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The social behavioral, emotional, and cognitive mechanisms  
underlying narcissistic personality traits

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My mother used to tell me that knowledge is a collective undertaking, that no one person knows anything. Rather it is the culmination of individual knowledges pooled together which constitute Knowledge. Similarly, this dissertation thesis is a result of collaborative efforts and intersections.

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## Summary

The cornerstone of a healthy society is social cohesion, which is based on good interpersonal relationships. Given the rampant rise in narcissistic values in our society (see, e.g., Twenge, & Campbell, 2009; Paris, 2014), it is important to understand the mechanisms behind this interpersonally disruptive personality trait.

This dissertation examines the underlying cognitive, emotional, and social behavioral mechanisms of individuals with a high number of narcissistic traits. Narcissists are known for their self-aggrandizing personality type which ultimately masks an insecure inner self. It is argued that the narcissists' self-image is molded through dynamic interactions between self-enhancing intra- and exploitative interpersonal regulation strategies (Morf, & Rhodewalt, 2001). Accordingly, the three main research questions addressed in this thesis are: 1) What self-generated thoughts underlie the intra-individual regulation strategies of narcissists? 2) What are the mechanisms driving the interpersonally disruptive narcissistic social behaviors in active, and reactive roles? and 3) How does the grandiose ego of narcissists bias their judgment in assessing another person's emotional state?

The first study reveals that greater numbers of pathological narcissistic traits are associated with higher levels of mind-wandering, and the content of these thoughts were more socially focused (self- and other-related), temporally focused (past- and future-oriented), and more negative. Most notably, positive thoughts were only related to narcissism when they were associated with self-related and future-oriented thoughts. Thus, the content of the narcissist's self-generated thoughts suggest two different patterns that could affect their intrapersonal regulation strategies: fantasy-driven thought patterns and patterns akin to rumination. These thought patterns may indicate why narcissists have a grandiose self-image and also a susceptibility to pathological vulnerability.

The second study examined ongoing social interactions where there were possibilities for acts of generosity and punishment amongst individuals with a



range of pathological narcissistic traits. There were two main findings. First, narcissists are less generous in situations where there is a risk of being punished, and this maladaptive behavior is mediated with a reduction in perspective taking. Second, higher narcissism scores are related to increased levels of punishment, and this retributive behavior is mediated by the narcissists experiencing anger.

In the final study, the tendency to both experience and also attribute the social emotions of envy and Schadenfreude was examined. A competitive social comparison task was used amongst individuals with only high and low levels of grandiose narcissistic traits. It was found that high-level narcissists do not personally experience more envy or Schadenfreude compared to low-level narcissists. However, they do have a tendency to attribute these emotions onto others. These results indicate that narcissists do not use their own emotional state as a frame of reference when assessing another individual's emotional state in a similar situation, but instead assume others will react differently.

Taken together, this thesis advances knowledge about the mechanisms underlying inter- and intra-personal regulation strategies of the narcissistic personality trait. As a result, it can serve as a possible source of inspiration for future intervention studies and further research on narcissistic personality traits.

## Zusammenfassung

Das Fundament einer gesunden Gesellschaft ist sozialer Zusammenhalt, welcher auf guten zwischenmenschlichen Beziehungen basiert. Angesichts des rasanten Anstiegs von narzisstischen Werten in unserer Gesellschaft (siehe z.B. Twenge & Campbell, 2009; Paris, 2014), ist es wichtig, die Mechanismen dieses Persönlichkeitsmerkmals, welches zu gestörten zwischenmenschlichen Beziehungen führt, zu verstehen.

Die vorliegende Dissertation untersucht die zugrunde liegenden kognitiven, emotionalen und sozialen Verhaltensmechanismen von Personen, die eine hohe Anzahl narzisstischer Merkmale aufweisen. Narzissten sind für ihre selbstverherrlichenden Persönlichkeitszüge bekannt, welche letztlich ihren geringen Selbstwert verbergen. Es wird argumentiert, dass das Selbstbild von Narzissten durch das dynamische Zusammenspiel von selbstverstärkenden intra- und ausbeuterischen interpersonellen Regulationsmechanismen geformt wird (Morf & Rhodewalt, 2001). Dementsprechend befasst sich die Arbeit mit den folgenden drei zentralen Forschungsfragen: 1.) Welche selbst generierten Gedanken liegen den intra-individuellen Regulationsmechanismen von Narzissten zu Grunde? 2.) Welche Mechanismen bestimmen die interaktionell gestörten Verhaltensweisen von Narzissten in aktiven und reaktiven Rollen? Und 3.) Inwiefern beeinflusst das überzogene Selbstbild von Narzissten ihr Vermögen über den emotionalen Zustand einer anderen Person zu urteilen?

Die erste Studie zeigt, dass pathologisch narzisstische Züge häufiger mit dem Abschweifen von Gedanken verbunden sind und der Inhalt dieser Gedanken eher sozial orientiert (auf sich selbst und andere bezogen) sowie zeitlich fokussierter (ausgerichtet auf Vergangenheit und Zukunft) und negativer war. Insbesondere standen positive Gedanken nur dann mit Narzissmus in Zusammenhang, wenn diese mit selbstbezogenen und zukunftsgerichteten Gedanken verbunden waren. Somit weist der Inhalt der selbst generierten Gedanken von Narzissten auf zwei verschiedene Muster hin, die ihre zwischenmenschlichen Regulationsmechanismen beeinflussen könnten: Fantasiegetriebene Denkmuster und dem Grübeln

vergleichbare Denkmuster. Diese Denkmuster können Anhaltspunkte geben, warum Narzissten sowohl ein überhöhtes Selbstbild als auch eine pathologische Vulnerabilität aufweisen.

Die zweite Studie untersuchte soziale Interaktionen, welche sowohl die Möglichkeit für großzügige und als auch bestrafende Handlungen bei Personen mit einer weiten Spannbreite pathologischer narzisstischer Zügen boten. Dabei zeigten sich zwei zentrale Ergebnisse. Erstens: Narzissten sind in Situationen weniger großzügig in denen das Risiko einer Bestrafung besteht. Diese ungünstige Verhaltensweise wird durch eine verminderte Perspektivübernahme bedingt. Zweitens: Höhere Narzissmus-Werte stehen mit höheren Bestrafungen in Zusammenhang und dieses Vergeltungsverhalten wird bedingt durch das Erleben von Ärger seitens des Narzissten.

In der letzten Studie wurde die Tendenz untersucht die sozialen Emotionen Neid und Schadenfreude sowohl selbst zu erfahren als auch sie anderen zuzuschreiben.

Personen mit ausschließlich hohen oder niedrigen selbstüberhöhenden narzisstischen Merkmalen mussten hierzu eine wettbewerbsorientierte soziale Aufgabe bearbeiten. Es zeigte sich, dass Personen mit einer hohen Narzissmus-Ausprägung nicht mehr Neid oder Schadenfreude erfahren als Personen mit einer niedrigen Narzissmus-Ausprägung. Allerdings zeigten sie die Tendenz, diese Emotionen anderen zuzuschreiben. Diese Ergebnisse zeigen, dass Narzissten nicht ihren eigenen emotionalen Zustand als Referenzrahmen verwenden, wenn sie den emotionalen Zustand einer anderen Person in einer ähnlichen Situation beurteilen sollen, sondern stattdessen annehmen, dass andere unterschiedlich reagieren werden.

Zusammengefasst erweitert die vorliegende Arbeit das Wissen über Mechanismen, die narzisstischen Persönlichkeitsmerkmalen zugrunde liegen und können. Sie kann somit als eine mögliche Inspirationsquelle für zukünftige Interventionsstudien und der weiteren Erforschung von narzisstischen Persönlichkeitsmerkmalen dienen.



## Chapter 1: Introduction

The self is also a creation, the principal work of your life, the crafting of which makes everyone an artist. This unfinished work of becoming ends only when you do, if then, and the consequences live on. We make ourselves and in so doing are the gods of the small universe of self and the large world of repercussions.

Rebecca Solnit, *The Faraway Nearby*

Following the words of Rebecca Solnit (2013), when constructing the small universe of the self we have a responsibility to respect the larger universe we live in. Implying that the self does not exist without the system it resides within, ultimately the self can be seen as a microcosm of a larger system that necessarily affects that larger system in several ways, including socially and ecologically. Laws in the natural sciences have proven instances of this type of relationship. For example, in chaos theory, the butterfly effect demonstrates that small causes can have large effects, as illustrated with the analogy of the butterfly that flaps its wings on one side of the river and as an effect the leaves on the trees blow in the wind on the opposite side (Lorenz, 1963). However, in contemporary capitalistic societies of the West, many individuals are disconnected from the world they inhabit, which explains the prevalence of neoliberal views that have been seen as the cause of everything from the epidemic of loneliness, to financial meltdowns, and the collapse of ecosystems (Monbiot, 2016). Indeed, in a recent survey of UK youth, the ambitions of 40% of those surveyed were “to be rich” or famous (Monbiot, 2014). It is not surprising that narcissism, despite already being more prevalent in Western societies (Foster et al., 2003), is continuing to rise among Western youth (Twenge et al., 2008). Narcissism

has even been discussed in terms of being an epidemic (Twenge, & Campbell, 2009). Harboring narcissistic traits seems ubiquitous in our Western culture and can be found within our own social circles: narcissists are highly active on social media (Buffardi, & Campbell, 2008), they run the companies we work for (Maccoby, 2000), and they are the people we find attractive and would consider as mates (Dufner et al., 2013).

What has led humans to become so self-focused that we are seemingly unaware of the effect our behavior and self-construction is having on our environment? As the Anthropocene epoch attests, the needs and desires of humans are literally changing the earth's ecosystem (Latour, 2014). Therefore it is clear that we would benefit from a better grasp of the psychological mechanisms of narcissism. Therein lies the impetus for this dissertation—to investigate the cognitive, social, and emotional mechanisms underlying narcissistic personality traits. Through studying such a timely psychological construct, I also hope to uncover potential future directions.

### **1.1 NARCISSISM: AN INTRODUCTION INTO THE CONCEPT AND ITS MEASUREMENT**

Psychologically speaking, narcissism is understood as a personality type associated with a self-absorbed, grandiose external shell with an insecure inner-self that is easily threatened and in need of constant external validation (Morf, & Rhodewalt, 2001; American Psychiatric Association, 2013). As a personality disorder, narcissism involves various maladaptive interpersonal traits such as lacking empathy, exploiting others for the narcissists' own benefit, and responding with rage, shame, and humiliation when their fragile self-esteem is threatened (DSM-V;

American Psychiatric Association, 2013). Moreover, narcissistic individuals are preoccupied with self-enhancement strategies to make them seem more powerful, beautiful, and brilliant in comparison with others (Grijalva, & Zhang, 2016), and require excessive levels of admiration from others that validate their sense of self (Caligor et al., 2015). As a result, narcissistic traits have been associated with exploitative behavior and a disregard of others (Bushman, & Baumeister, 1998; Morf, & Rhodewalt, 2001; Miller et al., 2010), impaired intimate relationships due to infidelity and game playing (Campbell et al., 2002), a self-serving bias tendency to accredit themselves for successes, but blame external factors for failures (Campbell et al., 2000), and a disillusioned sense of self leading to deficits in insight which results in a disconnect between how they see themselves and how they are seen by others (Klonsky et al., 2002).

Narcissists have adapted interpersonal self-regulatory strategies whereby they can feign closeness by initially being charming and can at least superficially keep up these agreeable behaviors so that strangers find them attractive and exciting to be around (Friedman et al., 2006; Dufner et al., 2013; Paulhus, 1998). Morf, & Rhodewalt (2001, p. 180) have come up with a self-regulatory processing model for narcissism whereby the internal self-concept of this grandiose, and also vulnerable, self is unstable and needs external validation to be maintained. Narcissists try to obtain this external validation from their environment.

This framework taps into two main dimensions of the narcissistic trait: the vulnerable and the grandiose. Despite the paradox, narcissists are regarded as being a mixture of both of these traits (e.g., Pincus et al., 2009). Within the grandiose dimension of narcissism there is also a positive self-image that is not exploitative or

self-aggrandizing, but rather what researchers consider an “adaptive” or even healthy form of narcissism (Wink, 1991; Lubit, 2002; Ackerman et al., 2011). Lubit (2002) suggests that healthy narcissistic individuals have a self-confidence that is in line with reality; they enjoy true friendship, intimacy, and empathize with others. Other researchers also attribute positive adaptive traits to healthy narcissism, for instance effective functioning, fulfillment, and psychological integration (Wink, 1991), higher self-esteem, lower aggression (Falkenbach et al., 2013), and low levels of depression and loneliness, as well as high levels of subjective well-being (Sedikides et al., 2004).

The differences found in the narcissistic personality trait are reflected in the measures used to assess narcissism. The most common measure for trait narcissism is the Narcissistic Personality Inventory (NPI; Raskin, & Hall, 1981), which focuses on the grandiose aspects of narcissism, encompassing both maladaptive and also adaptive dimensions (Ackerman et al., 2011). Ackerman and colleagues (2011) posit three main aspects of the NPI: leadership authority, entitlement exploitativeness, and grandiose exhibitionism. The aspect generally linked with adaptive outcomes was leadership authority, whereas the other two aspects were maladaptive, with the entitlement exploitative dimension being the most maladaptive (Ackerman et al., 2011). However, the NPI has been criticized for its inability to truly capture the maladaptive elements of narcissism because it does not include the vulnerable dimensions, and therefore the more pathological aspects (e.g. Cain, Pincus, & Ansell, 2008). Therefore, as a response to the NPI, Pincus and colleagues (2009) created the Pathological Narcissistic Inventory (PNI). The PNI comprises narcissistic grandiosity (exploitativeness, grandiose fantasy, self-sacrificing self-enhancement) and



narcissistic vulnerability (contingent self-esteem, hiding the self, devaluing, entitlement, rage). The PNI thus represents a comprehensive measure of narcissism, spanning both grandiose and vulnerable elements.

The following sections will introduce the three main studies used in this dissertation and give an overview of their empirical claims, in order to show they answer the main research questions.

## **1.2 INTRAPERSONAL REGULATION STRATEGIES OF NARCISSISTS: SELF-GENERATED THOUGHT PATTERNS**

The Morf and Rhodewalt model (p.180, 2001) lays the theoretical framework for intrapersonal regulation strategies employed by narcissists; however, little is known about what they actually contain, in part because of methodological challenges in accessing inner mental states. However, recent experiments in mind-wandering allow researchers to induce and also probe into individual's self-generated thought patterns and therefore examine the content of these thoughts (Smallwood, & Schooler, 2015). Studies have demonstrated that individuals are engaged in mind-wandering for up to 50% of their waking hours (Killingsworth, & Gilbert, 2010). Mind-wandering is related to negative mental outcomes such as unhappiness (Killingsworth, & Gilbert, 2010; Smallwood et al., 2007) and psychopathological states of depression and anxiety (Ottaviani, & Couyoumdjian 2013). However, it has also been linked to creativity (Baird et al., 2012)—a recent study showed that over 40% of the creative ideas of individuals in a variety of professions occurred when they were engaged in a non-work-related activity (see review in Smallwood, & Schooler, 2015).

Only recently have researchers started to analyze the content of these self-generated thoughts (Ruby et al., 2013a,b; Smallwood et al., 2013). What they have discovered so far is that self-generated thoughts seem to be structured as thoughts regarding a social dimension (self/other), affective dimension (positive/negative), and also a temporal dimension (past/future). The empirical evidence to date has suggested that there is an overwhelming bias towards thinking about the future (Smallwood, & Schooler, 2015), and that retrospective thinking, having thoughts focused on the past, is related to low mood (Ruby et al., 2013a).

### **1.3 THE INTERPERSONAL PROBLEMS OF NARCISSISTS: EXAMINING MECHANISMS THAT UNDERLIE THEIR SOCIAL DECISION-MAKING BEHAVIOR**

The effects of narcissistic traits are the most pronounced when examining interpersonal relationships (Miller et al., 2010). Initially, individuals with a high number of narcissistic traits are able to behave in ways that are amicable to others, however over time these relationships deteriorate, especially as they become more intimate (Paulhus, 1998; Campbell et al., 2002; Oltmanns et al., 2004), and the negative impact of the narcissistic personality trait comes to be more apparent—for instance by causing distress to significant others (Miller et al., 2007). Therefore, to understand the mechanisms behind their social behavior it would be advantageous to examine narcissistic individuals in ongoing social interactions with others.

Historically, behavioral economists have used paradigms whereby they can examine individuals as they are faced with the opportunity to retaliate or reciprocate in ongoing social interactions. Their results highlight two key aspects of social behavior: first, people tend to be more generous when faced with the possibility of

punishment (Fehr, & Gächter, 2002; Güth, 1995; Spitzer et al., 2007), so they behave more strategically (e.g., Van Dijk, & Vermunt, 2000; Steinbeis, et al., 2012). Second, individuals tend to punish offers that they deem unfair (Fehr, & Fischbacher, 2004; Fehr, & Gächter, 2002). The latter could be because individuals want to enforce social norms or because they are retaliating out of feelings of anger (Fehr, & Fischbacher, 2004; Fehr, & Gächter, 2002; McCall et al., 2014; Sanfey et al., 2003; Sigmund, 2007). Thus, the use of economic game paradigms to investigate individual differences in relation to personality traits, especially those who have problems with interpersonal relationships, could be a viable empirical tool to help understand the mechanisms underlying social behavior (e.g., King-Casas et al., 2008; Gunnthorsdottir, et al., 2002; Spitzer et al., 2007).

Narcissistic social behavior has primarily been investigated from the active position—thereby putting the narcissistic individual in a role where they are the first movers and not reacting to another’s actions (e.g., Campbell et al., 2005). In line with typical narcissistic traits, which indicate a tendency to be interpersonally exploitative and self-absorbed, the results generally demonstrate that narcissistic individuals behave more selfishly and less prosocially (Campbell et al., 2005; Brunell et al., 2014; Lannin et al., 2014). However examining how narcissists behave when they are in the reactive, or respondent role, has yet to be investigated.

#### **1.4 EMOTIONAL ATTRIBUTION BIAS IN NARCISSISTS: ARE GRANDIOSE NARCISSISTIC TRAITS RELATED TO HARBORING AN EMOTIONAL EGOCENTRIC BIAS?**

As outlined in section 1.1, a common thread in the grandiose narcissistic personality trait is self-focus and a fragile ego, which is at the heart of the narcissist’s

intrapersonal regulation strategies and as a result effects their interpersonal relationships (Morf, & Rhodewalt, 2001). What warrants further investigation is how narcissists' self-centeredness effects their interpretation of others' emotional states. Understanding other people's emotions is the cornerstone to connecting with others and sympathizing with others, which can lead to feelings of compassion and prosocial behavior (Singer, & Lamm, 2009; Leiberg et al., 2011; Singer, & Klimecki, 2014). As accounts of narcissism have shown, narcissistic traits are related to almost the opposite sentiments, which explains why narcissists have dysfunctional interpersonal relationships (e.g. Miller et al., 2010). Understanding the reasons for this can inspire future applications that may help narcissistic individuals have more functional relationships, which can have wide-reaching benefits (Ronningstam, 2016). In order to try to probe the emotional mechanisms underlying the ways in which narcissists interpret other people's feelings, my coauthors and I, in Study 3 (Chapter 4), chose to examine the extent to which narcissistic grandiosity biases the way narcissists assess other people's emotions in congruent and incongruent situations.

We used a paradigm developed by Steinbeis and Singer (2013), which created a competitive context whereby reward and punishment induced the social emotions of envy and Schadenfreude through social comparison. Moreover, the third study examined not only how narcissistic traits related to experiencing the first-hand emotions of envy and Schadenfreude, but also how narcissists attributed these emotions to others. In other words, high-scoring grandiose narcissistic traits inferred the emotional states of others, through engaging in empathetic judgments—using their own emotional experiences in a certain situation to make

inferences about what others might be feeling in a similar situation (Steinbeis, & Singer, 2014).

People with narcissistic tendencies are susceptible to the social emotions of envy and Schadenfreude (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015), since they both involve social comparison and a feeling of negative affect towards another (Smith, & Kim, 2007). Moreover, one of the defining characteristics of narcissistic personality disorder is feeling envious, which is aroused by others who seem to have things that the narcissist lacks (Kernberg, 1975; American Psychiatric Association, 2013). Envy is commonly defined as "an unpleasant, often painful emotion characterized by feelings of inferiority, hostility, and resentment produced by an awareness of another person or group of persons who enjoy a desired possession (object, social position, attribute, or quality of being)" (p.47; Smith and Kim 2007). The feeling of Schadenfreude is akin to the feeling of envy, whereby a person gets positive feelings from another person's misfortune (Smith et al., 1996). Therefore it is proposed that an envied person can inspire feelings of Schadenfreude in others when he or she experiences misfortune (Smith et al., 1996).

There has been limited research into the relationship of envy and Schadenfreude and narcissistic traits, and then only self-reported measures have been used, as a means to quantify levels of dispositional and situational envy and Schadenfreude in subclinical narcissistic populations (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015). The results indicate that the vulnerable element of narcissism drives feelings of envy, and to a lesser extent also feelings of Schadenfreude (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015). Neufeld and Johnson (2015) also found that the adaptive measure for narcissism, leadership and

authority (Ackerman et al., 2011), acted like a buffer against feeling envious of others. Yet there has been no investigation to date examining how the emotional states of grandiose narcissistic individuals affect the way they assess other people's emotional states.

## **1.5 SUMMARY OF AIMS AND RESEARCH QUESTIONS FOR DISSERTATION**

### **1.5.1 STUDY 1: MIND-WANDERING IN NARCISSISM**

In Study 1 (Chapter 2) we wanted to gain insight into the intrapersonal regulation strategies narcissists use through examining their self-related thought patterns. We used an experience-sampling approach in an established paradigm (Ruby et al., 2013a,b; Smallwood et al., 2013). The simple choice reaction time task (CRT) measured the amount of mind-wandering that occurred, as well as the content of the self-generated thoughts via probes that were asked at random points during the task. Subjects were asked to rate the type of thoughts they were having as one of six types: 1) self related, 2) other related, 3) thoughts with a positive valence, 4) thoughts with a negative valence, 5) future-oriented, and 6) past-oriented (Ruby et al., 2013a,b; Smallwood et al., 2013).

We used the PNI as the measure of narcissistic traits because we were interested in how the vulnerable and grandiose dimensions generated these thoughts and in seeing if there was a dimensional difference in the type of thoughts. Given that narcissists are supposedly preoccupied with fantasies of grandeur and fame, as mentioned above, we expected to find a positive relationship between increased levels of mind-wandering and narcissism. Moreover, given the self-focused nature of narcissists, we also expected to find more thoughts about the self

and in particular positive thoughts about the future in relation to thoughts about the self. This was expected because of the narcissists' self-serving bias, which leads them to be overly confident about positive traits, for instance their level of intelligence or attractiveness (Campbell et al., 2007; Miller et al., 2010).

#### 1.5.2 STUDY 2: SOCIAL DECISION-MAKING BEHAVIOR IN NARCISSISTS

In Study 2 (Chapter 3), my co-authors and I investigated subclinical narcissistic social behavior, not only in terms of how it relates to actions taken towards others, but also how it is molded through ongoing social interactions where the other person has a chance to respond. Thus, the aim was to make a novel contribution by examining how narcissistic traits modulate decision-making behavior where there is the possibility of generosity and punishment during ongoing social interactions. Then, as a second step, in order to understand the mechanisms underlining such social behavior, individual differences were evaluated in a variety of interpersonal trait- and state measures.

The chosen economic game paradigms used to assess giving behavior as a first mover, towards others who could or could not possibly retaliate, were the Social Value Orientation Scale (Van Lange, 1999), the Dictator Game (Camerer, 2003), and the 2<sup>nd</sup> Party Punishment Game (which is a version of the Ultimatum Game; Fehr, & Fischbacher, 2004; Güth, 1995). Then, second- and third- mover punishment behavior was measured using the 2<sup>nd</sup> Party Punishment Game and the 3<sup>rd</sup> Party Punishment Game (Fehr, & Fischbacher, 2004), in which behavior was assessed during situations where costly punishment responses to the distribution choices of others in direct and observed interactions was possible. The trait measures used to

investigate possible mediators for behavior were the Interpersonal Reactivity Index and the Cognitive and Emotional Empathy Questionnaire (Davis, 1983; Savage et al., submitted), Machiavellianism (Henning, & Six, 1977), and state affect (anger, sadness, disgust, and happiness) during hypothetical punishment games. The narcissistic trait measure used in this study was similar to the one used in the first study; the PNI was chosen in order to examine how both the vulnerable and grandiose dimensions affect social decision-making behavior and to see if there were any dimensional differences.

Given that enhanced Machiavellian attitudes have been shown to be related to narcissism (Menon, & Sharland, 2011), in the first-mover behavior we expected to find that narcissistic traits were more closely related to more strategic behavior. We expected to find narcissists behaving less generously, especially when there was no threat of retaliation, because narcissists are less concerned with how their behavior affects others, fail to learn from critical feedback, and are more risk-taking (Sedikides, et al., 2002; Campbell et al., 2004). We also expected narcissists to be less sensitive to other's prospective reactions and thus less giving overall—so not only when was no chance of retaliation (Dictator Game), but also when there was risk of retaliation (2<sup>nd</sup> Party Punishment Game). In respect to possible mediators of first-mover behavior, we expected the possible strategic behavior of narcissists to be mediated by Machiavellian attitudes. If instead narcissists did not behave more strategically, but were less generous in situations where they could be punished, then this could be attributed to reduced levels of emotional empathy and perspective-taking.



With regard to second- and third-mover punishment behavior, given that narcissism is related to heightened levels of aggression and anger (Bushman, & Baumeister, 1998), the expectation was that narcissistic behavior would lead narcissistic individuals to punish more when faced with unfair offers, and that punishment behavior would be mediated by feelings of anger. Moreover, we expected narcissists to punish more, especially in 2<sup>nd</sup> Party Punishment Game. However, if we observed that narcissistic traits were associated with less social-norm orientation, then we expected to find less punishment in the 2<sup>nd</sup> and 3<sup>rd</sup> Person Punishment Games.

### 1.5.3 STUDY 3: EMOTIONAL ATTRIBUTION BIAS IN NARCISSISTS

Study 3 aimed to build upon previous research by attempting to induce feelings of envy and Schadenfreude in the sample of subclinical narcissists with high and low levels of grandiose narcissism using the novel Egocentricity Monetary Reward and Punishment Paradigm, (EMOP; developed by Steinbeis and Singer, see 2013 and 2014 for more details). The paradigm also allowed for the measurement of emotional attribution bias, and therefore we were able to examine the relationship between experiencing and attributing the emotions of envy and Schadenfreude in order to uncover the possibility of an emotional egocentric bias in the sample (EEB; see Silani et al., 2013 and Steinbeis et al., 2015). An EEB in this study refers to how one's emotional state can be a source of egocentric judgment when assessing another's emotional state in congruent or incongruent conditions (Silani et al., 2013; Steinbeis et al., 2014, 2015). In particular, we focused on grandiose narcissistic traits because the hypothesis was that the self-aggrandizing dimension of narcissism

would be related to a larger emotional attribution bias, and therefore also a larger emotional egocentric bias.

Although previous research has found that grandiose elements of narcissism are to a large extent negatively related to dispositional feelings of envy, they were assessed using self-reported measures which explicitly asked the subjects to indicate the level of envy they felt themselves or towards others (Kirzan and Johan, 2012; Neufeld and Johnson, 2015); whereas our paradigm has proven to induce the first-hand feelings of envy and Schadenfreude and therefore enabled us to take a different approach to assessing the relationship between narcissistic grandiosity and these social emotions. Previous research has even demonstrated that narcissists tend to report more favorable views of themselves in questionnaires (Campbell, et al., 2002; Klonsky et al., 2002). Accordingly, then, one hypothesis was that we would find high-scoring narcissistic individuals experiencing more first-hand emotions of envy and Schadenfreude as induced through the EMOP. If a difference was found in how the two groups experienced envy and Schadenfreude, it would be assumed that the mechanism driving this difference would be found in the way that high-scoring narcissists, compared to low-scoring narcissists, assessed losses and gains. And it was expected that high-scoring narcissists would report feeling worse when losing and much better when winning compared to low-scoring narcissists.

Clinical definitions of narcissism state that one of the defining characteristics of narcissistic individuals is their feeling of envy towards others, or their belief that others are envious of them (American Psychiatric Association, 2013). Thus, it was hypothesized that high-scoring narcissists, given their inflated self-view, would assume that others were envious of them and therefore attribute envy to others. In

a similar way, since the feeling of Schadenfreude could arise from envying another and as a result getting pleasure from seeing her fail (Smith et al., 1996), the narcissistic tendency to think others are envious of them could also lead them to attribute Schadenfreude to others. That is to say, narcissists might assume that others would express more positive feelings when they saw the high-scoring narcissist fail (but they themselves won) in the competitive game compared to a situation where both did well. If a difference was found between the two groups in terms of how they attributed envy and Schadenfreude to others, the assumed mechanism driving this difference would be found in the way that high-scoring narcissists, compared to low-scoring narcissists, assessed others as experiencing losses and gains. It was expected then that high-scoring narcissists would report others as feeling much worse when they lost and much happier when they won, compared to how low-scoring narcissists assessed others as feeling.

If both hypotheses were true, high-scoring narcissists would show a larger offline EEB (as per Steinbeis, & Singer, 2014). So we expected to find a significant correlation between envy and attributed envy, and similarly Schadenfreude and attributed Schadenfreude. Thus, it was expected that high-scoring narcissists would have more of a tendency to judge another's emotional state from their own perspective compared to low-scoring narcissists.

## **1.6. RECRUITMENT AND EMPIRICAL DATA-SETS**

Participant recruitment was accomplished by circulating flyers through social media, Berlin university mailing lists, and in the central Berlin region (see Appendix for the four different recruitment posters used). According to a short screener

questionnaire, asking participants whether they had at some point been diagnosed with a mental disorder and if they had been in treatment for a mental disorder (psychotropic medication, psychotherapy), only participants who reported no previous disorders or treatment were invited to the study. Furthermore, all the studies were approved by the Ethics Commission of the Department of Psychology of the Humboldt University of Berlin.

The three empirical studies were based on varying number of participants ranging in subclinical narcissistic traits. The narcissistic traits were measured in two ways, either through the pathological measure assessing both the vulnerable and grandiose dimensions of narcissism (Pathological Narcissistic Inventory, PNI; Pincus et al., 2009), or through the commonly used measurement tool for subclinical narcissism that assesses the grandiose dimensions of the personality trait (Narcissistic Personality Inventory, NPI; Raskin, & Hall, 1981). The details of each empirical data-set from each respective study is given in more detail below:

Study 1 (Chapter 2) N=135 native German speaking participants (89 female, mean age=30.3 years, SD=10.7 years). One group of participants completed the CRT task only (N=75, 50 female, mean age=29.4 years, SD=10.3 years), a second group completed both the CRT and the WM task (N=60, 39 female, mean age=31.5 years, SD=11.1 years). PNI was used to measure narcissistic traits.

Study 2 (Chapter 3) N=122 native German speaking participants (41 female, mean age=30 years, SD=11 years). PNI was used to measure narcissistic traits.

Study 3 (Chapter 4) N=133 native German speaking participants (90 female, mean age=30.5 years, SD=10.6 years). Unlike the two previous studies, the measure of narcissism in this study was the NPI, due to its identification of the grandiose

dimensions of narcissism, as these were the elements hypothesized to be driving the emotional attribution bias in the sample. The sample was also split into extremes of high and low because the middle group was not of interest to the study—only individuals who were at the extremes were of interest. This type of split is in line with previous research (e.g. Campbell, 1999; Hascalovitz, & Obhi, 2015). The high–low split of the NPI scores resulted in the high group having N=47 and the low group N=44 (and the middle group with N=45). The low and high narcissism groups did not differ in age, gender, or handedness (see Table 1 in Chapter 4).

Throughout the dissertation reference is made to “high-scoring” narcissists, it is important to clarify that this is not an indication that the subjects in the respective studies have narcissistic personality disorder (NPD), nor are the studies comprised in this dissertation addressing NPD. The “high-scoring” label simply refers to individuals scoring relatively high on the PNI for studies 1 and 2, and scoring relatively high on the NPI for Study 3. For the sake of brevity, at times high narcissists are simply referred to as “narcissists.”

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## **Chapter 2: Where the narcissistic mind wanders. Increased self-related thoughts are more positive and future-oriented**

This chapter is based on the following original article:

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\* contributed equally

**ABSTRACT**

Narcissism is characterized by a preoccupation with fantasies of unlimited success, power, beauty etc., which has been discussed as intra-individual regulation of a grandiose, but vulnerable self-concept. To explore, where the narcissistic mind wanders, we used an experience-sampling approach in a sample with large variability in pathological narcissism inventory scores. Multi-level modeling revealed (1) more mind-wandering in participants with higher levels of narcissism and (2) a difference in the content of these thoughts (more self-, other-related, past-, future-oriented, negative thoughts). Critically, (3) in high levels of narcissism, the self-related thoughts were associated with more positive valence and were also more future-oriented. The results demonstrate the validity of the assumed grandiose, self-absorbed view of oneself in narcissism, which includes self-indulgent fantasies of future success. Furthermore, we found additional evidence for negative, past oriented thoughts in narcissism, a dysfunctional pattern reminiscent of rumination, possibly linked to the increased psychopathological vulnerability in narcissism.

*Keywords:* narcissism, mind-wandering, self-generated thoughts, task-unrelated thoughts.





## **Chapter 3: Social decision making in narcissism: Perspective taking and anger mediate reduced generosity and enhanced retaliation**

This chapter is based on the following original article:

Böckler, A. \*, **Sharifi, M.** \*, Kanske, P., Dziobek, I., & Singer, T. (2017). Social decision making in narcissism: Perspective taking and anger mediate reduced generosity and enhanced retaliation. *Personality and Individual Differences* 104, 1-7.

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\* contributed equally

**ABSTRACT**

Narcissism can lead to interpersonal problems. The characteristics of social decision making in trait narcissism and the cognitive and affective underpinnings are poorly understood. We employed established game theoretical paradigms to investigate different facets of social behavior in participants (N=122) with a wide range of scores on the Pathological Narcissistic Inventory. Interpersonal traits, attitudes, and emotions were assessed as potential mediators of behavioral differences. High narcissism scores were related to lower generosity, especially when this could result in being punished. This maladaptive behavior was fully mediated by reduced perspective-taking abilities in narcissism. Also, narcissism scores predicted higher levels of punishment behavior, driven by higher levels of experienced anger. Hence, the difficulties narcissists face in interactions may be due to their reduced perspective-taking skills and resulting reduced generosity as well as enhanced anger-based retaliation behavior.

*Keywords:* narcissism, prosocial behavior, social decision making, behavioral economics, individual differences.

Narcissism—both on the sub-clinical and on the pathological level—is characterized by enhanced feelings of grandiosity and entitlement as well as by impairments in interpersonal functioning (Bushman, & Baumeister, 1998; Campbell, Bush, Brunell, & Shelton, 2005; Given-Wilson, Ilwain, & Warburton, 2011; Morf, & Rhodewalt, 2001). Narcissists are considered less likable by others (Back et al., 2013), are less often engaged in committed and satisfactory relationships (Campbell, 1999; Campbell, Foster, & Finkel, 2002; Carroll, 1987; Paulhus, 1998), and their behavior negatively impacts on others and on society (Barry, Kerig, Stellwagen, & Barry, 2011; Rosenthal, & Pittinsky, 2006; Sedikides, Campbell, Reeder, Elliot, & Gregg, 2002). Considering the increase of narcissistic traits in young generations (Cai, Kwan, & Sedikides, 2012; Twenge, Konrath, Foster, Campbell, & Bushman, 2008), a more comprehensive understanding of social decision making and the underlying impairments in narcissism is crucial. Accordingly, the present study addressed two questions. First, which specific characteristics of social decision making in reciprocal interactive situations are affected by trait narcissism? Second, which differences in socio-cognitive and -affective abilities mediate the observed behavioral differences?

Concerning the first question, psychological research suggests that (sub-clinical) narcissism is related to reduced prosocial decision making. Narcissists report lower moral and ethical standards (Antes et al., 2007; Brown, Sautter, Littvay, Sautter, & Bearnese, 2010; Cooper, & Pullig, 2013) and volunteer less for the sake of others and invest less time to help others (Brunell, Tumblin, & Buelow, 2014; Lannin, Gyll, Krizan, & Madon, 2014). Using a social dilemma ('Public Goods Game')

Campbell and colleagues (2005) demonstrated that trait narcissism predicts more selfish and less prosocial decision making.

While previous studies investigated how generously narcissists acted towards others, it is yet unknown how their behavior is shaped in interactions that consist not only of an isolated action towards another, but also entails the other's response. In fact, decades of research in behavioral economics suggest that the opportunity to reciprocate or retaliate against others' actions determines social decision making in two important ways: First, people adjust generous or cooperative behavior to whether their interaction partners can respond (e.g., by punishing unfair distribution choices; Fehr, & Gächter, 2002; Güth, 1995; Spitzer, Fischbacher, Herrnberger, Gron, & Fehr, 2007; Steinbeis, Bernhardt, & Singer, 2012). Put simply, people give more when others have the option to retaliate, a behavioral tendency that has been termed strategic giving (e.g., Steinbeis, et al., 2012). Second, people tend to punish those who behave selfishly (Fehr, & Fischbacher, 2004; Fehr, & Gächter, 2002; McAuliffe, Jordan, & Warneken, 2015). This behavior can reflect anger-based retaliation, but also a tendency to enforce social norms (Fehr, & Fischbacher, 2004; Fehr, & Gächter, 2002; McCall, Steinbeis, Ricard, & Singer, 2014; Sanfey, Rilling, Aronson, Nystrom, & Cohen, 2003; Sigmund, 2007). Based on this literature, two crucial questions arise regarding social decision making in narcissism: First, how do narcissists adjust their generous behavior depending on whether or not their interaction partner can punish (i.e., how strategic do they behave)? And second, how do people scoring high on narcissism punish others' unfair offers (i.e., how norm-driven or anger-driven do they behave)?

The second goal of the present study concerns the mechanisms that underlie altered social decision making in narcissism. Research shows, for instance, that reduced levels of empathy and perspective-taking drive the enhanced sense of entitlement in criminal narcissists (Hepper, Hart, Meek, Cisek, & Sedikides, 2014). Besides impairments in such interpersonal traits, narcissism has been linked to enhanced Machiavellian attitudes and increased negative emotions such as anger (Bushman, & Baumeister, 1998; Menon, & Sharland, 2011; Witte, Callahan, & Perez-Lopez, 2002). As these socio-affective and socio-cognitive processes have been related to inter-individual differences in social behavior in the general population (Bereczkei, Birkas, & Kerekes, 2010; Hein, Silani, Preuschoff, Batson, & Singer, 2010; Knoch, Pascual-Leone, Meyer, Treyer, & Fehr, 2006; Rudolph, Roesch, Greitemeyer, & Weiner, 2004), the present study systematically tested whether inter-individual differences in such traits mediate the identified alterations in social decision making in narcissism.

In order to address the first goal, we used well-established game theoretical paradigms that specifically allowed the assessment of 1) *first mover giving behavior*: giving behavior displayed towards others who could or could not respond with punishment (Dictator Game and 2<sup>nd</sup> Party Punishment Game; Axelrod, & Hamilton, 1981; Camerer, 2003; Fehr, & Fischbacher, 2004) and 2) *second/third mover punishment behavior*: costly punishment responses to distribution choices of others in direct and observed interactions (2<sup>nd</sup> and 3<sup>rd</sup> Party Punishment Game; Fehr, & Fischbacher, 2004). In order to investigate possible mediators of altered social decision making, we assessed state affect during the hypothetical punishment game, as well as interpersonal traits (Interpersonal Reactivity Index and Cognitive and

Emotional Empathy Questionnaire; Davis, 1983; Savage, Teague, Koehne, Borod, & Dziobek, submitted), and Machiavellianism (Henning, & Six, 1977).

Concerning first mover behavior, we expected to replicate findings of reduced generosity in narcissism (e.g., Campbell et al., 2005). Beyond, we were interested whether trait narcissism is related to enhanced strategic behavior (i.e., less generosity especially when others cannot punish), which would be in line with reports of enhanced Machiavellian attitudes in narcissism (Menon, & Sharland, 2011). Alternatively, given that narcissists are less concerned with the effects their actions have on others (Sedikides, et al., 2002), it may be that they are less sensitive to other's prospective reactions and, hence, behave less generously not only when retaliation is impossible (Dictator Game), but also when the other player can punish (2<sup>nd</sup> Party Punishment Game). Concerning second and third mover punishment behavior, based on findings of a heightened perception of others as unfair and enhanced anger and aggression in narcissism (Bushman, & Baumeister, 1998; Menon, & Sharland, 2011), we hypothesized that narcissism is related to an increase in anger-based punishment.

### **3.1 METHODS**

#### **3.1.1 PARTICIPANTS**

Participants completed a short screening on demographic information and mental health. Only participants without a history of psychiatric disorders were included. In total, 122 Native German speaking participants took part in the study (41 female, mean age=30 years, SD=11 years). Sample size was selected based on

recommendations to ensure statistical power even in case of small to medium effect sizes (Vazire, in press).

Participants filled in in the Pathological Narcissistic Inventory (PNI; Pincus et al., 2009), which has good psychometric properties and measures narcissism in a more comprehensive manner by including both grandiose and vulnerable elements (as opposed to the NPI, which has been criticized for focusing too much on the grandiose elements; Brown, & Zeigler-Hill, 2004; Maxwell, Donnellan, Hopwood, & Ackerman, 2011; Miller, & Campbell, 2008; Morf, & Rhodewalt, 2001; Pincus, et al., 2009). We used the overall PNI score because of (i) the correlation between the grandiose and the vulnerable subscales and (ii) its validation with other trait narcissism scales as well as with narcissistic personality disorder according to the DSM-IV (Ackerman, Witt, Donnellan, Trzesniewski, Robins, & Kashy, 2011; Maxwell et al., 2011). The participant sample was divided into a low narcissism and a high narcissism group according to a median split on the PNI (median=123, ranging from 20 to 219). The low and high narcissism groups did not differ in age, gender, or handedness ( $p>0.1$ ) (see Table 1). Dichotomizing data in this way allowed us to perform ANOVAs including narcissism group as a factor and testing for interaction effects (see, for example, Byrne, & Worthy, 2013; Heiserman, & Cook, 1998; Svindseth et al., 2008 for similar approaches). Importantly, in addition to testing for differences between the low and the high narcissism group, the relation of narcissism to all dependent variables was also assessed dimensionally by means of correlations with PNI scores.

The study was approved by the Ethics Commission of the Department of Psychology of the Humboldt University of Berlin. Participants signed informed



consent and received 7 euros per hour for their participation in addition to the money they could gain in the game theoretical paradigms.

### 3.1.2 DATA ACQUISITION & GENERAL PROCEDURE

All game theoretical paradigms were assessed on 17 inch TFT monitor in two subsequent testing sessions. Hypothetical distribution scales and questionnaires were filled in via an online platform after the two testing sessions (Questback GmbH. Released 2014. EFS Survey Enterprise Feedback Suite, Version 10.4).

### 3.1.3 MEASURES

#### *Game theoretical paradigms*

Participants completed the economic games on two days (separated on average by two weeks) whereby first mover giving paradigms were completed on the first and second/third mover punishment paradigms were completed on the second day. Participants received instructions in written form and filled in control questions in order to ensure they understood the underlying payoff functions. Participants were informed that they were playing for monetary units (MUs; 1 MU=10 Euro cents) and that they would receive the pay-off of a randomly selected trial at the end of the experimental sessions. All game theoretical paradigms were completed as anonymous one shot versions. Participants were informed that they were connected to randomly selected players via an interactive digital internet platform. In reality, players played according to preprogrammed algorithms. All the games were programmed in Python (van Rossum, & Drake, 2001) using z-tree as a template (Fischbacher, 2007).

First mover giving behavior

*Dictator Game (DG)*. In the DG (Camerer, 2003) participants took the role of Player A and were first informed about their endowment (150 MUs). Then, participants could indicate how many MUs in increments of 1 MU they wanted to assign to a second player (Player B). The percentage of MUs participants transferred to player B was averaged across the two trials.

*2nd Party Punishment Game (2 PPG)*. The 2PPG is a version of the Ultimatum Game (UG; Fehr, & Fischbacher, 2004; Güth, 1995) in which not only the Player A, but also Player B has MUs at their disposal. Participants were assigned the role of Player A for two rounds. Similar to the DG, Player A had an endowment of 150 MUs while Player B (simulated) had an endowment of 50 MUs. After players were informed about their endowments, Player A chose how many MUs s/he wanted to assign to Player B in increments of 1 MU. Subsequently, Player B could invest his/her MUs to reduce Player A's MU level in the following way: every 1 MU reduced Player A's MU level by 3 MUs. The average percentage of MUs transferred to Player B was calculated.

The order of DG and 2PPG trials was randomized across participants.

Second and third mover punishment behavior

*2nd Party Punishment Game (2PPG)*. Instructions and endowments were identical to the 2PPG described above, but participants were assigned the role of Player B. After receiving information about the endowments, participants were informed about the amount of MUs Player A (simulated) had assigned to them. Participants played two rounds in pseudorandomized order, in one round Player A offered a high amount (75 MUs, 50% of her endowment) and in one round Player A

offered a low amount (10 MUs, 6.7%). Finally, participants could choose how many of their 50 MUs in increments of 1 MU they wanted to use in order to deduce the MU level of Player A (1 MU of Player B reducing Player A's MUs by 3). The percentage of MUs invested to punish Player A was calculated for low offer and high offer trials.

*3rd Party Punishment Game (3PPG).* In the 3PPG (Fehr, & Fischbacher, 2004) participants were assigned the role of Player C (the third party). First, participants were informed about their own and the other players' endowments: Player A had 150 MUs, Player B did not have any MUs, and Player C (participant) had 50 MUs. Then, Player C observed how many MUs Player A (simulated giver) assigned to Player B (simulated receiver). Participants played two rounds in pseudorandomized order. Endowments, simulated choices, etc. were identical to the 2PPG. The percentage of MUs invested to punish Player A was calculated for low offer and high offer trials.

The order of 2PPG and 3PPG trials was randomized across participants.

In addition, established hypothetical distribution scales were assessed in which participants could be first movers (Social Value Orientation Scale; van Lange, 1999) and second/third movers (Hypothetical Punishment Scales; Fehr, & Fischbacher, 2004). Details on methods and results are provided in Supplements S1 and S2.

#### *State and trait questionnaires*

In order to investigate potential mediators of altered social decision making in trait narcissism, state affect, interpersonal reactivity (e.g., empathy and perspective-taking), and Machiavellian attitudes were assessed via an online platform.

#### State affect

While completing the hypothetical punishment scales, participants were asked to rate how happy, sad, angry, and disgusted they felt (on a scale from 0 to 7) after each of the seven hypothetical transfers (0-150 MUs) of both Player B and Player C.

#### Interpersonal reactivity

Participants filled in the Interpersonal Reactivity Index (IRI; Davis, 1983) and the Cognitive and Emotional Empathy Questionnaire (CEEQ; Savage, et al., submitted). The IRI is a 28 item questionnaire measuring empathetic concern, personal distress, perspective-taking, and empathetic fantasy. The fantasy subscale was not included due to previous criticism (Baron-Cohen, & Wheelwright, 2004). The CEEQ is a 30 item questionnaire measuring the cognitive and emotional facets of empathy. Sum scores for all subscales were derived for both questionnaires.

#### Machiavellianism

The 18 item Machiavellianism scale (Henning, & Six, 1977) assesses self-beneficial and manipulative attitudes at the expense of other people's well-being. A mean Machiavellian score was calculated for each participant.

## 3.2 RESULTS

The relation of narcissism to the different parameters of social decision making was assessed by means of comparing the high narcissism with the low narcissisms group (according to a median split on participants' PNI scores) and by correlations with narcissism (according to participants' absolute PNI scores).

### 3.2.1 GAME THEORETICAL PARADIGMS

*First mover giving behavior (DG and 2PPG)*

Data of 121 participants was available and included in the analyses. Details on missing data are provided in Supplement S3. Participants' average scores of giving in the DG and giving in the 2PPG were subjected to a repeated measures ANOVA with the within-subject factor Game (DG versus 2PPG) and the between-subject factors Group (low versus high narcissism). The main effect of Game shows that participants gave significantly more in the 2PPG (when the other player could punish them) than in the DG ( $F(1,120)=81.9, p<0.001, \eta^2=0.406$ ), which reflects strategic giving (Steinbeis et al., 2012) (see Figure 1). In addition, the high narcissism group gave significantly less overall than the low narcissism group, as reflected in a main effect of Group ( $F(1,120)=5.2, p<0.05, \eta_p^2=0.041$ ). A two-way interaction of Game and Group ( $F(1,120)=4.4, p<0.05, \eta_p^2=0.036$ ) indicates that high narcissists gave significantly less than low narcissists in the 2PPG ( $t(120)=2.6, p<0.01, d=0.48$ ), but not (significantly) in the DG ( $t(120)=1.4, p=0.17, d=0.25$ ). Mirroring the ANOVA findings, narcissism (PNI score) correlated (trend) negatively with giving overall (DG and 2PPG combined) ( $r=-0.16, p=0.07$ ) and significantly negatively with giving in the 2PPG ( $r=-0.18, p<0.05$ ).

*Second/third mover punishment behavior (2PPG and 3PPG)*

Participants' amounts of punishment were subjected to a repeated measures ANOVA with the within-subject factors Game (2PPG versus 3PPG) and Offer (low offer versus high offer from Player A) and the between-subject factor Group (low versus high narcissism). The main effect of Offer shows that participants assigned more punishment for low offers than for high offers ( $F(1,115)=104.7, p<0.001, \eta_p^2=0.477$ ), which is in line with the literature (Fehr, & Fischbacher, 2004) (see Figure

1). In addition, punishment was significantly enhanced in the high narcissism group ( $F(1,115)=7.2$ ,  $p<0.01$ ,  $\eta_p^2=0.059$ ). The two-way interaction of Offer and Group ( $F(1,115)=4.3$ ,  $p<0.05$ ,  $\eta_p^2=0.036$ ) indicates that high narcissists punish low offers significantly more than non-narcissists ( $t(120)=-2.9$ ,  $p<0.01$ ,  $d=0.53$ ), which was not the case for high offers ( $t(120)=-1.0$ ,  $p>0.1$ ,  $d=0.18$ ). No other main effects or interactions reached significance ( $F_s(1,115)$   $p<0.36$ ,  $p>0.18$ ). In line with the ANOVA results, PNI scores were correlated with overall punishment ( $r=0.27$   $p<0.01$ ) and with the amount of punishment in the low offer condition ( $r=0.30$   $p<0.01$ ).

Taken together, game theoretical paradigms revealed trait narcissism to be related to lower giving, particularly in settings where retaliation was possible. When taking the role of the receiver or observer, narcissists punished others more harshly, especially when offers were low.

### 3.2.2 STATE AND TRAIT QUESTIONNAIRES

See Table 2 for descriptive results of all questionnaires.

#### *State affect*

Participants' affect ratings on anger, sadness, disgust, and happiness were subjected to repeated measures ANOVAs with the within-subject factors Game (hypothetical 2PPG versus hypothetical 3PPG), Offer (0 MUs, 25 MUs, 50 MUs, 75 MUs, 100 MUs, 125 MUs, 150 MUs) and the between-subject factor Group (low versus high narcissism). The main effects of Offer show that anger, sadness, and disgust increased and happiness decreased with decreasing offers ( $F_s(1, 111) \geq 47.0$ ,  $p_s < 0.001$ ,  $\eta_p^2 \geq 0.297$ ). In addition, the high narcissism group reported significantly more anger ( $F(1,111)=10.7$ ,  $p<0.01$ ,  $\eta_p^2=0.088$ ) and sadness ( $F(1,111)=9.9$ ,  $p<0.01$ ,

$\eta_p^2=0.082$ ), while no group differences were revealed for disgust or happiness ( $p>0.1$ ). In accordance, PNI scores correlated significantly with overall anger ( $r=0.20$ ,  $p<0.05$ ) and sadness ( $r=0.23$ ,  $p<0.05$ ), as well as anger ( $r=0.20$ ,  $p<0.05$ ) and sadness ( $r=0.25$ ,  $p<0.01$ ) specific to low offers.

#### *Interpersonal reactivity*

The high narcissism group reported significantly less perspective-taking ( $t(120)=2.4$ ,  $p<0.05$ ,  $d=0.44$ ) and higher personal distress ( $t(120)=3.5$ ,  $p<0.01$ ,  $d=0.64$ ) in the IRI than the low narcissism group. Accordingly, PNI scores correlated negatively with perspective-taking ( $r=-0.20$ ,  $p<0.05$ ) and positively with personal distress ( $r=0.45$ ,  $p<0.001$ ) in the IRI. In the CEEQ, the high narcissism group reported significantly less perspective-taking ( $t(120)=2.6$ ,  $p<0.01$ ,  $d=0.47$ ) and, similarly, PNI scores correlated with perspective-taking ( $r=-0.21$ ,  $p<0.05$ ).

#### *Machiavellianism*

The high narcissism group reported significantly more Machiavellianism than the low narcissism group ( $t(120)=3.4$ ,  $p<0.01$ ,  $d=0.61$ ) and PNI scores were correlated with the Machiavellian Index ( $r=0.35$ ,  $p<0.001$ ).

Taken together, questionnaires revealed enhanced negative state affect in narcissism as well as enhanced personal distress, reduced perspective-taking and higher Machiavellian attitudes.

### 3.2.3 MEDIATION ANALYSES

Mediation models were calculated using a bootstrapping based approach (Preacher, & Hayes, 2008). Bootstrapping techniques allow for repeated resampling from a given population, and resampling was repeated 5000 times. The 5000

estimates of the indirect association were used to generate a 95% bias corrected confidence interval (CI) (Preacher, & Hayes, 2008; Zeigler-Hill et al., in press)<sup>1</sup>.

#### *First mover giving behavior*

Our main findings suggest that trait narcissism is related to lower giving specifically in the 2PPG. In addition, we found that perspective-taking (CEEQ) and personal distress (IRI) correlated with both narcissism (PNI score, see above) and with giving in the 2PPG (perspective-taking:  $r=0.20$ ,  $p<0.05$ ; personal distress:  $r=-0.19$ ,  $p<0.05$ ).

Hence, PNI scores were modeled as independent variable and giving in the 2PPG as dependent variable, while perspective-taking (PT) and personal distress (PD) were tested as mediators (see Figure 1). The model revealed that narcissism was negatively associated with giving in the 2PPG, with PT and with PD. While PT was positively related with giving in the 2PPG, no relation was found for PD. Results of the mediation analysis indicated that PT was a mediator for reduced giving. The mediation analysis revealed that the direct relationship between narcissism and 2PPG giving became non-significant when PT was included in the model, suggesting full mediation.

#### *Second/third mover punishment behavior*

Our main findings show that trait narcissism is related to higher punishment, especially when offers are low. Also, Machiavellianism and state anger and sadness (both for low offers) correlated with narcissism as well as with low offer punishment

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<sup>1</sup> In addition to the bootstrapping based approach, we estimated mediation effects with structural equation modeling (SEM) using the AMOS software package. Both methods yielded similar results; SEM based analyses and estimates are reported in the supplementary material S4.



(Machiavellianism:  $r=0.35$ ,  $p<0.001$ ; state anger:  $r=0.20$ ,  $p<0.05$ ; state sadness:  $r=0.25$ ,  $p<0.01$ ).

Hence, PNI scores were modeled as independent variable and punishment in low offers as dependent variable, while state anger, state sadness, and Machiavellianism were tested as mediators (see Figure 1). Narcissism was associated with low offer punishment and with anger, sadness, and Machiavellianism. The direct effect of anger was associated positively with punishment. No relations were found for sadness and Machiavellianism. Due to paths a and b being significant for state anger, mediation analysis was applied. Results indicated that anger was a robust mediator for enhanced punishment in narcissism (Preacher, & Hayes, 2008).

Taken together, mediation analyses revealed clear mediators for the differences between high and low narcissism in social decision making.

### **3.3 DISCUSSION**

Considering the personal and societal costs of narcissism (Barry, et al., 2011; Rosenthal, & Pittinsky, 2006; Sedikides, et al., 2002), a more comprehensive understanding of the impairments in narcissists' social behavior and of the underlying factors is crucial. The present study addressed this objective by 1) investigating the link between sub-clinical narcissism and various components of social decision making such as generous, strategic and punishment behaviors and by 2) examining the inter-individual differences in socio-cognitive and -affective traits that account for the observed alterations in social exchange behavior. Employing established game theoretical paradigms as well as state and trait questionnaires, we revealed that trait narcissism is linked to reduced generosity,

driven by poorer perspective-taking skills, and to increased anger-based punishment.

### 3.3.1 NARCISSISM, GENEROSITY, AND THE MEDIATING ROLE OF PERSPECTIVE-TAKING

In accordance with the literature, narcissism in our study was related to reduced giving (Campbell, et al., 2005). Interestingly, narcissists did not show enhanced strategic behavior (i.e., being particularly or exclusively generous when others could punish, e.g., Güth, 1995; Steinbeis, et al., 2012). By contrast, people scoring high on narcissism behaved more selfishly than people with lower scores especially in settings in which interaction partners could retaliate (2PPG). Hence, rather than displaying enhanced strategic behavior, narcissists seemed to be less sensitive to or less aware of the potential negative reactions of others to non-generous offers. Results of the mediation analyses suggest that lower generosity in the 2PPG was fully driven by a reduced perspective-taking ability in participants scoring high on narcissism. The impaired ability or willingness to take an interaction partner's perspective (or action opportunities) into account, thus, led narcissists to behave less generously in situations where generosity would have been in their own interest (in order to forgo punishment). While reduced giving and ignorance of others' punishment options seems relatively harmless in the setting described here, research in economics and psychology suggests that large-scale cooperation can break down quickly and irrevocably when individuals choose unfair and selfish distribution options (Fehr, & Gächter, 2002; Ledyard, 1995). The lack of considering other peoples' perspectives and action opportunities and the ensuing tendency to behave less generously towards others may well be one of the core reasons for the

impaired social interactions of narcissists (e.g., unstable relationships; Back, et al., 2013; Campbell, et al., 2002).

### 3.3.2 NARCISSISM, PUNISHMENT, AND THE MEDIATING ROLE OF ANGER

Complementarily to reduced generosity and lower sensitivity to others' punishment options, high narcissists exhibited enhanced levels of punishment when faced with other people's offers, especially when these were unfair. Such behavior may have two different origins: First, it may reflect the tendency to reinforce fairness norms by punishing unfair agents (Fehr, & Fischbacher, 2004) or, second, it may be a direct result of anger experienced when treated unfairly (Bushman, & Baumeister, 1998; Menon, & Sharland, 2011), hence, reflecting impulsive retributive actions. Supporting the latter, people with high trait narcissism reported higher states of sadness and anger during the interaction, particularly when receiving unfair offers. Mediation analyses suggest that enhanced punishment behavior in narcissists was driven by their higher levels of experienced anger elicited by others unfair offers. This finding is in line with reports of narcissists' enhanced sense of being treated unjust, increased levels of anger, and their augmented tendency to blame others (Bushman, & Baumeister, 1998) and with research on anger and punishment (Knoch, et al., 2006; McCall, et al., 2014). Somewhat surprisingly, narcissists did not punish more when they were directly affected by the other's unfair choice (2PPG) than when they merely observed an unfair interaction (3PPG). Our data suggest that this was due to enhanced anger not only when unfair behavior was experienced (2PPG), but also when it was observed (3PPG). Narcissists, hence, generally respond to unfairness with heightened anger, which, in turn leads them to punish more harshly. The tendency to respond aggressively to others' unfair behavior may jeopardize stable

social interactions. In fact, research suggests that stable cooperation is strongly supported by an interaction strategy that has been termed ‘generous tit-for-tat’ (Wedekind, & Milinski, 1996), namely doing as the other does (e.g., cooperating when the other cooperates), but with bracing cooperative behavior at least once after the other has behaved selfishly.

### 3.3.3 CONCLUSION

The present study revealed that the decreased proneness or ability of narcissists to take others’ perspectives leads to reduced generous behavior towards others, a pattern that played out especially when interaction partners could retaliate. Conversely, when facing unfair distribution choices of others narcissists responded with more anger and, consequently, stronger retaliation behavior. Since both reduced generosity and enhanced retributive aggressive actions have been reliably shown to endanger stable cooperation it is likely that they are at the core of the difficulties narcissists face when interacting with others—ranging from being considered less sympathetic and experiencing less satisfying relationships to being an actual burden to others and society. Accordingly, the present results could contribute to intervention research that aims at improving interpersonal relationships and behavior in narcissism, because they suggest that targeted trainings in the domain of social cognitive abilities such as perspective-taking and emotion regulation may help to enhance prosocial behavior and reduce impulsive retributive actions in narcissism.



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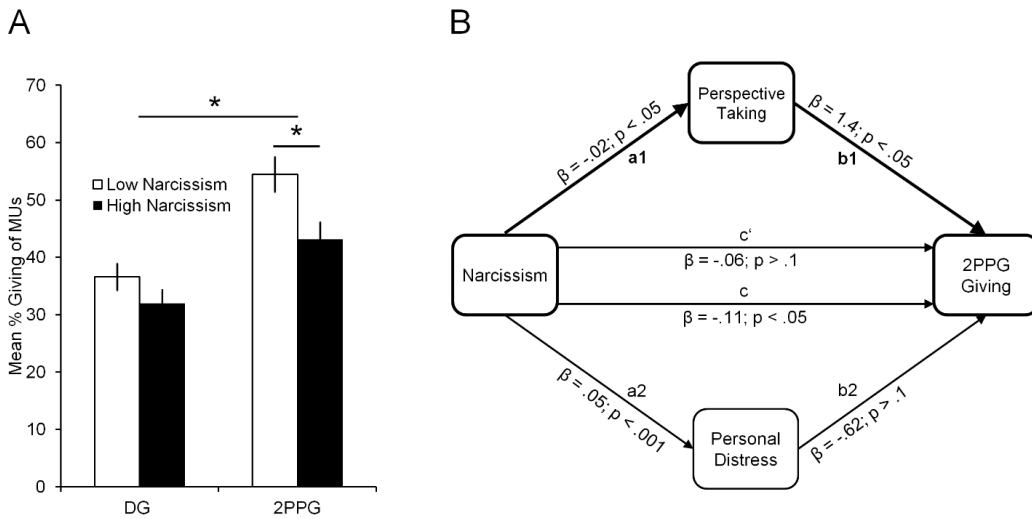
**Table 1:** Demographic and questionnaire data.

|            | High narcissism group |      | Low narcissism group |      | Statistics   |         |
|------------|-----------------------|------|----------------------|------|--------------|---------|
|            | M                     | SD   | M                    | SD   |              |         |
| Gender     | 21:39                 |      | 19:41                |      | t(118)=0.38  | p=0.38  |
| Age        | 29.4                  | 10.1 | 32.0                 | 11.7 | t(114)=1.27  | p=0.21  |
| Handedness | 2.0                   | .18  | 1.9                  | .28  | t(118)=-1.17 | p=0.25  |
| PNI        | 149.4                 | 21.2 | 85.5                 | 28.3 | t(120)=-14.1 | p<0.001 |

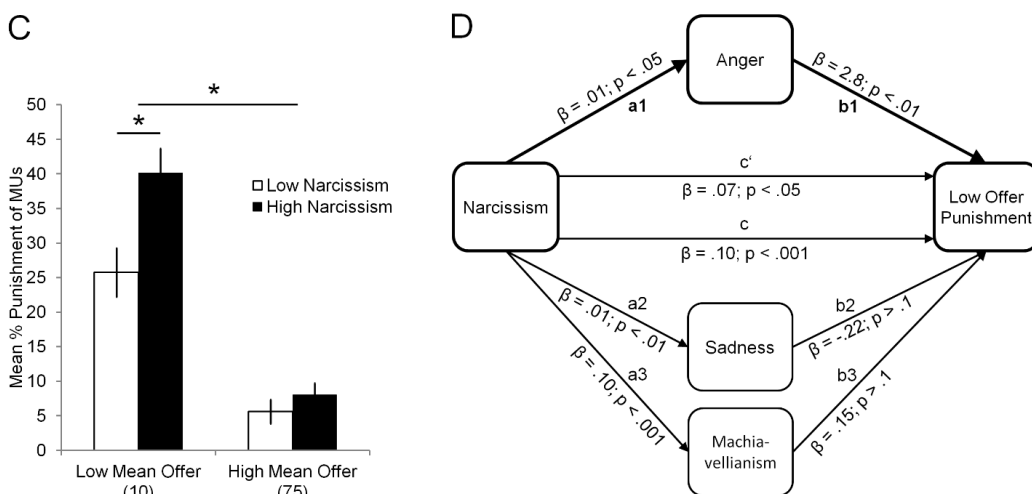
**Table 2:** Means (M) and standard deviations (SD) of state/trait questionnaires.

|                  | High narcissism group |      | Low narcissism group |      | Statistics   |        |
|------------------|-----------------------|------|----------------------|------|--------------|--------|
|                  | M                     | SD   | M                    | SD   |              |        |
| State anger      | 3.5                   | 1.1  | 3.0                  | 1.1  | t(111)=-2.24 | p<0.05 |
| State sadness    | 3.3                   | 1.3  | 2.7                  | 1.2  | t(111)=-2.76 | p<0.01 |
| State disgust    | 2.6                   | 1.6  | 2.2                  | 1.5  | t(111)=-1.35 | p=0.18 |
| State happiness  | 3.3                   | .9   | 3.5                  | 1.1  | t(111)=1.20  | p=0.23 |
| IRI: EC          | 19.5                  | 3.8  | 19.2                 | 5.0  | t(120)=-0.37 | p=0.71 |
| IRI: PT          | 16.8                  | 4.4  | 18.8                 | 4.6  | t(120)=2.42  | p<0.05 |
| IRI: PD          | 14.1                  | 3.8  | 11.3                 | 4.9  | t(120)=-3.52 | p<0.01 |
| CEEQ: EC         | 16.6                  | 2.8  | 16.9                 | 2.8  | t(120)=0.71  | p=0.48 |
| CEEQ: PT         | 13.7                  | 3.3  | 15.2                 | 2.9  | t(120)=2.61  | p<0.05 |
| CEEQ: Mirroring  | 14.5                  | 3.2  | 13.5                 | 3.7  | t(120)=-1.47 | p=0.14 |
| CEEQ: MSP        | 16.5                  | 4.2  | 17.3                 | 3.8  | t(120)=1.02  | p=0.31 |
| Machiavellianism | 24.9                  | 11.4 | 17.8                 | 11.6 | t(120)=-3.38 | p<0.01 |

Giving in DG and 2PPG



Punishment in 2PPG and 3PPG (mean)



**Figure 1:** Results of game theoretical paradigms and mediation models.

A) Means and Standard errors for first mover giving behavior (DG and 2PPG) for the low and the high narcissism group.

B) Mediation model for the effect of narcissism on giving in the 2PPG. Perspective-taking and personal distress are modeled as mediators and perspective-taking was revealed as a full mediator.

C) Means and Standard errors for punishment behavior to low and high offers (averaged across 2PPG and 3PPG) for the low and the high narcissism group.

D) Mediation model for the effect of narcissism on low offer punishment. State anger (in low offers), state sadness (in low offers), and Machiavellianism are modeled as mediators and state anger was revealed as a mediator.

**Supplement S1:** Hypothetical distribution scales

Mirroring game theoretical paradigms, established hypothetical distribution scales were assessed in which participants also took the roles of first movers (Social Value Orientation Scale) and second/third movers (Hypothetical Punishment Scales). Hypothetical distribution scales were assessed after the game theoretical paradigms via an online platform.

*Social Value Orientation Scale (SVO).* The SVO (Van Lange, 1999) investigates how participants choose to distribute goods between themselves and another hypothetical person. Specifically, participants choose between three distribution options, which can either be prosocial (optimizing the gain of the other), individualistic (optimizing the gain of oneself), or competitive (maximizing the difference in gains between oneself and the other). We calculated the absolute number that each distribution option was chosen.

*Hypothetical Punishment Scales.* Participants reported their punishment choices in a hypothetical interaction (Fehr, & Fischbacher, 2004). Participants took the roles of Player B and Player C (comparable to the 2PPG and 3PPG) in pseudo-randomized order and indicated how many MUs they would invest to reduce Player A's MUs (according to a 1:3 ratio). Specifically, participants in each role responded to seven hypothetical offers of Player A between 0 and 150 MUs in increments of 25 MUs. Importantly, assessing punishment behavior in such a hypothetical and self-report based manner allowed incorporating state affect questions without interrupting real interactions. Therefore, after participants had indicated their punishment choices, they rated their affect in this particular hypothetical situation (see below).

**Supplement S2:** Results of hypothetical distribution scales

*Social Value Orientation (SVO).* Data of 120 participants was available. Participants' sum scores were subjected to a repeated measures ANOVA with the within-subject factor Distribution Choice (prosocial versus individualistic versus competitive) and the between-subject factor Group (low versus high narcissism). The main effect of Distribution Choice suggests that all participants chose prosocial options more often than individualistic or competitive options ( $F(1,118)=69.7, p<0.001, \eta_p^2=0.371$ ). No main effect of Group and no interactions were revealed ( $F_s(1,118)<1, p>0.1, \eta_p^2=0.00$ ) (see Table 1). Similarly, PNI scores were not correlated with distribution choices ( $ps>0.1$ ).

*Hypothetical Punishment Scales.* Data of 113 participants was available. Participants' amounts of punishment were subjected to a repeated measures ANOVA with the within-subject factors Game (hypothetical 2PPG versus hypothetical 3PPG), Offer (0 MUs, 25 MUs, 50 MUs, 75 MUs, 100 MUs, 125 MUs, 150 MUs) and the between-subject factor Group (low versus high narcissism). The main effect of offer suggests that punishment increased with decreasing offers ( $F(1,111)=33.9, p<0.001, \eta_p^2=0.234$ ). No main effect of Group and no interactions were revealed ( $ps>0.1$ ) (see Table 1). Accordingly, PNI scores were not correlated with overall punishment or low offer punishment ( $ps>0.1$ ).

Taken together, hypothetical distribution scales revealed no differences between the high and the low narcissism groups and no correlations with PNI scores for first mover giving behavior and for punishment behavior. These results revealed that while game theoretical paradigms proved efficient in revealing systematic differences between high and low narcissism, hypothetical distribution scales showed no such effects, which may be due to self-serving biases such as social desirability (Stone, et al., 2000). In fact, a recent study integrated a wide variety of measures of prosocial behavior and revealed that self-reports on altruistic behavior were rather independent of actual altruistic behavior (Böckler, Tusche, & Singer, 2016).



**Table 3:** Means (M) and standard deviations (SD) of hypothetical distribution scales.

|                     | High narcissism group |      | Low narcissism group |      | Statistics   |        |
|---------------------|-----------------------|------|----------------------|------|--------------|--------|
|                     | M                     | SD   | M                    | SD   |              |        |
| SVO prosocial       | 5.9                   | 3.6  | 6.1                  | 3.7  | t(118)=0.20  | p=0.84 |
| SVO individualistic | 2.7                   | 3.3  | 2.7                  | 3.5  | t(118)=-0.04 | p=0.97 |
| SVO competitive     | .4                    | 1.4  | .3                   | 1.5  | t(118)=-0.27 | p=0.79 |
| Hypothetical 2PPG   | 13.9                  | 12.4 | 11.8                 | 12.8 | t(111)=-0.93 | p=0.36 |
| Hypothetical 3PPG   | 13.0                  | 12.4 | 12.7                 | 15.2 | t(111)=-0.11 | p=0.91 |

**Supplement S3:** Missing data

One participant did not show up on the day of testing first mover behavior (N=121 out of 122), five participants failed to show up when second and third mover behavior was tested (N=117 out of 122). The IRI, the CEEQ and the Machiavellianism scale were filled in via an internet platform, only one participant did not fill in the Machiavellianism scale (N=121 out of 122), all participants completed the IRI and the CEEQ (N=122). Finally, state affect was filled in during the second and third mover games, and out of the 117 participants who performed these games, four did not completely fill in the state affect questionnaires and, therefore, their data was not included in analyses on state affect (N=113 out of 122).

**Supplement S4:** Structural equation modeling approach to mediation analysis

*First mover giving behavior.* PNI scores were modeled as exogenous variable and giving in the 2PPG as endogenous variable, while perspective-taking (PT) and personal distress (PD) were included as mediators. The direct effect of PNI scores on giving in the 2PPG was significant ( $\beta=-0.182$ ;  $p=0.042$ ). When both mediators were included in the model, narcissism was negatively associated with PT ( $\beta=-0.206$ ,  $p=0.021$ ) and with PD ( $\beta=0.449$ ,  $p<0.001$ ). While PT was positively related with giving in the 2PPG ( $\beta=0.18$ ,  $p=0.042$ ), no relation was found for PD ( $\beta=-0.11$ ,  $p=0.24$ ). Therefore, a subsequent mediation analysis was performed with only PT as mediator, revealing that the relationship between narcissism and 2PPG giving became non-significant when PT was included in the model, suggesting full mediation ( $\beta=-0.14$ ,  $p=0.113$ ; standardized indirect effects:  $-0.04$ ).

*Second/third mover punishment behavior.* PNI scores were modeled as exogenous variable and punishment in low offers as endogenous variable, while state anger, state sadness, and Machiavellianism were tested as mediators. First of all, the direct effect of narcissism on low offer punishment was significant ( $\beta=0.298$ ,  $p<0.001$ ). When anger, sadness, and Machiavellianism were modeled as mediators, narcissism was found to be significantly related to all of them (Machiavellianism:  $\beta=0.347$ ,  $p<0.001$ ; sadness:  $\beta=0.247$ ,  $p=0.005$ ; anger:  $\beta=0.196$ ,  $p=0.028$ ), while only anger was significantly related to punishment (anger:  $\beta=0.336$ ,  $p<0.001$ ; Machiavellianism:  $\beta=0.128$ ,  $p=0.14$ ; sadness:  $\beta=-0.029$ ,  $p=0.73$ ). Consequently, in a subsequent mediation analysis, only anger was modeled as a mediator. Results revealed that the effect of trait narcissism on low offer punishment was still significant ( $\beta=0.192$ ,  $p=0.033$ ; standardized indirect effect:  $0.060$ ), pointing towards partial mediation.

Taken together, and similar to bootstrapping based mediation analyses, results revealed the mediators for the differences between high and low narcissism in social decision making: Reduced giving in the 2PPG was fully mediated by reduced perspective taking in narcissism, while enhanced punishment behavior in low offer situations was partially mediated by narcissists' enhanced levels of anger.

**Chapter 4: Of course you are envious of me, but why should I be envious of you?! A story of emotional attribution bias told by narcissistic grandiosity**

**Sharifi, M.,** Steinbeis, N., Dziobek, I., & Singer., T. Of course you are envious of me, but why should I be envious of you?! A story of emotional attribution bias told by narcissistic grandiosity.

## ABSTRACT

In this study we wanted to examine how individuals with narcissistic grandiosity not only felt envy and Schadenfreude, also how they attributed these social emotions to others. By examining the relationship between the way in which individuals experience an emotion and the way they attribute such emotions to others, we can attempt to measure their level of emotional egocentricity—which we wanted to do for a subclinical narcissistic population (Silani et al., 2013; Steinbeis, & Singer, 2014). To date, research on narcissism and envy has primarily relied on self-reported measures, while we wanted to employ an established paradigm that has proven to induce first-hand feelings of envy and Schadenfreude and also allows for the assessment of emotional attribution (Steinbeis, & Singer, 2013, 2014). As a next step, we also measured how narcissistic grandiosity related to individual differences in emotional egocentricity by correlating the individual differences between experiencing envy/Schadenfreude first-hand and attributing these emotions, respectively. We found that in our population (N=133), individuals who scored highly in trait narcissism (Narcissistic Personality Inventory; Raskin, & Hall, 1981) did not experience more envy or Schadenfreude compared to low scoring narcissists, and that this lack of difference was driven by the similar way that the two groups personally feel towards gains and losses. However, we did find that high-scoring narcissists attributed more envy ( $p < 0.05$ ) and had the propensity to attribute more Schadenfreude ( $p < 0.1$ ) compared to the low-scoring narcissist group. This difference was driven by a difference in the way that high and low narcissists assess other people as feeling when losing. So although high-scoring narcissists did not experience these feelings first hand, they did think that others felt more envious of them and to a lesser extent more Schadenfreude, driven by the idea that others feel worse when losing. Also, when comparing the relationship between experienced and attributed envy and Schadenfreude, no difference was found between the high- and low-scoring narcissist groups—indicating that high-scoring narcissists do not harbor a larger emotional egocentric bias.

*Keywords:* grandiose narcissism, envy, Schadenfreude, emotional attribution bias, emotional egocentricity bias.

We are in the midst of the Anthropocene, an epoch where human activities are affecting the way the way the planet functions (Steffen, Crutzen, P.J., & McNeill, 2007; Latour, 2014). At the core of this epoch is the notion that human actions are changing the way our ecosystem behaves, from being responsible for the extinction of certain species, to how much the oceans rise annually. In particular, what is it about the psychology of humans which can lead our species into being so self-focused so that we are literally changing the earth to adhere to our needs? It is mused that we are currently facing a narcissistic epidemic, where the prevalence of self-importance is so ubiquitous that it is even apparent in our everyday consumer goods: for instance, we have moved away from the *e-* to the *i-* when naming electronic gadgets (Twenge, Miller, & Campbell, 2014; Aboujaoude, E., 2012).

In psychology, narcissistic traits are related to a grandiose and self-focused personality type that is interpersonally exploitative and demanding of attention in order to maintain the fragile sense of self-worth found at the core (American Psychiatric Association, 2013; Morf, & Rhodewalt, 2001). The narcissistic ego is unstable and needs constant external validation through admiration from others, and when this is not achieved and worse even, when it is threatened, narcissists respond with rage and harbor feelings of shame (Kirzan, & Johar, 2015; Morf, & Rhodewalt, 2001; Bushman, & Baumeister, 1998). Thus narcissistic personality traits are developed through both intra- and interpersonal dynamics (Morf, & Rhodewalt, 2001), and what is particularly interesting for this study is to examine the possibility of how high-level narcissists' self-centeredness could bias their interpretation of the emotional state of others. We aim to investigate this through a novel paradigm

developed by Steinbeis and Singer (2013, 2014) that elicits the first-hand emotions of envy and Schadenfreude and also measures to what extent participants attribute these emotions onto others.

Both of these social emotions, envy and Schadenfreude, are susceptible to narcissistic tendencies (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015). They both involve social comparison, and a feeling of negative affect towards others (Smith, & Kim, 2007). It is clinically assumed that narcissists are believed to be envious of others, and these envious feelings are aroused by others who seem to have things that the narcissists lack (Kernberg, 1975; American Psychiatric Association, 2013). In psychological research, envy is commonly defined as “an unpleasant, often painful emotion characterized by feelings of inferiority, hostility, and resentment produced by an awareness of another person or group of persons who enjoy a desired possession (object, social position, attribute, or quality of being)” (p.47; Smith, & Kim 2007). The feeling of Schadenfreude is akin to the feeling of envy, whereby a person feels positive feelings from another person’s misfortune (Smith et al., 1996). Therefore, it is proposed that an envied person can inspire feelings of Schadenfreude in others when he/she befalls a misfortune (Smith et al., 1996).

Empirical research examining the relationship between narcissism and envy is still in its infancy (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015). The primary studies to date have examined envy in relation to the more pathological trait dimensions of narcissism which suggest that narcissistic personality traits are constructed of two dimensions: the grandiose and the vulnerable (e.g. Cain et al., 2008; Pincus et al., 2009). The vulnerable dimension is related to feelings of helplessness, emptiness, low self-esteem and shame (Pincus et al., 2009). The

previous studies have found that it was mainly the vulnerable dimension, and not the grandiose, which related to the feelings of dispositional envy and Schadenfreude (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015). Kirzan and Johan (2012) used self-reports of envy and Schadenfreude to find that narcissistic grandiosity was slightly negatively related to dispositional envy, and also that grandiose narcissistic traits did not lead to incited feelings of envy or hostility toward a high-status peer. However, they found the opposite was true for vulnerable narcissistic traits. Neufeld and Johnson (2015) found similar results whereby vulnerable narcissistic traits were linked with feelings of dispositional envy. Moreover, they found the entitlement dimension, which is found in *both* vulnerable and grandiose narcissism (Russ et al., 2008), to predict self-reported episodic envy, and to a lesser degree also dispositional envy. Whereas the authoritative (also known as the more adaptive dimension of narcissism, see Ackerman et al., 2011) dimension of narcissistic grandiosity actually curbed reported feelings of envy (Neufeld, & Johnson, 2015). The feeling of Schadenfreude was only experienced if the subjects had first experienced envy, and thus was linked with both the vulnerable and entitlement dimensions of narcissism (Neufeld, & Johnson, 2015). However, to date there lacks research investigating how narcissists attribute the emotions of envy and Schadenfreude onto others. Nor has the possibility of highly narcissistic individuals harboring an emotional egocentric bias when judging another person's emotions been examined.

Empirically, subclinical narcissism has been measured via the Narcissistic Personality Inventory (NPI; Raskin, & Hall, 1981) which captures the narcissistic personality disorder (NPD) symptoms outlined by the *DSM – III*. The NPI focuses on grandiose qualities of narcissism and has shown that individuals scoring high on



the scale react with aggression to those threatening their grandiosity (Bushman, & Baumeister, 1998), play games and are less interested in intimacy (Campbell, Foster, & Finkel, 2002), and are more risk taking and overestimate their performance abilities (Campbell, Goodie, & Foster, 2004). However, not all grandiose narcissistic behaviors are repellent; narcissists want to seem attractive, especially to successful and popular people. They try to attract their desired milieu by charm and flattery and can appear socially confident (Watson, & Biderman, 1994) and entertaining (Paulhus, 1998). Despite its popularity in personality research, the NPI has been criticized for capturing mainly so-called “adaptive” or “healthy” narcissistic traits, leaving out the vulnerable and therefore more pathological aspects of narcissism (e.g. Cain, Pincus, & Ansell, 2008). Its focus on grandiose elements of narcissism is exactly why we chose to use the NPI as our measure for narcissism. It is these grandiose traits which we assume will lead high-level narcissists to attribute more envy and Schadenfreude to others.

Our study aims to build on previous research on narcissism to understand higher level social emotions by going beyond self-reported measures. We use a paradigm developed by Steinbeis and Singer (2013) which creates a competitive context whereby reward and punishment induces the social emotions of envy and Schadenfreude through social comparison. Moreover, our study examines not only how narcissistic traits relate to experiencing the first-hand emotions of envy and Schadenfreude, but also how narcissists attribute these emotions to others. That is to say, we measure how they infer the emotional states of others (i.e. their engagement in making empathetic judgments), when the other is in a situation

which could give rise to feelings of envy and Schadenfreude (Steinbeis, & Singer, 2014).

Then as a next step, we examine the relationship between experiencing an emotion and attributing it in order to uncover the possibility of an emotional egocentric bias (EEB; see Silani et al., 2013 and Steinbeis et al., 2015). In our study, we examine the extent our participants experience an EEB which occurs when individuals are asked to simulate their own tendency to have a certain emotion in a given state when assessing another's emotion in a congruent or incongruent state (Silani et al., 2013; Steinbeis et al., 2014, 2015). Thereby understanding how one's own emotional states can be a source of egocentric judgment. For instance, you are delighted to hear that your paper got accepted, but then simultaneously found out that a similar paper from one of your peers at your institute did not get accepted. You are then asked to assess the emotional state of your disappointed peer after hearing your own good news—if you say she feels better than she might, you would be positively biasing her emotional state because of your incongruent emotional state. The way we assess if our participants have an EEB is by correlating how much they experience envy and Schadenfreude respectively with how much they attribute these emotions to others (Steinbeis, & Singer, 2014).

Clinically, a defining characteristic of narcissistic individuals is that they are envious of others or that they believe others are envious of them (American Psychiatric Association, 2013). Thus, we hypothesize that individuals scoring high on the NPI would have a more inflated self-view leading them to think others are envious of them and therefore attribute envy onto others. In a similar way, since the feeling of Schadenfreude could arise from envying another and as a result getting

pleasure from seeing them fail (Smith et al., 1996), the narcissistic tendency to think others are envious of them could also lead them to attribute Schadenfreude to others. That is to say, that the narcissists would assume that others would express more positive feelings when they saw the high-level narcissist fail (but they themselves won) in a competitive game compared to a situation where both did well.

Although previous research has found that grandiose narcissistic traits are primarily negatively related to dispositional feelings of envy, they were assessed using self-reported measures which explicitly asked the subjects to indicate the level of envy they felt themselves or towards others (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015); whereas our paradigm has proven to induce the first-hand feelings of envy and Schadenfreude (Steinbeis, & Singer, 2013; 2014; Steinbeis et al., 2015) and therefore enables us a different approach to examine the relationship between narcissistic grandiosity and these social emotions. Furthermore, it allows for the understanding of the mechanisms behind experiencing these emotions first hand and attributing them to others through also measuring individual differences in how wins and losses resonate with the participants on a personal level, and furthermore how participants assess others to be affected by wins and losses (see Steinbeis, & Singer, 2013). Given the previous research indicating that narcissists have a fragile ego and they get upset when it is threatened (e.g. Bushman, & Baumeister, 1998); we would assume high-level narcissists would have a particular sensitivity to losses. Accordingly, we hypothesize to find high-level narcissists exhibiting more first-hand emotions of envy and Schadenfreude. We expect high-level narcissists to rate personal loss more negatively than low-level narcissists. Similarly, we hypothesize that high-level narcissists rate others to feel worse after losing.

Then if both of our hypotheses are true, we would also presume that high-level narcissists express more of an offline EEB (as per Steinbeis, & Singer, 2014). So we would expect to find a significant relationship with how highly narcissistic individuals experience an emotion first-hand and how they attribute the emotion onto others. We would therefore assume high-level narcissists have more of a tendency to judge another's emotional state from their own perspective. We assume this is because their grandiose egos block them from emotionally engaging with the other's perspective (Marcoux et al., 2014). This emotional bias would also be mirrored in their emotional mechanisms, and accordingly then we would assume the extreme narcissistic sensitivity to losses would be projected onto others too.

## **4.1 METHODS**

### **4.1.1 PARTICIPANTS**

Participants were recruited with flyers that were circulated through social media, Berlin university mailing lists, and in the central Berlin region. Interested people completed a short screening on demographic information and mental health.<sup>2</sup> Only participants without a history of psychiatric disorders were included in the final sample. In total, N=133 Native German speaking participants took part in the study (90 female, mean age=30.5 years, SD=10.6 years).

The study was approved by the Ethics Commission of the Department of Psychology of the Humboldt University of Berlin. Participants signed informed consent forms and received 7 euros per hour for their participation in addition to

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<sup>2</sup> 1) Have you sought psychiatric help in the past three months (inclusive of diagnosis, treatment psychotherapy and/or medication)?

2) Have you ever been diagnosed with a psychiatric illness—if so what?

the money they could gain in the performance-based monetary reward and punishment task (The Egocentricity Monetary Reward and Punishment Paradigm, in short the EMOP task developed by Steinbeis, & Singer, see 2013 and 2014 for more details).

#### 4.1.2 DATA ACQUISITION & GENERAL PROCEDURE

##### *Narcissistic Personality Inventory (NPI)*

All participants completed the Narcissistic Personality Inventory (NPI; Raskin, & Terry, 1988; German version by Schütz, et al., 2004) which is a 40-item forced choice questionnaire used to assess narcissistic traits. The NPI is the most widely used measure of narcissism for normal populations and has good psychometric properties (Emmons, 1987; Rhodewalt, & Morf, 1995; Ackerman et al., 2011). Moreover, the NPI is known to capture namely the grandiose dimensions of subclinical narcissism (Cain et al., 2008; Pincus et al., 2009; Ackerman et al., 2011), and it was specifically these dimensions which we were interested in for our hypotheses. Thus we did not use, for instance the pathological narcissistic inventory (PNI; Pincus et al., 2009), which also captures the vulnerable aspects. However, we did also examine the different aspects of the NPI which include both maladaptive elements (exploitative entitlement and to a lesser extent grandiose exhibitionism) and adaptive (leadership authority) as per Ackerman et al. (2011) and previously examined in relation to envy and Schadenfreude in the Neufeld and Johnson (2015) study. We assessed how these different factors of the NPI relate to the different independent measures of envy, Schadenfreude and the attribution of these emotions onto others.

The sample was divided into a “low” narcissism and a “high” narcissism group according to an extreme split on the NPI (high = NPI scores  $\geq 20$  and low = NPI scores  $\leq 10$ ) prior to testing taking place. The remaining participants were in a middle “normal” group (NPI scores between 19 – 11 inclusive) which were not the focus of this study, nevertheless their results will be discussed briefly in the results and discussion sections. Indeed, in this study we were not interested in the normal population, but rather the extremes of the narcissistic continuum and thus created these extreme cut offs in-line with previous studies (e.g. Campbell, 1999; Hascalovitz, & Obhi, 2015). This segregation of NPI scores resulted in the high group having N=47 participants and the low group with N=44 participants (and the middle group with N=45 participants). The low and high narcissism groups did not differ in age, gender, or handedness ( $p > 0.1$ ; Table 1).

An important clarification point in this study is that when referring to high-level narcissists, this is not an indication that the participants have narcissistic personality disorder (NPD), nor in any way is this study addressing NPD. The “high” label simply refers to individuals scoring relatively high within our given sample as outlined above.

#### *The Egocentricity Monetary Reward and Punishment Paradigm (EMOP task)*

Testing took approximately 1 hour, which included the task itself as well as preparatory questions prior to each block of the task to ensure the participants understood the task at hand. Moreover, participants were not tested alone; they were in a group of at least one other participant and up to 5 other participants (2 - 6 participants in total in any one testing session).

The EMOP task was used to assess the social emotions of envy and Schadenfreude, in as much as the participants themselves felt these emotions first-hand and also to what extent they attributed these emotions onto others. We followed the procedures in line with the original study by Steinbeis and Singer (2013) which was initially tested on children, but then adapted in the 2014 and 2015 studies respectively for adult populations. In brief, the EMOP task is a monetary reward and punishment task whereby participants are under the impression they are engaged in a speed reaction time task along with other participants present in the room and paired with anonymous players in a cooperation lab in Leipzig, but in reality they are playing a pre-programmed game with the computer. The participants were told that based on their performance they could win or lose monetary units (MUs; 1 MU=10 Euro cent; see Figure 1 adopted from Steinbeis, & Singer 2013, 2014). Fast reaction times would be rewarded with an increase of MUs and conversely, slow reaction times would be punished by a loss of MUs in a given trial. Moreover, they were informed that they could win additional MUs if they were faster than their competitor. Winning and losing during a trial was indicated through audio and visual effects through the individual computer screens and a set of headphones: a win in a trial would result in a plus symbol with 4 MU coins (indicating a win of 4 MUs) and a bell sound; a loss trial would result in a negative symbol with 4 MU coins (indicating a loss of 4 MUs) and a buzz noise. The experimenters emphasized the necessity of making a response as quickly as possible when the large blue circle presented on their screen (1500 – 4500ms) changes shape (triangle, square) or size (large, small), but not color (p. 202; Steinbeis, & Singer, 2013). At the end of the experiment, participants were told they would be paid out accordingly based on

their performance on a randomly chosen trial. The task itself takes about 1 hour to complete inclusive of control questions and practice trials for each block.

The EMOP task consists of both single conditions (14 rounds) and double conditions (30 rounds). Wins and losses were pre-programmed for each participant so that they got 6 of each type of trial, with the remaining trials being no-go trials. No-go trials were used in order to deter participants from making a button-press before they see what kind of change occurred; they were told to only respond to changes in shape or size and inhibit responses to changes in color. If they were not able to inhibit their response to no-go trials then the participants incurred a punishment by losing MUs. After each trial, participants had 500ms to indicate how they felt about the specific outcome of the trial on a sliding scale from happy (smiley face) to sad (sad face) with a neutral point in the middle.

There were both single conditions and double conditions and the former was played first. During the single condition, only the effects of gains and losses of either the self (participant) or the other (another anonymous player) were displayed on the participant's screen, but not in unison. The participant was then asked to rate on the sliding scale how either they themselves felt, or the other felt, after each single gain or loss trial. In our study we refer to the double condition as the simultaneous condition (similar to Steinbeis, & Singer, 2014). In the simultaneous condition participants saw the feedback not only of their own performance, but also the performance of another player too on their screen. During the simultaneous condition, participants saw their own pay-off surrounded by a blue frame and the competitors' payoffs by a green frame (Steinbeis, & Singer, 2013, 2014). Then after they see both outcomes (self and other) they are asked to either rate how they



themselves feel (henceforth simultaneous self) or the other felt (henceforth simultaneous other). The simultaneous condition trials were designed so that there were an equal number of wins and losses and an equal number of trials where the outcome between the participants was either congruent (i.e. both won or lost) or incongruent (i.e. the participant lost and saw the other win, or vice versa). Figure 1.

Drawing directly from Steinbeis and Singer (2013, 2014), experienced envy was assessed in the simultaneous self trials contrasting the conditions Self Loss/Other Win – Self Loss/Other Loss. Similarly, experienced Schadenfreude was assessed contrasting the conditions Self Win/Other Loss – Self Win/Other Win. In the simultaneous other trials attributed envy was assessed contrasting the conditions Self Win/Other Loss – Self Loss/Other Loss and contrasting the conditions Self Loss/Other Win – Self Win/Other Win were used to assess attributed Schadenfreude (as per Steinbeis, & Singer, 2014). Figure 1.

#### 4.1.3 DATA ANALYSIS

All statistical analyses were performed using SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.).

The outliers in the data were winsorized prior to analysis, this way extreme values were not dropped, but instead they were set to the lowest (or highest) included value in the data (Kokic and Bell, 1994). The winsorizing of the data occurred for every part of the simultaneous blocks, so for the self and other conditions in the congruent and incongruent trials.

## 4.2 RESULTS

### 4.2.1 EXPERIENCED ENVY AND SCHADENFREUDE

We used a repeated-measures ANOVA with one factor, either envy or Schadenfreude, with two levels (as per the equations in the above section) to compare our sample of high- and low-level narcissists. What we found was a main effect of envy ( $F(1,89)=4.483$ ;  $p=0.037$ ;  $\eta^2=0.048$ ), but not Schadenfreude ( $F(1,89)=0.247$ ;  $p=0.620$ ;  $\eta^2=0.003$ ). Then comparing the narcissistic groups, high-level narcissists did not report feeling more envy than low-level narcissists (interaction envy and narcissism not significant;  $F(1,89)=1.198$ ;  $p=0.277$ ;  $\eta^2=0.013$ ; main effect of narcissism not significant  $F(1,89)=2.637$ ;  $p=0.108$ ;  $\eta^2=0.029$ ) nor did high-level narcissists feel more Schadenfreude (interaction Schadenfreude and narcissism not significant;  $F(1,89)=0.015$ ;  $p=0.904$ ;  $\eta^2=0.000$ ; main effect of narcissism not significant  $F(1,89)=0.119$ ;  $p=0.713$ ;  $\eta^2=0.001$ ; Figure 2).

We then used the single conditions as covariates to examine how individual differences in emotional engagement during the EMOP task between the high- and low-level narcissists affected the individual differences in experiencing envy and Schadenfreude. We ran a repeated-measures ANOVA with the factors *selfgains* (gain/loss) and *narcissism* (high/low), we found a main effect of *selfgain* indicating that personal gains resonated differently to personal losses in our population sample ( $F(1,88)=171.7$ ;  $p<0.01$ ;  $\eta^2=0.661$ ), but we did not find any group differences between the high- and low-level narcissists (interaction *selfgains* with *narcissism*:  $F(1,88)=0.133$ ;  $p>0.1$ ;  $\eta^2=0.002$  and no main effect of *narcissism*  $p>0.1$ ). When using the single self condition as a covariate in the repeated-measures ANOVA analysis for experienced envy we found that the main effect we initially saw for our sample became insignificant ( $F(1,86)=2.07$ ;  $p>0.1$ ;  $\eta^2=0.024$ ), and the interaction between narcissism and envy remained insignificant ( $F(1,86)=0.646$ ;  $p>0.1$ ;  $\eta^2=0.007$ ). Similar

results were found when using the single self condition as a covariate for the experienced Schadenfreude analysis, we found no main effect of Schadenfreude ( $F(1,86)=0.231$ ;  $p>0.1$ ;  $\eta_p^2=0.003$ ) as well as no interaction with narcissism ( $F(1,86)=0.141$ ;  $p>0.1$ ;  $\eta_p^2=0.002$ ). Taken together these results demonstrate that the two narcissist groups' individual emotional responses to winning and losing do not differ in our paradigm, and it is this lack of differentiation which explains why the high-level narcissists do not seem to experience more first-hand feelings of envy and Schadenfreude compared to low-level narcissists.

#### 4.2.2 ATTRIBUTED ENVY AND SCHADENFREUDE

We again used a repeated-measures ANOVA with one factor, either attributed envy or attributed Schadenfreude, with two levels (as per the outlined equations in the previous section) to compare our sample of high- and low-level narcissists in how they attributed these emotions to others during the simultaneous other conditions. What we found was a main effect of attributed envy indicating a tendency to judge others to feel worse when losing in a situation that the subjects themselves had won (incongruent), compared to a situation when both had lost (congruent) (main effect of attributed envy  $F(1,88)=12.433$ ;  $p=0.001$ ;  $\eta_p^2=0.124$ ). We also found that the participants probably attributed Schadenfreude because they judged the other to feel better when they themselves had lost compared to when both had won (main effect of attributed Schadenfreude  $F(1,89)=17.078$ ;  $p<0.000$ ;  $\eta_p^2=0.161$ ). More specifically, we found that high-level narcissists probably attributed more envy than low-level narcissists (interaction narcissism x attributed envy  $F(1,88)=4.601$ ;  $p=0.035$ ;  $\eta_p^2=0.050$ ; main effect of narcissism  $F(1,88)=4.734$ ;  $p=0.032$ ;  $\eta_p^2=0.051$ ). However,

high-level narcissists only had a slight trend of potentially attributing more Schadenfreude than low-level narcissists (interaction narcissism x attributed Schadenfreude  $F(1,89)=2.794$ ;  $p=0.098$ ;  $\eta p^2=0.030$ ; main effect of narcissism  $F(1,89)=0.138$ ;  $p=0.711$ ;  $\eta p^2=0.002$ ; Figure 3).

We also examined how the single other condition, where our participants assessed how others felt after winning and losing without any comparison to their own personal wins/losses, differed between our high- and low-level narcissistic groups. As a next step we examined how the single other condition affected individual differences in attributing envy and Schadenfreude onto others. First, we ran a repeated-measures ANOVA for the single other condition with the factors *othergain* (loss/gain) and *narcissism* (high/low) and we found a main effect of gain, indicating a difference in how losses and gains were assessed for others ( $F(1,88)=273.4$ ;  $p<0.01$ ;  $\eta p^2=0.757$ ) and also a main effect of narcissism ( $F(1,88)=9.05$ ;  $p<0.01$ ;  $\eta p^2=0.093$ ), but no interaction between gain and narcissism ( $p>0.1$ ). The main effect of narcissism was driven by high-level narcissists assessing others to feel more negatively when they lose (single other loss condition: low-level narcissists M: -70.4, SD: 65.2, high-level narcissists M: -94.7, SD: 59.5;  $t=1.85$ ,  $p=0.067$ ,  $d=0.39$ ). When the single other conditions of win/loss were used as covariates in the repeated-measures ANOVA analysis for assessing the individual differences in attributing envy, we found that the main effect was no longer significant ( $F(1,85)=1.78$ ;  $p>0.1$ ;  $\eta p^2=0.021$ ), but the interaction with narcissism remained significant ( $F(1,85)=4.263$ ;  $p<0.05$ ;  $\eta p^2=0.048$ ). Indicating the difference we find between how the high- and low-level narcissists assess other's to feel loss drives the group difference in envy attribution. When assessing individual differences in

attributing Schadenfreude with the single other conditions as covariates in the repeated-measures ANOVA, we found the main effect of Schadenfreude became insignificant ( $F(1,86)=1.65$ ;  $p>0.1$ ;  $\eta p^2=0.019$ ), and the interaction with narcissism became insignificant ( $F(1,86)=1.14$ ;  $p>0.1$ ;  $\eta p^2=0.013$ ). Indicating the emotional assessment of how others feel after a win plays a role in attributing Schadenfreude to others. Thus, the lack of difference in this assessment between the high- and low-level narcissistic groups explains why the group difference in attributing Schadenfreude is not stronger (single other win condition: low-level narcissists M: 109.6, SD: 58.3, high-level narcissist M: 99.0, SD: 58.0;  $t=0.88$ ,  $p>0.1$ ,  $d=0.19$ ). Taken together, high-level narcissists do assume others feel worse when they lose compared to low-level narcissists, however there is no group difference in how the two groups assess others to feel after a win. This difference in how high-compared to low-level narcissists assess the emotional state of others after a loss is the mechanism driving the high-level narcissists to attribute more envy to others, and the similarity in how high- compared to low-level narcissists assess wins indicates why there is not a stronger difference in how these two groups attribute Schadenfreude to others.

#### 4.2.3 EMOTIONAL EGOCENTRIC BIAS

To get a better overview, we calculated a mean measure of attributed emotional bias for our sample (Figure 4). We found a significant difference in the amount of bias exhibited by high-level narcissists (M=30.0, SD=50.1) compared to low-level narcissists (M=10.6, SD=36.9),  $t=-2.072$ ,  $p=0.041$ ,  $d=-0.44$ , driven by

attributed envy. Given that there is evidence of an attributed emotional bias in our population, there is a possibility that our population harbors an offline EEB. Following Steinbeis and Singer (2014), we wanted to examine if our participant sample had a relationship between how they experienced an emotion first-hand in a given situation, and how they projected others to feel in a similar situation (emotional attribution); we wanted to investigate the possibility of the occurrence of an offline EEB in our sample. In line with methods from Steinbeis and Singer (2014), given that we found an attribution bias for our high narcissists, we then compared how the simultaneous self condition ratings correlated with respective simultaneous other ratings through running a bivariate correlation between envy and attributed envy, and then also Schadenfreude and attributed Schadenfreude. We found a strong trending relationship for the correlation between experienced envy and attributed envy for both groups (low-level narcissists:  $r=0.297$ ;  $p=0.053$ ; high-level narcissists:  $r=0.278$ ;  $p=0.058$ ; Figure 5). We also found a relationship for experienced Schadenfreude and attributed Schadenfreude, whereby both high- and low-level narcissist groups had significant correlations (low-level narcissists:  $r=0.443$ ;  $p=0.003$ ; high-level narcissists:  $r=0.488$ ;  $p=0.001$ ; Figure 6). These results indicate there is a tendency for our sample to harbor an offline EEB, but that it does not differ based on narcissism scores. So high-level narcissists do not have a different amount of an offline EEB compared to low-level narcissists as initially hypothesized.

#### 4.2.4 NPI SUBSCALES

Lastly, we examined how the different factors of the NPI based on the Ackerman et al. (2011) segregation, related to the individual differences in envy and Schadenfreude in our high- and low-level narcissist groups. What we found was that

in the low-level narcissist group the leadership authority (the adaptive factor) was correlated at a trend level with experiencing less envy (Spearman's Rho  $r=0.271$ ,  $p=0.075$ ), we did not find a similar relationship for the high-level narcissist group (Spearman's Rho  $r=-0.183$ ,  $p>0.1$ ) which lead to a group difference ( $z=-2.13$ , two-tailed  $p<0.05$ ). This group difference perhaps indicates that the leadership authority dimension in the low-level narcissist group is perhaps preventing them from feeling envious, and this is different for the high-level narcissistic group. This assumption goes in line with previous research from Neufeld and Johnson (2015) who had similar results whereby the leadership authority dimension was actually buffering feelings of dispositional envy in their sample.

For experienced Schadenfreude we found no significant or trending results in either the low- or the high-level narcissistic groups (all  $ps>0.1$ ) across all the different NPI dimensions from Ackerman and colleagues (2011).

We found no significant correlations between any of the Ackerman et al. (2011) NPI dimensions and the individual differences in attributing envy or Schadenfreude in the low- or high-level narcissist groups (all Spearman Rho's  $ps>0.1$ )<sup>3</sup>.

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<sup>3</sup> Our sample also completed the PNI questionnaire as the participant sample in this study was part of the larger sample examined for this dissertation. Yet, due to the hypotheses specific to this study, the PNI was not of empirical importance. However, given that previous studies examined the relationship between vulnerable narcissism and envy and Schadenfreude, we also examined it as a side note using the PNI vulnerable subscale (Kirzan, & Johan, 2012; Neufeld, & Johnson, 2015). Across the whole sample ( $N=133$ ) we did not find any significant correlations with PNI vulnerable and the individual differences in experienced emotions, or any attributed emotions (all Spearman's Rho  $ps>0.1$ ). Moreover, we found no correlation between the PNI vulnerable subscale and the NPI total score (Spearman Rho  $r=0.132$ ,  $p>0.1$ ). However, when comparing the PNI vulnerable scale with the NPI subscales as per Ackerman et al. (2011), we found a significant correlation with Grandiose Exhibitionism (Spearman Rho  $r=0.178$ ,  $p=0.04$ ) and also Entitlement Exploitativeness (Spearman Rho  $r=0.288$ ,  $p<0.01$ ). Neufeld and Johnson (2015) also found a relationship between their measure for vulnerable narcissism and narcissistic entitlement.

## 4.2.5 NORMAL GROUP (MIDDLE NPI SCORES)

For our study and our main hypotheses, only the low and high NPI scores were of interest for us because we were not interested in the normal population. Nevertheless, we will also report on the topline results from the normal group as a reference point (NPI scores 11 – 19;  $N=45$ ). This group indicated not to express any first-hand feelings of envy ( $F(1,44)=1.10$ ;  $p>0.1$ ;  $\eta p^2=0.024$ ), nor of Schadenfreude ( $F(1,44)=1.59$ ;  $p>0.1$ ;  $\eta p^2=0.035$ ). Moreover, they also did not have a propensity to attribute these emotions onto others (attributed envy:  $F(1,44)=0.88$ ;  $p>0.1$ ;  $\eta p^2=0.020$ ; attributed Schadenfreude:  $F(1,44)=0.10$ ;  $p>0.1$ ;  $\eta p^2=0.002$ ). As such, it follows that there was no indication that they had an offline EEB because they did not attribute any envy or Schadenfreude onto others—and this claim was confirmed by the lack of significance between the correlations of envy with attributed Envy, and Schadenfreude with attributed Schadenfreude (envy/attributed envy:  $r=-0.041$ ,  $p>0.1$ ; Schadenfreude/attributed Schadenfreude:  $r=0.021$ ,  $p>0.1$ ).

As a next step we correlated the different NPI dimensions from Ackerman and colleagues (2011) with the three different groups: low- and high-level narcissists, and also our normal group. What we found was that the normal group only correlated significantly with the most adaptive of the three dimensions of the NPI—the leadership authority factor (Spearman's Rho  $r=-0.451$ ;  $p<0.00$ ) and was not related with the other two more maladaptive dimensions (both  $ps>0.1$ ). Whereas the low-level narcissist group correlated positively with both the leadership authority (Spearman's Rho  $r=0.605$ ,  $p<0.00$ ) and also the grandiose exhibitionism (Spearman's Rho  $r=0.417$ ,  $p<0.00$ ), however did not correlate at all with the most maladaptive trait ( $p>0.1$ ). The high-level narcissist group correlated positively with all three



dimensions (all  $p < 0.01$ ), differing the most on the maladaptive factor of entitlement exploitativeness compared to low-level narcissist group ( $z = 2.74$ , 2-tailed  $p < 0.01$ ). These results speak to the opinion that the low- and high-level narcissist groups both are comprised of a mixture of adaptive and maladaptive narcissistic dimensions which justifies them as our experimental group, whereas the normal group is simply a reference point and does not harbor any of the narcissistic traits we wanted to examine in our study.

### 4.3 DISCUSSION

In this study we tried to investigate the extent to which narcissistic grandiosity leads individuals to not only feel the social emotions of envy and Schadenfreude, but moreover their propensity to attribute these emotions to others. The paradigm we employed, taken from Steinbeis and Singer (2013, 2014), was a speeded reaction time task, which has demonstrated the ability of eliciting strong social emotions of envy and Schadenfreude through social comparison. Given also the possibility in the task to not only rate one's own personal emotional state when observing another's performance whilst winning or losing (simultaneous self condition), but also rate the emotional state of another in a similar situation (simultaneous other condition), allowed for the possibility of measuring an emotional attribution bias. Then through understanding the relationship between experiencing an emotion first-hand and attributing it, we were also able to explore the possibility of our subjects incurring an emotional egocentric bias when making judgments about other people's feeling states in congruent and incongruent situations (Silani et al., 2013; Steinbeis, & Singer, 2014). Particular to our study, we

were able to measure the presence of an offline EEB, defined as, “attributing to others the experience of envy and Schadenfreude to the same extent to which one would have been likely to experience those being in a similar social comparison situation” (p. 378 and 317; Steinbeis, & Singer, 2014). Moreover, we were able to examine the mechanisms underlying the individual differences in experiencing and attributing these social emotions to others through examining how participants both assessed their own singular emotional response to wins and losses as well as how they assumed others to feel after winning or losing. Although previous research has examined the role subclinical narcissistic traits have on experiencing dispositional envy and Schadenfreude through namely self-reported measures (Kirzan, & Johar, 2012; Neufeld, & Johnson, 2015), research to date has not explored how individual differences in levels of narcissistic grandiosity affect the attribution of these social emotions to others, nor has it investigated the mechanisms behind experiencing and attributing these emotions to others. Furthermore, examining the role of emotional egocentricity in how individuals with narcissistic traits judge the emotional states of others is also a novel contribution from our study.

Indeed, previous research on subclinical narcissism has revealed that it is more the vulnerable, as opposed to the grandiose elements of narcissism, which are related to dispositional feelings of envy and Schadenfreude (Kirzan, & Johar, 2012; Neufeld, & Johnson, 2015). This previous research even suggested that the adaptive factor of narcissism, leadership authority (as per NPI factor split from Ackerman et al., 2011 in the Neufeld, & Johnson, 2015 study), could be buffering feelings of dispositional envy. In both of these studies they used self-reported measures for envy and Schadenfreude (Kirzan, & Johar, 2012; Neufeld, & Johnson, 2015), thus our study

went a step further and used a validated paradigm known to elicit feelings of envy and Schadenfreude first-hand (Steinbeis, & Singer, 2013, 2014). What we found was in line with previous research: high-level narcissists, as measured via the NPI, did not experience more feelings of envy or Schadenfreude when compared to low-level narcissists. In line with Steinbeis and Singer (2013, 2014), we were able to find an overall main effect of envy in our sample, however we were not able to find an overall main effect of Schadenfreude. We did however find that high-level narcissists were more likely to attribute feelings of envy and to a lesser extent, attribute feelings of Schadenfreude to others. Moreover, we found the underlying mechanism behind the lack of difference in how high- and low-level narcissists experience envy is due to the similarity in how these two groups personally assess gains and losses. Similarly, the difference we find between the two groups in how they attribute envy, is driven by the high-level, compared to the low-level, narcissists assessing others to feel worse after losing. In line with previous research on narcissistic grandiosity, high-level narcissists tendency to attribute more envy could be explained by the evidence that grandiose narcissists are prone to wanting to outperform others when being publically observed and evaluated, indicating the potential propensity for wanting others to envy them as opposed to them experiencing envy for others (Wallace, & Baumeister, 2002). Narcissists are not motivated to privately compare their performance with others because it lacks the possibility of gaining outside approval and admiration—their motivation to perform well increases substantially when another is present (Wallace, & Baumeister, 2002). Moreover, Marcoux and colleagues (2014) found that narcissists need to be motivated to take the other person into account because they do not do so automatically. This lack of motivation

and awareness could be a reason why in the simultaneous self conditions high-level narcissists scores did not differ from low-level narcissists because they were only rating themselves. However, their emotional engagement increased when asked to take the perspective of the other during the simultaneous other condition. Following from the findings of Wallace and Baumeister (2002), these results could be because they are now viewing themselves through the eyes of the other, and therefore over exaggerating how their performance must resonate with the other to assume they are a source of envy for the other. This sentiment is further supported by again the research from Marcoux and colleagues (2014) which found that narcissistic individuals became more sensitive when aware of another person. Furthermore, Kirzan and Johar (2012) suggest that grandiose behavior leads narcissists to wanting to avoid envying others and it even serves as a buffer against feelings of envy (also found in Neufeld, & Johnson, 2015). However, we found this to be true only within our low-level narcissist group with the leadership authority factor having a trend towards being negatively correlated with first-hand experiences of envy (p.1).

Therefore the result that high-level narcissists do not harbor more of an offline EEB than low-level narcissists could be understood because their level of feeling envious, for instance, is not a strong indicator for them attributing this feeling onto others. On the contrary, although their narcissistic traits do not lead them to feeling more envious than the rest of the population, they do though assume that others are envious. High-level narcissists had a larger emotional attribution bias than low-level narcissists demonstrating that they assume others are generally more envious and feel more Schadenfreude even though they themselves do not show the inclination of experiencing those emotions first hand. The lack of the EEB also could

be seen in how high-level narcissists, compared to low-level narcissists, emotionally felt towards wins/losses, and then comparing this result to how these two groups assumed others to feel towards wins/losses. Although we did find that high-level narcissists, compared to low-level, assumed others to feel worse after losing, which followed in line with our hypotheses, we did not find any difference in how they personally experienced losses compared to the low-level narcissist group. This demonstrates that high-level narcissists do not bias their judgment of other people's emotional states based on their own emotional state in a similar situation.

Perhaps instead these results indicate that high-level narcissists feel emotionally distant to others given their tendency of assuming others have different emotional reactions in similar situations (e.g. high-level narcissists not feeling envious, but thinking others are envious). This tendency could also be seen in the previously stated results from the single conditions. . Thus, we can conclude that the way high-level narcissists assess how they feel in a negative situation is different to how they assess others to feel in a similar situation. Moreover, the assumption that high-level narcissists feel emotionally distant to others goes in line with psychological literature stating that highly narcissistic individuals tend to lack empathetic feelings towards others and also lack interest in engaging in intimate relationships, both indicators that narcissistic traits lead to feelings of emotional distance to others (Morf, & Rhodewalt, 2001; Campbell, Foster, & Finkel, 2002, Caligor et al., 2015).

Generally, there was an indication that our population of low- and high-level narcissists demonstrated a propensity for harboring an offline EEB because the correlation between individual differences of experienced envy and/or

Schadenfreude was significantly related to the individual differences in the attribution of these emotions. These results were in line with the findings from a general population sample in the study from Steinbeis and Singer (2014).

Along with our main study which focused on the high and low NPI scores (low:  $NPI \leq 10$ , high:  $NPI \geq 20$ ), we also examined the middle NPI scoring group, the normal group, as a means to have a reference point ( $11 \geq NPI \leq 19$ ). What we found was that the normal group did not indicate experiencing first-hand feelings of envy or Schadenfreude, nor did they attribute these emotions onto others (all  $p > 0.1$ ). It also followed that they did not harbor an EEB. We wanted to have a deeper insight into what dimensions of the NPI were represented within which group in our particular sample so we created the three factors according to Ackerman et al. (2011): Leadership/Authority, Grandiose Exhibitionism and Entitlement/Exploitativeness. The former being the most adaptive and the latter being the most maladaptive of the dimensions. What we found then was that the normal group only correlated significantly with the most adaptive of the three factors of the NPI: leadership authority. Whereas the low-level group correlated positively with both the leadership authority factor and also the grandiose exhibitionism (both  $p < 0.01$ ), however did not correlate at all with the most maladaptive factor ( $p < 0.1$ ). The high-level group correlated positively with all three factors, differing the most on the maladaptive trait of entitlement exploitativeness compared to the low-level narcissist group. These results speak to the opinion that the normal group has adaptive traits which are conducive to maintaining good interpersonal relationships and healthy emotional mechanisms. Based on this assumption then, individuals with adaptive narcissistic traits would not envy nor experience Schadenfreude towards

others, nor would they attribute these social emotions onto others. Hence, it can be assumed that they are impervious to social comparison nor do they necessarily need and/or want others to feel inferior to them. This could speak to the idea that a small amount of what we consider, adaptive narcissism, or “healthy” narcissism could in fact be a good thing in our society (e.g. Lubit, 2002). Lubit (2002) outlines healthy narcissistic individuals to harbor a self-confidence which is in line with reality, they are able to enjoy true friendship and intimacy, as well as empathize with others. Other researchers also attribute positive adaptive traits to healthy narcissism, for instance effective functioning, fulfilment and psychological integration (Wink, 1991), higher self-esteem and less aggression (Falkenbach et al., 2013), and low levels of depression and loneliness, as well as high levels of subjective well-being (Sedikides et al., 2004). This description of adaptive, or healthy narcissism, goes in line with our results of our normal group where they seem to not exceedingly experience the negative social emotions, nor attribute them to others, as our paradigm intended to induce. Given that we were more interested in the extreme groups, and the less adaptive traits of narcissism, we therefore focused our study and our subsequent analysis on the low- and high-level narcissistic groups and used the normal group as a reference point.

Overall, our study took a deeper look into the relationship between grandiose factors of narcissism and the social emotions of envy and Schadenfreude. Crucially, our study examined not only how narcissistic grandiosity related to experiencing these emotions first-hand, but moreover, how it related to attributing these emotions onto others, as well as the inner emotional mechanisms underlying these individual differences. Furthermore, the novel EMOP task allowed for us to measure

the existence of an offline EEB and as a result understand how high-level grandiose narcissists make inferences about another's affective state in respect of their own state in a similar situation. We found that high-level grandiose narcissistic traits lead individuals to attribute emotions they themselves indicated not experiencing first-hand. This result was driven especially by how high-level narcissists differ from the low-level narcissist group in how they assess other people's emotional reaction to losses, thus leading to the assumption that a high-level of maladaptive narcissistic traits can perpetuate emotionally distant relationships with others. Taken together, our results built upon previous research in the field (Kirzan, & Johar, 2012; Neufeld, & Johnson, 2015) and also took a new methodical look into the emotional life of subclinical narcissists.





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**Table 1:** Demographic and NPI data.

|            | High narcissism group |       | Low narcissism group |      | Statistics     |           |
|------------|-----------------------|-------|----------------------|------|----------------|-----------|
|            | M                     | SD    | M                    | SD   |                |           |
| Gender     | 17:30                 |       | 14:30                |      | $t(89)=0.433$  | $p=0.67$  |
| Age        | 28.5                  | 11.03 | 32.0                 | 10.8 | $t(86)=1.49$   | $p=0.14$  |
| Handedness | 1.96                  | 0.20  | 1.93                 | 0.26 | $t(89)=-0.531$ | $p=0.60$  |
| NPI        | 24.5                  | 4.5   | 7.8                  | 2.0  | $t(89)=-22.6$  | $p<0.001$ |

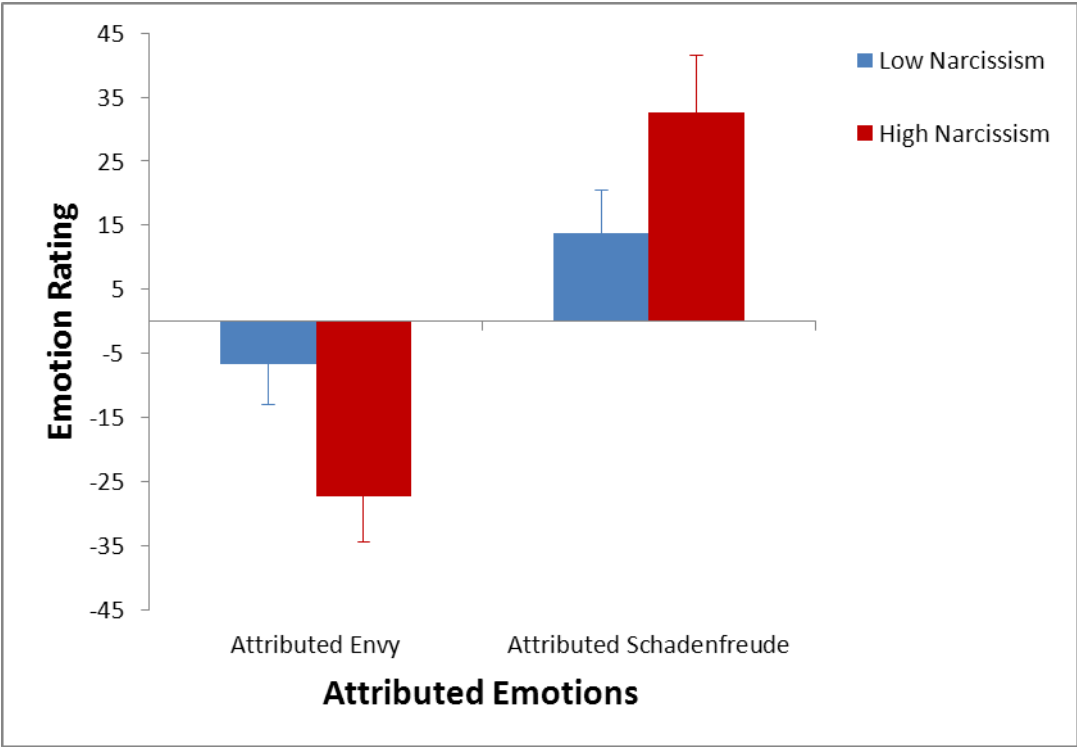
| Emotion       | Rating Self | Rewards |       | Rating Other | Bias                     |
|---------------|-------------|---------|-------|--------------|--------------------------|
|               |             | Self    | Other |              |                          |
| Schadenfreude |             |         |       |              | Attributed Schadenfreude |
|               |             |         |       |              |                          |
| Envy          |             |         |       |              | Attributed Envy          |
|               |             |         |       |              |                          |

**Figure 1:** Operationalization of experienced envy and Schadenfreude and attributed envy and Schadenfreude through the EMOP task (shared by Steinbeis, & Singer, 2013, 2014). Experienced envy is operationalized by rating oneself to feel worse when seeing another win when just having lost, compared to when both lose. Experienced Schadenfreude is operationalized by rating oneself to feel better when another has lost, when just having won, compared to when both win. Attributed envy is operationalized by rating the other to feel worse when seeing oneself win, compared to when both loose. Attributed Schadenfreude is operationalized by rating the other to feel better when seeing oneself lose, compared to when both win. Illustration of wins and losses purely descriptive, not to be interpreted as an indication of how much participants won/lost during actual game play.

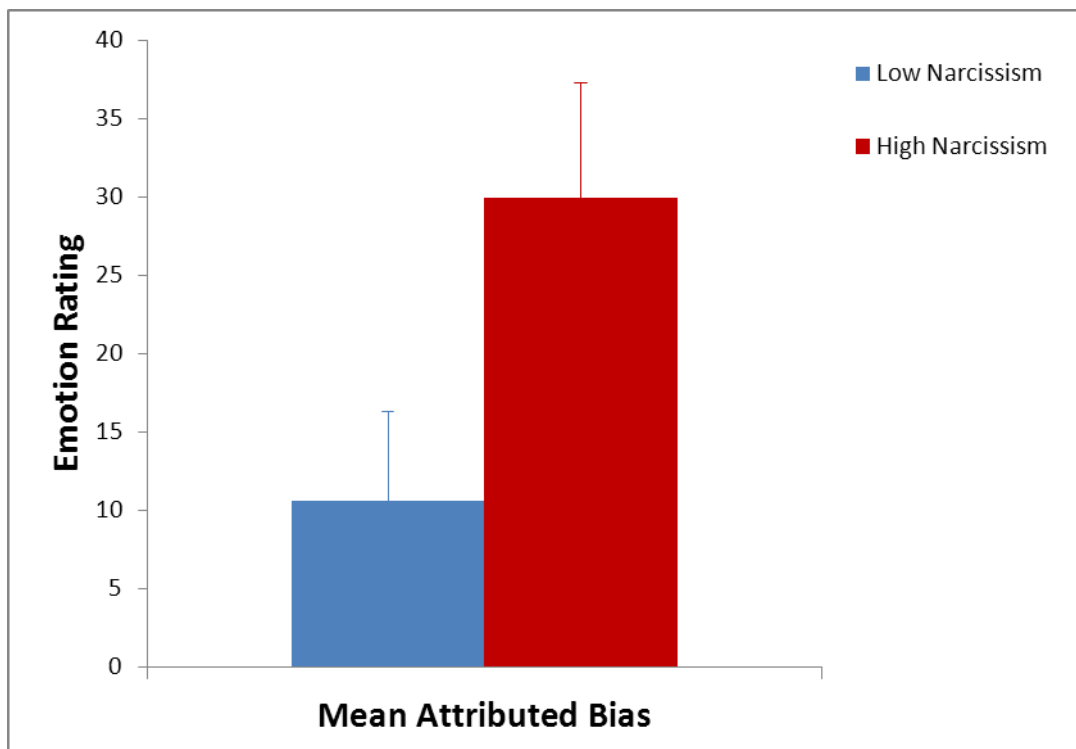


**Figure 2:** Experienced emotion results: no difference in how high- and low-level narcissists experience envy ( $p > 0.10$ ), also no difference between how high- and low-level narcissists experience Schadenfreude ( $p > 0.1$ ).

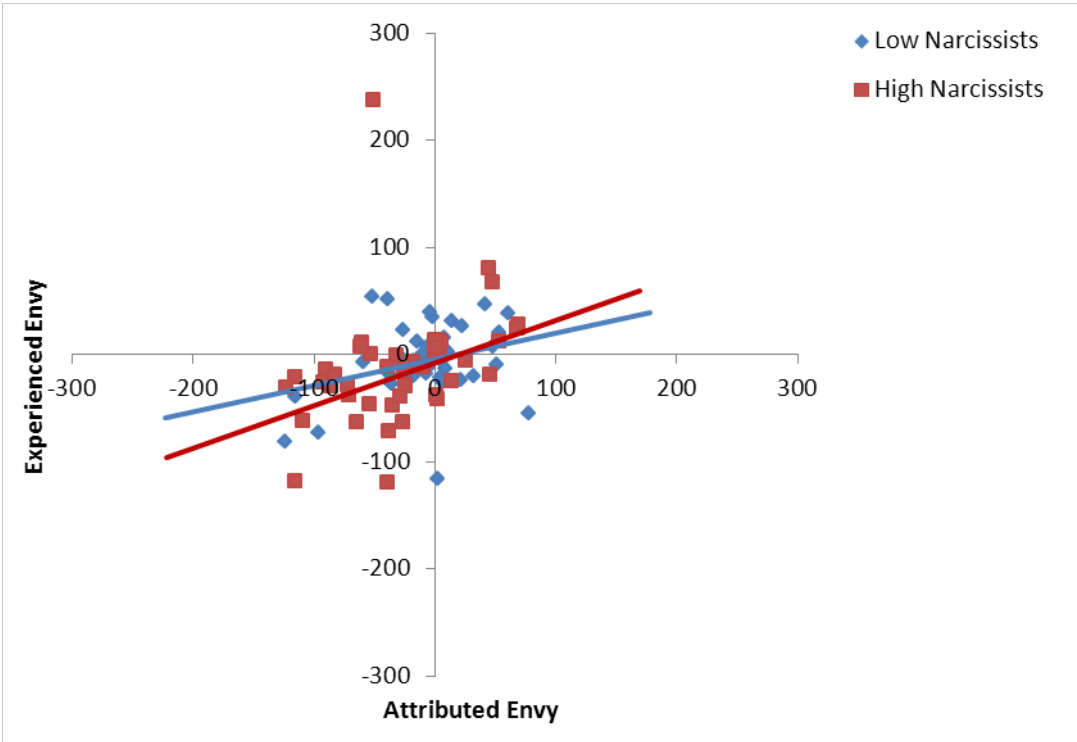




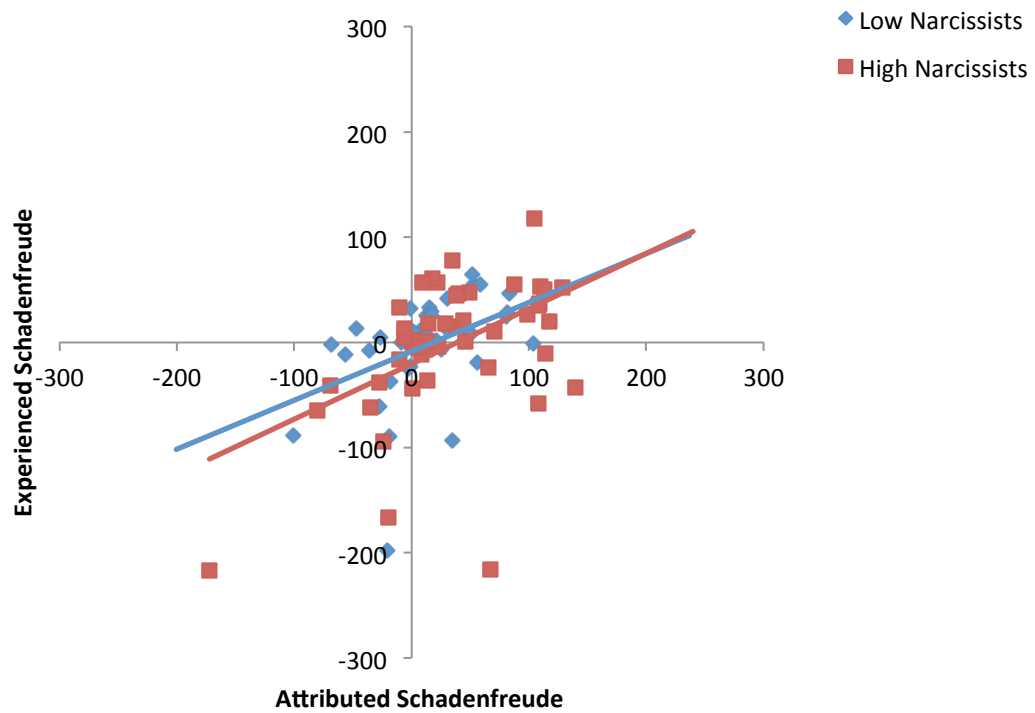
**Figure 3:** Attributed emotion results: high-level narcissists showed that they attributed envy to others more than low-level narcissists ( $p < 0.01$ ) and also Schadenfreude, but only marginally ( $p < 0.1$ ).



**Figure 4:** Mean Attributed Bias operationalized by the following formula:  $\frac{((-1 * \text{Attributed ENVY}) + \text{Attributed SCHADEN})}{2}$ . High-level narcissists as a whole had a tendency to attribute more of the social emotions of envy and Schadenfreude to others compared to low-level narcissists ( $p < 0.05$ ).



**Figure 5:** Offline Emotional Egocentric Bias (EEB): examining the tendency for our narcissistic population to harbor an offline EEB required testing the strength of the relationship between experiencing an emotion and attributed it. In the case of envy, we found a strong trending relationship for an offline EEB for high- ( $r=0.278$ ,  $p=0.058$ ) and low-level ( $r=0.297$ ,  $p=0.053$ ) narcissists.



**Figure 6:** Offline Emotional Egocentric Bias (EEB): examining the tendency for our narcissistic population to harbor an offline EEB required testing the strength of the relationship between experiencing an emotion and attributed it. In the case of Schadenfreude, we find a significant relationship for an offline EEB for high-level ( $r=0.488$ ,  $p<0.01$ ) and low-level ( $r=0.443$ ,  $p<0.01$ ) narcissists.



## Chapter 5: General discussion

Narcissistic personality traits can lead to a variety of maladaptive social, cognitive, and emotional behaviors (see Miller, Widiger, & Campbell, 2010 for a review). Although there has been a great deal of research into the consequences of having narcissistic personality traits, the research examining mechanisms underlying them are more limited. Thus this thesis examined, at the mechanistic level, the social behavior and emotional patterns related to these maladaptive traits as well as the cognitive underpinnings of these actions and emotions using validated behavioral paradigms.

Hence, this thesis included a study (Chapter 2) that probed, at the cognitive level, the thought patterns of individuals with varying levels of pathological narcissistic traits, with the aim of understanding where the narcissistic mind wanders. To achieve this we used a common choice reaction task often used in mind-wandering studies (e.g. Baird et al., 2012; Ruby, Smallwood, Sackur, et al., 2013; Smallwood et al., 2013). In a second study (Chapter 3), we examined the social behavior of individuals with varying pathological narcissistic traits using established economic game paradigms (Güth, 1995; Camerer, 2003; Fehr, & Fischbacher, 2004) where there was an opportunity to examine social decision processes during ongoing social interactions with possibilities of both generosity and punishment. Last, in the final study (Chapter 4), we tried to understand the emotional mechanisms at work within grandiose narcissists. This was achieved by examining the relationship between how narcissists experienced first-hand envy and Schadenfreude and then subsequently attributed these emotions to others

using a novel social comparison paradigm which has been demonstrated to elicit feelings of envy and Schadenfreude in participants of varying age (Steinbeis, & Singer, 2013, 2014). The three studies are summarized in Table 1.

### **5.1. MIND-WANDERING IN NARCISSISM**

Chapter 2 investigated where the narcissistic mind wanders through experienced-sampling during a low-demanding choice reaction time task which has frequently been used in mind-wandering experiments (e.g. Baird et al., 2012; Ruby, Smallwood, Sackur, et al., 2013; Smallwood et al., 2013). The aim was to uncover which thought patterns were associated with pathological narcissistic personality traits measured via the pathological narcissistic inventory (PNI; Pincus et al., 2009), which covers a range of subclinical trait dimensions from grandiose to vulnerable. Through using multi-level modeling, we revealed that narcissists tend to mind-wander more. We tested this against a task where mind-wandering would be actually detrimental to task performance (working memory task), and we saw that even during this task narcissists were still more off-task. This finding is in line with previous research on narcissism indicating that narcissists have a tendency to retreat from reality and prefer to engage in fantasies (Caligor et al., 2015), which also speaks to our initial hypothesis that narcissists are preoccupied with fantasies. Increased levels of mind-wandering have been linked to negative mental health outcomes (Killingsworth, & Gilbert, 2010; Smallwood & Schooler, 2015). More crucially, this result, coupled with the second finding that narcissists' thoughts are more negative and past- or future-oriented, indicates an enhanced level of

**Table 1:** Summary of Empirical Studies

| Aims  | Findings   | Conclusions   |
|---|--|---|
| <b>Chapter 2.</b> We aimed to investigate the self-generated thought-patterns of subclinical narcissists in order to explore where the narcissistic mind wanders. In a sample with large variability of narcissistic scores (as measured with the PNI), we applied a low-demand choice reaction time task with intermittent thought probes.   | We found (1) more mind-wandering in participants with higher levels of narcissism; (2) a difference in the content of the self-generated thought patterns inclusive of more self- and other-related, more past- and future-oriented, and more negative thoughts. Most notably, we found (3) that thoughts related to the self were associated with a positive valence and future-oriented.   | Results validate the assumption that narcissists have a grandiose, self-absorbed view of themselves and indulge in fantastical thoughts about their future successes. Moreover, we found evidence for more negative, past-oriented thoughts in narcissists, which points to rumination. This finding suggests a possible link to an increase in psychopathological vulnerability in more narcissistic individuals.  |
| <b>Chapter 3.</b> We aimed to examine the social decisions that narcissistic individuals (as measured with PNI) make during ongoing interactions where there is possibility of punishment and generosity using game-theoretic models. Additionally, interpersonal traits, Machiavellian attitudes, and experienced emotions during the social interactions were measured as potential mediators for behavioral differences.   | Results revealed that individuals with greater narcissistic traits were less generous in social interactions where there was a risk of being punished for low generosity. This behavior was mediated by reduced perspective-taking in narcissists. We also found that higher narcissism scores predicted higher levels of punishment behavior. This retributive behavior was mediated by higher levels of reported experienced anger in narcissism.  | Our results give evidence as to why narcissistic behavior may lead to jeopardizing stable social interactions. Indeed, reduced cognitive perspective-taking leads narcissists to be less generous; and they have a tendency to react with anger-based retribution in unfair situations. This should inspire future intervention research targeting training in the domain of social cognitive abilities and emotion regulation.   |
| <b>Chapter 4.</b> We aimed to examine how narcissistic grandiosity (as measured with NPI) not only affected the individual's ability to experience envy and Schadenfreude, but moreover the tendency to attribute these emotions to others. We employed a novel social comparison task that has been proven to induce feelings of envy and Schadenfreude and also allows for the measurement of an emotional egocentricity bias (EEB; Steinbeis, & Singer, 2013, 2014). | Results indicated no group difference in how high-scoring and low-scoring narcissists experience first-hand feelings of envy and Schadenfreude. This result was driven by the lack of difference between the groups in how they experience personal losses and gains. However, high-scoring narcissists had a tendency to attribute feelings of envy to others ( $p < .05$ ), and to a lesser degree also feelings of Schadenfreude ( $p < .1$ ). This result was driven by a difference in how high- and low-scoring narcissists reported others as experiencing losses, with the high-scoring narcissists reporting the experience as worse. The two narcissist groups indicated harboring an offline EEB, but high narcissists' EEB was not larger. | We found that grandiose narcissists display a disparity between how they experience emotions first-hand in a given situation and how they attribute emotions to others in a similar situation. This difference was driven by how high-scoring narcissists assessed others' feelings on losing compared to low-scoring narcissists—with the high-scoring narcissists reporting the experience as worse. This disjunction between how one understands one's own and another's emotional experience could be a reason why grandiose narcissists have a hard time sustaining intimate and close social relationships. |



rumination (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) and implies dysfunctional thought patterns, explaining the risk of psychopathology even in subclinical narcissism (Miller, Widiger, & Campbell, 2010; Thomaes, & Brummelman, 2015).

Last, the hypothesis that narcissists are more preoccupied with grandiose self-focused fantasies was in line with our finding that self-related thoughts were more positive and future-oriented in subjects who scored higher on the pathological narcissism scale. This finding is particularly interesting because although overall narcissists demonstrated a higher level of off-task, future- and past-oriented, self- and other-focused thoughts, as well as thoughts with a negative valence, the only time they demonstrated having any positive thoughts was when it was specifically linked to self-related and future-oriented thoughts. This result speaks to the theoretical assumption that narcissists preoccupy themselves with overly self-positive thoughts as a strategy for intrapersonal regulation (Morf, Torchetti, et al., 2011). In addition, the future-oriented aspect of these self-focused thoughts presupposes the narcissist's tendency to fantasize about future success, power, or beauty (as per the American Psychiatric Association, 2013 and Caligor et al., 2015). However, given the nature of our paradigm, we were not able to ascertain the exact content of the thoughts, but we do know that those thoughts with a positive valence that were future-oriented were also self-related as opposed to other-related because our measurement tool used separate unipolar scales.

Taken together, these results are in-line with theoretical accounts about narcissists: that their grandiose self-concept, juxtaposed with their fragile vulnerability, requires constant intra- and interpersonal regulation maintenance

strategies (Campbell, 1999; Morf, & Rhodewalt, 2001; Robins et al., 2001). Indeed, we also used the total score of the PNI when running our analysis as opposed to separating it into its grandiose and vulnerable parts (they were highly correlated in our sample,  $r=0.73$  compared to a previously reported  $r=0.39-0.63$  (Bresin, & Gordon, 2011; Glover, Miller, Lynam, Crego, & Widiger, 2012), and thus can assume that this is due to the mixture of two intertwined dimensions that give rise to a more pathological rumination tendency and more grandiose positive-thought patterns (Morf, & Rhodewalt, 2001). Furthermore, we would argue that this study is a more ecologically valid way of understanding narcissistic thought patterns as opposed to questionnaire studies, which can induce biases. Thus, this study validates using experience-sampling tasks as a potential tool for investigating personality traits, which might be extended to include clinical samples too.

## **5.2 SOCIAL DECISION BEHAVIOR IN NARCISSISTS**

To complement the findings regarding the mind-wandering thought patterns of narcissists from the first Study, in Chapter 3 we examined their social cognitive and affective traits and behaviors during dynamic social decision making processes. We used well-validated game-theoretical paradigms (Dictator Game, 2<sup>nd</sup> and 3<sup>rd</sup> Party Punishment Games; DG, 2PPG and 3PPG respectively), which allowed for ongoing social interactions with the possibilities of generosity and punishment. Narcissists are typified as having impaired relationships (Miller, Widiger, & Campbell, 2010), and thus examining their social decision processes is a novel approach to gaining a better understanding of why they have interpersonal problems. We also assessed narcissists' interpersonal traits, Machiavellian

attitudes, and experienced emotions during social decision-making processes as a means to understand what might be mediating their behavioral differences.

Our first finding was that a high number of narcissistic traits, as measured using the PNI, leads to decreased generosity in situations where there is risk of punishment for lack of generosity, which is in line with previous research relating narcissism to reduced giving (Campbell, et al., 2005). Moreover, our findings demonstrated that high-scoring narcissists seemed not to be acting strategically, but rather were unperturbed by the fact that they might get punished by others because of their significantly low offers in the 2PPG. We found that this type of behavior was symptomatic of their reduced perspective-taking abilities; the results indicated that perspective-taking was a mediator for narcissists giving less during social interactions that could have the risk of retaliation (2PPG). Indeed, narcissists' inability to take the perspective of others led to behavior that was not necessarily best for their self-interest (i.e. risking losing money due to the possibility of punishment from others). This type of behavior could also be indicative of why they have a hard time in intimate relationships (Campbell et al., 2002)—their reduced level of perspective-taking when making decisions in social environments tend towards maladaptive outcomes on two fronts: 1) they do not make decisions that could help their given situation and, moreover, 2) they risk eliciting negative reactions from others. Thus, their inability to make good decisions for their own life as well as for the preservation of social harmony can lead to a host of unwanted interpersonal disruptions.

Our next finding was that high scoring narcissists punished others more than low-scoring narcissists when faced with unfair offers and that this type of

punishment was most likely motivated by retributive reasons as opposed to norm-enforcement. Indeed, we found significantly higher levels of experienced anger in high scoring narcissists when faced with low offers, and also that the narcissists' anger actually mediated this type of retributive behavior. This type of emotional reaction is in line with previous research indicating that trait narcissism is related to feelings of being treated unfairly, increased levels of anger, and a tendency to blame others and act aggressively (e.g. Bushman, & Baumeister, 1998). What was particularly interesting about this result was that in our experiment there was the opportunity to punish when an unfair offer affected the subject directly (2PPG), or when it affected an anonymous other and the subject was a mere observer of the unfair exchange (3PPG). We found that narcissists did not punish significantly more during direct interactions; rather, generally unfair offers overall triggered the retributive behavior.

We also found Machiavellian attitudes and increased personal distress related to higher levels of trait narcissism (e.g. Jakobwitz, & Egan, 2006; Hepper, Hart, Meek, et al., 2014); however neither of these mediated the narcissists' social behavior in our experiments.

Overall, in this study we were able to delve into the mechanistic underpinnings of narcissistic social behavior and thus expand the empirical scope of research into narcissistic interpersonal functioning and impaired relationships. More specifically, through their decision-making behavior, high-trait narcissists demonstrated a less generous attitude due to impaired perspective taking abilities, and an increased retributive attitude led by feelings of anger. These types of maladaptive social behaviors could be indicative of why narcissists have impaired

romantic relationships, leading them to veer away from intimacy and thus seek out more superficial ways of connecting with others (Campbell et al., 2002), for instance through social media sites (e.g. Buffardi, & Campbell, 2008).

### **5.3 EMOTIONAL ATTRIBUTION BIAS IN NARCISSISTS**

From examining the cognitive processes in Chapter 2, to looking at social behavioral mechanisms in Chapter 3, finally in Chapter 4 my coauthors and I studied one way in which narcissistic individuals function emotionally. We achieved this through using a novel task which induces first-hand feelings of envy and Schadenfreude and also measures the extent to which our participants attributed these emotions to others (The Egocentricity Monetary Reward and Punishment Paradigm, in short the EMOP task, developed by Steinbeis and Singer; see 2013 and 2014 for more details, and also Steinbeis et al., 2015). As a next step, we inspected the relationship between experiencing an emotion first-hand and attributing it in order to discover whether our grandiose narcissistic population harbored an emotional egocentric bias; thus investigating how one's own emotional states can be a source of egocentric judgment (EEB; Silani et al., 2013; Steinbeis et al., 2015). Given that one of the defining characteristics of narcissists is that they are envious of others, or that they think others are envious of them (American Psychiatric Association, 2013), we hypothesized that our grandiose narcissistic group, as measured with the NPI (Raskin, & Terry, 1981), would 1) experience more first-hand feelings of envy and Schadenfreude and 2) attribute these feelings to others more than low-scoring narcissists. The highly narcissistic group, however, did not experience more envy or Schadenfreude—although

previous research has shown, via self-reports of dispositional envy and Schadenfreude, that the vulnerable type of narcissism, more so than the grandiose, is related to these social emotions (Kirzan, & Johar, 2012; Neufeld, & Johnson, 2015). Interestingly, we did discover that high-scoring narcissists did assume that others were envious of them, and thus attributed more envy. Also, but to a lesser extent, narcissists assumed that others felt Schadenfreude towards them, and thus had a greater tendency to attribute more feelings of Schadenfreude.

Considering that the narcissistic group in this study did not seem to experience more first-hand feelings of envy and Schadenfreude, although they showed that they did attribute these emotions to others, it then followed that the level of EEB in the highly narcissistic group was not significantly different to the low-scoring group. Narcissistic individuals did not have more of a propensity to bias their judgment of another's emotional state based on their own emotional state. Indeed, what was discovered was that narcissistic individuals assume that others have different emotional states to their own; for instance, they assumed that others were envious when they themselves did not experience envy. We found a difference in the way that high-scoring and low-scoring narcissists assessed others' feelings with the high-scoring narcissists assessing others as feeling worse in negative (loss) situations. However, this was not the case in positive (gain) situations. Similarly, when highly narcissistic individuals assessed only their own emotional state in a non-social comparison situation, we found no difference in their assessment of losses to gains compared to low-scoring narcissists. Taken together, these findings indicate two things: 1) the way narcissists assess how they feel in a negative situation is different to how they assess others as feeling,

2) narcissists like to think that others feel worse in negative situations, whereas they seem not to differ from others in how they assess others' feelings in positive situations.

Following previous studies of narcissism, a few assumptions can be made based on the results of this study. First, an assumption can be made as to why narcissists attribute envy and Schadenfreude, but do not experience these emotions first-hand themselves. Namely, narcissistic individuals feel emotionally distant to others given their tendency to be disinterested in intimate relationships and their lack of empathetic feelings towards others (Morf, & Rhodewalt, 2001; Campbell et al., 2002). Another assumption is that the narcissists' grandiose self-image can lead them to assume that others are envious of them, as previous research has shown: when viewing themselves through the eyes of the other, narcissists have the propensity to over exaggerate how their performance resonates with others (Wallace, & Baumeister, 2002). Therefore, it can also be assumed that narcissistic individuals think they are a natural source of envy for others. Indeed, narcissists' tendency to deny reality when it conflicts with their self-image (Caligor et al., 2015), and use of self-enhancement strategies when in a social comparison situations (Campbell et al., 2000; Wallace, & Baumeister, 2002), such as the EMOP task, could perhaps lead their grandiose egos to deny experiencing feelings of envy and Schadenfreude as a means to maintain the image of themselves as superior to others.

A following assumption can be made in terms of why there was no difference in how the narcissist groups in this study experienced the first-hand emotions of envy and Schadenfreude. As mentioned, the mechanisms underlying

differences in individual experiences of envy and Schadenfreude were examined by looking at how the different narcissistic groups were emotionally affected by wins and losses when they were alone—such that there was no comparison with others (the single condition of the EMOP task). The results indicated that the two groups were no different in how they emotionally responded to personal wins and losses. Taken together, this speaks to prior research on narcissism from Marcoux and colleagues (2014), which showed that narcissistic individuals became more emotionally engaged with the presence of another, and also that narcissistic individuals needed to be motivated to take the perspective of the other—they did not do so automatically. We see this in the double-self conditions where experienced envy and Schadenfreude were measured, whereby the narcissists were asked to rate only how they themselves felt after winning and losing. Despite being able to see how others performed, following the Marcoux et al. study (2014), perhaps it can be assumed that the high-scoring narcissists did not attend to the other because they were not explicitly asked to consider the other person when making their emotional judgments. However, when the groups were asked to take the perspective of the other and rate the others' emotions during wins and losses under double-other conditions, the highly narcissistic group showed a different emotional rating to the low-scoring narcissistic group. The highly narcissist group demonstrated an attribution bias, driven by an attribution of more envy to others. The mechanism found to be driving this differentiation was that high-scoring narcissists rated others as feeling worse when losing than low-scoring narcissists did. Thus it seems that it could have been this explicit requirement to take the



other's perspective into account that made the highly narcissistic individuals more emotionally sensitive (Marcoux et al., 2014).

Moreover, the current study adds to previous literature examining the different dimensions of grandiose narcissistic traits, as per Ackerman et al. (2011), and specifically the leadership authority dimension, which supposedly attests to the "healthy" or "adaptive" form of narcissism (Wink, 1991; Lubit, 2002; Falkenbach et al., 2013). We found that this was the only dimension related to the normal group (middle NPI score range), who did not demonstrated any propensity to experience envy or Schadenfreude; nor did the normal group attribute envy or Schadenfreude to others. This supported the call for future research to examine narcissism from a multi-dimensional perspective (e.g., Caligor et al., 2015; Ronningstam, 2016).

In conclusion, in Chapter 4 we were able to contribute to research examining the relationship between narcissism and the social emotions of envy and Schadenfreude by investigating how grandiose narcissists experienced these emotions through a novel paradigm that elicits feelings first-hand (Steinbeis, & Singer, 2013, 2014). Furthermore, we were able to contribute a novel finding by uncovering an emotional mechanism found within grandiose narcissists. We found that the way in which they perceive self-wins and losses does not differ from low-scoring narcissists, yet compared to low-scoring narcissists, high-scoring narcissists assume that others feel worse when losing. This lack of difference in how high-scoring narcissists assessed self-loss and wins was the reason why they did not experience individual differences in their experiences of envy and Schadenfreude compared to low-scoring narcissists. Comparably, this difference in high-scoring

narcissists' assessment of other people's emotional reactions to losses is the reason why they have a larger attribution bias compared to low-scoring narcissists, especially in attributing feelings of envy to others. Finally, it was also found that high-scoring narcissists do not use their own emotional state, or emotional experience, as a basis from which to assess other people's emotions. Therefore, grandiose narcissism does seem to lead to harboring a significantly larger EEB.

#### **5.4 LIMITATIONS OF THE CURRENT RESEARCH**

*Samples.* The studies in this thesis used a set of subclinical narcissists to examine how narcissistic traits affect cognitive, emotional, and social behavior mechanisms. Although the samples came from a wide range (age: M: 30.5, SD: 10.6 with varying education levels from secondary school to higher-level university degrees) of the Berlin population, there were no individuals with pathological narcissistic disorders. It would be informative to extend these studies to a clinical sample as a means to compare the mechanisms and add to the growing, albeit still limited, empirical literature on this pathology (see a recent review from Ronningstam, 2016).

*Mind-wandering paradigm.* We were able to extrapolate interesting and novel findings from this paradigm regarding the nature of the thought-content of our subclinical narcissistic sample; however we were not able to delve deeper and read the actual thoughts—for example, when they were thinking about the future, we couldn't see the exact content of those thoughts. Also, since we used a unipolar scale, and not a bi-polar scale, we could not see if they were thinking more of the self vs. others, or more of the future vs. past, or more negative vs. positive. It would

be interesting as a next step to see if subjects are thinking, for instance, more on the positive or the negative side of the spectrum, and try to find mediators for these types of thought tendencies.

*Game Paradigms.* A limitation of this paradigm was that we did not measure the emotional responses in first-mover situations, but only in second- and third-mover conditions. It would have been interesting to see what emotions underlay the narcissists' disregard of potential retribution and how the narcissist's state shapes giving behavior.

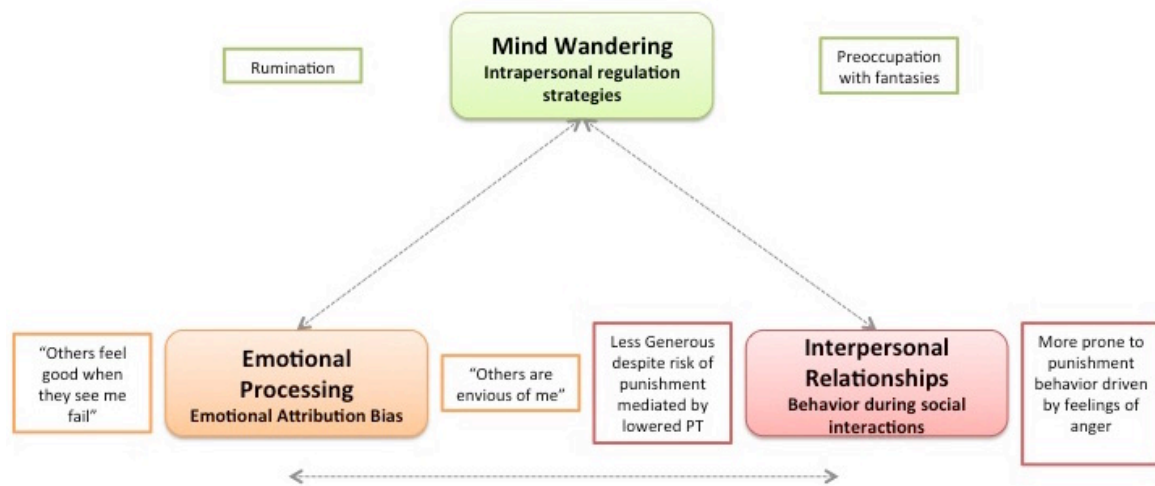
*EMOP Paradigm.* We tried to go a step further than previous research on narcissism and relationships by trying to elicit the first-hand emotions of envy and Schadenfreude in our study as opposed to explicitly asking participants via self-reports. Yet perhaps the setting was not ideal for eliciting such emotions as strongly in our narcissist group. First, we told our participants they were playing with anonymous others—this has been proven to work with normal populations in eliciting the said emotions (Steinbeis, & Singer, 2013, 2014), however given that narcissistic individuals are more sensitive in the presence of others (Marcoux et al., 2014), it would be wise to have someone constantly observing them or make the narcissistic individuals more aware of the others' presence, perhaps through direct/intimate interaction when playing the game.

*Ecological validity.* All of our tests were conducted in a well-controlled laboratory setting where the participants were led to believe they were playing against others. What would be more ecologically valid, for instance in the case of the mind-wandering paradigm, would be to use experienced sampling, which gets at the actual current experience of participants as they go about their everyday

lives and not while they are sitting in a laboratory environment. Then as a next step, coupling this data with physiological measures could lead to validating the results we obtained for our narcissistic population (Ottaviani et al., 2009; Tusche et al., 2014). With respect to investigating social behavior, the use of immersive virtual environments might be a more ecologically valid method given the possibility for measuring proxemic behaviors, which can then be integrated with other measures (e.g. psychophysiological and neurological), enabling a more multi-dimensional and dynamic approach to examining behavior (McCall, & Singer, 2015).

## 5.5 IMPLICATIONS FOR FUTURE RESEARCH

### A SUGGESTIVE MODEL FOR SUBCLINICAL NARCISSISTIC TRAIT FUNCTIONING



**Figure 1:** This model illustrates how subclinical narcissistic personality trait functioning could potentially come together based on the three studies in this dissertation. The model is intended as a possible source of inspiration for future research.

Through examining the various findings from this body of research, a model can be suggested to inspire future research (Fig. 1). In a recent review,

Ronningstam (p. 35, 2016) called for future research to examine the intersection “between emotion regulation and interpersonal relations, with attention to the influences of empathic capability, agency/self-direction, and fluctuations in self-esteem”. It is therefore timely that this dissertation attempts to examine some of the aforementioned aspects and can give some guidance, as attempted in the model, as to how they relate, and therefore intersect one another.

Through investigating the cognitive, emotional, and social behavioral mechanisms underlying narcissism it becomes apparent that these processes may feed into one another. As previously mentioned, the narcissistic personality type depends on both intra- and inter-personal regulation mechanisms (Morf, & Rhodewalt, 2001), and the model in Fig. 1 suggests that a possible starting point for investigating the mechanistic relationships would be lower-level cognitive thought processes as captured in the mind-wandering experiment, where intra-individual self-regulatory mechanisms became elucidated. Accordingly, it can be suggested that these intra-individual regulation strategies inform the more complex social and emotional mechanisms that in turn feedback to influence the thought processes once more. This supports the dynamic model for narcissism put forth by Morf and Rhodewalt (2001).

The first study allowed us to understand the thought patterns of our narcissistic population through getting a glimpse of their intra-personal regulation strategies. What we found were two patterns of thoughts: preoccupation with fantasies and ruminations. The preoccupation with fantasies stems from the thought-pattern of self-focused thoughts, which we found to be linked to thoughts with a positive valence and thoughts about the future. Indeed, narcissists did not

demonstrate mind-wandering to more positive valence thoughts generally, but only when linked to self-related thoughts and future-oriented thoughts. This result led us to believe that this type of thought-pattern is akin to the narcissists' fantasy-filled thoughts about the great things they can expect in future. The model assumes that a byproduct of being engaged in fantasies is that narcissistic individuals feel more detached from others (Caligor et al., 2015).

This detachment from reality presumably also affects narcissists' emotional and social behavior. In Study 2, individuals with varying narcissistic traits socially interacted during ongoing game play where there were possibilities of punishment and generosity. What was discovered was that highly narcissistic individuals gave less in situations where there was a risk of retribution and this was mediated by their lack of perspective-taking (which is perhaps more a lack of motivation than an actual lack of ability, as per Ritter et al., 2011 and Marcoux et al., 2014). Furthermore, in Study 3 a similar mechanistic disconnect was found. In particular, although grandiose narcissists did not experience more feelings of envy first-hand, they thought others were envious of them. This result was driven by the difference in the way in which high-scoring narcissists assess other people as reacting to losses compared to the low-scoring narcissists' assessment. This emotional mechanism highlights a disconnect between how narcissists experience emotions and how they assume others experience them. Second, it shows a disregard for retribution from others. Narcissists behave as if they are oblivious of seemingly obvious social cues regarding certain types of behavior that have a strong possibility of being regarded as unpleasant by others and therefore may lead to punishment. This apparent disregard of obvious social cues and emotional

disconnection with others could be due to their overly preoccupied interest in themselves, which leaves them little room for interest in others unless those others feed into their self-image (i.e. they boost their ego by thinking others are envious of them), and as a result are not motivated to pick up on relevant interpersonal cues—which could lead them to misjudge other people’s feelings and actions. This assumption is in line with previous findings indicating that highly narcissistic individuals have a tendency to disconnect from others and instead retreat into fantasies, because real intimate engagement with others could threaten their fragile inflated self-image and reveal the “painful reality” that they might actually lack attributes that others possess (p. 417, Caligor et al., 2015). Moreover, narcissists seem to lack the motivation to attend to other people’s perspectives unless explicitly asked to do so, and moreover they become more emotionally sensitive when they are aware of the presence of another (Marcoux et al., 2014). The assumption that narcissistic individuals are motivated by self-interested cues is further supported by previous research indicating that narcissists have a tendency to self-enhance and are self-motivated to do so as a means of augmenting their self-concept and protecting their self-esteem (Campbell et al., 2000; Grijalva, & Zhang, 2016). Therefore it can be assumed that they will attend to information that could be self-enhancing and perhaps disregard information that is not. Indeed, it has been found that narcissists tend to disregard critical feedback even when they could learn and benefit from that feedback (Campbell et al., 2004).

The second thought pattern that emerged from the first Study was a more negatively tinged pattern that was reminiscent of ruminating thoughts. Accordingly, results indicated that narcissists had thoughts with a negative valence

and also past-oriented thoughts, indicating a propensity for rumination and potentially also a retrospective bias that could also be linked to thoughts of others (Smallwood, & O'Connor, 2011; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). This type of thought pattern has been related to dysfunctional thoughts that could lead to psychopathology, even if they are expressed in a subclinical population like the one in this thesis (Miller, Widiger, & Campbell, 2010; Thomaes, & Brummelman, 2015). These dysfunctional thoughts were perhaps the basis of the equally dysfunctional social and emotional expressions. Socially, we found that individuals with a high level of trait pathological narcissism had a greater tendency to punish others, indicating both a sensitivity to unfairness and an aggressive retributive style. Emotionally, grandiose narcissistic traits were found to be related to the tendency to attribute feelings of Schadenfreude to others—indicating that high-scoring narcissists thought that others were happy to see them fail. This type of attribution-bias tendency, coupled with anger-mediated retributive behavior in social situations, echoes previous findings. Specifically, it speaks of the need for narcissists to detach from reality and from others, because of their fear that getting too close to others might threaten their self-image (Caligor et al., 2015). This is especially true if the other threatens the narcissistic individual's self-esteem and their ego, which then results in aggressive behavior on the part of the narcissist (Bushman, & Baumeister, 1998). Moreover, previous research has found that narcissistic individuals engage in externalizing antisocial behavior because they generally have no concern for the needs of others (Miller et al., 2010; Miller et al., 2009), and this particular type of externalizing behavior, in combination with



narcissistic personality type, has been linked to psychopathy (Paulhus, & Williams, 2002).

To conclude, the proposed model is merely an attempt to aggregate what we have learnt from the three studies in this thesis in a cohesive way, in order to illustrate potential avenues for future research. In no way does it imply a causal relationship between the three studies, but rather supports and tries to build upon previous models of narcissistic personality functioning (e.g. Ronningstam, 2016; Morf, & Rhodewalt, 2001).

#### CONCLUDING REMARKS AND FURTHER THOUGHTS ON IMPLICATIONS FOR FUTURE RESEARCH

Within this body of work, the mechanisms behind narcissistic traits were examined in relation to cognition, emotions, and social behavior. Through understanding the underlying thought patterns of narcissists, a model was created to illustrate how these thoughts infiltrate the processing of information in narcissistic individuals and could potentially lead to their various maladaptive social behaviors and distant relationships with others.

Hence, this thesis is an important empirical investigation for understanding the intra- and inter-personal functioning of subclinical narcissistic individuals, which attempts to address and suggest possibilities as to *why* narcissists feel and behave the way they do in social situations. However, what this body of research does not address is *how* narcissists got into this state in the first place—specifically, how did they develop these narcissistic traits? This is an important question, particularly in terms of trying to understand the larger social and global issues at stake in an era where individualistic and neoliberal ideals rule (Monbiot, 2016).

Understanding the origins of narcissism is important when developing intervention studies to attempt to reduce the prevalence of this trait—especially at a young age. One recent study (Brummelman et al., 2015) has attempted to examine the origins of narcissism in children in the USA by testing theories from psychoanalysis and social learning. They found that parental overvaluation, but not a lack of parental warmth, predicted narcissism in children (ages 7–12). The limited amount of empirical research investigating the origins of narcissism indicates an opportunity for future research.

One theme that arose from the studies in this thesis was the sense of disconnectedness from others that highly narcissistic individuals seemed to experience. Previous studies have demonstrated that narcissists do not lack the ability, but only the motivation to take another person's perspective (Ritter et al., 2011; Marcoux et al., 2014). Moreover, Marcoux et al. (2014) found that while narcissists had a lower level of dispositional empathy, they were more attentive to the somatic representation of observed pain in others—indicating that while they seem to be less empathetic, they have the ability to be so when prompted (Marcoux et al., 2014).

Taking these results together, there seems to be a trend—it is not a lack of ability, but rather motivation that keeps narcissists from having more intimate and adaptive interpersonal relationships. Accordingly, narcissists seem to be a good candidate for an intervention study, since it appears that narcissists lack the motivation to connect with others spontaneously. In order for a psychological syndrome or pattern to be deemed a pathology, it must be harmful for the self and/or others (American Psychiatric Association, 2013). In the case of narcissists,

the disconnect they feel with others is probably also prevalent within themselves given their instable self-esteem and sense of self-worth, which lead them to seek external validation, at times through very destructive means (Campbell, 1999; Morf, & Rhodewalt, 2001; Robins et al., 2001). Their desire to be loved and admired by all around them is perhaps due to a lack of self-love, self-awareness, and understanding, stemming from a lack of insight into their own personalities (Klonsky et al., 2002). Inspired by a quote from the famous ancient Persian Poet Rumi:

Your task is not to seek for love, but merely to seek and find all the barriers within yourself that you have built against it.

Contemplative practices that allow one to examine one's self-dynamics through exploring self-construction, the nature of the self, how one's happiness is dependent on other people's happiness, etc., could be a beneficial type of intervention study for individuals with a high number of narcissistic traits. Singer et al. (2016) have outlined various possible methods and contemplative traditions that could be viable starting points for such an intervention.

In line with contemplative studies, given the propensity for individuals with a high number of narcissistic traits to mind-wander significantly more, as per our first Study (Chapter 2), and the proposition that increased mind-wandering could be dysfunctional (Killingsworth, & Gilbert, 2010), perhaps mindfulness training studies could be a potential intervention. In fact, mindfulness training has demonstrated an ability to reduce mind-wandering and as a result enhance task performance (Mrazek et al., 2013).

Moreover, the mind-wandering task has potential clinical applications in aiding diagnosis of different psychological conditions and assisting in deciphering treatment types. For instance, in our study we found a thought-pattern that could be specific to narcissists: enhanced self-related thoughts that were positive and future-orientated. Perhaps thought patterns could be used to inform psychological traits, and given the ease of implementation of the mind-wandering experiment, it could be a useful empirical tool.

To conclude, the studies within this thesis attempted to uncover the cognitive, emotional, and social behavioral mechanisms of subclinical narcissistic samples. The examination of narcissistic traits has proven to have important implications for our global environmental and social well-being, especially in light of the climate change we are facing due to the Anthropocene epoch (Latour, 2014). What kind of society do we want to live in? Those people who are deemed more narcissistic might be the next rulers of our world (i.e. political rulers favoring more segregation, who demonstrate disdain for the out-group and are proving popular with the masses). However lemons can always be made into lemonade. Indeed, from another perspective, we can also see the potential for agency and change. How? By looking to intervention studies, for instance inspired by contemplative studies (as per Singer et al., 2016) as a possible way of getting back to the self instead of cloaking it in many layers. By learning healthier mechanisms that are socially binding, as opposed to socially excluding. Ultimately, by aiming to learn to truly love ourselves more, so we can share this nurturing sentiment with others around us.

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## Appendix

### Poster 1.

**1 von 100  
Lesern dieses  
Posters wird  
besonders  
von seinen  
Mitmenschen  
bewundert**

**Sind sie  
eine  
dieser  
Personen  
?**

Dann tragen Sie zu einer Studie zu sozio-kognitiven Fähigkeiten des Max-Planck-Instituts für Kognitions- und Neurowissenschaften und des Exzellenzclusters Languages of Emotion der Freien Universität Berlin bei.

Schreiben Sie einfach eine E-Mail an [kroehm@cbs.mpg.de](mailto:kroehm@cbs.mpg.de)



**Poster 2.**

**Viele Menschen sind besonders,  
einige besonderer,  
aber nur ganz  
wenige am  
besondersten**

**Gehören Sie dazu?**

**Dann tragen Sie zu einer Studie  
zu sozio-kognitiven Fähigkeiten des  
Max-Planck-Instituts für Kognitions-  
und Neurowissenschaften und des  
Exzellenzclusters Languages of Emotion  
der Freien Universität Berlin bei.**

**Schreiben Sie einfach eine  
E-Mail an [kroehm@cbs.mpg.de](mailto:kroehm@cbs.mpg.de)**



For reasons of data protection, the curriculum vitae is not published in the electronic version

For reasons of data protection, the curriculum vitae is not published in the electronic version

For reasons of data protection, the curriculum vitae is not published in the electronic version

## List of publications

Kanske, P.\*, **Sharifi, M.\***, Smallwood, J., Dziobek, I., & Singer, T. (in press). Where the narcissistic mind wanders: Increased self-related thoughts are more positive and future-oriented. *Journal of Personality Disorders*.

\*contributed equally

Böckler, A.\*, **Sharifi, M.\***, Kanske, P., Dziobek, I., & Singer, T. (in press). Social decision making in narcissism: Perspective taking and anger mediate reduced generosity and enhanced retaliation. *Personality and Individual Differences*.

\*contributed equally

**Sharifi, M.**, Steinbeis, N., Dziobek, I., & Singer, T. (unpublished). Of course you are envious of me, but why should I be envious of you?! A story of emotional attribution bias told by narcissistic grandiosity.

## **Erklärung**

Hiermit versichere ich, dass ich die vorliegende Arbeit selbstständig verfasst habe. Andere als die angegebenen Hilfsmittel habe ich nicht verwendet. Die Arbeit ist in keinem früheren Promotionsverfahren angenommen oder abgelehnt worden.

Berlin, 2016

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Unterschrift (Marjan Sharifi)