



Moral cognition, emotion, and behavior in male youth with varying levels of psychopathic traits



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1. Introduction

Morality is an important concept of human social behavior (Cimbora & McIntosh, 2005). A better understanding of the moral development and externalizing behavior in juveniles might help to identify children at risk for a deviant social development early in life. Morality can be seen as a multidimensional construct involving a cognitive (e.g., judgment of right and wrong), emotional (e.g., affective empathy, shame and guilt) and behavioral (e.g., delinquency or prosocial behavior) dimension. According to the theory of Gibbs (2003), which is based on the theory of Kohlberg (1984) and Hoffman (2001), moral development is mainly a cognitive process, which can be divided in four stages. The first two stages are described as immature, in which moral judgment is superficial and egocentric, and mainly driven by reward and punishment. Typically reasoning patterns during these stages are, for instance, 'If you cannot get caught, you will not get punished, so why not do it' (stage 1) and 'If you do something for me, I'll do something for you' (stage 2). The subsequent third and fourth stages are generally seen as more mature: superficial considerations are replaced by considerations shaped by the basics of interpersonal relationships (stage 3: 'It could harm another person') or general standards and values of culture and society (stage 4: 'If everybody would think like that, the world would become a very bad place to live'). Consequently, higher stages of moral reasoning are a defense against the development

of antisocial aggressive actions because the well-being of relationships and society are emphasized (Gibbs, 2003; Kohlberg, 1984; Van Vught et al., 2011). The cross-cultural validity of Gibbs' theory has been confirmed in a review based on studies using a measurement instrument, the Sociomoral Reflection Measure (SRM), designed to assess these four stages of moral judgment (Gibbs, Basinger, Grime, & Snarey, 2007).

Several studies demonstrated that delinquents generally show reasoning patterns of a lower moral developmental stage than age-matched groups of non-delinquents (Blasi, 1980; Nelson, Smith, & Dodd, 1990; Smetana, 1990). More recently, the meta-analysis of Stams and colleagues (Stams et al., 2006) revealed that lower stage moral reasoning was strongly associated with delinquency, with an overall effect size of $d = 0.76$, even after controlling for several relevant demographic and personal characteristics (e.g., socioeconomic status, culture, gender, age, and intelligence). The authors reported psychopathy to be a unique moderator (Stams et al., 2006). Studies including delinquents with psychopathic traits yielded a larger effect size ($d = 1.16$) than studies not including delinquents with psychopathic traits ($d = 0.72$). These results indicate that there was a stronger relationship between psychopathic traits and moral reasoning indicating that moral reasoning of juvenile delinquents with psychopathic traits was substantially lower as compared to juvenile delinquents without psychopathic traits and a non-delinquent comparison group. However, this conclusion was based on older studies (Campagna & Harter, 1975; Fodor, 1973). More recent studies examining moral reasoning and psychopathic traits in juvenile delinquents have not been performed.

Psychopathy constitutes a pervasive pattern of disregard for the rights of others. It is defined as a lack of empathy, guilt and remorse, being superficial, impulsive, manipulative and egocentric (Cleckley, 1976). Psychopaths often have a parasitic lifestyle and their behavior is antisocial, callous and morally inappropriate (e.g., murder, fraud, arson and rape; Cuthbert, Lang, & Patrick, 1994; Hare, 2006). Several researchers share the view that the well-known emotional deficits of the psychopath are causally related to their moral knowledge, leading to morally inappropriate behavior (Blair & Cipolotti, 2000; Kiehl, 2006). According to this view, emotional deficits correspond with deficits in moral knowledge, which combined with psychopaths' limitation in

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inhibitory control may lead to morally inappropriate behavior (Blair, 1995; Nichols, 2002; Prinz, 2008).

Cima, Tonnaer, and Hauser (2010) examined an alternative hypothesis for morally inappropriate behavior in adult psychopaths. Instead of presuming that emotions precede and guide moral judgment, they considered that emotional experiences may not be necessary for making adequate moral judgments. Based on findings that adult psychopaths compared to non-clinical individuals as well as non-psychopathic offenders make the same kind of moral decisions when they were asked to judge whether an action embedded in a moral dilemma was permissible or not, Cima et al. (2010) concluded that psychopaths show normal patterns of moral judgments, but simply seem not to care about their judgments, which may explain their immoral behavior (Cima et al., 2010). It is likely that normal emotional processing is most important for generating insight in the distinction between morally permissible and morally forbidden judgments and in guiding appropriate actions (Huebner, Dwyer, & Hauser, 2009). Indeed, Raine and Yang (2006) argued that moral emotions are the driving force behind moral actions.

Research in adults has indicated that some individuals seem to lack the human tendency to feel what others feel, i.e. sympathy, and to care about others, also called affective morality. The emotions that mostly relate to this type of morality include feelings of guilt, shame and affective empathy (Tangney, Stuewig, & Mashek, 2007; Van Langen, Wissink, Van Vugt, Van der Stouwe, & Stams, 2014), feeling other people's pain, but not cognitive empathy, namely understanding other people's pain (Jolliffe & Farrington, 2004; Preston & De Waal, 2002). Although there is a highly positive relationship between cognitive and affective empathy (Jolliffe & Farrington, 2006), psychopathic individuals seem to understand what other people feel (Blair et al., 1996; Dolan & Fullam, 2004), but lack the ability to feel the emotion themselves (Cima et al., 2010; Hare, 2006; Montagne et al., 2005). In a recent study with young children using the Affective Morality Index (AMI; Feilhauer, Cima, Benjamins, & Muris, 2013) to distinguish between cognitive and affective morality, results showed that children high on Callous Unemotional traits (CU traits; Frick, Cornell, Barry, Bodin, & Dane, 2003) and externalizing behavior knew how other persons should feel after committing an antisocial act (i.e., guilty), but failed to feel this guilt themselves. Moreover, they reported that they felt happiness and excitement after committing an antisocial act (Feilhauer et al., 2013). This study supports the notion that children high on CU-traits have the knowledge of right and wrong (cognitive morality), but fail to experience the moral emotions typically associated with immoral behavior (feeling guilt). This finding is in line with Kochanska (2008) who assume that the development of guilt is an important indicator of moral development and thus a prerequisite of appropriate moral behavior. Indeed these researchers found that lack of guilt emerged as a significant precursor of later externalizing problem behavior. Accordingly, children with externalizing problem behaviors are often insensitive to punishment. The socialization process in which these children learn from the negative consequences of their behavior does not adequately mature, which might explain poor moral development in delinquent youth (Cima, 2016).

Only a few studies examined both moral cognition and moral emotion in delinquent youth. For instance, Larden, Melin, Holst, and Langstrom (2005) reported that delinquent adolescents aged 13 to 18 years exhibited less mature moral judgments and more cognitive distortions as compared to a non-clinical control sample. Interestingly, however, no association between delinquency and self-reported empathy was found. Moral judgment and empathy were positively correlated and both constructs were negatively correlated with cognitive distortions, suggesting that cognitive distortions in particular are an important target for interventions (Helmond, Overbeek, Brugman, & Gibbs, 2014), although a single focus on cognitive distortions may not be sufficient to reduce delinquent behavior given the multifaceted etiology of delinquent behavior (Van Stam et al., 2014).

1.1. Current study

Most studies regarding morality in youth focus on moral reasoning and judgments. No study to date examined the relationship between moral cognitions (dividable into moral reasoning and moral judgments), moral emotions, and moral behavior in youths varying in their levels of psychopathic traits. With this in mind, the present study was conducted. Since adult psychopaths demonstrate the same kind of nuanced decision-making strategies as do both healthy controls as well as non-psychopathic offenders (Cima et al., 2010), juvenile delinquents varying in their levels of psychopathic traits represent a unique opportunity to explore the role of moral cognitions and moral emotions in guiding decisions of right and wrong. If juveniles also have intact moral knowledge it provides stronger evidence for an early developing, possibly innate system of unconscious, but operative system of moral knowledge, that is immune to the kind of neurobiological/cognitive deficits that psychopaths show. Therefore, the first purpose was to examine whether there are differences between delinquent youth and non-delinquent controls in moral cognitions, emotions, and behavior. In line with previous work (Larden et al., 2005; Stams et al., 2006; Van Langen et al., 2014), it was hypothesized that the delinquent sample would show a lower level of moral reasoning, fewer moral emotions, and more morally inappropriate (rule breaking) behavior. The second aim of the present study was to explore the relationships among various moral concepts (i.e., cognition, emotion, and behavior) in both groups. It was expected that moral cognition would be positively related to moral emotions and moral behavior. Thus a more mature moral judgment/reasoning level should be associated with higher levels of moral emotions and morally appropriate behavior. Furthermore, given the results of previous investigations (Cima et al., 2010; Raine & Yang, 2006), it was expected that especially moral emotions would be positively related to moral behavior. A third aim of the present study was to examine the relation between psychopathic traits and various concepts of morality. In line with earlier research (Cima et al., 2010; Stams et al., 2006), it was hypothesized that higher levels of psychopathic traits would be accompanied by a lower level of moral reasoning, fewer moral emotions, and more morally inappropriate behavior. A final aim was to examine whether moral emotions or moral cognitions predict moral behavior and whether an interaction of being a delinquent and having high psychopathic traits may significantly add to this prediction.

2. Method

2.1. Participants

The total sample ($N = 93$) consisted of 40 delinquent boys, who resided in the Judicial Youth Institution *Het Keerpunt* in Cadier en Keer, the Netherlands, and 53 non-clinical (i.e., comparison group) delinquent boys who were recruited at several high schools in the same geographical area. The educational level of the delinquent and comparison group was low and highly comparable, in particular lower vocational training. All participants had Dutch nationality. Mean age of the total sample was 16.81 years ($SD = 0.97$) ranging between 15 and 18 years. The mean age of the delinquent group was 17.33 years (Range = 15–19; $SD = 0.94$), while the non-clinical comparison group was slightly younger: 16.42 years of age (Range = 15–18; $SD = 0.78$). This difference was significant [$t(91) = 5.04; p < 0.001$] and therefore all further analysis were controlled for age.

Exclusion criteria for participation in the current study were an intelligence quotient (IQ) lower than 70, the presence of a psychotic disorder, and current alcohol or drug abuse.

2.2. Procedure

The study was approved by the Psychological Ethical Test Committee of Tilburg University. For the delinquent group, the researcher

asked whether they were willing to participate in the current study. The rationale of the study was explained to the subjects, whereby it was specified that they had the right to stop at any time and were told that all data would be stored anonymously. After the participant gave informed consent, they were invited for one test-session in which they completed the tests individually in the presence of the researcher. The non-clinical comparison group was approached at school during classes, in which they received information about the study and could indicate whether they agreed to participate. Again, after participants gave informed consent, they were invited for the test-session in groups of maximum 10 participants. When participants were under 16 years of age, the additional consent of their parents was requested. The test-session consisted of a combination of 2 questionnaires and 2 computer tasks. The 2 questionnaires measured moral behavior and psychopathic traits. The 2 computer tasks measured moral cognition (reasoning and judgment) and moral emotion. Questionnaires and computer tasks were administered in a counterbalanced fashion to prevent possible order effects. The time required to finish the tests was about one hour. After all data had been collected, participants were thanked for their participation in the study and received a 7.50 euro voucher.

2.3. Questionnaires

2.3.1. Moral cognitions

To measure moral cognition, two tasks were administered. The first task taps into moral reasoning and measures the moral stages as developed by Gibbs (2003), while the second task measures moral judgments of right and wrong.

2.3.2. Moral reasoning

Moral reasoning was measured by means of a computer task during which participants watched 10 short movies of moral dilemmas. These moral dilemmas are part of the evidence-based and valid intervention called Aggression Replacement Training (ART; Glick & Goldstein, 1987). The 10 moral dilemmas refer to various themes that are relevant for young people, like for instance, the story of John, who gets a mp3-player as a birthday gift from Peter. Later that week another friend of John, called Phil, tells John that his mp3-player was stolen. John notices that the missing mp3-player is the same mp3-player he got as a present from Peter. After watching the dilemma on a computer screen, the participants were asked what the main character (John) should have said or done. Furthermore, they had to motivate their answer in order to measure their level of moral reasoning. Using the scoring key developed by Gibbs (2003), moral developmental stages can be derived by rating their levels of moral reasoning, leading to scores of moral stage 1 to 4. For instance, moral reasoning on stage 1 would be: "Peter will be angry if he finds out that you ratted on him"; moral reasoning on stage 2 would be: "If you tell, you will not get gifts anymore in the future; you can trust a friend who steals, because you can trust that he will not do this to you"; moral reasoning at stage 3 would be: "John cannot trust Peter as being a good friend; stealing is wrong and against the law"; and finally moral reasoning at level 4 would be: "John must tell Phil, otherwise John is responsible for the fact that Peter will just get away with it".

Three independent raters scored the levels of moral reasoning using the format developed by Gibbs (2003) indicating the moral reasoning levels into stages of 1 to 4. One rater scored all dilemmas for all 93 participants, while a second rater scored the first 63 participants and the third rater scored the last 61 participants. The inter-rater reliability was calculated using the Kappa coefficient. The Kappa for the agreement between rater 1 and rater 2 was 0.92, $p < 0.001$, and that for the agreement between rater 1 and rater 3 was 0.67, $p < 0.001$. Subsequently, scores across raters were summed and divided by 2 in order to get the ultimate moral stage score that was used for the data analyses ranging from minimum of 1 to a maximum of 4.

2.3.3. Moral judgments

The moral judgment task comprised a PowerPoint-presentation on a computer screen involving 36 pictures. Twelve of these pictures had a moral content (e.g., a pregnant woman smoking, a man holding a bottle of beer in his hand while driving a car, or a burglar breaking into a house). Twelve other pictures had an emotional, non-moral content (e.g., two people standing at a funeral, or a premature baby), and 12 pictures had a neutral content (e.g., an old man looking out of the window, two boats on a lake). Moral judgments were assessed asking participants with paper and pencil whether the content of the picture reflected a moral transgression by giving a response of "yes" or "no". These responses were valued with an 1 and a 0 respectively. In case the participant responded affirmatively, he was asked: "How bad is this moral transgression on a 1 to 7 (Likert) scale with 1 for "not severe at all" and 7 for "very severe" in order to obtain a severity score. The emotional non-moral and neutral pictures were all selected from the International Affective Pictures System (IAPS). The moral pictures were derived from a previous study on morality (Harenski & Kiehl, 2011). A total score was calculated by averaging scores per category (moral, non-moral emotional, and neutral) ranging from 0 to 12 in case of the moral judgment of right and wrong (giving yes/no answers in response to 12 pictures); and from 12 to 84 regarding the question how severe the moral transgression was (score of 1 to 7 for 12 pictures).

2.3.4. Moral emotion

The above described task was also employed to measure moral emotions. After each of the 36 pictures, participants were also asked whether they were affected by looking at the picture on a scale from 1 to 7, with 1 for "totally not affected" and 7 for "very affected". Since we were interested whether participants were generally affected by watching the pictures, the question was how affected they were by seeing the picture. We did not ask for any specific emotion while looking at the pictures. A total score was calculated by averaging scores per category (moral, emotional, and neutral) ranging from 12 to 84.

The internal consistency coefficient for the moral cognition scale was adequate (Cronbach's Alpha = 0.72), and very good for the moral emotions scale (Cronbach's Alpha = 0.90).

2.3.5. Moral behavior

A questionnaire measured moral behavior by asking participants whether they had ever behaved in a morally inappropriate way. This questionnaire included 6 items: 1. whether they had ever been in contact with the police because of arrest; 2. whether they had ever been truant from school; 3. whether they used physical aggression towards others; 4. whether they used verbal aggression towards others; 5. whether they used alcohol; 6. Whether they used drugs; 7. whether they have ever been driving a car while intoxicated. Within the non-clinical control group, this information was measured using a self-report questionnaire using a yes/no format. Given the tendency for socially desirable answers tendencies in delinquent samples (Breuk, Clauser, Stams, Slot, & Dorelijers, 2007; Cima, 2003), this information was scored using the criminal records within the delinquent group, also using a yes/no format. A total score of 6 could be attained if all items were scored.

Youth Psychopathic Traits Inventory (YPI; Andershed, Kerr, Stattin, & Levander, 2002; Van Baardewijk et al., 2008).

To measure psychopathic traits the Dutch version of the Youth Psychopathic Traits Inventory (YPI) was used (Andershed et al., 2002). The YPI is a 50-item self-report instrument for measuring three dimensions of psychopathy in adolescents. Items (e.g., "I have the ability to con people by using my charm and smile" or "I can get almost anyone to believe anything") are scored on a 4-point Likert scale (1 = *does not apply at all*, 4 = *applies very well*). Previous studies have demonstrated that the YPI has good reliability and validity (Andershed et al., 2002; Campbell, Doucette, & French, 2009; Dolan & Rennie, 2006; Van Baardewijk et al., 2008). All participants of the delinquent group filled

out the YPI, but only 37¹ (due to technical problems) of the 53 of the non-clinical participants completed this measure. Cronbach's alpha within this total sample ($n = 77$) was good ($\alpha = 0.91$).

2.4. Statistical analyses

Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS; IBM Corp, 2011). A significance level of $\alpha = 0.05$ was used. First, data were checked for normality by looking at Skewness and Kurtosis. Only for moral cognition, Kurtosis exceeded levels of 2 (i.e., 4.95). Four participants scored more than 3 SDs above the general mean. Their scores were therefore retained to 3 SDs above the general mean (Balanda & MacGillivray, 1988; Brown, 2010), which resulted in an acceptable Kurtosis value of 1.76.

As to our first research question, regarding group differences between delinquent and non-clinical comparison youth, a series of oneway analyses of variance was performed with moral cognition, moral behavior, and psychopathy as dependent variables, in which we controlled for age (i.e., ANCOVA's). To examine whether moral cognitions and moral emotions on the picture computer task were different for the delinquent and non-clinical comparison groups, a 2 (delinquent and non-clinical comparison group) \times 3 (moral, non-moral emotional and neutral stimuli) ANCOVA with repeated measures was conducted.

In order to examine our second and third research aim, partial correlation (controlling for age) analyses were performed to explore the links among psychopathic traits, moral cognition, moral emotion, and moral behavior.

Finally, in order to examine the unique association between moral cognition, moral emotion and moral behavior a series of hierarchical regression analysis controlling for age were performed with morally inappropriate behavior as the dependent variable. In the first step, only age was entered into the model. In step 2, the main effects of age, group (coded as 0 = non-clinical control and 1 = delinquent youth), psychopathic traits, moral cognitions, and moral emotion were entered into the model as predictors. Next, in step 3, the interactions group \times moral cognitions, psychopathic traits \times moral cognitions, and group \times psychopathic traits were entered.

3. Results

Mean scores on the YPI as an index of psychopathy and various morality indices for delinquent youths and non-clinical controls are displayed in Table 1.

3.1. Differences in morality between delinquent youth and non-clinical controls

An ANCOVA yielded a significant group difference for moral cognition (*reasoning stages*), in which the delinquent youth scored significantly lower ($M = 1.65$; $SD = 0.48$) than the non-clinical controls ($M = 1.86$; $SD = 0.33$), [$F(1,90) = 6.91$; $p = 0.01$; $d = 0.51$]. There was no significant effect of age [$F(1,90) = 0.91$, $p = 0.34$] or psychopathy [$F(1,73) = 0.24$, $p = 0.63$].

In order to examine differences between the groups in moral cognition (*judgments*) mean evaluation of moral transgression per picture category (moral, emotional, and neutral), a 2 (group) \times 3 (stimuli) ANCOVA with the last factor being a repeated measure was performed. Besides age, psychopathy was included as a covariate in order to examine whether there was an effect of psychopathic traits. Results only revealed a significant main effect of stimuli [$F(2180) = 5.99$, $p = 0.001$], indicating that moral cognition (*judgment of transgression ratings*) were different for the three types of stimuli. Follow-up paired t -tests showed that the highest scores were given in response to the moral

Table 1

Mean scores, (standard deviations) and range on Psychopathic Traits, Moral Cognitions, Moral Emotion, and Moral Inappropriate Behavior.

	Healthy controls ($n = 53$)	Delinquents ($n = 40$)
Moral cognition (stages)	1.86 (0.33) 1.00–2.00	1.65 (0.48) 1.00–2.00
Moral cognition (judgments)	10.68 (1.53) 6.5–12.00	10.70 (1.24) 7.00–12.00
Moral emotion	3.03 (1.21) 0.33–5.67	3.21 (1.22) 1.17–5.92
Moral behavior	2.17 (1.21) 0–5	4.40 (1.11) 2–7
Psychopathic traits	87.68 (18.67) 58–131	88.75 (13.45) 63–118

pictures, followed by the emotional pictures, whereas neutral pictures received the lowest ratings (all t 's > 8.50 , all p 's < 0.000 , all d 's > 1.80). No further main or interaction effects were found, which means that delinquent and non-clinical youths did not show differences in moral judgment, and that there were no moderating influences of age and psychopathy.

Regarding the *severity* of moral transgression ratings, controlling for the amount of severity questions of the emotional pictures a 2 (group) \times 3 (stimuli) ANCOVA with repeated measures showed that there were no significant main effects of groups [$F(1,72) = 0.01$, $p = 0.94$], nor a significant interaction effect of groups \times stimuli [$F(2144) = 0.35$, $p = 0.62$], or age \times stimuli interaction [$F(2144) = 0.85$, $p = 0.39$]. However, the interaction of stimuli \times psychopathic traits did reach statistical significance [$F(2144) = 7.33$, $p = 0.00$]. To examine this interaction effect partial correlation analyses (controlling for age and amount of severity questions being answered regarding the emotional pictures) were carried out. Results showed that higher psychopathy scores were associated with lower moral severity scores, but that this was only true for the moral pictures ($r = -0.33$, $p < 0.001$) and not for the emotional pictures ($r = -0.04$, $p = 0.73$).

To examine the difference in moral *emotions* between the groups, a 2 (group) \times 3 (stimuli) ANCOVA with repeated measures was performed. Results showed that there was no main effect of stimuli [$F(2180) = 0.98$; $p = 0.37$], indicating that between the two groups, there were no differences in how they were affected by the different stimuli. There was no main effect of group [$F(1,90) = 0.43$; $p = 0.51$] nor a significant interaction of stimuli \times age [$F(2180) = 2.62$; $p = 0.09$] or stimuli \times group [$F(2180) = 1.68$, $p = 0.19$]. However, the stimuli \times psychopathy interaction reached a borderline-significant level [$F(2146) = 2.81$; $p = 0.07$]. Interestingly, partial correlational analysis showed that psychopathic traits were significantly and negatively related to emotion scores, but only for the moral stimuli (see Fig. 1).

A further ANCOVA revealed that the delinquent group showed significantly higher levels of morally inappropriate *behavior* ($M = 4.40$; $SD = 1.11$) as compared to the non-clinical control group ($M = 2.17$; $SD = 1.21$) [$F(1,90) = 53.57$, $p = 0.000$]. There was also a significant effect of age [$F(1,90) = 3.67$, $p = 0.05$]: older age youths displayed more morally inappropriate behavior ($r = 0.45$; $p = 0.000$).

Surprisingly, there were no significant group differences in *psychopathic traits* between delinquent ($M = 88.75$; $SD = 13.45$) and non-clinical controls ($M = 87.68$; $SD = 18.67$), [$F(1,74) = 0.11$, $p = 0.75$]. There was no significant effect of age [$F(1,75) = 1.79$, $p = 0.19$].

3.2. Relations among morality and psychopathy

Regarding our second and third research question partial correlational analysis (one-tailed significance) controlling for age, between moral cognitions, moral emotion, moral appropriate behavior and psychopathic traits showed a significant relationship between moral cognition (*reasoning stages*) and moral emotions ($r = 0.21$, $p = 0.04$),

¹ There were no significant group differences between those who did and those who did not fulfill the YPI (all p 's > 0.05).

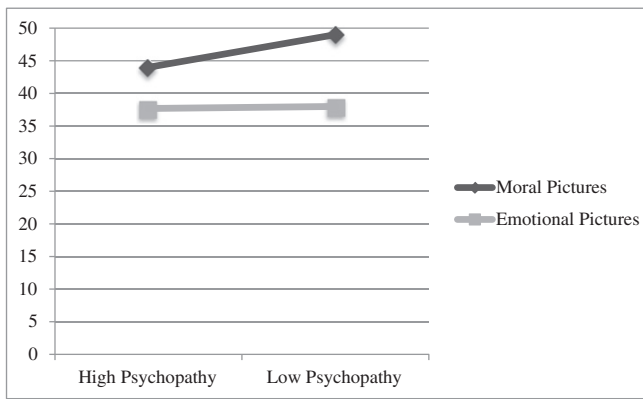


Fig. 1. Interaction between psychopathy and moral emotional stimuli. Emotionally affected (on a 1–7 likert scale) for moral and emotional non-moral stimuli in psychopathic and non-psychopathic youth using the median split of the YPI ($n = 77$; borderline significant effect: $p = 0.07$).

and between moral cognitions (*judgments*) and moral emotions ($r = 0.39, p = 0.00$). The relationship between the two measurements of moral cognitions (*reasoning and judgments*) reached borderline significance ($r = 0.16, p = 0.08$). There was a significant relation between psychopathic traits and moral cognitions (*judgments*) ($r = -0.23, p =$

Table 2

Linear regression analysis with morally inappropriate behavior as dependent variable and group (0 = non-clinical youth; 1 = delinquent youth), psychopathic traits, moral cognitions, and moral emotions as predictors (controlling for age). Secondly, interaction terms of group \times moral cognition (stages), psychopathy \times moral cognition (stages), and group \times psychopathy were added ($N = 77$).

Morally inappropriate behavior				
Step 1	Unstandardized coefficients		Standardized coefficients	
	B	SE	Beta	t
(Constant)	-8.79	2.82		-3.12
Age	0.72	0.17	0.45**	4.30
Step 1 Model $F(1,75) = 18.50, p < 0.001$ Adjusted $R^2 = 0.19$				
Step 2	B	SE	Beta	t
(Constant)	-3.00	2.54		-1.18
Age	0.18	0.14	0.11	1.25
Group	2.07	0.28	0.65**	7.37
Psychopathic traits	0.02	0.01	0.19*	2.38
Moral cognition (judgment)	-0.05	0.11	-0.04	-0.45
Moral emotion	0.02	0.01	0.18*	2.15
Moral cognition (stages)	0.20	0.30	0.05	0.67
Step 2 Model $F(6,70) = 16.43, p < 0.001$; Adjusted $R^2 = 0.55$				
Step 3	B	SE	Beta	t
(Constant)	-5.50	4.74		-1.16
Age	0.17	0.14	0.11	1.21
Group	-0.13	1.16	-0.04	-0.11
Psychopathic traits	0.07	0.04	0.71	1.60
Moral cognition (judgments)	-0.07	0.11	-0.06	-0.62
Moral emotion	0.01	0.01	0.11	1.25
Moral cognition (stages)	-0.59	0.50	-0.16	-1.18
Group \times Moral cognition (stages)	1.25	0.64	0.70*	1.95
Psychopathy \times Moral cognition (stages)	-0.02	0.02	-0.46	-1.08
Group \times psychopathy	-0.02	0.02	-0.13	-1.22
Step 3 Model $F(9,67) = 11.96, p < 0.001$; Adjusted $R^2 = 0.57$				

* = $p < 0.05$.

** = $p < 0.001$.

0.02), a significant relation between psychopathic traits and moral emotions ($r = -0.22, p = 0.02$), and a borderline significant relationship between psychopathic traits and moral inappropriate behavior ($r = 0.17, p = 0.07$).

3.3. Prediction of moral behavior

The linear regression analysis with moral behavior as dependent variable, and group, psychopathic traits, moral cognitions, and moral emotion as predictors, controlling for age, revealed that the interaction of group \times moral cognition (*reasoning stages*) was a significant predictor of morally inappropriate behavior ($R^2 = 0.56$; see Table 2).

4. Discussion

The present study was set up to gain insight into the relationship between moral cognitions, moral emotions, moral behavior, and psychopathic traits in delinquent and non-delinquent youth. Regarding the first hypothesis, in line with earlier studies (Gibbs et al., 2007; Stams et al., 2006), groups differed in their moral reasoning levels (stages), in which the delinquent group showed lower moral reasoning patterns as compared to non-clinical controls. At the same time the group difference in moral stages were not that large, which is not surprising as the reasoning levels of these youths were generally around moral stages 1 and 2. The moral stage 3 and 4 are usually reached in young adulthood (Gibbs et al., 2007; Stams et al., 2008).

Despite the lower moral stages within the delinquent group, they were equally able as the non-clinical control group to recognize moral transgressions (moral judgments of right and wrong). Interestingly, as to the severity estimation, youths who scored high on psychopathic traits specifically judged the moral stimuli as less severe. This replicates the finding reported by Cima et al. (2010), who noted that psychopathic adult offenders appeared to know the differences between right and wrong, but did not seem to care about it. In the present study, despite their knowledge of moral transgressions (knowing the differences between right and wrong), youth high on psychopathy traits rated these transgressions as less severe, reflecting a lack of care ("It's not that bad"). Additionally, this finding relates to studies showing that juvenile delinquents and juveniles with externalizing disorders use cognitive distortions to ease their conscience (Barriga, Gibbs, Potter, & Liao, 2001; Barriga, Morrison, Liao, & Gibbs, 2001; Cima, 2016). These cognitive distortions comprise internal beliefs such as blaming others for their actions (he provoked me), assuming the worst (if I did not hit him, he would have hit me), or minimizing their behavior (it is sometimes healthy to have a fight; Gibbs et al., 1995). Moreover, cognitive distortions seem an important mediator in the relationship between moral competence and moral behavior (Barriga, Gibbs, et al., 2001; Barriga, Morrison, et al., 2001).

As to the relationship between the morality concepts for both groups, results showed that moral emotions were significantly related to both moral-reasoning levels as well as to moral judgments of right and wrong. Surprisingly, the relationship between the two measurements of moral cognitions (reasoning and judgments) reached borderline significance ($r = 0.16, p = 0.08$), indicating that a person who knows right from wrong might at the same time use immature moral reasoning levels. This is in line with the notion stated by Nucci (2001): "Knowing the good is not always sufficient to motivate someone to do the good" (p. 196). Likewise, when a person does not behave according to his own moral understanding, this may consequently lead to the use of cognitive distortions (immature reasoning levels) in order to repair the cognitive dissonance (Cima, 2016; Gibbs, 2003; Bandura, 2002; Barriga, Gibbs, Potter, et al., 2001; see also below for more explanation regarding this cognitive dissonance).

Regarding the third hypothesis, the relationship between psychopathic traits and moral emotions was significant in particular for moral stimuli. This is in agreement with previous research on the link

between psychopathy and moral emotions (Blair, 1997; Holmqvist, 2008), and also with a more recent vignette study reporting that 8 to 12 year old children high on callous-unemotional traits did think that another person should feel guilty after an aggressive act, but at the same time stated that they themselves should not feel guilty but rather feel happy if they would have behaved in such way (Feilhauer et al., 2013), which of course underlines that the emotional component of morality is seriously affected in children with psychopathic characteristics.

Regarding the final hypothesis, the prediction of moral emotions and moral cognitions on moral behavior (Greene & Haidt, 2002), the current study demonstrated that moral behavior was predicted by the interaction between delinquency and moral cognition (*reasoning stages*). Neither moral judgments of right and wrong nor moral emotions predicted morally inappropriate behavior. The finding that morally inappropriate behavior was related to delinquency has also been reported in studies using adult samples (Cuthbert et al., 1994; Hare, 2006). Although most interactions between groups and psychopathy did not reach significance, psychopathy was associated with lower severity scores and lower emotional affect for moral stimuli, which seems to support the notion that morally adequate behavior in psychopathic individuals is not properly guided by correct emotions and estimation of seriousness. In this line of reasoning, moral judgments of right and wrong seem less important than emotions in guiding our moral actions (Haidt, 2001; Huebner et al., 2009). Indeed, a recent study of a German sample which used the Moral Sense Task (MST; Greene, Nystrom, Engell, Darley, & Cohen, 2004; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001) also demonstrated delinquent youth to have knowledge of right and wrong (Heynen, Cima, Korebrits, and Stams, submitted for publication).

The finding that moral reasoning levels of delinquents are lower than in non-clinical controls has also been reported previously (Gibbs et al., 2007; Stams et al., 2006). According to the theory of Gibbs (2003), moral reasoning directly influences behavioral choices, in which the likelihood to act in approval of an antisocial way is larger at the pre-conventional or immature levels of moral reasoning, in which advantages are weighted against costs, than at the conventional or mature level, in which the well-being of others should be taken into account. However, at the same time, delinquents do seem to know the difference between right and wrong. Apparently, delinquents know right from wrong (moral judgments), but reason at a lower moral stage than controls. This is in line with the statement of Gibbs (2003) that delinquents “are characterized by a bigger gap between what they say should be done and what they actually do” (p. 120; Brugman, 2010). Their lower levels of moral reasoning relate to cognitive distortions (Barriga, Morrison, et al., 2001). For instance, distorted reasoning, ‘Aggressive behavior is not that bad’, or ‘If someone forgets to lock his car, it’s not bad to steal it’ might occur after someone realizes that the behavior he/she has presented might actually be morally wrong. In order to solve the cognitive dissonance between the moral rules and norms with their own behavior, individuals may use these types of cognitive distortions to ease their conscience and make the dissonance disappear (Bandura, 2002; Barriga, Gibbs, et al., 2001; Barriga, Morrison, et al., 2001; Cima, 2016; Gibbs, 2003). This is also in agreement with the notion of Haidt (2001), who argues that in most real-life situations moral reasoning does not precede behavior, but is used by rationalization to convince oneself and others about the adequacy of one’s behavioral choice (Krebs & Denton, 2005). In a study by Brugman, Ferguson, and Neven (2006) it was demonstrated that with the increase of moral maturity, there is more consistency between the evaluation of antisocial behavior as being moral and the occurrence of that behavior. The current study did not ask participants to evaluate their own behavior. It would be interesting for future research to also include the evaluations of one’s own behavior, as it could give more insight in the relationship between moral reasoning and moral action (Bandura, 2002).

Since delinquent youth often grow up in insecure hostile environments, and sometime are victims of traumatic experiences (Abram et al., 2004), one might expect them to develop cognitive distortions to make sense of the world they grow up in. So to say: “the world is against me” or “I better beat him before I’ll got beaten” would be a cognitive distortion, but in the world they grow up in, this might actually be their reality and therefore surviving strategy. Using cognitive distortions might be a way of surviving in their world.

The present results therefore do not contradict the theories of Blair (1995), Nichols (2002), and Prinz (2008), all stating that moral knowledge plays a role in the origins of morally inappropriate behavior. However, the current results are more nuanced in the sense that delinquents do seem to have knowledge of what is right and wrong (moral judgments), but fail to have adequate moral reasoning patterns and related moral emotions, which normally would guide moral appropriate behavior. Indeed, Gibbs (1991) argued that antisocial cognitive distortions serve to protect “the self” against aversive feelings of guilt that in normal non-clinical persons often follow antisocial acts (Larden et al., 2005). Moreover, anticipation of guilt may prevent an individual to act antisocial (Baumeister, Stillwell, & Heatherton, 1994). Therefore, future research should look into these reasoning patterns, like cognitive distortions that ease the conscience, in relation with moral transgressions, moral emotions of guilt, and moral behavior in delinquents varying in their levels of psychopathic traits.

The results of this study have to be seen in the light of a number of limitations. First, delinquent youths were tested individually, whereas control youth were tested during a class at their school, which may have resulted in a peer-pressure-effect in terms of faking good or faking bad. Secondly, to examine psychopathic traits a self-report questionnaire was used. We know that especially within forensic samples, self-report might not be the most reliable assessment method (Breuk et al., 2007; Cima, 2003). However, to obtain psychopathic traits scores for both the delinquent and the control group, the YPI did seem the most reliable choice. However, results show that there were no significant group differences on the YPI, which might indicate that the YPI may not have good discriminate validity. Still, psychopathic traits may also be present in non-clinical normal populations (Mahmut, Homewood, & Stevenson, 2008), and especially within adolescence, since during puberty all youth may be a bit callous and egocentric. The present study therefore gives a realistic view of these personality traits across groups. Thirdly, moral stages were scored based on the theory of Gibbs (2003), but using the ART method (Glick & Goldstein, 1987). Since this is a fairly new method to score moral reasoning patterns within youths, there are no normative scores available and little is known about the reliability and validity of this scoring method. Nevertheless, three independent raters at least showed that this method had sufficient inter-rater reliability. Fourth, since the present study examined cross sectional data, results cannot be interpreted regarding developmental trajectories of morality. Future research using longitudinal data from very young children into young adulthood may give answers regarding the question as to why delinquents follow different (or lack of) developmental pathways of morality. Fifth, given the small samples sizes, results of the current study must be interpreted with caution. Finally, morally inappropriate behavior was scored using the file records within the delinquent sample, and this may have been an underestimation of the actual delinquent behaviors committed. Future research should also include self- and parent-reports of such behavior to get a more complete picture of moral behavior (Brugman, 2010).

5. Summary

The present results suggest that delinquent youths have lower moral reasoning patterns. Despite this lower level of moral reasoning, they do seem to know the difference between right and wrong. However, delinquent youths do fail in their judgments of the severity of moral transgressions and they also appear to experience less moral emotions,

which especially in delinquent youths with psychopathic tendencies may lead to morally inappropriate behavior. Treatment in judicial youth centers may not so much need to focus on teaching delinquents the differences between right and wrong, but instead make them aware of their cognitive distortions and inadequate (or lack of) moral emotions.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent was obtained from all individual participants included in the study.

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