The Relationship between Hostile Attribution Bias, Forms of aggression, and Moral Stadia in Healthy and Delinquent Adolescents

Hannah van Meel

Tilburg University

Hannah van Meel

ANR: 814898

Supervisor: Dr. Maaike Cima

Tilburg University

Submitted on the 17th of August 2014

Abstract

The aim of the recent study was to examine whether there is a relationship between forms of aggression, a hostile attribution bias and moral stadia in healthy versus delinquent youth, as well as what the predictors are for reactive aggression. Forty institutionalized male juveniles and fifty-three healthy male adolescents participated in this study. To measure moral stadia, a computer task was used, to measure the hostile attribution bias and the two forms of aggression several self-reports were used. Results showed there was a difference for all the variables between healthy versus delinquent male adolescents, which was expected. This means that the delinquent group scores significant lower on all variables than the healthy group. They also showed a correlation between proactive and reactive aggression, as expected. Both forms of aggression correlated significant with the hostile attribution bias. Specifically in the healthy group a correlation was found between high moral stadia and proactive aggression, which was surprising, and specifically in the delinquent group a correlation was found between a hostile attribution bias and lower moral stadia. The interaction group*proactive aggression was found to predict reactive aggression. This can be explained by a possible relation between callous-unemotional traits in the delinquent group, reactive and proactive aggression and their relationship with a hostile attribution bias. These outcomes contribute to the existing knowledge on this subject which helps understand, prevent and control aggression and delinquency in youth.

Introduction

Aggression is a type of behavior that is multi-interpretable; it is shown in different ways and has all sort of, mostly negative, outcomes. It can both be verbal or physical, and can relate to many problems; for someone who is aggressive as well as for someone who is a victim of aggression. Research demonstrates that an early onset of aggressive behavior in children can lead to negative developmental outcomes such as school failure, substance abuse, delinquent behavior and the development of psychological problems such as depression and suicide attempts (Tremblay et al., 2004). A large amount of criminal behavior is caused by aggression, such as destruction, violence, discrimination and maltreatment (CBS, 2013). Because aggression imposes major costs on society, much research is conducted on the forms, functions, antecedents, and outcomes of aggression. Research has shown that a distinction can be made between two different forms of aggression; reactive aggression and proactive aggression (Dodge, 1991). Whereas reactive aggression is defined as a hostile and angry reaction as a result of some kind of frustration which serves as a self-defense, proactive aggression is described as planned cold-blooded behavior with the purpose of intimidation or domination (Berkowitz, 1989).

Although there is much overlap between reactive and proactive aggression, proactive aggression is better explained by the Social Learning Theory. This theory suggests that people learn through observation, attitudes and outcomes of those behaviors. The idea is that people form ideas of how new behaviors are and can be performed from observing others. These ideas

and information can lead to new actions or new behavior on later moments. The social learning theory (Bandura, 1978) shows that proactive aggression is a product of social learning, in which instrumental behavior is driven by external rewards.

Reactive aggression can best be explained by the Social Information Processing Model (SIP-model; Dodge & Coie, 1987). This model predicts social behavior and social adjustment. This model consists of six steps; encoding information, interpreting information, selecting the target, generating responses, choosing reaction(s) and executing response(s). The model suggests that individuals have their own database which comprises both biologically determined capacities and memories of earlier experiences. This database has an influence on every step of the SIP-model. As is visible, the SIP-model is particularly an unconscious and automatic process which differs from the Social Learning Theory in explaining behavior as far more conscious and well thought-out.

Research has shown that the development of a hostile attribution bias plays a particularly major role in this SIP-model behavior (Dodge & Somberg, 1987). An attribution bias is a bias in the child's interpretation of the peer's intentions, which leads to a specific response. This happens in the second step; the interpretation of the information. A hostile attribution bias often leads to an aggressive response, because the child believes that the peer had a hostile intent. This attribution bias mainly occurs in rejected, aggressive children, because they are less skilled in interpreting the mostly pro-social intentions of others (Dodge & Somberg, 1987). Because these tendencies lead directly to aggressive and sometimes even delinquent behavior, the conclusion can be drawn that more young offenders than non-delinquent adolescents will have a hostile attribution bias (Buck, Cima, Lance, & Van Marle, 2012).

The question that presents itself here is whether these cognitive distortions influence other developments as well. Child- and adulthood are very important phases for the social, cognitive and biological development. Children start making decisions at a very young age and also start to learn about what kinds of behavior are acceptable and what kinds of behavior are not. This learning about good and bad has a great impact in the development of moral understanding and moral behavior, because the more they learn and understand about this moral understanding and behavior, the better they can develop and apply it themselves (Stilwell, Galvin, & Kopta, 2000). Because this kind of learning and development is such an important factor in life, a great amount of research is and has been done on this. With this research we have learned more about moral cognitions and their development, and we understand them

better. Because of this understanding, moral cognitions can be better understood, but also they can be measured in different periods in life. This makes it possible to notice a lack of moral understanding at a relative young age, and help to develop this understanding.

To compare the level of individual moral cognitions, four stages of moral cognitions are often used (Gibs et al., 2006). The first two stages are the immature stages and the last two stages are the mature stages. The first immature stage contains behavior based on the possible consequences of actions. The second immature stage contains behavior based on the expectations from family, friends, etc. In the third mature stage people start to think consciously and base their decisions on interpersonal relations. In the fourth, and last mature stage people start to think about the standard norms and values and start to choose their own norms and values. The main difference is that when someone is in an immature stage, this person reasons from a result perspective, wherein good behavior is rewarded and bad behavior is punished. Someone who reasons in a mature stage argues more from a perspective of interpersonal relationships and values rather than from results. Children at a young age start in the first stage and gradually develop into more mature moral stages. However, not every individual will reach the fourth stage (Gibs et al., 2006).

Because children often are at an earlier stage of moral cognition than adults, and thus have a more difficult time in expressing themselves, it is hard to see and measure their moral capacity and understanding. It might be that the child simply does not understand that a certain act is immoral. However, research has shown that the third stage is prominently present in early adolescence (Stams et al., 2006). This means that early adolescents have developed their moral reasoning and understanding and are better able to apply mature moral reasoning.

Research on moral cognition in young offenders showed that they are less morally mature as compared to their non-delinquent peers (Stams et al., 2006). This can be explained by the fact that people activate disengagement mechanisms to avoid self-condemnation when they behave in a way that conflicts with their moral standards. This process is also called moral justification. The more often this happens, the more this moral disengagement develops, which leads to more aggression and violence, less pro-social behavior and cognitions and more delinquency (Stams et al., 2006). Research shows that there is a correlation between moral justification and aggressive and delinquent behavior in young children (Bandura et al., 1996; Bandura, 2002). It could be possible that because an individual is aggressive, caused by a hostile attribution bias, this person keeps activating and using these moral justifications to calm their

conscience. But by constantly using these moral justifications, they only justify to continue being aggressive. This link between a hostile attribution bias and moral cognitions seems plausible, but has never been measured directly. Because of this, the relationship between a hostile attribution bias and specifically moral stadia will be examined in this study. Although earlier research (Pornari & Wood, 2010) reported a relation between moral cognitions and aggression, in these studies no distinction between proactive and reactive aggression has been made before, which will be done in the recent study.

In this study, the relationship between forms of aggression, a hostile attribution bias and moral stadia in healthy and delinquent adolescents, and whether one or more of these variables predicts reactive aggression, will be examined. As mentioned before, it is expected that a hostile attribution bias is associated with more reactive aggression (SIP-model), and that the delinquent adolescents are in a lower moral developmental stage than the healthy group because of their hostile attribution bias. Therefore, a correlation between a hostile attribution bias and moral stadia is expected, as well as a correlation between reactive aggression and a hostile attribution bias. Also, it is expected that a hostile attribution bias, and the interaction between a hostile attribution bias and moral stadia, will predict reactive aggression.

Methods

Participants

The total population (n=93) consisted of 40 juvenile delinquent males (M=17.33, SD =.94) and 53 healthy male adolescents (M=16.44, SD =.78). The group of 40 juvenile males was institutionalized in judicial youth institution *Het Keerpunt* in Cadier and Keer in the Netherlands. The control group was recruited at several high schools in the province of Limburg, the Netherlands. There is a significant age difference between the groups, $t(91)=-5.04$; $p < .001$; therefore all analyses are controlled for age.

Participants were excluded from this study when they had an intelligence quotient beneath 60 (IQ < 60), a psychotic disorder, or displayed current alcohol or drug abuse. The control group participants were excluded from this study when they had ever committed an offense or had a police record.

Procedure

The current study was approved by the Ethical Committee of Psychology, Maastricht University. Institutionalized delinquent males were asked by the researcher to participate in the experiment. The experiment was scheduled after informed consent was given. Non-institutionalized adolescents were asked to participate in the experiment during a class at their school. All participants have given informed consent. In cases where a participant was under the age of 16, parental consent was given as well. The experiment consisted of a combination of questionnaires and computer tasks. Three questionnaires were administered, measuring moral behavior and reactive and proactive aggression. One computer task was conducted, in which participants had to judge moral dilemmas. The questionnaires and computer tasks were counterbalanced in order to prevent an order effect. The total time required to finish the experiment was one hour. After all data had been collected, participants were thanked for their participation in the study and were told that all data and information would be saved anonymously. Subjects were allowed to stop their participation at any time without any consequences.

Material

Computertasks

The experiment consisted of a computer task, measuring moral cognitions. These moral cognitions were assessed using moral dilemmas, in which subjects had to watch ten short movies. The movies were divided in several themes, e.g., stealing, friendship, depression, and secrets. For example, John gets an mp3-player as a birthday gift from Peter. Later that week another boy, Maarten, tells John that his mp3-player was stolen. John notes that the missing mp3-player is the same mp3-player he got as a present from Peter. Participants then had to fill in a form asking what the main character should say or do. Furthermore, they had to answer some questions about the movies. The movies are part of the evidence-based and valid intervention called Aggression Replacement Therapy (Glick & Goldstein, 1987). The questions consisted of general open questions such as: 'What should the main character of the movie say or do?' and more specific open questions like: 'Should the main character of the movie keep his mouth shut, and why?' General statements were tested with questions such as: 'Is it a good thing to steal?' and 'In general, how important is it to tell the truth?' Reasoning patterns were scored by two independent researchers, in order to establish interrater reliability. Because this

is the first time this task is used, reliability and validity data are unavailable. In the currents sample internal consistency was adequate (Cronbach's Alpha = .85).

Hostile Attribution Bias

To measure the attribution bias of the participants, and especially the amount of hostility, the Hostile Attribution Bias questionnaire (Buck et al., 2012) was used. This questionnaire was originally based on prison situations (Serin, 1991; Vitale et al., 2005), but was adapted in a way that the situations are applicable for everyone. In this questionnaire, several social situations are outlined which are all based on you (the participant) and another person. For example: 'You are at a party with your partner and most of the night he/she talks with other men/women and doesn't pay any attention to you'. Every situation, participants had to answer questions such as: 'Why do you think he or she would behave like that?' After this question they had to indicate to what extent they thought the relevant behavior was hostile, and whether the behavior of the other person was intentional or not. The hostility was scored on a 4-point Likert scale (1= *very hostile* – 4= *very friendly*) and the intentionality was scored on a dichotomous scale (1=*intentional,* 2=*not intentional).* Previous studies using this questionnaire to measure the hostile attribution bias found a good validity and reliability. The internal consistency was .82 (Serin, 1991; Buck et al., 2012; Vitale et al., 2005). In the current study Cronbach's Alpha was .71.

RPQ

The Dutch Reactive Proactive Questionnaire (RPQ) was used to measure reactive and proactive aggression (Raine et al., 2006; Cima et al., 2013). In this questionnaire, 23 items are used to measure reactive aggression (11 items) and proactive aggression (12 items). Participants had to answer whether they agreed or disagreed with 23 statements like 'Had fights with others to show who was on top'. This was scored on a 3-point Likert scale (0=*never*, 1=*sometimes* and 2=*often*). The internal consistency was good, with a .89 score for the reactive subscale and a .90 score for the proactive subscale (Raine et al., 2006; Cima et al., 2013). Internal consistency in the current sample was good (Cronbach's Alpha = .90).

Data analysis

The main research question is: What is the relationship between forms of aggression, a hostile attribution bias and moral stadia in healthy versus delinquent youth?

First, One Way ANCOVA's controlling for age, to measure the difference between the healthy and delinquent groups in forms of aggression, a hostile attribution bias and moral stadia were performed. A partial correlation-analysis was conducted to measure the relation between these variables. To examine whether HAB, Moral Stadia or delinquency predicted reactive aggression, a regression analysis was conducted with the reactive aggression subscale of the RPQ as the dependent variable. In the first step, age and group were entered into the model. Secondly, HAB and Moral Stadia were entered. Finally, the interaction variables of Group*moral stadia, Group*HAB, Moral Stadia*HAB, and Group*proactive aggression were entered into the model in order to investigate whether these interactions added significantly to this prediction.

Results

The difference between the healthy (M=6.56, SD=3.53) and delinquent (M=11.53, SD=4.51) groups in reactive aggression [$F(1,89) = 23.07$; $p < .001$] as well as regarding difference between the healthy (M=2.73, SD=2.88) and delinquent (M=6.38, SD=4.32) groups regarding proactive aggression, [$F(1,89) = 13.55$; $p < .001$] was significant.

The difference between the healthy (M=22.17, SD=3.91) and delinquent (M=24.23, SD=4.21) groups regarding a hostile attribution bias was significant, $F(2,90) = 5.90$; $p = .02$, and the difference between the healthy (M=1.86, SD=.22) and delinquent (M=1.71, SD=0.22) groups regarding moral stadia, $F(2,90) = 13.29$; $p < .001$ was also significant.

Regarding the relationship between these variables, a partial correlation analysis controlling for age demonstrates significant correlations between a hostile attribution bias and both proactive and reactive aggression as well as between reactive and proactive aggression. This is shown in table 1. The relationships between moral stadia and hostile attribution bias, reactive aggression and proactive aggression were not significant. In order to examine whether the relationship between the variables differed for the two groups separately, a correlation analysis for both the control group and the delinquent group was used. In the control group, a significant correlation between moral stadia en proactive aggression was found: $r = .28$, $p = .04$. In the delinquent group, a significant correlation between moral stadia and a hostile attribution

bias was found: r = -.32, p = .04. All other correlations were non-significant; all r's < .75 and all p's > .05.

Table 1

Correlation analysis between Moral stadia, HAB, Reactive aggression and proactive aggression in healthy adolescents

	HAB	Reactive aggression	Proactive Aggression	Moral stadia
HAB	-	.21*	.23*	-.18
Reactive aggression	.21*	-	.64**	-.16
Proactive aggression	.23*	.64**	-	-.15
Moral stadia	-.18	-.16	-.15	-

*p < .05. **p < .01

As to the prediction of reactive aggression, a regression analysis showed that all three models were significant: model 1 F(2,89)=17.96; p<.001, model 2 F(5,86)=18.37; p<.001 and model 3 F(9,82)=11.86; p<.001. As can be seen from table 2, proactive aggression in combination with being a delinquent, was the strongest predictor for reactive aggression.

Table 2

Lineair Regression: Reactive Aggression on Age, Group, Moral Stadia, Hostile Attribution Bias and Proactive Aggression

Model	B	SE	B	ΔR^2
Model 1				.29**
Age	.44	.49	.09	
Group	4.56**	.95**	.49**	
Model 2				.52**
Age	.09	.42	.02	
Group	2.55**	.91**	.27**	
Moral Stadia	.16	1.67	.01	
HAB	.03	.09	.03	
Proactive aggression	.63**	.10**	.54**	
Model 3				.57**
Age	-.06	.41	-.01	
Group	-1.50	8.38	-.16	
Moral Stadia	1.13	9.90	.05	
HAB	1.22	1.10	1.09	
Proactive aggression	-.06	.35	-.05	
Group*Moral Stadia	5.60	4.22	1.02	
Group*HAB	-.34	.19	-1.05	

HAB*Moral Stadia Group*Proactive	-.37	.52	-.66
Aggression	.45**	.21**	.75**

*p < .05. **p < .01

Discussion

The recent study examined the relationship between forms of aggression, a hostile attribution bias and moral stadia in healthy and delinquent adolescents, and whether one or more of these variables predicts reactive aggression. Based on the literature, it was expected that a hostile attribution bias is associated with more reactive aggression, and that these adolescents are less morally matured because of their HAB. Therefore, a correlation between a hostile attribution bias and moral stadia was expected, as well as a correlation between reactive aggression and a hostile attribution bias. It was also expected that a hostile attribution bias, and the interaction between a hostile attribution bias and moral stadia, would predict reactive aggression.

The results showed that there is a significant difference between healthy and delinquent adolescents regarding all the variables. This is in line with previous research and the expectations; a difference was predicted for a hostile attribution bias (Buck et al., 2012) and in moral stadia (Stams et al., 2006). This difference between healthy and delinquent adolescents was also expected in reactive aggression and proactive aggression. These findings were expected because this would be in accordance with the literature (Greven, 1990; Tremblay et al., 2004). The earlier aggression starts and the more aggressive a person is, the higher the probability is that a person becomes violent and commits a crime. In other words, the more aggressive, the higher the probability of delinquency (Greven, 1990; Tremblay et al., 2004).

There were significant correlations between the two kinds of aggression; proactive and reactive aggression. This was expected because they were both measured with the RPQ and both measure a part of aggression (Raine et al., 2006; Cima et al., 2013). Second, a correlation between the hostile attribution bias and both reactive and proactive aggression was found. This first one was predicted by the SIP-model, where both reactive aggression and the hostile attribution bias are integrated (Dodge & Coie, 1987; Dodge & Somberg, 1987) and was predicted by earlier research (Bailey & Ostrov, 2008). The correlation between the hostile attribution bias and proactive aggression was less expected. It could be possible that, however

the RPQ measures both reactive and proactive aggression, the difference between these two is very small. That would mean that the hostile attribution bias is correlated with aggression, and not just one specific variant. Although a negative trend between moral stadia and the other variables was found, these correlations were not significant. However, when examining the groups separately, there is a significant correlation between a hostile attribution bias and moral stadia within the delinquent sample. Literature showed a relation between moral cognitions and aggressive delinquent behavior in youths (Bandura et al., 1996; Bandura, 2002). This aggressive behavior was expected to be related to having a hostile attribution bias, which then should be related to moral stadia. The results confirmed this hypothesis; there was a correlation between a hostile attribution bias and both proactive and reactive aggression in the total sample as well as a correlation between moral stadia and a hostile attribution bias in the delinquent group.

A correlation between moral stadia and aggression was expected as well, because of previous research (Bandura et al., 1996; Bandura, 2002). Yet, for both proactive and reactive aggression there were no significant correlations found with moral stadia in the entire group. However, within the healthy control group a significant positive correlation between moral stadia and proactive aggression was found. This contradicts previous research, which stated that aggression can lead to moral justifications who negatively influence moral cognitions at a young age. The results showed that the healthy adolescents scored higher on moral stadia and lower on proactive aggression than the delinquent adolescents. A possible explanation could be that these adolescents are in a higher moral stage and therefore are more aware of the consequences and moral propriety of their behavior (Baron, 1993; Gibs et al., 2006). Because of this awareness, they may only use aggression when it leads to specific goals or fulfills specific needs and are aware of these. This exact behavior is proactive aggression, because proactive aggression is aggressive behavior that is planned and prepared (Bandura, 1978; Berkowitz, 1989). This would mean that adolescents who are in a higher moral stadia would use more proactive aggression.

A regression analysis was used to examine what exactly predicts reactive aggression. To measure this, the variables group, age, hostile attribution bias, moral stadia, proactive aggression and the interactions Group*Moral Stadia, Group*HAB, HAB*Moral Stadia and Group*Proactive Aggression were used. Although it was expected that a hostile attribution bias, and the interaction between a hostile attribution bias and moral stadia, would predict reactive aggression, this was not the case. The data shows that the interaction Group*Proactive Aggression predicts reactive aggression. This means that being in the delinquent group as well

as having a high score on proactive aggression predicts a high score on reactive aggression. Research shows that the younger an adolescent is when institutionalized, the more periods of child- en adulthood he or she misses. This leads to a greater chance of more and heavier aggressive and delinquent behavior (Foster, 2014). It could be possible that institutionalizing at a young age leads to more reactive aggression.

Another possibility that could explain the difference between the groups could be personality or some specific personality traits. This would also explain why proactive aggression is such a big predictor for reactive aggression. As stated before, proactive aggression is seen as planned cold-blooded behavior with the purpose to intimidate or dominate. Because of this, the link is often made and seems to be more related to psychopathic and callous unemotional traits (Cima & Raine, 2009). In review, a possible explanation for the fact that group and proactive aggression predict reactive aggression could be that the delinquents in this sample have more psychopathic and/or callous-unemotional traits than the healthy participants. Because of the SIP-model and previous research, a hostile attribution bias was expected to be a predictor for reactive aggression (Dodge & Coie, 1987; Dodge & Somberg, 1987; Bailey & Ostrov, 2008). This relation between reactive and proactive aggression contradicts the SIP-model, because a hostile attribution bias is specifically linked to reactive aggression and not found as a predictor here. There is, however, other literature that confirms the alternative explanation. In this research a relation between a negative interpretation bias and callous-unemotional traits was found, specifically within the delinquent group (Cima et al., 2014). Although a negative interpretation bias is not exactly the same as a hostile attribution bias, they are similar to a large extent. This would mean that the hostile attribution bias is not merely related to reactive aggression, but also to callous-unemotional traits, which are linked to proactive aggression. More research should be done to know more about these specific relations between the hostile attribution bias, reactive and proactive aggression and callous-unemotional traits, and how these are related to the SIP-model. The reason why the interaction HAB*Moral Stadia was not a significant predictor can, as mentioned earlier, also be explained by the fact that these variables are not fully developed at this young age.

This research had some limitations. The first and most important one is the fact that most of this data is based on self-reports. The used self-reports require good self-knowledge and self-understanding, which is still an ongoing learning process at the young age of the participants. Although all these self-reports were measured as reliable and with good validities,

it would be better to measure these specific behaviors by observation. This could be in real life or in an experimental setting.

Another limitation is the fact that only male adolescents participated. In the institutionalized setting it is very difficult to find an equal amount of males and females, therefore only male adolescents were included. However, in order to create a complete picture about young delinquents and how they differ with healthy adolescents, both male and female participants are required.

As stated before, this research brought both expected as unexpected results to the surface. There is a significant difference in a hostile attribution bias, reactive and proactive aggression and moral stadia between delinquent and healthy adolescents, which means here that delinquents score significant lower om these variables than healthy adolescents. This information is important, while it gives us an idea about what creates these differences. Because of this, we can put this information to use to decrease these differences, what should influence the amount of delinquency in youth. A correlation between the two sorts of aggression as well as a correlation between a hostile attribution bias and both reactive and proactive aggression was found as well. And, to conclude, the interaction Group*Proactive Aggression showed to be the predictor for reactive aggression. This was surprising but gives us more information about aggression; how reactive and proactive aggression are linked and what may cause or intensify this. Because aggression causes serious problems in society, as mentioned earlier, it is important to learn and know more about this subject. The more we know and understand about aggression, the more we can do to control, reduce and prevent it. This also applies to delinquency at youth; the more we know about it the more we can do to control and prevent it. The current study sheds new light on the relation between reactive and proactive aggression, and the possible relation with callous-unemotional traits and/or psychopathy. To learn more about this possible relation, and what this would mean exactly for delinquency in youth, further research should be done.

References

Andershed, H., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: A new assessment tool. In E. Blaauw & L. Sheridan (Eds.), *Psychopaths: Current international perspectives* (pp. 131–158). The Hague: Elsevier.

Bailey, C., & Ostrov, J. (2008). Differentiating Forms and Functions of Aggression in Emerging Adults: Associations with Hostile Attribution Biases and Normative Beliefs. *Journal of Youth and Adolescence, 37*, 713-722.

Bandura, A. (1978). Social Learning Theory of Aggression. *Journal of Communication, 28(3),* 12-29.

Bandura A. (2002). Selective moral disengagement in the exercise of moral agency. *Journal of Moral Education 31(2),* 101–119.

Bandura A., Barbaranelli C., Vittorio Caprara G., Pastorelli C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology, 71(2),* 364-374.

Baron, J. (1993). *Morality and rational choice.* Dordrecht: Kluwer Academic Publishers.

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin, 106(1)*, 59-73.

Buck, N., Cima, M., Lancel, M., & Van Marle, H. (2012). On the Explanation of the Hostile Attribution Bias: Traumatic Experiences, Schemas, and Migrant Status. *Journal of Aggression, Maltreatment & Trauma, 21,* 223-236.

Cadoret, R. J. (1978). Psychopathology in adopted- away offspring of biological parents with antisocial behavior. *Archives of General Psychiatry, 35,* 176- 184.

Cadoret, R.K., Cain, C., & Crowe, R.R. (1983). Evidence for gene-environment interaction in the development of adolescent antisocial behavior. *Behavior Genetics, 13,* 301-310.

Centraal Bureau voor de Statistiek. (2013). *Geregistreerde criminaliteit; soort misdrijf, regio (indeling 2013).* Retrieved 4 july 2014, from http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=80344NED&D1=0&D2=a&D3=0&D4=a&HD=111206-0959&HDR=G2,T,G3&STB=G1

Cima, M., & Raine, A. (2009). Distinct characteristics of psychopathy relate to different subforms of aggression. *Personality and Individual Differences*, *47*(8), 835-840.

Cima, M., Tonnaer, F., & Hauser, M. (2010). Psychopaths know right from wrong, but just don't care. *SCAN, 5*, 59-67.

Cima, M., Raine, A., Meesters, C., & Popma, A. (2013). Validation of the Dutch Reactive Proactive Questionnaire (RPQ): Differential Correlates of Reactive and Proactive Aggression From Childhood to Adulthood. *Aggressive behavior, 39,* 99-113.

Cima, M., Vancleef, L., Lobbestael, J., Meesters, C., & Korebrits, A. (2014). Don't you Dare Look at me, or else: Negative and Aggressive Interpretation Bias, Callous Unemotional Traits and Type of Aggression. *Journal of Child & Adolescent Behavior, 2.*

Dodge, K.A., & Coie, J.D. (1987). Social-Information-Processing Factors in Reactive and Proactive Aggression in Children's Peer Groups. *Journal of Personality and Social Psychology, 53.* 1146-1158.

Dodge, K.A., & Somberg, D.R. (1987). Hostile Attribution Biases among Aggressive Boys Are Exacerbated under Conditions of Threats to the Self. *Child Development, 58,* 213-224.

Foster, D. (2014). Review of Arrested adolescent offenders: A Study of Delayed Transitions to Adulthood. *Journal of Youth and Adolescence, 43,* 1209-1213.

Gibbs, J. C., Basinger,K. S.,Grime, R. L., & Snarey, J. R. (2006). *Moral judgment development across cultures: Revisiting Kohlberg's universality claims.* Paper presented at the meeting of the Association for Moral Education, Fribourg Switzerland.

Greenberg, M.T., Speltz, M.L., & DeKlyen, M. (1993). The role of attachment in the early development of disruptive behavior problems. *Development and Psychology, 5*, 191-213.

Greven, P. (1990*). Spare the Child: The Religious Roots of Punishment and the Psychological Impact of Physical Abuse*. New York: Alfred A Knopf.

Hankel, A. (2010). Joran van der Sloot volgens artsen psychopaat [Data file]. Retrieved july 20, 2010 from http://www.elsevier.nl/Buitenland/nieuws/2010/7/Joran-van-der-Sloot-volgens-artsen-psychopaat-ELSEVIER271142W/.

McCord,W., & McCord, J. (1964). *The psychopath: An essay on the criminal mind.* Princeton, NJ: Van Nostrand.

Mednick, S. A., Gabrielli, W. F., & Hutchings, B. (1984). Genetic influences in criminal convictions: Evidence from an adoption cohort. *Science, 224,*891-894.

Patrick, C.J., Fowles, D.C., & Krueger, R.F. (2009). Triarchic conceptualization of psychopathy: Developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology, 21,* 913-938.

Pornari, C., & Wood, J. (2010). Peer and Cyber Aggression in Secondary School Students: The Role of Moral Disengagement, Hostile Attribution Bias, and Outcome Expectancies. *Aggressive behavior, 36*, 81-94.

Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., Stouthamer-Loeber, M., & Liu, J. (2006). The reactive-proactive aggression questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive behavior, 32,* 159-171.

Rutter, M., Tizard, B., & Whitmore, K. (1970). *Education, health, and behavior.* London: Longman.

Sameroff, A. J., Seifer, R., Zax, M., & Barocas, R. (1987). Early indicators of developmental risk: Rochester Longitudinal Study. *Schizophrenia Bulletin, 13,* 383-394.

Serin, R. C. (1991). Psychopathy and violence in criminals. *Journal of Interpersonal Violence, 6,* 423–431.

Stams, G.J.J.M., Brugman, D., Dekovic, M., Rosmalen, L van., Laan, P van der., & Gibbs, J.C. (2006). The Moral Judgment of Juvenile Delinquents: A Meta-Analysis. *Journal of Abnormal Child Psychology, 34,* 697-713.

Stilwell, B., Galvin, M., & Kopta, S. (2000). *Right Versus Wrong: Raising a Child with a Conscience.* Bloomington IN: Indiana University Press.

Tremblay, R. E., Nagin, D. S., Séguin, J. R., Zoccolillo, M., Zelazo, P. D., Boivin, M., Pérusse, D., & Japel, C. (2004). Physical aggression during early childhood: Trajectories and predictors. *Pediatrics, 114*, 43-50.

Van Goozen, S., Snoek, H., Fairchild, G., & Harold, G.T. (2007). The evidence for a neurobiological model of childhood antisocial behavior. *Psychological Bulletin, 133*, 149-182.

Vitale, J., Newman, J. P., Serin, R. C., & Bolt, D. M. (2005). Hostile attributions in incarcerated adult male offenders: An exploration of diverse pathways. *Aggressive Behavior, 31(2),* 99–115.