aspects of empathy are relevant in order to understand psychopathic behavior, in both clinical and
subclinical psychopaths. With technical advancement and continued research, one can be hopeful that more significant research will be carried out; the implications of which may not only help in resolving etiological debates, but help in the treatment of psychopathy.
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