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# Theory of Mind, Social Desirability, and Unlikely Symptom Reporting in Offenders With and Without Psychopathy

Lieke Nentjes, PhD,\*† David P. Bernstein, PhD,\* Arnoud Arntz, PhD,\*† Mariëtte E. Slaats, MSc,‡§// and Tina Hannemann, MSc‡

**Abstract:** The current study investigated the relationship between psychopathy and theory of mind (ToM), by comparing the performance of nonpsychopathic offenders ( $n = 40$ ), psychopathic offenders ( $n = 42$ ), and nonoffender controls ( $n = 26$ ) on Happé's test of ToM (Happé, 1994). In addition, we investigated whether offenders' ToM skills would moderate the association between the antisocial psychopathy component (Factor 2) and self-presentation (*i.e.*, the tendency to report social desirability and unlikely symptoms). Results showed groups did not differ in ToM performance. As expected though, ToM moderated the association between psychopathy and self-presentation: only for offenders relatively high in ToM, Factor 2 was strongly related to less social desirability and more unlikely symptom reporting. These results could indicate that offenders who are high in both ToM and Factor 2 exaggerate their mental dysfunction to express their need for clinical attention. Results are used to critically evaluate the interpretation of occurrences in which offenders overplay their psychopathology.

**Key Words:** Theory of mind, cognitive empathy, psychopathy, social desirability, unlikely symptom reporting

(*J Nerv Ment Dis* 2015;203: 596–603)

Psychopathy is a disorder that emerges early in life (Lynam et al., 2007) and that is associated with high levels of antisocial behavior, as well as with marked interpersonal and affective deficiencies. These latter characteristics, such as a manipulative and deceitful interpersonal style, a lack of guilt and remorse, emotional shallowness, and a lack of empathy for others (Hare, 2003), distinguish psychopaths from other individuals who exhibit antisocial behavior but who do not have psychopathic personality features, like offenders suffering from antisocial personality disorder (PD) (American Psychiatric Association, 2000).

The manner in which psychopathic individuals behave in social interactions is characterized by an interesting paradox: On the one hand, psychopathy is associated with deceiving and manipulating others in a controlled and calculating way (Hare, 2003), reflecting a certain level of social skillfulness. On the other hand, a substantial amount of the traits associated with psychopathy reflect poor adjustment to interpersonal situations, including increased irritability and a lower tendency to inhibit and restrain impulse expression (Hare, 2003; Patrick et al., 2007). This seeming contradiction raises the question of whether psychopaths have relatively poor social cognitive and interactional skills, or whether their social understanding is intact, or even superior to that of other individuals.

A capacity that is thought to be essential in understanding social interactions and in adapting one's behavior to interactional processes is theory of mind (ToM). ToM refers to the capacity to understand others'

mental states—such as intentions and beliefs—and to subsequently explain and predict behavior using this apprehension (Baron-Cohen, 2000). As a normally developed ToM is considered to play an important, if not crucial role in the ability to tell lies and successfully deceive other people (Baron-Cohen, 2000; Talwar et al., 2007), one might expect psychopaths to have an intact ToM. However, ToM capacities have also been found to positively relate to traits on which psychopathic individuals score relatively low, such as agreeableness (Nettle and Liddle, 2008; Patrick et al., 2007). This latter observation, in combination with the finding that low ToM has been found to predict angry and aggressive responding in social interactions (Mohr et al., 2007; Renouf et al., 2010), could be more indicative of potential deficiencies in psychopaths' ToM.

A number of experimental studies that have been conducted in forensic samples seem to support the stance that psychopathic individuals have intact ToM. That is, previous research could not reveal any psychopathy-specific deficits on ToM tasks that require the inference of story characters' thoughts (Blair et al., 1996) or on a test in which subjects are asked to attribute complex mental states (*e.g.*, “sceptical”, “relieved”) to photographs of the eye region only (Dolan and Fullam, 2004; Richell et al., 2003). Although these studies suggest that there is no relationship between psychopathy and ToM, their interpretability is seriously limited by the fact that none of these studies took the multidimensional nature of psychopathy into account. Factor analytic research on the Psychopathy Checklist–Revised (PCL-R, Hare, 2003) and its preceding formats has identified two factors: Factor 1 describes interpersonal/affective traits, whereas Factor 2 covers impulsive/antisocial behavior (Harpur et al., 1988). [More recent research suggests psychopathy to be comprised by three (Cooke and Michie, 2001) or four factors (Hare, 2003). As the PCL-R two-factor structure has been most extensively validated so far, we focus on this conceptual model in the present study.] Subsequent research has revealed Factor 1 and 2 to show opposing relationships with certain constructs, like for example, stress reactivity (Verona et al., 2001) and fearfulness (Hicks and Patrick, 2006). These studies also showed that PCL-R total scores did not significantly predict these temperamental propensities, stressing the importance of taking both factors into account when studying psychopathy in order not to obscure potential relationships between this disorder and its external correlates.

Considering ToM, the multifactorial structure of the PCL-R might also help to explain why psychopaths seem to be characterized by the seemingly contradictory social traits described above. That is, psychopathy Factor 1 and 2 might also be divergently related to skills associated with social behavior and understanding. To elucidate these issues, we undertook an investigation of ToM capacities in a sample of psychopathic offenders, nonpsychopathic offenders, and community controls ( $N = 102$ ). We decided to adopt two measures of ToM, as research suggests this construct to consist of two components, including the capacity to infer mental states from eye stimuli (“social-perceptual ToM”) versus the ability to reason about mental states (“social-cognitive ToM”) (Nettle and Liddle, 2008; Sabbagh, 2004). We assessed social-perceptual ToM using the Reading the Mind in the Eyes Task (RMET; Baron-Cohen et al., 2001a), which requires the attribution of mental states to pictures of eyes. In a previous report (Nentjes et al., 2015), we describe that overall performance on the RMET was

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unrelated to psychopathy and its factors, even when task performance was challenged by varying stimulus presentation intervals and by introducing hostile incorrect answering options that might bias responses. However, as the different components of ToM seem to be related, yet dissociable (Nettle and Liddle, 2008), it might still be expected that psychopathy is associated with aberrances in social-cognitive ToM.

In the present paper, we therefore investigate the relationship between psychopathy and ToM using a task that requires the attribution of story characters' mental states (*i.e.*, Happé's advanced test of ToM; Happé, 1994), using the same sample as in the RMET study described above (Nentjes et al., 2015). We expected PCL-R Factor 1 to be unrelated to ToM impairments, as this factor reflects the aforementioned psychopathy characteristics that require an understanding of others' mental states (*e.g.*, lying and conning; Hare, 2003; Talwar et al., 2007). In contrast, it was expected that PCL-R Factor 2 would be negatively predictive of performance on Happé's test, as this factor is related to traits which have been found to be inversely related to social cognitive ToM skills (*e.g.*, low agreeableness, reactive aggression; Nettle and Liddle, 2008; Patrick et al., 2007; Renouf et al., 2010).

A second aim of the current study was to investigate the influence of social-cognitive ToM on the relationship between offenders' psychopathy level and the way in which these individuals portray themselves (*i.e.*, their self-presentational style). Although results are somewhat mixed (for overviews, see Niesten et al., 2015; Ray et al., 2013), previous research suggests the antisocial factor (but not the interpersonal/affective factor) of psychopathy to be associated with a self-presentational style that is characterized by conveying a relatively bad image, as indicated by the exaggeration of (atypical) symptoms (Ray et al., 2013). Congruently, the antisocial behavior component of psychopathy has been found to be negatively associated with trying to come across favorably by, for example, reporting socially desirable traits. This relationship is not surprising, considering social desirability to be positively related to characteristics like self-control, agreeableness, emotional stability, and interpersonal adjustment (Uziel, 2010), which antisocial people tend to have to a relatively low extent (Patrick et al., 2007; Verona et al., 2001).

Thus, the antisocial factor of psychopathy seems to be associated with a disinterest, or incapacity, to behave socially desirable and a tendency to put oneself in a relatively bad light in terms of overplaying atypical symptomatology. The relevance of research into psychopathy and self-presentation is stressed by the notion that presenting oneself in a socially desirable way, as well as reporting symptoms one is not actually suffering from are behaviors that might be engaged in to obtain certain instrumental advantages in forensic contexts (Rogers, 2008). Nonetheless, scant research has investigated the mechanisms underlying self-presentation in criminal populations. [Social desirability and unlikely symptom reporting have often been referred to as "faking good" and "faking bad," respectively (*e.g.*, Ray et al., 2013). In the present report, we decided to refrain from this terminology: as malingering instruments assess the report of traits that are highly uncommon, it is plausible that an elevated score on such measures is indicative of "faking." However, social desirability scales are thought to tap into the (un)conscious exaggeration of good virtues (so, "faking"; Paulhus, 1991), but also into an individual's actual (un)desirable personality traits (Uziel, 2010). For this reason, we adopted the more neutral term of "self-presentational style" rather than "faking." Next to that, we decided to use the term "unlikely symptom reporting" rather than "malingering," as the latter implies the presence of external incentives that motivate symptom production (American Psychiatric Association, 2000), with these incentives not being evidently present for our current sample.]

ToM seems pivotal in successfully monitoring and adjusting self-presentation, as portraying yourself in a certain manner involves knowing that others have beliefs that are separate from your own that are influenced by how you come across in social interactions (Baron-Cohen, 2000). Therefore, we expected ToM to moderate the

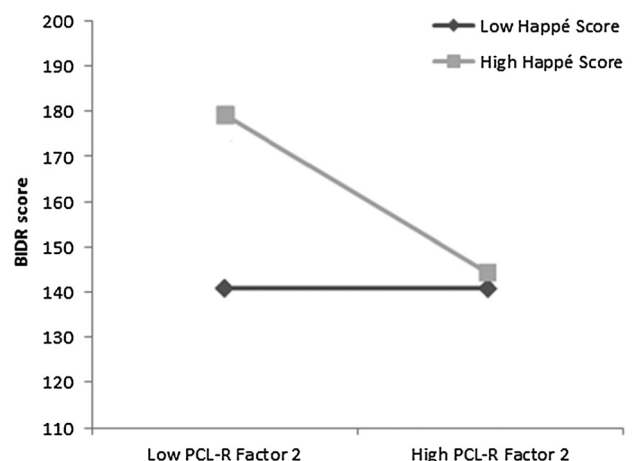
associations between PCL-R Factor 2 and the two aforementioned self-presentation indices (*i.e.*, social desirability and unlikely symptom reporting). As social-cognitive ToM is implied in behaving in a socially sensitive manner (Paal and Bereczkei, 2007), we hypothesized offenders low in such ToM to be characterized by low levels of social desirability, regardless of their Factor 2 score. For the same reason, we hypothesized offenders high in social-cognitive ToM to convey a more socially desirable impression, yet only when being relatively low in Factor 2. That is, individuals high in Factor 2 might not care about coming across in a socially favorable way, or they might be less capable of doing so because of the disinhibitive and emotionally reactive nature of this psychopathy component (Verona et al., 2001). Figure 1 depicts the hypothesized relationship between Factor 2 and social desirability, split up per ToM level.

Finally, we also expected the positive relationship between Factor 2 and unlikely symptom reporting to depend on social-cognitive ToM levels. The report of atypical symptoms reflects a misrepresentation of one's actual functioning (American Psychiatric Association, 2000) and might therefore thus be seen as a form of deceit. As the capacity to deceive relies on a well-developed ToM (Baron-Cohen, 2000; Talwar et al., 2007), we hypothesized offenders low in ToM to report relatively low levels of unlikely symptoms, regardless of their Factor 2 levels. In contrast, we expected to see a positive relationship between unlikely symptom reporting and Factor 2 for offenders high in ToM. (See Fig. 2 for these hypothesized relationships between PCL-R Factor 2 and atypical symptom reporting.)

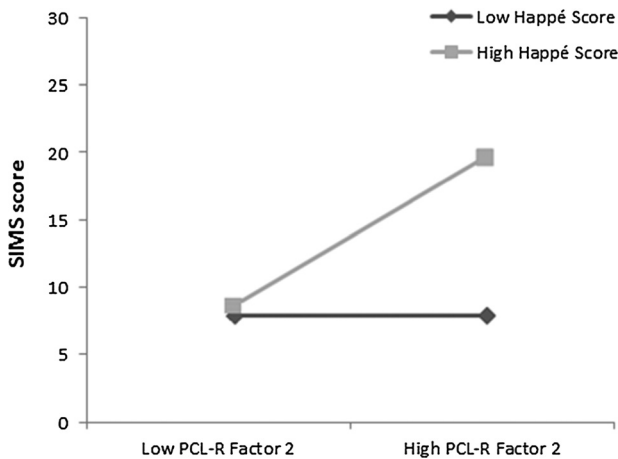
## METHODS

### Participants

This study is part of a larger research project examining the emotional correlates of psychopathy in a sample of delinquents and control subjects (see Nentjes et al., 2013; Niesten et al., 2015). Eighty-five male criminal offenders were recruited from six forensic psychiatric centers and a prison in the Netherlands, using the following inclusion criteria: a) the presence of a *DSM-IV* antisocial, narcissistic, borderline, or paranoid PD, or a PD not otherwise specified with at least five cluster B PD traits, and b) good understanding of the Dutch language. Exclusion criteria were a) the presence of current psychotic symptoms, b) schizophrenia or bipolar disorder, c) current drug or alcohol dependence (but not abuse), d) IQ < 80, e) serious neurological impairment, f) an autistic spectrum disorder, and g) fixated pedophilia. Thirty-six of these



**FIGURE 1.** Hypothesized mean scores on the BDR as a function of low and high PCL-R Factor 2 score by low and high scores on Happé's test of ToM.



**FIGURE 2.** Hypothesized mean scores on the SIMS as a function of low and high PCL-R Factor 2 score by low and high scores on Happé's test of ToM.

subjects were also participating in an RCT on the effectiveness of schema therapy (Bernstein et al., 2012).

Eighty-two forensic participants completed Happé's test. Forensic participants were divided into a nonpsychopathic and a psychopathic group using the European PCL-R cutoff of 25 (Cooke and Michie, 1999), which was also the median PCL-R score in the current sample. A control group of 26 healthy males (who were not university students) was recruited from the general population. An inclusion criterion for this group was a) good understanding of the Dutch language. Exclusion criteria were a) the presence of any axis I disorder, b) the presence of threshold minus two criteria for any *DSM-IV* PD, c) the presence of a PD diagnosis not otherwise specified, d) low intelligence (*i.e.*, IQ < 80), e) serious neurological impairment, f) an autistic spectrum disorder, and g) a level of self-reported psychopathy higher than one SD above the general population mean.

Demographic and clinical features of the sample are reported in Table 1. All the nonoffender participants had Dutch nationality. In

the forensic sample, 10 different nationalities were represented, with the most prevalent being Dutch (74.7%), Moroccan (7.2%), and Surinamese (8.4%). Types of crime that were committed by the offenders were sexual offenses (30.1%), homicide (27.7%), assault (20.5%), property crime with (10.8%) and without (1.2%) violence, arson (6.0%), and drug offenses (3.6%). Offenders were diagnosed with antisocial (82.9%), borderline (32.9%), narcissistic (31.6%), paranoid (10.5%), and avoidant PD (1.3%). Nine (10.7%) of the offenders did not qualify for one of these diagnoses but had a PD NOS with 5 or more cluster B traits.

**Measures**

**Screening Measures**

**SIDP-IV**

The Structured Interview for *DSM-IV* Personality Disorders (SIDP-IV; Pfohl et al., 1995) was used to assess PDs in the offender group. SIDP-IV scores were derived from participants' file records when these had already been scored by thoroughly trained diagnostic staff (*n* = 52). In a subsample of *n* = 18, single-rater intraclass correlation coefficients (ICCs) for the PDs of interest ranged between 0.53 and 0.95 (*M* = 0.72), whereas average rater ICCs ranged between 0.70 and 0.97 (*M* = 0.83). When interviews had been scored twice, ratings were averaged. When the SIDP-IV had not been administered (*n* = 33), the interview was administered by the first author (L. N.). Five interviews were scored by L. N. and a second rater, yielding single-rater ICCs ranging from 0.75 to 0.96 (*M* = 0.84) for the PDs of interest.

**SCID I and II**

The nonoffenders were screened for axis I and II psychopathology using the Structured Clinical Interview for *DSM-IV* Axis I disorders (SCID-I; First et al., 1997) and the SCID for Axis II Personality Disorders (SCID-II; First et al., 1994). ICCs in a sample of *n* = 5 (single rater) for all SCID-II PDs ranged from 0.79 to 0.99 (*M* = 0.88). Although there were not enough axis I diagnoses present in these patients to determine kappas, two independent raters agreed on the presence of 24 axis I disorders, whereas disagreement existed on the presence of only two diagnoses, suggesting a high level of interrater consistency.

**TABLE 1.** Sample Characteristics (*N* = 108)

	Psychopathic Offenders ( <i>n</i> = 42)		Nonpsychopathic Offenders ( <i>n</i> = 40)		Nonoffenders ( <i>n</i> = 26)		Test Statistics
	<i>M</i> ( <i>SD/SE</i> )	Range	<i>M</i> ( <i>SD/SE</i> )	Range	<i>M</i> ( <i>SD/SE</i> )	Range	
Age (years)	39.1 (9.5)	23–65	38.8 (9.9)	24–64	35.6 (13.5)	18–57	<i>F</i> (2, 105) = 0.94, <i>p</i> = 0.39
IQ	94.9 (11.4)	80–120	96.4 (11.3)	80–121	101.2 (12.5)	80–128	<i>F</i> (2, 105) = 2.57, <i>p</i> = 0.08
Institutionalization <sup>a</sup>	6.5 (3.5)	1.0–15.0	7.4 (4.5)	0.5–20.0	–	–	<i>t</i> (80) = –.66, <i>p</i> = 0.51
PCL-R total	29.5 (3.2)	25.0–36.8	18.6 (3.8)	11.0–24.0	–	–	<i>t</i> (80) = –13.28, <i>p</i> < 0.001
PCL-R Factor 1	12.0 (2.8)	6.0–16.0	8.4 (3.1)	3.0–16.0	–	–	<i>t</i> (80) = –14.36, <i>p</i> < 0.001
PCL-R Factor 2	13.9 (2.5)	7.2–18.0	8.0 (3.8)	1.0–15.0	–	–	<i>t</i> (80) = –13.33, <i>p</i> < 0.001
Happé-Physical <sup>b</sup>	8.1 (2.9)	1.0–14.0	8.7 (2.9)	3.0–14.0	9.5 (2.5)	4.0–14.0	–
Happé-Physical <sup>c</sup>	8.4 (0.4)	–	8.7 (0.4)	–	8.9 (0.5)	–	–
Happé-Mental <sup>b</sup>	8.1 (2.4)	2.0–13.0	9.0 (2.2)	5.0–15.0	9.6 (2.2)	6.0–14.0	–
Happé-Mental <sup>d</sup>	8.2 (0.3)	–	9.2 (0.3)	–	9.2 (0.4)	–	–

PCL-R indicates Psychopathy Checklist–Revised.

<sup>a</sup>Length of institutionalization since the last offense in years.

<sup>b</sup>Uncorrected scores.

<sup>c</sup>Predicted means corrected for covariates associated with Happé-Physical at *p* > 0.10 (*i.e.*, age, IQ, state and trait anxiety, and working memory capacity).

<sup>d</sup>Predicted means corrected for covariates associated with Happé-Mental at *p* > 0.10 (*i.e.*, IQ, reading speed, state anxiety, and impulsivity).

### LSRP

The Levenson Self-Report Psychopathy Scale (LSRP; Levenson et al., 1995) was used to assess psychopathy in the nonoffenders. Subjects were excluded from the current study when their score exceeded a cutoff of 58, which is approximately one SD above the mean LSRP total score found in males in the general population (e.g., Uzieblo et al., 2010).

### Autism-Spectrum Quotient

When there was reason to suspect the presence of an autism spectrum disorder, the Autism-Spectrum Quotient (AQ; Baron-Cohen et al., 2001b) was administered, excluding participants who scored 32 or higher based on Baron-Cohen et al. (2001b). Offenders were not approached for this study when an autism spectrum disorder had been diagnosed by clinical staff, for which more extensive methods were used (e.g., patient and collateral interviewing, supplemented with multi-informant observational information).

## Main Predictor and Outcome Variables

### PCL-R

The PCL-R (Hare, 2003) was used to assess psychopathy in the offenders. PCL-R scoring was based on a semistructured interview and a review of subjects' file information. Participants' PCL-R scores were obtained from clinical files when these had already been scored by diagnostic staff ( $n = 74$ ; all of these staff members had been extensively trained during a 3-day PCL-R assessment course). Independent single-rater ICCs over 16 PCL-R interviews (from different clinics) for total, Factor 1, and Factor 2 scores were 0.76, 0.74, and 0.74, respectively. When PCL-R scores were not available, the first author (L.N.) scored the PCL-R, also based on an interview and an extensive file search, supported by regular meetings with the third author (D. P. B.), who has extensive experience in scoring the PCL-R, to ensure adherence to the diagnostic criteria. In the entire forensic sample, standardized Cronbach's alphas for total, Factor 1, and Factor 2 scores were 0.79, 0.82, and 0.82, respectively.

### Happé's Advanced Test of ToM

"Social-cognitive ToM" was assessed using Happé's advanced test of ToM (Happé, 1994). In this task, subjects are asked to read 16 stories out loud and to subsequently answer a question about each story. The task is divided into a mental and a physical condition. Understanding the physical stories ( $n = 8$ ) requires making a physical inference, whereas the attribution of mental states (e.g., thoughts, desires) is needed to apprehend the mental stories, which contain elements like telling white lies, persuasion, and (double) bluff. Presentation of the mental and physical condition was counterbalanced across subjects. Previous research shows the Dutch version of Happé's ToM test to have good psychometric properties (Arntz et al., 2009). Participants' audio-recorded responses were rated by four extensively trained graduate psychology students (three females). The answers were scored 0 (*incorrect answer*), 1 (*partially correct or implicit answer*), or 2 (*complete, explicit answer*), resulting in total scores ranging from 0 to 16 for each story type. The answers of 20 randomly selected participants were scored by all four raters, resulting in ICCs of 0.97 for the physical condition (Happé-Physical) and 0.94 for the mental condition (Happé-Mental). The responses of the remaining 88 participants were rated by two different raters (scores were averaged). The average ICC for all possible combinations of two raters was 0.91 for the physical condition and 0.90 for the mental condition. In the current study, test-retest reliability in a subgroup of offender participants ( $n = 14$ ) over a 1-month interval was 0.53 for the physical condition and 0.51 for the mental condition. [As recent research suggests that ToM might also be constituted by a cognitive and an affective dimension, with the latter being especially relevant to psychopathy, for example, Shamay-Tsoory et al.,

2010), an attempt was made to single out these underlying ToM components by conducting a confirmatory factor analysis (weighted least-squares method) on the stories of Happé-Mental. This analysis revealed that the loadings of the eight stories onto one of two factors were insufficiently high to ensure reliable recovery of a two-factor solution. The results from this analysis were therefore not taken into further account.]

### RMET

"Social-perceptual" ToM was assessed by administering the Reading the Mind in the Eyes Task (RMET; Baron-Cohen et al., 2001a). Subjects completed a computerized version of the test, in which they were presented with 36 stimuli depicting the eye region of faces only. Subjects were asked to identify which of four words accompanying each picture (one correct option, three foils) best represented what the person in the picture was feeling or thinking. The RMET was changed from its original format to create task conditions that were hypothesized to bring psychopathy-specific deficits to light (i.e., different stimulus presentation times [short vs. long] and the presence of hostility in foils). The effect of psychopathy on this adapted version of the RMET is reported in a separate article (Nentjes et al., 2015). The partial correlation coefficient between Happé-Mental scores and the RMET total score—when controlling for Happé-Physical—was 0.31 ( $p < 0.01$ ).

### Balanced Inventory of Desirable Responding

Social desirability was assessed using the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991). According to Paulhus (1991), the first 20-item subscale of this questionnaire taps into the conscious effort to present oneself in a positive way, whereas the last 20 items measure respondents' actual beliefs about their good qualities. A higher score on the BIDR indicates a higher degree of social desirability. In the current study, we used the total 40-item scale, for which Cronbach's alpha was 0.79.

### Structured Inventory of Malingered Symptomatology

To assess the report of unlikely symptoms, we administered the Structured Inventory of Malingered Symptomatology (SIMS; Smith and Burger, 1997). This 75-item questionnaire measures the overreporting of atypical psychopathological and neuropsychological symptoms (e.g., psychosis). The higher a subject's score on the SIMS, the more atypical symptoms (s)he claims to suffer from. Cronbach's alpha in the current sample was 0.83.

### Potential Covariates

A robust association has been found between executive functioning and ToM (e.g., Talwar and Lee, 2008). Therefore, we considered it important to take executive functioning into account, including working memory capacity and impulsivity. Working memory capacity was assessed using the self-ordered pointing task (SOPT; Petrides and Milner, 1982). In this computerized test, participants are presented with pictures that are spatially arranged in a  $3 \times 4$  matrix. Picture order varies on each trial, requiring participants to click on a picture that they have not pointed to on a previous trial. Correct responses were summed over two task repetitions. Impulsivity was examined by assessing the capacity to inhibit an ongoing response, using the "stop" test, designed following the methodology described in Rubia et al. (2007). Other potential covariates (CVs) that were taken into account were age, anxiety (the latter being assessed with the State-Trait Anxiety Inventory, STAI, Spielberger, 1983), and IQ. IQs were derived from clinical files if offenders had recently been assessed with the Wechsler Adult Intelligence Scale III (WAIS-III; Wechsler, 1997). If these were not available, participants completed a shortened version of the WAIS-III (based on the subtests Block Design and Vocabulary; Jeyakumar et al., 2004). Scores on the Picture Arrangement subtest of the WAIS-III were taken into account as a measure of social logical reasoning. Last, the time it took participants to read the stories in Happé's ToM test was registered to control for potential differences in literacy.

## Procedure

All participants were administered a battery of emotional tests, some of which are described elsewhere (Nentjes et al., 2013; Niesten et al., 2015). Offenders completed these measures in a quiet testing room at the site where they were institutionalized. After being screened with the LSRP and the SCID interviews over the phone, controls completed the other measures in a comparable testing room at Maastricht University. Measures were presented in counterbalanced order. Participants provided informed consent and were reimbursed with 25 euro for their participation. This study was approved by the ethical committee of the Faculty of Psychology and Neuroscience of Maastricht University.

## Power Analysis

A post hoc power analysis was conducted using G\*Power software to investigate the current study's power to detect group differences in Happé's ToM test scores, based on the parameters of the present sample ( $N = 108$ ; number of levels in the within and between subject factors [2 and 3, respectively], correlation between the within subject factor levels [ $r = 0.30$ ],  $\alpha = 0.05$ , and  $1 - \beta = 0.80$ ). This analysis demonstrated the current study to have the power to detect a small to medium effect size ( $f = 0.18$ ; for which 0.10, 25, and 0.40 are small, medium, and large effects, respectively) (Faul et al., 2007).

## Statistical Analyses

First, a mixed factorial ANCOVA was conducted with group (nonoffenders, nonpsychopathic offenders, psychopathic offenders) as between-subject factor, Happé story type (Happé-Physical and Happé-Mental) as within-subject factor, and the variables that were associated with either Happé-Physical and/or Happé-Mental as CVs. Post hoc comparisons were planned to follow up on any significant effects. To investigate factor-specific influences on ToM, we repeated the analyses described above, yet dividing the three groups according to the median splits of PCL-R Factor 1 and 2 (which were 10.0 and 12.0, respectively). Using such a median split approach (rather than dimensionally associating PCL-R total and factor scores with Happé's ToM test performance) enabled the inclusion of the nonoffender controls in the analyses on PCL-R factors and ToM.

Last, we investigated the influence of the interaction between psychopathy and ToM on both self-presentation indices by conducting two linear regression analyses with either BIDR or SIMS score as dependent variables and RMET score, Happé-Mental, PCL-R Factor 1 and 2 score, and the two-way interactions between the PCL-R factors and the two ToM test scores as predictors (all these variables were centered around the mean). CVs in this model were selected on the basis of their bivariate correlation with either BIDR or SIMS scores, to limit the amount of predictor variables. As the nonoffenders were tested in a considerably different environment than the offenders (*i.e.*, a nonforensic context, which could have a marked influence on differences in self-presentation), we limited these analyses to our offender sample to facilitate interpretation of the results.

## RESULTS

### Psychopathy and Performance on Happé's Test of ToM

Pearson product-moment correlation coefficients showed age, IQ, state and trait anxiety, working memory capacity, reading speed, and impulsivity to be related to performance on Happé-Mental and/or Happé-Physical (at  $p < 0.10$ ). These variables were therefore taken into account as CVs in a 3 (group)  $\times$  2 (story type) mixed factorial ANCOVA. This analysis showed no main effect of group ( $F[2, 98] = 1.63, p = 0.20$ ; nonoffenders:  $M = 9.0, SE = 0.3$ ; nonpsychopathic offenders:  $M = 9.0, SE = 0.3$ ; psychopaths:  $M = 8.3, SE = 0.3$ ), no main effect of story type (Pillai's trace = 0.01,  $F[1, 98] = 1.08, p = 0.30$ ;

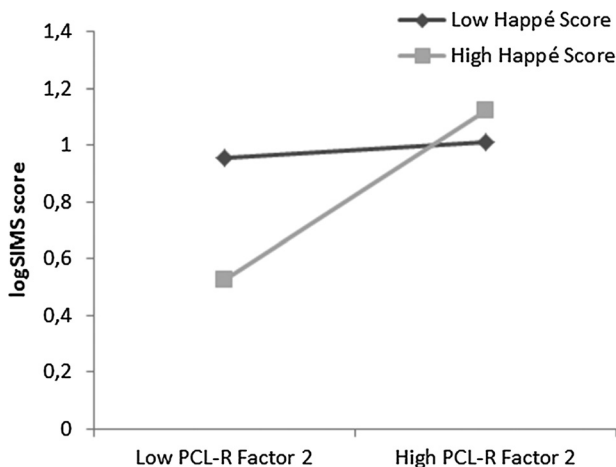
Happé-Mental:  $M = 8.9, SD = 0.2$ ; Happé-Physical:  $M = 8.7, SD = 0.3$ ), and no significant interaction between group and story type either (Pillai's trace = 0.01,  $F[2, 98] = 0.55, p = 0.58$ ).

Next, two similar ANCOVAs were conducted in which group was defined using Factor 1 and 2, respectively. Taking the same CVs into account as in the previous analyses, the effect of group<sup>Factor1</sup> (nonoffenders, offenders low on Factor 1, offenders high on Factor 1) was not significant ( $F[2, 98] = 1.38, p = 0.26$ ; nonoffenders:  $M = 9.0, SE = 0.4$ ; offenders low on Factor 1:  $M = 8.9; SE = 0.3$ ; offenders high on Factor 1:  $M = 8.4, SE = 0.3$ ), neither was the interaction between group<sup>Factor1</sup>  $\times$  story type ( $F[2, 98] = 0.03, p = 0.97$ ). Analyses pertaining to Factor 2 also showed the effect of group<sup>Factor2</sup> to be nonsignificant ( $F[2, 98] = 0.72, p = 0.49$ ; nonoffenders:  $M = 9.0, SE = 0.4$ ; offenders low on Factor 2:  $M = 8.8; SE = 0.3$ ; offenders high on Factor 2:  $M = 8.5, SE = 0.3$ ), as was the interaction between group<sup>Factor2</sup> and story type (Pillai's trace = 0.00,  $F[2, 98] = 0.02, p = 0.98$ ). [The interaction between group (based on either PCL-R Total, Factor 1, or Factor 2 scores) and story type was also nonsignificant when running these analyses without the CVs. When conducting regression analyses with either the dimensional PCL-R total or the dimensional factor scores (within just the offender group) as predictors of performance on Happé's ToM test, the effects of the interactions between psychopathy and Happé story type remained nonsignificant as well (all  $p$ 's  $> 0.20$ ).]

### Associations Between Psychopathy, ToM, and Self-presentation

As aforementioned, the analyses on psychopathy, ToM, and self-presentation were limited to the offender sample. First, correlation coefficients were computed between BIDR score and the potential CVs (Happé-Physical was also taken into account as a potential CV in these analyses). Results showed state anxiety, trait anxiety, and reading speed to be associated with BIDR score (at  $p < 0.10$ ), which were therefore taken into account in the subsequent analyses. These included BIDR score being regressed on PCL-R Factor 1, PCL-R Factor 2, RMET score, Happé-Mental, PCL-R Factor 1  $\times$  RMET score, PCL-R Factor 2  $\times$  RMET score, PCL-R Factor 1  $\times$  Happé-Mental, PCL-R Factor 2  $\times$  Happé-Mental, and the CVs state anxiety, trait anxiety, and reading speed. Next, nonsignificant interaction and main effects were deleted from the model in a backward stepwise fashion (using a  $p < 0.10$  criterion; two-way interactions were removed before deleting any main effects). This procedure resulted in a model in which BIDR score was predicted by trait anxiety ( $\beta = -.47, p < 0.001$ ), reading speed ( $\beta = 0.25, p = 0.01$ ), Factor 2 ( $\beta = -.18, p = 0.07$ ), Happé-Mental ( $\beta = -.20, p = 0.04$ ), and the two-way interaction between Happé-Mental and Factor 2 ( $\beta = -.21, p = 0.03$ , overall model parameters:  $R^2 = 0.38, F[5, 75] = 9.11, p < 0.001$ ). In Figure 1, the means of BIDR scores are plotted as a function of low (mean-1 SD) versus high Factor 2 (mean + 1 SD), by low (mean-1 SD) versus high (mean + 1 SD) Happé-Mental score. This figure illustrates that BIDR scores significantly decrease as PCL-R Factor 2 goes up for offenders scoring high on Happé-Mental ( $\beta = -.40, t[75] = -2.89, p < 0.01$ ), but not for those offenders scoring low on Happé-Mental ( $\beta = 0.01, t[75] = 0.04, p = 0.96$ ). The unstandardized regression coefficients on these levels of Happé-Mental differed significantly from one another ( $Z = 2.28, p = 0.01$ ).

The same analysis was repeated using SIMS score as the criterion variable. (SIMS scores were log-transformed to reduce skewness.) Bivariate correlation analyses showed SIMS score to be associated with IQ, state anxiety, and trait anxiety (at  $p < 0.10$ ). These CVs were therefore entered in a regression model along with the aforementioned main and interaction effects of Factor 1, Factor 2, Happé-Mental, and RMET score. After backward stepwise deletion of main and interaction effects (using a  $p > 0.10$  criterion), SIMS scores showed to be predicted by STAI-trait ( $\beta = 0.40, p < 0.001$ ), RMET score ( $\beta = -.31, p < 0.01$ ), Factor 2 ( $\beta = 0.24, p = 0.02$ ), Happé-Mental, ( $\beta = -.12, p = 0.25$ ), and



**FIGURE 3.** Mean (log-transformed) scores on the SIMS as a function of low (mean – 1 SD) and high (mean + 1 SD) PCL-R Factor 2 score by low (mean – 1 SD) and high (mean + 1 SD) score on Hap e’s test of ToM.

Factor 2 × Hap e-Mental ( $\beta = 0.20, p = 0.04$ , see Fig. 3; overall model parameters:  $R^2 = 0.42, F[5,67] = 9.73, p < 0.001$ ). Figure 3 depicts the means of SIMS scores plotted as a function of low (mean – 1 SD) versus high Factor 2 (mean + 1 SD), by low (mean – 1 SD) versus high (mean + 1 SD) Hap e-Mental score. Figure 3 shows that SIMS scores increase as a function of Factor 2 for offenders scoring high on Hap e-Mental ( $\beta = 0.46, t[68] = 4.54, p < 0.001$ ), but not for those scoring low on Hap e-Mental ( $\beta = 0.02, t[68] = 0.14, p = 0.89$ ). The difference between the unstandardized regression coefficients on these levels of Hap e-Mental was significant ( $Z = -3.05, p = 0.001$ ).

**DISCUSSION**

The current study examined the relationship between psychopathy and social-cognitive ToM capacities as assessed with Hap e’s advanced test of ToM (Hap e, 1994). Another aim was to shed light on whether ToM influences the associations between psychopathy, social desirability, and unlikely symptom reporting, as found in, for example, Ray et al. (2013) and Niesten et al. (2015).

**Psychopathy Factors and Social-cognitive ToM**

Results showed psychopathic offenders, nonpsychopathic offenders, and nonoffenders not to differ from each other in performance on Hap e’s ToM task. This finding is consistent with previous research in which psychopathic offenders did not perform worse than their nonpsychopathic counterparts on ToM tests, including those using a narrative approach like the one in the present study (Blair et al., 1996) and those in which mental states had to be inferred from eyes (Dolan and Fullam, 2004; Nentjes et al., 2015; Richell et al., 2003).

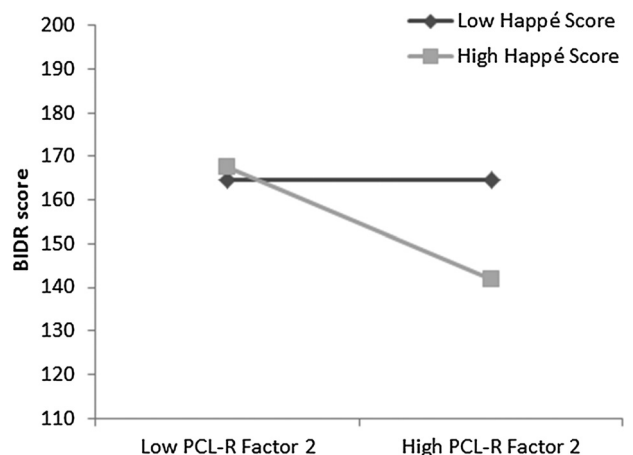
When looking more specifically at the dimensions underlying psychopathy, we found Factor 1 to be unrelated to social-cognitive ToM. This finding is consistent with our prior expectations and is not surprising considering Factor 1 to cover lying and manipulative behavior (Hare, 2003), for which an understanding of someone else’s mind is thought to be a prerequisite (Talwar et al., 2007; Talwar and Lee, 2008). Contrary to our hypotheses though, Factor 2 was also not associated with ToM deficiencies, even though this psychopathy dimension is characterized by traits that are associated with worse ToM skills, such as a tendency to respond angrily (Mohr et al., 2007). Possibly, a less developed ToM can lead to aggression in some individuals, but the “short fuse” of offenders high in Factor 2 (Hare, 2003) might be better explained by other etiological mechanisms.

**Psychopathy, ToM, and Self-presentational Style**

A second aim of the present research was to further investigate the relationship between Factor 2 and the way in which one manages self-presentation, including socially desirable responding, as well as the overreporting of atypical psychiatric symptoms. First, we expected offenders low in social-cognitive ToM to show little engagement in social desirable responding, assuming ToM to be a necessity in such self-presentation. Following this reasoning, offenders high in ToM were hypothesized to present themselves in a relatively socially desirable manner, yet only when this way of presenting would not be overridden by high levels of Factor 2. As expected, Factor 2 and ToM interacted in predicting offenders’ level of socially desirable responding. Surprisingly though, the found moderation effect was explained by offenders high in ToM reporting less socially desirable traits than those low in ToM, yet only when also being relatively high in Factor 2 (see Fig. 4). The current study thus does not support the assumption that ToM is a prerequisite for displaying social desirability. Possibly, ToM is associated with other interpersonal capabilities that are related, yet not identical, to social desirability, such as cooperativeness (Paal and Bereczkei, 2007).

A provisional explanation for the interaction between Factor 2 and social desirability comes from an interactionist perspective. According to this viewpoint, individuals are thought to adopt a social role that is consistent with how they believe others perceive them. Consequently, when an offender feels that others see him as deviant, this view might be endorsed and internalized over time (Goffman, 1963). Indeed, stigmatization and being incarcerated in forensic settings have been found to reinforce offenders’ criminal identity (Asencio and Burke, 2011), a process referred to as “deviancy amplification” (Einstadter and Henry, 2006). An offender might logically be ascribed a more criminal role when displaying a high level of antisocial traits. Because of their skillfulness in inferring mental states, it could be expected that antisocial offenders high in ToM more readily adhere to such an identity. Hence, the higher Factor 2 is in individuals high in ToM, the lower their report of social desirability might be, reflecting the pattern observed in Figure 4. In contrast, when an offender is relatively low in ToM, one would not expect him to be as sensitive to the internalization of others’ views, simply because of the relative inaptness in understanding others’ thoughts. Although tentative and in need of further research, this account might help explain the lack of correlation between BIDR scores and Factor 2 in offenders low in ToM.

Another expectation in the current study was that offenders relatively high in Factor 2 would engage more in unlikely symptom



**FIGURE 4.** Mean scores on the BIDR as a function of low (mean – 1 SD) and high (mean + 1 SD) PCL-R Factor 2 score by low (mean – 1 SD) and high (mean + 1 SD) scores on Hap e’s test of ToM.

reporting, yet only when also having relatively good ToM skills, as the latter are thought to be crucial in successful deceit (Baron-Cohen, 2000; Talwar et al., 2007). Contrary to part of this expectation though, a well-developed ToM did not seem to contribute to more unlikely symptom reporting: social-perceptual ToM was negatively predictive of this self-presentation tendency (regardless of Factor 2 level). This finding might be explained by developmental studies showing that lying only requires some basic ToM skills, whereas for complex deceit, a more developed ToM is required (Talwar et al., 2007; Talwar and Lee, 2008). Hence, the fact that some individuals deliberately overreport symptoms could be indicative of them having these basic ToM skills, yet might not necessarily mean that they do very well on more sophisticated ToM tasks like the RMET.

A result that did show to be consistent with our expectations was that Factor 2 predicted unlikely symptom reporting, yet only in offenders relatively high in social-cognitive ToM. Our results indicate that offenders who have a relatively good grasp of what others think, accompanied by a high level of behavioral dysfunction (e.g., impulsivity, emotional instability, aggression; Hare, 2003; Verona et al., 2001), did not seem to take an effort to present themselves in a positive way. That is, these offenders claimed less socially desirable traits, and in fact, reported more atypical and bizarre psychiatric symptoms. As the majority of our forensic participants were institutionalized in a clinical context, these results might indicate that some antisocial offenders might stress their psychopathological burden to, for example, communicate their need for treatment or to get acknowledgement for their psychological suffering. In line with our findings, one might expect such behavior to be more pronounced in individuals that realize that clinicians' attitudes can be influenced by such an exaggeration of symptoms (*i.e.*, in offenders high in ToM; Baron-Cohen, 2000).

If the interpretation above indeed holds true, this might raise some serious questions regarding the assessment and conceptualization of the overreporting of psychiatric symptoms. First, one might wonder whether the endorsement of atypical symptoms always occurs on a conscious level, which is a commonplace assumption in forensic contexts. If indeed, elevated scores on the SIMS can be reflective of an unconscious expression of psychological discontentment, the overreporting witnessed in the current study might have bore more of a resemblance to somatization than being reflective of a deliberate attempt to mislead. This possibility is supported by a growing number of studies indicating Factor 2 to be strongly related to levels of somatization (e.g., Lilienfeld and Hess, 2001). The possibility that overreporting symptoms might not be driven by deliberate deceptive intentions might also be another explanation why, in the current study, SIMS scores were not related to ToM capacities, with the latter being considered a prerequisite for deception (Talwar et al., 2007).

Second, it is debatable whether the clinical attention that a forensic patient might (un)consciously strive for when reporting atypical symptoms should be labeled an external incentive. That is, the endorsement of unlikely symptomatology might also occur in the absence of clear external motives. In any case, the present results suggest that forensic patients' scores on the SIMS might not always be exclusively reflective of malingering, as the overreporting of unlikely symptoms is only defined as such when being deliberate, as well as motivated by secondary gain (American Psychiatric Association, 2000). Scores on such instruments should thus always be interpreted in the light of supplementary contextual and diagnostic information.

## Conclusions and Future Directions

The current study showed both factors of the PCL-R to be unrelated to social-cognitive ToM. This investigation also revealed that offenders' ToM skills seem to interact with Factor 2 in predicting self-presentational styles. To our best knowledge, the current study is the

first to investigate the relationship between self-presentation and ToM in relation to psychopathy. However, some issues remain that future research should follow-up on. For example, studies should examine social-interactive and contextual influences on self-presentation in offenders with and without psychopathy. Furthermore, empirical investigations should focus on whether psychopathy and ToM capacities have predictive value for offenders' actual symptom reporting and socially desirable behavior. Such an approach would overcome one of the current study's major limitations, being its reliance on self-report questionnaires to examine self-presentational styles, as well as on the assumption that the scores on such measures generalize to the way in which offenders behave in their everyday life.

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## DISCLOSURE

*The authors declare no conflict of interest.*

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