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Narcissism – Brain and Behavior

Self-Views and Empathy in the Narcissistic Brain

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Joakim Olsson

Supervisor: Stefan Berglund
Examiner: Judith Annett

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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.

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Abstract

This thesis reviews both psychological and neural research in the fields of self-evaluation, self-views and self-enhancement bias. The research has made associations to grandiosity and need for admiration, which are two of the defining characteristics of narcissistic personality disorder. Neural correlates associated with this research are the medial prefrontal cortex, orbitofrontal cortex, posteromedial cortex and anterior insula. Narcissists have been seen to have a decreased form of emotional empathy even though they rate themselves to have higher emotional empathy than they actually have, which is linked to self-enhancement bias and grandiosity. Alexithymia has not gained much attention in relation to narcissism, but research presented suggests that this might need to change. Neural correlates that are associated with lack of emotional empathy and alexithymia are the anterior insula, frontoparalimbic areas and the medial prefrontal cortex. Narcissistic personality disorder is in the DSM-5 specified to be defined by a grandiose sense of self, a need for admiration, and a lack of empathy in either fantasy or behavior. However according to researchers in the field this only covers a part of the spectrum of narcissism. Deficits in the DSM-5 will he highlighted, as well as suggestions on what to do in order to help clarify the definition in DSM-5 and the concept in general.

Keywords: narcissism, narcissistic personality disoder, neural correlates, behavior

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The concept of narcissism was first used in psycho-dynamic theory and as a central aspect in clinical psychiatry. It was first developed by Heinz Kohut and Otto Kernberg, and later the concept was incorporated as the foundation for narcissistic personality disorder (NPD) in The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; *DSM-5*; American Psychiatric Association, 2013), that still today is a widely used assessment tool for various psychiatric disorders. Narcissism can be seen to be a continuum scale, ranging from a basic trait of self-esteem in a healthy person to the severe pathology that is NPD (Fan et al., 2011b), which seems to have prevalence rates between 1% to 6% in the general population (Ritter et al., 2011; Schulze et al., 2013). NPD has comorbidity with other psychiatric disorders such as psychopathy, borderline personality disorder (BPD) and depression. This results in the accurate prevalence rates not fully known. The DSM-5 specifies a person to have NPD if there is, in fantasy or behavior, a pervasive pattern of grandiosity, need for admiration and a lack of empathy. All of these need to occur in a variety of contexts and has nine different criteria, in which five need to exist, to be able to diagnose a person with NPD (American Psychiatric Association, 2013). These nine criteria are

> (a) a grandiose sense of self-importance; (b) preoccupation with fantasies of unlimited success, power, brilliance, beauty, or ideal love; (c) beliefs of being special and unique; (d) requirements of excessive admiration; (e) a sense of entitlement; (f) interpersonal exploitativeness; (g) lack of empathy; (h) envy of others; and (i) arrogant, haughty behaviors or attitudes (Skodol, Bender, & Morey, 2013, p. 1).

However, it does not seem to be a certain point at which you either have NPD or you do not. Baskin-Sommers, Krusemark, and Ronningstam (2014) write that a lack of empathy is what separates a clinical and a non-clinical narcissist, however according to the DSM-5 someone can possess five out of the nine criteria, excluding the lack of empathy, and still be diagnosed with NPD (American Psychiatric Association, 2013). This is a major problem since one of the

defining characteristics is to have a lack of empathy. According to the diagnostic list alone it should be possible to be diagnosed with NPD and not having a lack of empathy, however according to researchers in the field it should not be possible. This is something that will be discussed throughout the thesis.

Researchers in the field agree upon the characteristics listed in the DSM-5 (American Psychiatric Association, 2013), however certain characteristics are more agreed upon than others. Jankowiak-Siuda (2013) and Ong et al. (2011) specify that people with NPD are characterized by a highly positive but unrealistic view of the self, a lack of interest in forming stable relationships, and perform actions to keep their unrealistic positive self-views. They are also attention seeking, extremely concerned about their physical appearance and they overestimate their attractiveness even though they try to look fashionable and well groomed. They are often skilled in dealing with different social settings and starting new relationships, though they are often only concerned about temporary relationships that can enhance their own positive self-view or status.

Maples et al. (2010) write that in addition to the previous attributes, people with NPD are also manipulative and have a decreased concern for others, which in the research has been linked to decreased levels of emotional empathy. In addition to this, Dimaggio, Lysaker, Carcione, Nicolò, and Semerari (2008) also found evidence that people with NPD might have a very limited ability to recognize their own feelings and thoughts, also called alexithymia. Alexithymia is characterized by a decreased ability to recognize one's own emotions and their causes, and is a psychiatric condition on its own (Dziobek et al., 2008). The deficit of recognising one's own emotions might also be related to the ability to recognise the emotions of others, which is something that is evident to be a problem for individuals with NPD (American Psychiatric Association, 2013).

As lack of empathy is a key attribute of a person with NPD, it is important to know why they have a decreased form of empathy. This however is something that is not fully agreed upon by researchers in the field. First it is the problem with empathy in itself, as it is something that is defined differently by different researchers. Secondly it is if there are brain areas that have correlations with empathy and NPD. Empathy can be defined as "an integrated affective response stemming from the perception of another's emotional state or condition similar to what the other person is feeling or would be expected to feel in the given situation" (Decety, Norman, Berger, & Cacioppo, 2012, p. 40). At the same time empathy is further divided into cognitive empathy and emotional empathy. Ritter et al. (2011) write that cognitive empathy, also called mentalizing, is the ability to understand, represent and predict another person's mental states and behaviors. Emotional empathy is an observer's emotional response to another person's emotional state, such as the ability to share the feelings of the observed person (Baskin-Sommers et al., 2014). Cognitive and emotional empathy are also different as in having different neural correlates. It seems that people suffering from NPD have deficits in their emotional empathy but not in their cognitive empathy, which is similar to people with antisocial personality disorder (Jonason & Krause, 2013).

There has been a debate and discussion in the field if there are specific brain areas that are associated with narcissism, and a growing field of research has started to link narcissism to different characteristics of the self, as well as a lack of emotional empathy and alexithymia. Research has shown that brain areas such as medial prefrontal cortex, precuneus (Kwan et al., 2007), anterior cingulate cortex (Barrios et al., 2008), orbitofrontal cortex (Beer, Lombardo, & Bhanji, 2009), anterior insula (Fan et al., 2011b), and posteriomedial cortex Sheng, (Gheytanchi & Aziz-Zadeh, 2010) are involved in self-enhancement and self-evaluation, which is linked to narcissism. Research on lack of empathy in narcissism has shown that the

areas anterior insula (Schulze et al., 2013), right dorsolateral prefrontal cortex, right posterior cingulated cortex, and right premotor cortex (Fan et al., 2011b) might be involved.

The aim for this thesis is to show what narcissism is as a concept and to highlight drawbacks that are seen in the concept as it is today. Because of these eventual problems that exist, it will also suggest eventual changes that might need to be done in order to make the concept better.

To reach these aims it will review research on neuropsychological aspects of narcissism and NPD in order to highlight differences and to associate them to deficits seen in the assessment tools, and to the concept in general. Three different assessment tools will be reviewed, but the main focus will be on the DSM-5 as it is thought to be the main tool to be used. The reason for reviewing the diagnostic tools is that they seem to be one of the major reasons that the concept is as vague as it is. It will also review both psychological and neural research about narcissism in the areas of self-evaluation, self-views and self-enhancement. The reason for choosing these areas is because this is a link to the aspects of grandiosity and need for admiration in narcissism that is not often suggested to be of big importance. Lastly it will review research in lack of emotional empathy, and relate that aspect to research made on alexithymia. Alexithymia has been the subject of research in relation to narcissism, however it does not seem to have had a major impact in the field due to the lack of studies explicitly stating the relation. However, there are some studies with evidence in favour of the association between narcissism and alexithymia, as will be seen in the thesis.

Psychological Aspects of Narcissism

Narcissism as a Trait in The General Population and Narcissism as a Disorder

When reading about narcissism it is not always clear if the authors mean narcissism as a trait or narcissism as a clinical disorder. There are differences between the two and a

clarification of the concepts is needed in order to both understand the differences as well as using the correct terminology when talking about them.

The different aspects of the trait of narcissism in healthy people involve self-enhancement, feelings of entitlement, arrogance (Maxwell, Donellan, Hopwood, &Ackerman, 2011) and an inflated self-concept (Winter et al., 2014). Pincus and Lukowitsky (2010) states that narcissism as a trait can be seen as someone's capacity to maintain a positive self-image through self-regulatory processes and it underlies individuals needs to seek out self-enhancement from the social environment. Sedikides, Rudich, Gregg, Kumashiro, and Rusbult (2004) also suggests that narcissists love themselves far more than they love others, which is related to a grandiose view of the self.

Baskin-Sommers et al. (2014) suggest that the main difference between the healthy aspects of narcissism and the clinical aspect of NPD is the lack of empathy. They also suggest that in addition to the lack of empathy, the other characteristics of the narcissistic trait need to be on high levels of the measuring scales where they no longer work beneficially but instead affect the behavior in a way that is seen as problematic. It is not explicitly specified if the behaviors are to be problematic for the specific individual or for the people around.

Narcissism is a vague construct and it is not certain what researchers mean when they use the term. The line between having subclinical or clinical narcissism is also not clear, which is problematic. The whole spectrum seem to have defining characteristics of grandiosity and a need for admiration, though it is suggested that a lack of empathy might only be involved in the clinical aspects. The next section will describe the three different types of narcissism that are generally accepted in the field.

Grandiose and Vulnerable Narcissism

The DSM-5 has classified NPD as a diagnos with just a single set of characteristics (American Psychiatric Association, 2013) while most researchers in the field have the

characteristics separated into two different subtypes called grandiose narcissism and vulnerable narcissism. That the fifth edition still only focus on a single set of characteristics is interesting as there was a research group that had as a mission to review NPD and to give suggestions for eventual changes for the fifth edition. Skodol et al. (2013) write that the group gave suggestions that were accepted to be changed, and was also published as changes during the work of the DSM. However in the last revision the changes were cut out and instead placed as an alternative section to direct further study. As will be seen in the thesis, and argued for, these changes might be what are needed in the field.

Grandiose narcissism is what most people would associate with narcissism, as it best fits the way the DSM-5 describes the trait (American Psychiatric Association, 2013). Grandiose narcissism is described as a pattern of self-centered, arrogant, and domineering beliefs and behaviors (Baskin-Sommers et al., 2014; Cain, Pincus, & Ansell, 2008). It is also characterised by overt grandiosity, exhibitionism, and to openly display a sense of entitlement and a need for admiring attention from others (Houlcroft, Bore, & Munro, 2012). They will also respond to threats to their self-esteem with feelings and actions of rage, defiance, shame, and humiliation (Morf & Rhodewalt, 2001). Individuals with the grandiose trait are similar to those with psychopathy in the sense that they will try to manipulate and be charming to people in order to get what they want. Sedikides et al. (2004) specifies that exploitativeness is one of the seven components of narcissism, and manipulation is part of that component. In the study by Maxwell et al. (2011) they used the narcissistic personality inventory (NPI), which will be reviewed in an upcoming section, to assess the levels of the separate components of narcissism. They found the correlations with exploitativeness of individuals with grandiose characteristics to be higher than those with vulnerable characteristics. These results might be an indication that grandiose narcissism is closer to psychopathy than vulnerable narcissism, and also the importance of differentiating between the two.

Vulnerable narcissism is described as to consist of low self-esteem, anger, shame and suicidality (Baskin-Sommers et al., 2014; Cain et al., 2008). It seems to reflect a more defensive and fragile grandiosity that might serve as a mask to hide the feelings of inadequacy (Miller et al., 2010). Houlcroft et al. (2012) found vulnerable narcissism to be associated with hypersensitivity to criticism and a tendency to withdraw from social settings and interactions. Individuals with this side of the trait try to inhibit their grandiose desires due to lower levels of self-esteem, which often results in distress. Baskin-Sommers et al. (2014) suggest that individuals with the vulnerable traits are similar to those with borderline personality disorder, as they are also easily overwhelmed by emotions. Being exposed to intense shame, envy and rage can be intolerable, especially if they are combined with self-criticism and self-hatred.

Shame has been seen to be a central emotion that is involved both in grandiose narcissism and vulnerable narcissism. Ritter et al. (2014) suggests that narcissistic individuals have increased proneness to shame, which can be related to deficits in their self-esteem. Verbally expressing grandiose self-views might be a way to make up their feelings of insecurity and low self-esteem. Shame seems to have a global effect on one's own experiences, such as feelings of insecurity in more than a single task. This global feeling of insecurity can be a very painful emotion and it is suggested that the external self-esteem regulations that are performed by narcissists might be a way to increase their low implicit self-esteem. It might also be involved in preventing their low implicit self-esteem from becoming explicit.

The dark triad is a term used to define the three diagnoses of machiavellianism, narcissism, and psychopathy as they all have a lack of emotional empathy as a core characteristic (Jonason & Krause, 2013). Miller et al. (2010) compared the vulnerable aspects of the dark triad and found overlap between factor 2 psychopathy (vulnerable psychopathy), vulnerable narcissism and BPD, and suggests that in addition to the dark triad there is also a

vulnerable dark triad. They also suggest that grandiose narcissism and vulnerable narcissism in some cases are so different that perhaps vulnerable narcissism is a separate personality type that differentiates from regular narcissism.

Grandiose narcissism and vulnerable narcissism are on the opposite sides of the narcissistic scale, but that does not mean that individuals can only have one or the other. These two phenotypic expressions can both occur within the same individual and can fluctuate across time and context. Individuals might move between states of grandiosity and vulnerability depending on different environmental and social triggers (Baskin-Sommers et al., 2014; Pincus & Lukowitsky, 2010). This view does not easily go hand in hand with what Miller et al. (2010) write about vulnerable narcissism to be so different from grandiose narcissism that perhaps it is a separate personality disorder.

Aggressive Narcissism

In addition to grandiose and vulnerable narcissism, Houlcroft et al. (2012) found evidence that might support the existence of a third type of narcissism that they define as aggressive narcissism. This type is seen as more aggressive and antisocial than grandiose and vulnerable, and is characterised by aggression, malignant attitudes, and antisocial behaviors. Pincus and Lukowitsky (2010) further support this type of aggressive narcissism to exist as they write that a psychopathic narcissism exists that respond to dysregulations in their self-esteem by engaging in antisocial behaviors. They will also commit criminal acts in order to protect and enhance their self-image, as well as to gain admiration from others. This however seems to be more similar to antisocial personality disorder (ASPD) than actual narcissism, according to the DSM-5 (American Psychiatric Association, 2013). Researchers in the field do not seem to agree upon this, as there are studies showing associations between self-esteem, narcissism and aggressive behavior.

Öngen (2010) mentions the existence of the threatened egotism theory, which suggests that aggression is more likely in people with high and fragile self-esteem. As has been seen, this is what individuals with narcissism have. This study had as an aim to test this theory. The participants consisted of 247 university students who all completed the NPI and a questionnaire regarding aggression. The results showed that individuals high on the NPI showed positive predictions of anger, hostility and physical aggression. These results indicate that the anger towards other people in individuals with narcissism is because they are trying to protect themselves against feelings of shame and inferiority. What this study found was that aggression seemed to be more likely in the individuals that scored high on the NPI, compared to the individuals scoring low. This is an indication that perhaps narcissists are more aggressive than what is generally thought (American Psychiatric Association, 2013).

The review paper by Ostrowsky (2010) also reported results to strengthen the existence of an aggressive narcissism. It was reported that individuals that easily use violent behavior have an unrealistically high opinion of themselves. It was also reported that narcissists seem to use directed aggression, as in aggression towards a person saying something negative, rather than aggression towards anyone.

Neural research related to self-esteem will be reviewed in a later section in the thesis, together with research about egoism as they have similar psychological characteristics.

The existence of three different types of narcissism is a contributing factor to the vague concept of narcissism that exists today. That different researchers have widely different views of the same phenomenon indicates that the area needs more specific research to make it consistent among most of the people working with it. This vagueness will be further elaborated in the section concerning the assessment tools used in the field.

Grandiosity, Need for Admiration and Lack of Empathy

A grandiose sense of self and a need for admiration are two of the defining characteristics of NPD in the DSM-5 (American Psychiatric Association, 2013), but there are suggestions that perhaps they both stem from the same underlying reasons. Morf and Rhodewalt (2001) write that a narcissist seems to be self-centered and grandiose, while at the same time be sensitive to feedback from others. This is similar to what was noted previously about grandiose narcissism and vulnerable narcissism fluctuating depending on the environment, social setting and time. The authors argue that narcissists have positive, but at the same time fragile self-views. This is similar to what Barrios et al. (2008) state about individuals with high levels of self-enhancement bias often also being narcissistic. Self-enhancement bias means that individuals think better of themselves than they actually are, and that they are biased in their self-perception when compared to others. Morf and Rhodewalt (2001) suggest that distorted self-views are the underlying reason for both grandiosity and a need for admiration and they argue that narcissists have an internal fragility that make them seek admiration externally, since they cannot do this internally by themselves. The authors further argue that a grandiose but fragile self-view needs constant boosting since it is not grounded in an objective reality, and thus cannot be internally regulated as in most individuals without narcissism. The external versus internal enhancement are thought to perhaps depend on different characteristics of narcissism. Tamborski, Brown, and Chowning (2012) write that the grandiose aspects guide the boosting of internal self-importance and that entitlement (Maxwell et al., 2011) guides the boosting of external self-importance.

In relation to this, the DSM-5 (American Psychiatric Association, 2013) states that individuals with narcissism have a very fragile self-esteem, which results in their need for constant admiration and attention from others. To keep their fragile self-esteem on a high level they are focusing entirely on how well they are doing and constantly boast about their

own success in order to get the compliments and admiration that they seek. This suggests that the grandiosity and need for admiration, as noted above, might have similar or the same underlying reasons.

Lack of empathy is the third defining characteristic of NPD (American Psychiatric Association, 2013), but as noted in the introduction, it seems that individuals with narcissism have a lack of emotional empathy but not cognitive empathy (Jonason & Krause, 2013). Jankowiak-Siuda (2013) specifies that cognitive empathy is the ability to imagine and understand the emotions of others, as well as to be aware of their thoughts, intentions and desires. Emotional empathy is the ability to share and experience the feelings of others. This section will review research in the area of cognitive versus emotional empathy and their different implications in individuals with narcissism

Ritter et al. (2011) used two different tests on empathy, the interpersonal reactivity index (IRI) and the multifaceted empathy test (MET), to differentiate between self-report measures and objective measures in individuals diagnosed with NPD. The IRI is a self-report measurement, which means that the participants rate themselves on different aspects, while the MET is a more objective test that does not rely on self-reports. Rather than self-reports, the MET makes use of photorealistic stimuli in combination with reports of their emotional arousal and concern. This test will be explained further in an upcoming section. The difference between the two tests were seen in the results of this study, in which patients with NPD rated themselves not to have deficits in emotional empathy when the IRI was used. The results from the MET however showed that they lacked empathy both in empathic concern and mirroring emotions. When looking at cognitive empathy, the researchers found that patients with NPD overestimated their own capacity when the IRI was used, while the MET showed that there were no differences compared to healthy controls. These results indicate that individuals with NPD overestimate their own capacity for both cognitive and emotional

empathy, which fits well with what Barrios et al. (2008) write about narcissists having high levels of self-enhancement bias.

These results have led other researchers to start hypothesizing what implications they could have in the field. Vonk, Zeigler-Hill, Mayhew, and Mercer (2013) write that individuals with narcissism seem capable of understanding the emotional experiences of others, but that they do not really care about these experiences. The authors hypothesize that perhaps these deficits in emotional empathy increase the skills needed to exploit and manipulate others to achieve their own goals, which has been reviewed in a previous section (Sedikides et al., 2004). Baskin-Sommers et al. (2014) suggests that perhaps individuals with narcissism are capable of processing emotional information, but they refuse to do so in order not to appear vulnerable or to lose control. The fact that narcissists seem to overestimate their emotional empathy might be related to the grandiose aspect of the trait. As seen in the previous section, narcissists have self-enhancement bias which might be one of the reasons that they rate themselves as better on their ability to understand and experience the emotions of others (Wai & Tiliopoulos, 2012). The authors further suggests that narcissists might have an increased capacity of cognitive empathy, as a better understanding of others might be needed in order to get the admiration and flattering that they want.

There are some facts that suggest that grandiosity and need for admiration stem from the same underlying reasons, such as self-enhancement bias and fragile self-views. Due to this, the first section on neural correlates will deal with research on self-views and enhancement, not specifically research on grandiosity and need for admiration. This is also due to some researchers in the field performing studies on self-views and enhancement, rather than grandiosity and need for admiration. Lack of emotional empathy and alexithymia will be reviewed in the second part of neural correlates as there are some differences between the three different characteristics.

Assessment Tools for Narcissism in Clinical Environments and Research

Researchers in the field have widely different views on how to look at the aspects of narcissism, and thus it is important to review the assessment tools that are being used to indicate the different aspects. It seems that there is a two-way relationship when considering the assessment tools. The tools are a contributing factor to the vagueness of the concept of narcissism, but at the same time the tools can be considered to be weak because of the vagueness of the concept itself. The main tests that are used in the area of narcissism are the DSM-5 (American Psychiatric Association, 2013), and the NPI (del Rosario & White, 2005). The way that researchers has measured empathy has previously been by the use of the IRI (Fan et al., 2011b), however the recently created MET (Dziobek et al., 2008) is starting to become more used and will probably be even more so in the future as well due to the beneficial aspects of it.

Diagnostic and Statistical Manual of Mental Disorders

The DSM has been the main tool to diagnose people with NPD since it was incorporated in the third edition. However this is a clinical tool and it is not used to measure non-clinical levels of narcissism. DSM-5 have as the essential features of NPD to have increased characteristics of grandiosity, need for admiration, and a lack of empathy that begin in early adulthood and are present in a variety of different contexts. The DSM has a checklist of nine items, and the individual need to possess at least five of the items to be diagnosed with NPD (American Psychiatric Association, 2013).

Lately there has been a lot of criticism directed to the criteria used as it is generally considered not to grasp the complexity of the diagnos. Pincus and Lukowitsky (2010) state that the criteria have become focused on the grandiose aspects alone and not the vulnerable aspects. The criteria for NPD are specified to include a grandiose sense of self, but nothing is said about the vulnerable characteristics. In the paper by Miller et al. (2010) it was found that

vulnerable narcissism was more closely related to BPD and factor 2 psychopathy (vulnerable psychopathy) than grandiose narcissism, which is an indication that perhaps vulnerable narcissism might require a larger focus than is given today. This view however does not easily hold if one is using only the DSM-5 (American Psychiatric Association, 2013). Russ, Shedler, Bradley, and Westen (2008) performed a study in which clinicians received a list of statements that they were to use with their patients to see which statements were more or less occurring in their personalities. The researchers ordered the statements ranging from the most occurring to the least occurring in patients with narcissism and NPD. Out of the 1201 individuals included, 255 met the criteria of DSM-5 (American Psychiatric Association, 2013) to be diagnosed with NPD. What was found was that

> the five top ranked items were: "Has an exaggerated sense of self-importance (e.g., feels special, superior, grand, or envied)"; "Appears to feel privileged and entitled; expects preferential treatment"; "Tends to be angry or hostile (whether consciously or unconsciously)" "Tends to be critical of others"; and "Tends to get into power struggles." (Russ et al., 2008, p. 1475).

Out of these five statements, only the first two are included in the criteria. Russ et al. (2008) criticism of the DSM-5 is that there is a too big focus on the grandiose side of narcissism (American Psychiatric Association, 2013), and that it lacks the sufficient width needed to accurately capture all aspects of narcissism. In addition, the criterion lack of empathy does not differentiate between cognitive and emotional empathy, but rather has the two incorporated into a single entity. Individuals with NPD lack emotional empathy, not cognitive empathy, which require the tool used to diagnose a person to differentiate between the two (Ritter et al., 2011). As was seen in a previous section, the paper by Skodol et al. (2013) mentioned that there were suggestions that were made to improve the fifth edition. However these suggested changes were removed during the last rework before being published. This article agreed

upon the many inconsistencies in the concept of narcissism, which include the differences in describing the nature and phenotype. Nature is here the differences between non-clinical and clinical narcissism and phenotype is the differences between grandiosity and vulnerability. The suggested model would acknowledge these differences and in a better way grasp the width that has been seen to be narcissism. This is something that the current edition of the DSM-5 (American Psychiatric Association, 2013) does not seem to do to the same extent.

Narcissistic Personality Inventory

The test that is most widely used in the field is the NPI, this however only measures normal levels of narcissism and not the clinical aspects of the trait (Pincus & Lukowitsky, 2010). The NPI is a self-report questionnaire that is derived from the characteristics in the DSM-5 (Cain et al., 2008). The items used are opposing statements in which one is a narcissistic response and the opposing is a non-narcissistic response. Each statement gives either a 0 or 1 as a score, and the higher the summarised score the higher levels of narcissism in the individual (Brunell, Staats, Barden, & Hupp, 2011).

The criticism of the NPI test is different among different researchers. Miller, Price, and Campbell (2012) state that the NPI focus too much on the grandiose aspects of narcissism and not enough on the vulnerable aspects. They suggest that a new test is needed that measure grandiosity and vulnerability separately to accurately capture the complexity of the trait. The way that the test is administered is another factor that can be criticised. Self-report is not a reliable measurement, as a core feature of individuals with narcissism is to be exploitative and to take advantage of others to reach their goals (American Psychiatric Association, 2013).

Multifaceted Empathy Test

The MET is different from the previously used IRI as it does not rely on self-reports but instead uses photorealistic stimuli, which increases its external validity (Dziobek et al., 2011). The MET is designed to measure both cognitive and emotional empathy

simultaneously, and it also measures emotional empathy explicitly (a rating of empathic concern) and implicitly (arousal ratings for empathic concern). It can at the same time differentiate between emotional reactions to the non-social stimuli and emotional reactions to the social stimuli in the pictures (Dziobek et al., 2008).

The MET consists of a series of photographs that pictures people in emotionally charged situations. To assess cognitive empathy the participant is asked to infer the mental state of the person in the picture, and after the response the participant receive feedback about the correct answer. To assess emotional empathy the participant rate their emotional reactions in response to the picture (implicit) and are also asked to rate the degree of empathic concern that they feel for the person in the picture (explicit). The stimuli presented in the pictures are often individuals feeling fearful, sad, in pain, or different variations of those emotions in different intensities (Ritter et al., 2011).

Due to the limited articles that have used the MET it does not seem to be as much critique towards it compared to the other tests. However as more studies are being made and more people use it, this will most likely change.

One of the major contributing factors to the confusion around the concept of narcissism is the tests that are used to diagnose or measure the levels of narcissism in individuals. As has been seen, the different tests seem to measure different things, in which some are more agreed upon than others. Moreover, it seems that the DSM-5 only focuses on the grandiose aspects and not the vulnerable aspects of narcissism, which has been seen in the critique towards it. NPI has the same deficit as DSM-5, as well as being a self-report test to be administered to individuals that are manipulative in nature. The MET is recently developed, which means that not many studies have used it yet, however it is an improvement over the IRI as it does not rely on self-report measurements.

Neural Aspects of Grandiosity and Need for Admiration in Narcissism

The DSM-5 specifies that grandiosity, need for admiration and a lack of empathy are the three defining characteristics of someone with NPD (American Psychiatric Association, 2013). As noted in a previous section, a need for admiration might stem from a decreased self-view and is thus interrelated to grandiosity. In this section, the characteristics of self-enhancement and grandiosity will be covered, but not the characteristics of need for admiration. This is because the suggestion that a need for admiration might be something that is expressed by deficits in self-enhancement and grandiosity. In addition to grandiosity and need for admiration, lack of empathy and an eventual link with alexithymia will be reviewed. However this will be in a separate section since there are differences between lack of empathy, grandiosity and need for admiration.

Research on Self-Enhancement and Overconfidence

Some research on self-enhancement can be linked to narcissism by the aspect of a grandiose sense of self, which is a defining characteristic trait in the DSM-5 (American Psychiatric Association, 2013). Grandiosity can also be seen as being the same as positive self-enhancement, which is what the research being reviewed has been studying. Kwan et al. (2007) specify that self-enhancers are people that perceive themselves more positively than they perceive others, which is a basic trait in people with narcissism. The authors wanted to test the role of the medial prefrontal cortex (MPFC) and the precuneus (Pz) in relation to self-enhancement, as these regions have been identified to be involved in both self-enhancement and deception in previous research. Kwan et al. (2007) used transcranial magnetic stimulation (TMS), which can be said to be an imaging technique that induce a virtual lesion to a specific area. They delivered the TMS to the MPFC in combination with a test on self-enhancement to see if a virtual lesion either reduced or increased self-enhancement. They found a difference between baseline and the MPFC stimulation, which was of a significant effect. The significant

effect was seen to be that stimulation to the MPFC reduced self-enhancement. The authors conclude that their findings provide evidence that positive self-illusions, or self-deception, might be mediated by the MPFC. However it is not clear if this is due to MPFC being involved in differentiating the self from others, or if it is just by self-enhancement of the individual alone without the involvement of external comparisons.

Barrios et al. (2008) write performed a study that also involved TMS in order to test the same areas as Kwan et al. (2007), but with a focus on moralistic and egoistic words to see if the MPFC is involved in both moralistic and egoistic self-enhancement. Egoistic self-enhancement in this study was how the individual rated their own abilities of intelligence and social status, while moral self-enhancement was how the individual rated their own abilities of having good social norms. The authors did not find any significant results when they compared the data for Pz with both egoistic and moralistic words, nor were there any significant effect for MPFC for moralistic words. However they did find a significant effect for MPFC for egoistic words, as in TMS delivered to MPFC reduced self-enhancement. These results indicate that MPFC is involved in egoistic self-enhancement, but not moral self-enhancement. This study was performed to test the findings of Kwan et al. (2007) and to further strengthen the evidence of MPFC to be involved in self-enhancement.

Beer et al. (2009) write that the frontal lobes have been theorized to play an important role in self-evaluations for a long time. Previous research seems to suggest that damage to orbitofrontal cortex (OFC) is associated with overconfident self-evaluations of the own performance. MPFC has also been associated to self-evaluation, though it is not agreed upon if it supports self-evaluation in specific tasks or in a general way. What this study tested was which brain areas that were correlated with overconfidence in performance of specific tasks, and magnetic resonance imaging (MRI) was used to get the imaging of the brain.

Overconfidence is linked to narcissism since one of the defining traits is to have a grandiose sense of self, which in the previous section of psychological aspects were linked to self-enhancement bias. In order to test overconfidence the participants were administered forced-choice questions regarding either temperature in different regions or poverty in different regions. The temperature questions regarded average temperature of July in a random location while the poverty questions were regarding the percent of the population below the poverty line in 2003. The temperature questions were locations all around the world while poverty questions were in different states of the United States. After each question the participants had to answer how confident they were ranging between 50% and 95%, with an increasing interval of 5%. The reason for having only 50% to 95% was because the tests made use of 10 buttons and 100% was more rarely used than 50% in the pilot testings. Similar to Barrios et al. (2008) and Kwan et al. (2007), MPFC was significantly deactivated compared to baseline in relation to overconfidence in both temperature and poverty. The OFC showed a significant activation of overconfidence in the temperature condition, and a non-significant activation in the poverty condition. Beer et al. (2009) conclude that even though MPFC was associated with overconfidence in self-evaluation, it did not predict this overconfidence. OFC activity was found to be negatively associated with overconfidence, which means that activity in this area decreased overconfidence in self-evaluation. What these findings suggest is that decreased activity in the OFC leads to higher overconfidence, which they link to self-enhancement bias, grandiosity and narcissism (American Psychiatric Association, 2013; Barrios et al., 2008; Beer et al., 2009).

Medial prefrontal cortex has been found to be associated with self-enhancement, as well as with overconfidence. In addition to the medial prefrontal cortex, the orbitofrontal cortex was also seen to be involved in overconfidence, which is one of the basic characteristics of individuals with narcissism.

Research on Egoism and Self-Esteem

Fan et al. (2011b) performed a functional magnetic resonance imaging (fMRI) experiment to study the anterior insula's role in individuals with high narcissism compared to low narcissism. The authors write that the anterior insula has been shown to be involved in focusing on the own self, which is the same as individuals with narcissism being extremely selfish and focusing solely on themselves (American Psychiatric Association, 2013). The authors hypothesize that activity in the anterior insula is altered in individuals with high narcissism compared to individuals with low narcissism. The participants in their study were divided into two different groups depending on their score on a narcissistic scale. The authors conclude that "our low narcissism group can be regarded as narcissistic below average, whereas the high narcissism group is above average but still below clinical severity" (Fan et al., 2011b, p.1648). The results showed a difference in anterior insula activity between the groups, as in high narcissists having lower activity than low narcissists. Due to the activation and the connectivity pattern it is suggested that the right anterior insula is involved in representing the bodily self. It is also suggested that narcissists focusing on themselves might be related to daydreaming. Narcissists fragile self-views are hard to keep intact in the real world so they are thought to be fantasising and daydreaming about success and power internally in order to avoid the real world. It is also thought that perhaps they use these fantasies to help project their desired behaviors into the real world as well.

The study by Sheng et al. (2010) further supports the role of self-evaluation in narcissism. They tested the role of posteromedial cortex (PMC) and MPFC in relation to self-referential processing. The authors used fMRI combined with tests on personality traits to evaluate which brain areas that were correlated with the specific personality trait that they had interest in. They had 20 participants who were all healthy and did not have any previous neurological or psychiatric history. Their results indicated that deactivation in PMC was

correlated with egocentricity while deactivation in MPFC was correlated with decision-making. Sheng et al. (2010) conclude that the PMC was less active during a task than during rest. Deactivation of PMC was correlated with traits related to egocentricity, self-absorption and narcissism, which support the hypotheses that self-evaluation and its neural correlates are involved in individuals with narcissism. Deactivations of MPFC were on the other hand correlated with impulsivity, and Ronningstam and Baskin-Sommers (2013) suggests that individuals with narcissism might have a deficit in their ability to respond in a congruent way to external emotional stimuli.

A study about self-esteem and neural correlates was performed by Yang, Dedovic, Chen, and Zhang (2012). The authors had as aims to test different levels of self-esteem and corresponding neural activation or deactivation. The participants in this study were 17 university students and none of them had a history of psychiatric or neurological disorder. All of the participants completed a questionnaire named Rosenberg self-esteem scale (RSE), which is a questionnaire that assess an individuals self-worth (self-esteem). The RSE was followed by fMRI scanning in which the participants viewed three different short sentences and was asked to indicate whether the sentence was true or not about them, if it was true about one of their acquaintances or if it was true about general knowledge (also called semantic condition in this study). The results revealed that activation in dorsal anterior cingulate cortex (dACC) was negatively associated with the levels of self-esteem, which was in line with what the authors was hypothesizing. This was hypothesized as it is suggested that the mechanisms that combine levels of self-esteem with self-processing is similar to the mechanisms that combine self-esteem and evaluative feedback from others. This suggestion is made as it seem that the neural underpinnings between these processes are similar, which results in an eventual explanation on how self-esteem can be shaped by both self-evaluations and evaluations from others (Yang et al., 2012). The anterior cingulate cortex is also found to

be involved in emotional empathy in narcissism, which will be seen in the following section. This makes it possible that the anterior cingulate cortex might be an eventual neural link between emotional empathy and self-esteem in individuals with narcissism. In addition to the dACC, a few other brain areas were found to be somewhat related to self-esteem, however they were not of as much interest to the authors as the dACC. These other brain areas found were the "ventral medial prefrontal cortex, superior frontal gyrus, posterior cingulate gyrus and caudate nucleus" (Yang et al., 2012, p. 1269).

That dACC is involved in self-esteem is also supported in the paper by Kashdan et al. (2014). They had 25 participants that every day for three weeks completed a survey online about their self-esteem. After three weeks of doing this survey the participants were scanned with the MRI and was told that they would play an online game with two other participants. In reality, these other two participants were scripted computer programs. In the game the participant and the two computer programs would toss a ball to each other. Each time the participants got the ball they were instructed to notify the researcher about which of the other two players they would like to toss the ball to. The game was divided into several rounds, and in the first round the participants were included for the whole duration. In the second round they stopped getting the ball after receiving three throws, and were then excluded for the remainder of the game and instead just watched the other two players play. This exclusion was part of the scripted programs, but the participants thought that two other human players just wanted to reject them.

It was in this paper found that self-esteem and neural activity of dACC and anterior insula only had a relation in participants with low emotion differentiation (Kashdan et al., 2014), which can be said to be the same as what is happening in individuals with alexithymia. It was found that low self-esteem and low emotion differentiation were the combination that was related to most stressors, which does not go in hand with what has been reviewed in other

sections of this thesis (Öngen, 2010). One reason for this might be that this paper studied the relation of self-esteem and social rejection, rather than aggression per se as other studies have. Social rejection can be a trigger of aggression in individuals with narcissism (Ostrowsky, 2010; Öngen, 2010), but that is not the same as in studying aggression directly.

Research on self-esteem is important, as it has been seen to be related to different aspects of narcissism. It seems to be more specifically related to aggressive behaviors in narcissists, as well as to a completely separate type of narcissism defined as aggressive narcissism (Ostrowsky, 2010; Öngen, 2010). The anterior insula and the posteriomedial cortex were both found to be correlated to self-evaluation and selfish behaviors. Self-esteem has in this section been seen to have neural correlates of the dorsal anterior cingulate cortex, which will be seen in a following section to be involved in empathy as well.

Neural Correlates of Emotional Empathy and Alexithymia

Neural Correlates of Emotional Empathy in Narcissism

Lack of empathy is the third defining characteristic of NPD (American Psychiatric Association, 2013), which seems to both share neural correlates with grandiosity and need for admiration, as well as having its own neural correlates.

A paper by Fan, Duncan, de Greck, and Northoff (2011a) reviewed 40 imaging studies about cognitive and emotional empathy to hopefully find some neural areas that were consistently more activated or deactivated in each of these two different forms of empathy. Three different clusters of activation was seen to be related to empathy in general, involving both cognitive and emotional empathy together. The first cluster was the anterior midcingulate cortex, extending both towards the dorsal anterior cingulate cortex and supplementary motor area. The other two clusters were at the right anterior insular cortex, extending towards the inferior frontal gyrus. When the authors looked at the two different forms of empathy, they found that the left anterior insula was involved in both emotional and

cognitive empathy while the right anterior insula was more involved in emotional empathy alone. More neural areas were seen to be involved, but the activations were at much less significant levels than the three clusters mentioned here. The authors speculate that this might be because these additional areas were not found in all the studies, making their involvement in empathy less certain than these three clusters that all 40 studies found to be highly relevant.

When looking at empathy in relation to the more specific involvement in narcissism, Schulze et al. (2013) tested for abnormalities in the gray matter in the anterior insula in patients with NPD compared to healthy controls. The NPD patients in this study were recruited from different treatment facilities. In addition to this specific area, they also did a whole-brain analysis to check for other eventual abnormalities in brain structure in patients with NPD. Their participants consisted of 17 individuals with a diagnosis of NPD and 17 healthy controls. The results showed significantly smaller gray matter volume in the left anterior insula in individuals with NPD compared to healthy individuals, as well as marginally significantly smaller gray matter volume in the right anterior insula. In addition to these results, the whole-brain analysis indicated smaller gray matter volumes in fronto-paralimbic areas (Schulze et al., 2013). The effects seen in both anterior insulas were found to be associated with emotional empathy but not with cognitive empathy, as was measured by the use of IRI. Schulze et al. (2013) also write that research has shown that these brain areas might also be involved in similar aspects of self-enhancement bias as was reviewed in the previous section, as well as in decision-making. The authors also conclude that the areas in this study might also be related to emotion regulation processing in patients with NPD, which they suggest is evident when there are threats to the individual's self-esteem. This is further supported by Decety (2010) who writes that the parts of the frontal cortex that are seen to most consistently be involved in emotion regulation include the prefrontal cortex and the anterior cingulate cortex.

In a previous section, the study by Fan et al. (2011b) was partly reviewed in relation to focusing on the self and representing the bodily self. The same study also has implications in relation to empathy and narcissism. The authors specify that the aim of the study was to investigate, among other things, the neuronal activations of empathy in a non-clinical sample. The study used fMRI in combination with the IRI to assess empathy in relation to neural correlates. The high narcissism group had significantly higher scores of alexithymia than the low narcissism group. When comparing the results from IRI with fMRI between the two groups, the authors found increased activations in the right anterior insula, right dorsolateral prefrontal cortex, right posterior cingulate cortex, and right premotor cortex in the high narcissism group. A second analysis was done to rule out eventual confounding factors that might have occurred, such as face perception, general evaluation or reward. This was tested by conducting addition analyses between the two groups by the use of stimuli with either emotional or neutral faces. The fMRI results were then compared to activations seen in the fusiform face area, which indicated no difference of activation in the right anterior insula. This is interpreted as that the right anterior insula, unlike the other regions, could not be related to the confounding factors of general evaluation, face perception or reward (Fan et al., 2011b). The authors suggest that this might indicate that the right anterior insula has a specific role in empathy in individuals with high narcissism. However further specific testing is needed to specifically test which areas of empathy that have correlations to the right anterior insula in individuals with clinically diagnosed NPD.

Individuals with narcissism seem to have distinctive activation in brain areas that are generally seen to be associated to the emotional aspects of empathy. These areas are part of the fronto-paralimbic system, with main activations seen in the anterior insulas and the anterior cingulate cortex. Activation of these areas is also seen in the other aspects of narcissism, such as grandiosity and need for admiration.

Alexithymia

As was noted in the introduction, individuals with narcissism seem to have higher levels of alexithymia, which might be an underlying reason for their lack of emotional empathy. An individual with alexithymia has a limited ability to recognize their own feelings and emotional thoughts, which Dimaggio et al. (2008) and Dziobek et al. (2008) suggests to be related to the ability to recognise the feelings and thoughts of others. In the study by Fan et al. (2011b) they had, as mentioned in previous sections, a low and a high narcissistic group that they compared. In addition to the previous findings of this study, they also used the Toronto Alexithymia Scale to compare the different groups scores on alexithymia. They found that the low narcissistic group were different from the high narcissistic group, and the comparison between the two yielded significant results. What this shows is that individuals with high levels of narcissism also have higher levels of alexithymia.

Moriguchi et al. (2006) conducted a study to compare alexithymia to cognitive deficits, such as an individual describing the own emotions. The authors note that when an individual's ability to differentiate among one's own emotions increases, it also increases the ability to differentiate the self from others. It might also assist in using one's own emotions for guidance to respond with the correct behaviors towards other people. When these abilities are absent, it might lead to an inability to use one's own emotions to respond with an appropriate behavior towards others, which was noted in a previous section (Ronningstam & Baskin-Sommers, 2013). The study by Moriguchi et al. (2006) used fMRI to compare individuals with low alexithymia to individuals with high alexithymia in relation to neural activation. There were 310 students that were screened with the Toronto Alexithymia Scale, which resulted in 38 of the students to have scores in the range that were to be included in the experiment. The students were then divided into two different groups, one in which they were low on the alexithymia scores and one in which they were high on the alexithymia scores. The

stimuli used in combination with the fMRI were either two triangles acting like humans or two triangles moving randomly. The triangles acting like humans were used as the theory of mind (experimental) condition, while the triangles moving randomly were used as the control condition. The authors found that there was a significant decrease of activation in the right MPFC during the theory of mind condition in the high alexithymia group when compared to the low alexithymia group. At the same time, the group with high alexithymia had lower scores than the low alexithymia group on tasks measuring mentalizing, and more specifically intentionality. The intentionality was measured by the researcher asking the neutral verbal question "What was happening in this animation?" (Morighuchi et al., 2006, p. 1474) to the student after each fMRI trial. The answers were then placed into either intentionality or appropriateness based on the description of the mental states in the trial and how well they understood what was going on. The authors suggest that the neural activity that was seen in the MPFC is related to perspective-taking, which is used in the ability of taking the perspective of others. This ability of taking the perspective of others is also linked to emotional empathy, which has been seen to be an important characteristic of individuals with narcissism (Jonason & Krause, 2013).

Deng, Ma, and Tang (2013) also performed a study that tested the neural correlates of alexithymia. The participants in this study were 432 female college students with no known psychiatric disorder. The study used the Toronto Alexithymia Scale in combination with fMRI to get results of high alexithymia versus low alexithymia and their corresponding neural activation. The emotional stimuli used were pictures with different pleasantness and emotional intensity. The pleasantness was divided into positive, negative or neutral and the emotional intensity was either low or high arousal. The results showed significant differences between the high alexithymia and low alexithymia group in neural activation of the anterior cingulate cortex, mediofrontal cortices, insula and temporal lobe. It was also seen that the

insula had the most activation in high alexithymia individuals during intense positive stimuli. Deng et al. (2013) write that it was not clear why the insula was activated the most during intense positive stimuli, but they suggest that it might be involved in conscious awareness of underlying feelings, as they say has been suggested in previous research. What this study did show was that there seem to be brain areas that also are involved in the research reviewed in lack of emotional empathy, as well as research reviewed in self-views, self-enhancement and self-evaluation. That these results go in line with research of other areas of narcissism can be seen to strengthen the fact that alexithymia might be something that is present in individuals with high narcissism, but not with low narcissism.

Alexithymia seems to be involved in individuals with high narcissism, but not with low narcissism. This separate psychiatric condition shows that it seems to be a high comorbidity between high narcissism and alexithymia, and that this has an impact in the individual's ability to recognise the emotions of others. Brain areas seen to be associated with alexithymia are the medial prefrontal cortex, anterior cingulate cortex, insula and temporal lobe. Some of these areas are also key components in other areas of narcissism that has been reviewed. That the same areas are involved in different aspects of narcissism, such as self-enhancement and mentalizing, strengthen the fact that the connections between them might be stronger then has previously been thought.

Discussion

The introduction specified that the aims that were going to be covered in the thesis was to show what narcissism is as a concept and to highlight drawbacks that are seen in the concept as it is today. Some research that is related to the first aim has been reviewed, but it has not been fully discussed what the implications might be in the field. The discussion will do this, as well as to suggest eventual changes and future research that need to be done in order to make the concept better.

In this thesis it was suggested that the aspects of grandiosity and need for admiration stem from the same underlying reasons. The paper by Morf and Rhodewalt (2001) showed that perhaps distorted self-views are the underlying reason for both grandiosity and need for admiration. This is because narcissists seek external admiration as they cannot do this internally themselves. Grandiosity is related to this because a grandiose sense of self needs constant boosting, which can be seen as similar as a need for admiration.

The study by Kwan et al. (2007) investigated the relations between self-enhancers and the neural correlates of their defining behaviors. Self-enhancers were defined as those that perceive themselves more positive than they perceive others, which is exactly what the aspect of grandiosity is. Their results of reduced self-enhancement when the MPFC was stimulated by TMS suggest that narcissists can have deficits in that specific area. The same results were also what Barrios et al. (2008) found in their study. These results can be interpreted as to suggest that MPFC is involved when an individual think about the own performance. It seems that increased activation of the MPFC is involved in creating positive self-illusions, or imaginative self-enhancement, which is one of the basic characteristics of an individual with narcissism. Beer et al. (2009) found similar results, but they used fMRI in their experiment. The results from this study showed that MPFC was seen to have less activation in overconfident individuals. It was also seen that the OFC might be related to overconfidence, since decreased activity in the OFC resulted in increased overconfidence. Sheng et al. (2010) provided results that deactivation in PMC was related to egocentricity and self-absorption, which are basic traits of narcissistic individuals.

In addition to these results, self-esteem has been seen to both be related to aggression in narcissistic individuals, as well as to be related to a completely separate type classified as aggressive narcissism. The study by Öngen (2010) found evidence in the support of the threatened egotism theory, which is also supported by the results found in Kashdan et al.

(2014) and Yang et al. (2012). These studies presented results that dACC and anterior insula are involved in narcissism in relation to self-esteem and aggression. These studies also strengthen the existence of three different types of narcissism instead of just a single type (American Psychiatric Association, 2013).

These results are of importance since they can relate the narcissistic behaviors of self-enhancement and grandiosity to activations in certain neural areas. To find related neural activations of certain behaviors can increase the knowledge of the area, and in turn increase the appropriate help that individuals diagnosed with NPD can get. The MPFC and ACC were found to also be involved in the emotional aspects of narcissism, which shows that the widely different aspects of grandiosity and lack of empathy might have more in common than what is given them today. This relation needs to be further tested in order to perhaps change the diagnostic list to make it grasp the complexity that has been around the concept of narcissism.

The DSM-5 only mentions a lack of empathy as a defining characteristic, but it does not specify which type of empathy (American Psychiatric Association, 2013). The paper by Jonason and Krause (2013) is important in this sense because it mentions that individuals with narcissism lack emotional empathy but not cognitive empathy, which is important to keep in mind as there are differences between the two. Cognitive empathy has been said to be the ability to imagine and understand the emotions and thoughts of others, which seem to be an essential ability that narcissists have. They are exploitative in nature (Sedikides et al., 2004), which they could not be if they had a lack of cognitive empathy.

Lack of emotional empathy has been seen to be an inability to have an affective response and to share another person's emotional state. The study by Ritter et al. (2011) had some interesting results that are important to keep in mind. It was seen that individuals with NPD do not rate themselves to have deficits in emotional empathy, while they actually do have deficits in both empathic concern and mirroring emotions when being measured without

self-report. At the same time they report to have better cognitive empathy than normal people, while the same objective test shows no difference to healthy controls. The implications of these results in the field have led others to speculate that perhaps narcissists use their cognitive aspects of empathy to actually understand the emotional experiences of others, but they do not really care about these experiences (Vonk et al., 2013). This goes in line both with what is known about narcissists being exploitative, as well as overestimating most of their abilities compared to other people.

There have been findings of brain areas related to the lack of emotional empathy in narcissism. Schulze et al. (2013) found gray matter abnormalities in the anterior insula in participants with NPD, as well as in numerous frontoparalimbic areas. The paralimbic system is involved, among other things, in regulating emotions. The areas were also linked to self-enhancement bias, which has been seen to be a major aspect of the grandiose aspect of narcissism. Fan et al. (2011b) found increased activations in the right anterior insula, right posterior cingulated cortex, right dorsolatetal prefrontal cortex, as well as in the right premotor cortex.

Alexithymia, with corresponding neural areas of MPFC, anterior cingulate cortex, mediofrontal cortices, insula and temporal lobe have also been associated with the empathic aspects of narcissism. Moriguchi et al. (2006) found correlations between alexithymia and mentalizing, which linked emotional empathy to cognitive empathy in a new way. The authors found that MPFC was seen to be involved in other aspects of narcissism, mainly related to grandiosity and self-views. Deng et al. (2013) also found significant changes in neural activation in the anterior cingulate cortex, mediofrontal cortices, insula and temportal lobe in their high alexithymia group when comparing to their low alexithymia group. To find activation in these areas in relation to emotional empathy has been a way to perhaps find a previously hidden link between the cognitive and emotional aspects of narcissism.

An important finding in this thesis is that the aspect of lack of empathy share some neural correlates to grandiosity and need for admiration. The fact that the research on self-views, self-evaluation and self-enhancement has found activation in some of the same neural correlates as the research on lack of emotional empathy creates a connection between them that previously has only been of interest to some researchers (Barrios et al., 2008; Baskin-Sommers et al., 2013; Fan et al., 2011b). To see that different behaviors have similar neural correlates strengthen the fact that all behaviors are of importance and that focusing on a single behavior might not be the best way to look at it. This will be discussed in the next paragraphs about the deficits seen in DSM-5 and the construct of narcissism.

One of the major difficulties in the area of narcissism is to classify if an individual either have or do not have narcissism. However this does not explain if the specified narcissism is on high levels of the measuring scales, if it is diagnosed as clinical NPD, or if there are any differences between high levels of narcissism and NPD at all. Future empirical studies need to explicitly state what they measure and how it is related to narcissism and NPD, since this is not being done successfully today.

As was seen previously in the thesis, the DSM-5 is the main diagnostic tool for diagnosing an individual with NPD. However it is stated that someone need to possess at least five of the nine criteria to be diagnosed (American Psychiatric Association, 2013). Someone can have five of the nine, but not have a lack of empathy, and still be diagnosed with NPD even though one of the defining characteristics in the describing text is to have a lack of empathy. This makes it seem that the DSM has contradictions in itself, which if that is the case is a major problem. A person using an assessment tool with this vagueness needs to be cautious in the conclusions drawn from it. Baskin-Sommers et al. (2014) stated that a lack of empathy is the main defining factor between clinical and non-clinical narcissism, which

further increase the problems about DSM-5 as a clinical assessment tool since it both have and do not have lack of empathy as a required characteristic.

The vagueness and the gray area between clinical and non-clinical narcissism can be even more complicated if one takes into the account that perhaps narcissism is not a single type of characteristics, but instead three different types. The fact that the DSM-5 has narcissism as a single type of characteristics (American Psychiatric Association, 2013) while researchers in the area have narcissism divided into two, or three, different types is problematic as well. The compelling evidence of three different types of narcissism (Houlcroft et al., 2012) should be considered before performing studies and using an assessment tool in a clinical setting since the differences between the three are essential (Baskin-Sommers et al., 2014; Cain et al., 2008; Miller et al., 2010). An individual with characteristics dominated of grandiosity will respond completely different to a situation than an individual with characteristics dominated of vulnerability or aggression. In DSM-5 only the person with grandiosity will be seen as narcissistic since the checklist only contains grandiose aspects (American Psychiatric Association, 2013). Vulnerable and aggressive characteristics are not considered even though they are part of known aspects in narcissism.

It seems that the gray area between clinical and non-clinical narcissism is a problem, and will be so until the people working in the field explicitly state which characteristics to be given more importance and to be present. An attempt to do this was seen when working on the fifth edition of the DSM (Skodol et al., 2013), in which a new model was made that would acknowledge both the differences between clinical and non-clinical narcissism, as well as the differences between grandiosity, vulnerability and aggression. A change of the model in the DSM-5 (American Psychiatric Association, 2013) is what is needed, and this seems to be the general consensus among researchers in the field. During the pre-work for the latest edition the research group surveyed experts on personality disorders, and got the result that 74% of

them agreed upon that a change of all personality disorders was needed for the next edition. However due to a lot of conservatism in the field of personality disorders (Skodol et al., 2013) the changes were removed in the last stages of the work. A revaluation of this model and incorporation into the clinical setting is one of the aims for future studies to do in order to make the concept of narcissism clearer.

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