

University of Groningen

Adolescent aggressive behavior

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Document Version

Publisher's PDF, also known as Version of record

Publication date:

2010

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Sijtsema, J. J. (2010). *Adolescent aggressive behavior: Status and stimulation goals in relation to the peer context*. [Thesis fully internal (DIV), University of Groningen]. [S.n.].

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CHAPTER 1

Aggressive behavior: Status and stimulation goals

*“The direct use of force is such a poor solution to any problem,
it is generally employed only by small children and large nations”*

– David Friedman

1.1 Introduction

Especially since the Second World War aggression has been widely studied by psychologists, psychiatrists, sociologists, biologists, and other scientists. The reason for the abundance of studies and interventions in this field of research is not surprising. In the Netherlands alone, police records show that there were almost 112,000 aggressive offences in 2009 (Central Bureau of Statistics [CBS], 2009), with 5 % of the total Dutch population being the victim of physical abuse or threats (Integral Safety Monitor [IVM], 2009). Recent estimations of the Scientific Research and Documentation Center (WODC; Groot, De Hoop, Houkes, & Sikkel, 2007) have shown that aggression and related criminality costs society at least 20 billion euro (including costs for emotional suffering) on an annual basis, thus making it one of the major challenges for the Dutch and other Western societies. Therefore, insights in the underlying dispositions to aggression (and more broadly, antisocial behavior) are tremendously important in order to facilitate the development of adequate preventions and interventions.

The studies presented in this dissertation mainly focus on aggressive and rule-breaking behavior in (pre)adolescence. It uses goal-framing theory and Social Production Function theory (SPF theory; Lindenberg, 1996, Lindenberg 2008). SPF theory argues that subjective well-being can be divided into physical and social well-being, based on fundamental needs which, in turn, lead to goals related to need satisfaction. Physical well-being is achieved when fulfilling goals of comfort (e.g., the absence of noxious stimuli) and goals of stimulation, whereas social well-being is achieved via the realization of the goals of status, affection, and behavioral confirmation. The guiding idea taken from goal-framing theory is that people may individually differ in the intensity of these needs and that for some of these needs (status and stimulation), a comparatively high level of intensity is likely to create problems with self-regulation. Thus having a very high status need can create frequent attempts at domination and, as a consequence, aggressive behavior. Similarly, a very high need for stimulation can create high-levels of risk-seeking behavior, including behavior that goes against the established rules. In this dissertation we therefore mainly focused on status and stimulation goals as possible factors that contribute to aggressive and rule-breaking behavior of adolescents. However, personality characteristics operate in a social environment that may enhance, inhibit or buffer them. For sociology, such interaction effects are of great importance.

Three main parts can be distinguished. In the first part of this dissertation we examined the idea that a particularly high intensity in the goals related to status and/or to stimulation will create problem behavior with regard to aggression and rule-breaking, respectively. First, we asked whether aggressive children and adolescents have particularly intensive (direct or indirect) status goals. Second, we asked whether physiological underarousal would be associated with an

increased importance of stimulation goals and whether this would give rise to rule-breaking and even aggressive behavior. In the second part we focused on how dispositions to status and stimulation goals would interact with the peer context. Here, we focused specifically on peer contexts in which status goals were important. In the third part we looked more closely at the possibility that dispositions and context are not necessarily independent. In fact, dispositions may help shape the contexts within which adolescents find themselves. Then again, the context may shape dispositions or at least shape the kind of influence dispositions can have. We thus examined behavioral selection and influence processes (in friendship networks) on the basis of different forms and functions of aggression. In addition, we tested the frequently found proposition that highly aggressive adolescents seek out other highly aggressive peers against the possibility that extremely aggressive adolescents only have aggressive friends because non-aggressive peers do not want to be friends with them (selection by default).

In the following we will discuss why it is important to study aggression in adolescence and why it is important to view adolescent aggression in light of individual dispositions, peer context, and the interaction between the two. To this end, we elaborate on the importance of including status and stimulation goals in explaining aggression and antisocial behavior. But before we address the role of status and stimulation goals, we will first define aggression and its functions and forms.

1.2 Aggressive behavior

Next to the societal costs, the study of aggression in childhood and adolescence has received much attention because aggression is often associated with maladjustment. Aggressive youth are for instance at risk for externalizing problems, poor peer relations, and internalizing problems (see e.g., Card, Stucky, Sawalani, Little, 2008; Card & Little, 2006; Heilbron & Prinstein, 2008). In this dissertation aggressive and, more broadly, antisocial behaviors are defined as behaviors that harm others, things, relationships, or another person's social status. In defining aggressive behavior, it becomes apparent that there is quite some heterogeneity in its expression. These different types of aggression have been associated with different motivations and outcomes. Typically, aggression has been distinguished into two different forms and two different functions (Little, Jones, Henrich, & Hawley, 2003) and the usefulness of distinguishing between these different types has already been shown in preschoolers (Murray-Close & Ostrov, 2009). In the following we will further elaborate on these different types of aggression. Although we mostly examine aggressive behavior in this dissertation, in Chapter 3 we assessed the association between resting heart rate and rule-breaking behavior (i.e., offences of rules) in addition to aggressive behavior. Because associations between resting heart rate and rule-breaking and aggressive behavior respectively did not differ, we decided to use a combined measure of antisocial behavior, including both aggressive and rule-breaking behaviors, in Chapter 4.

Proactive and reactive functions of aggression

From a cognitive-behavioral perspective (Bandura, 1973), instrumental or proactive aggression reflects a learned use of aggression for obtaining self-serving outcomes at the expense of others (see Crick & Dodge, 1994). The concept of reactive aggression originates from the aggression-frustration models (Berkowitz, 1962; Dollard, Doob, Miller, Mowrer, & Sears, 1939). Here, aggression is seen as a defensive and angry reaction to perceived provocations. Both functions often co-occur, but proactive and reactive aggression are differentially related to social adjustment (see e.g., Card & Little, 2006). Proactive aggression is related to perceived self-efficacy, positive outcome expectations for aggression, and increased likelihood of overt externalizing problems, such as delinquency over time (Boldizar, Perry, & Perry, 1989; Vitaro, Brendgen, & Tremblay, 2002), whereas reactive aggression is characterized by hostile attribution bias, difficulties in emotion regulation, and internalizing problems like depression (for a review, see Crick & Dodge, 1994). Furthermore, although peer rejection is associated with both proactive and reactive aggression, proactive aggression is also related to positive adjustment, such as perceived sense of humor, leadership, and popularity in terms of a reputational status in the peer group (e.g., Dodge & Coie, 1987). In contrast, reactive aggression is primarily related to rejection and victimization by peers (Poulin & Boivin, 1999; Schwartz et al., 1998). In general, underlying motives for aggression have been suggested to be the result of status goals. In Chapter 2, we tested this explicitly, and in Chapter 6 we focus amongst others on the pro- and reactive functions of aggression.

Direct and indirect forms of aggression

Next to the functions of aggression, we can distinguish between direct and indirect forms of aggression. Direct forms are often referred to as physical (e.g., hitting, kicking, and pushing) as well as overt verbal forms of aggression (e.g., calling names or taunting). Indirect forms of aggression are less clearly defined, as researchers have referred to different names and have used the same labels for different constructs (Card et al., 2008). As such, indirect aggression covers social (e.g., group manipulations, ostracism) and relational (e.g., threats of terminating friendship, gossiping) forms of aggression. In general, indirect aggression can be defined as hurtful manipulations of relationships and damaging another person's social status. In this dissertation, Chapter 5 included both direct (i.e., physical) and indirect (i.e., relational) forms of aggression in girls, whereas Chapter 7 focuses explicitly on direct (i.e., physical) forms of aggression in boys.

1.3 The role of status goals in adolescence

Several studies have also discerned developmental differences in these different forms and functions of aggressive, and more broadly, antisocial behavior. Although caution is warranted, findings from a meta-analysis on the functions of aggression (Card & Little, 2006) suggest that proactive aggression becomes less maladaptive over time in terms of social

adjustment. Interestingly, the same holds for reactive functions of aggression, except for the association with emotional dysregulation and attention deficit/hyperactivity disorder (ED/ADHD); this association increases with age. With regard to the forms of aggression, evidence is rather mixed. Whereas Card et al. (2008) found no moderation by age in the links between direct and indirect aggression and adjustment, the review on indirect aggression by Heilbron and Prinstein (2008) seems to suggest that there are noticeable differences between childhood and adolescence in these links. Moreover, also Hawley (1999) suggested that as children develop more verbal skills, allowing for subtleties, overt forms of aggressive behavior become less adaptive, whereas more covert (indirect) forms become more adaptive in terms of social acceptance. Here, it must also be mentioned that the functions underlying the forms of aggression are differently related to social adjustment. Children who are able to combine both instrumental forms of aggression and prosocial behavior (i.e., bi-strategic) are found to be liked by peers and well adjusted (Hawley, 2003).

These developmental insights in aggression show that (pre)adolescence is an important period to study when it comes to aggressive and antisocial behavior. First, adolescence is the period where aggression becomes more subtle in form (although the underlying function may stay the same). However, this is not the case for every adolescent, because some may still exhibit more direct forms of aggression. In this dissertation we specifically focus on the repercussions of using of direct forms of aggression to achieve status and, in part, also stimulation goals. Second, adolescence is also the period in which youth may experience a ‘maturity gap’ (Moffitt, 1993; Agnew, 2003). That is, although adolescents may have reached biological maturity, authority figures (e.g., parents, teachers, society) deny them the privileges that are associated with societal maturity. To display their mature status, adolescents may exhibit risk behaviors, such as rule-breaking behavior and even aggression. Third, status and stimulation are two goals that are especially relevant in adolescence. As the peer context plays an increasing importance in adolescence (Agnew, 2003; Parker & Asher, 1993), a high status in the peer group may give access to more resources that increase well-being. Next to that, the need for sensation and stimulation seeking increases generally in adolescence (Steinberg et al., 2008), but dispositions to how important stimulation goals are for well-being may differ between adolescents.

Gender differences

The extent to which there is a need to fulfill status goals is likely to be different for boys and girls and this may shine through in different types and severity of aggression. Although aggression is visible in both boys and girls, several studies show that direct, and especially physical, forms of aggression are more normative in boys. Boys tend to use direct aggression more often than girls (Card et al., 2008) and there is evidence that the display of high or extreme levels of direct aggression is only exhibited by boys (see Chapter 7). Also with regard to antisocial behavior in general, Van Lier and colleagues have shown that children and adolescents in the high antisocial trajectories are predominantly male (Van Lier, Vitaro, Wanner, Vuijk, & Crijnen, 2005; Van Lier, Vuijk, & Crijnen, 2005). However, when it comes

to indirect forms of aggression findings do not favor one specific gender. Boys and girls both engage in indirect aggression (Card et al., 2008) and it is not clear whether they differ in frequency (Heilbron & Prinstein, 2008). Although some studies reported that girls tend to exhibit more indirect aggression, Card et al. (2008) showed that this is mostly due to reporter bias. That is, parents and teachers were more likely to ascribe indirect forms of aggression to girls, compared to observations, self-, and peer-reports.

In sum, some (pre)adolescents may be more disposed to pursuing status goals, which may give rise to aggressive and antisocial behaviors. Moreover, peer contexts in adolescence (e.g., friendships, classrooms) may play an important role in presenting opportunities for such goal achievement. In addition, it is important to study under which contextual factors dispositions for particularly strong status goals give rise to aggressive and antisocial behavior. Next to that, some (pre)adolescents may have a (biological) disposition to achieving stimulation goals. In the following, we present how stimulation goals may be associated with rule-breaking and aggression and we provide a brief overview of the relationships between status and stimulation goals in relation to peer contexts.

1.4 The role of stimulation goals

To assess whether individuals are particularly disposed to pursuing stimulation goals, we assessed physiological underarousal as an indicator (Zuckerman, 1990; see also Chapter 3). Out of all physiological factors, low resting heart rate is the most often replicated correlate of antisocial behavior (Ortiz & Raine, 2004). Therefore, we used this measure in two studies (Chapter 3 and 4) as a measure of underarousal (i.e., hypo-arousal or blunted arousal) or physiological (in)sensitivity. Additionally, in Chapter 5 we use three stress reactivity measures, namely heart rate reactivity, respiratory sinus arrhythmia (RSA) reactivity, and skin conductance level reactivity. Here, the measure of physiological reactivity was based on how individuals responded physiologically during a challenging peer exclusion experiment.

The aforementioned physiological factors are indicators of the functioning of the autonomic nervous system (ANS), which can be divided into two branches. The sympathetic branch (the “accelerator”) is responsible for the activation of the ANS, and causes for instance an increase in oxygen flow and activity of the sweat glands (i.e., measured by skin conductance levels). Typically, this branch indicates arousal and is often associated with the “fight or flight” mechanism. The parasympathetic branch (the “brake”) controls the levels of arousal by withdrawal of vagal influence (i.e., suppressing arousal via activity of the vagal nerve) which results amongst others in a slowing down of heart rate and blood pressure. This branch is typically associated with the “rest and digest” mechanism and can be measured via RSA. Typically, high base line (i.e., resting) levels of RSA have been associated with positive adjustment (Calkins, 2001, 2007).

Both underarousal of the sympathetic (i.e., low acceleration) and parasympathetic (i.e., low vagal withdrawal) nervous systems have been associated with maladjustment. Ortiz and Raine (2004) and Lorber (2004) showed in their meta-analyses that low resting heart rate, as an indication of both sympathetic and parasympathetic functioning, was associated with aggression, psychopathy, and conduct problems. However, effect sizes were relatively small. With regard to sympathetic functioning, measured via skin conductance, Lorber (2004) found no significant effects for aggression. However, lower levels of skin conductance were related to extreme characterizations of aggressive behavior, as indexed by psychopathic and sociopathic behavior. With regard to physiological reactivity (measured as the difference score between baseline and stress levels), there is also strong support for a relation between parasympathetic functioning and aggression (or antisocial behavior in a broader sense). Kibler, Prosser, and Ma (2004) showed in their meta-analysis that no or low RSA reactivity (i.e., no vagal withdrawal) during stress was associated with misconduct (including aggression) in children and adolescents. Moreover, low heart rate reactivity was also associated with more aggression in children and adolescents (Kibler et al., 2004; Ortiz & Raine, 2004).

On the basis of goal-framing and SPF theory (Lindenberg, 1996, 2008), we would expect that the relationship between underarousal and rule-breaking or aggressive behavior runs via the need to seek stimulation. This is supported in the literature by the stimulation seeking theory (i.e., Raine, 2002; Zuckerman, 1990). This theory argues that being in a state of low autonomic arousal is an unpleasant physiological state. To reach more optimal levels of arousal, individuals will actively seek out exciting and risky activities, such as aggressive and antisocial behaviors. In other words, stimulation seeking theory suggests that individuals with a physiologically underaroused disposition have a greater need to fulfill stimulation goals and as a result they may display more aggressive and antisocial behavior. However, in the literature, we also find a theory that points to a different mechanism. Fearlessness theory suggests that a low level of arousal is an indicator of low levels of fear (e.g., Raine, 1997). Specifically, low autonomic arousal is thought to reflect a lack of fear and inhibition. These low levels of fear, in turn, may remove concerns about the repercussions of aggression (Kindlon et al., 1995; Raine, 2002a, 2002b). In addition, fearlessness may reduce sensitivity to punishment (Fung et al., 2005). Given their reduced responsiveness to punishment, underaroused individuals may be less likely to develop inhibition following punishment, which in turn facilitates involvement in aggression (Beauchaine, Katkin, Strassberg, & Snarr, 2001).

In Chapter 3 both theories are tested and we hypothesize that both may be true but for different age groups. Namely, in childhood, direct forms of aggression are in general high but start to decrease in adolescence. However, in childhood there are few rule breaking behaviors compared to the large increase in rule breaking in adolescence. Interestingly, this development of antisocial behaviors seems to coincide with the development of the personality characteristics of impulsivity (or behavioral inhibition) and sensation seeking. Whereas impulsivity is high in childhood and decreasing in adolescence, sensation seeking is low in childhood but increasing in adolescence (Steinberg et al. 2007). To conclude, fearlessness theory may explain the relation

between low resting heart rate and aggression, when assessing personality in childhood. However, when assessing personality in adolescence, there may be stronger support for stimulation seeking theory. Implicitly we can argue that these age differences may depend on the importance and the role played by peer groups in (late) childhood compared to early and middle adolescence. If, due to the increasing maturity gap (Agnew, 2003, Moffit, 1993), aggressive and rule-breaking behavior become a sign of more independent and “adult” behavior (and thus a means to achieve peer status), that kind of behavior may be particularly attractive to underaroused adolescents who see a chance to gain both in status and stimulation. In addition, underaroused adolescents may be more sensitive to peer influences.

1.5 Dispositions and context

Person-environment interaction

Next to dispositions (and interactions with dispositions), peer contexts in adolescence (e.g., friendships, classrooms) may play a crucial role in presenting opportunities for goal achievement. Therefore, it is important to study under which contextual factors, dispositions for more intense status and stimulation goals give rise to aggressive and rule-breaking behavior. Underaroused individuals (i.e., individuals with a heightened need for stimulation) may be presented with more opportunities of fulfilling stimulation goals in terms of aggression or rule-breaking in those environments in which this kind of behavior is legitimized by the fact that other peers do it too. Then there is also the possibility that overarousal may be associated with heightened sensitivity to rejection which may give rise to satisfying the need for stimulation too quickly. In that case it would lead especially to aggressive behavior in a context in which the overaroused individuals feel rejected. These questions arise, of course, also with regard to more intense status goals. However, in this dissertation, we studied this question together with the next question on the role of dispositions in shaping the context.

Disposition: shaping or being shaped by the context?

Individuals who have more intense status goals, may display more aggression in contexts where they feel undervalued or even rejected (Dodge & Pettit, 2003) and see dominating via aggressive behavior as a way to increase their status. One particular relevant peer context in adolescence is friendship (see Chapters 4, 6, and 7), as it provides satisfaction for adolescents’ social need for affection and behavioral stimulation (see Lindenberg 1996; Buhrmester, 1996; Erwin, 1998) and offers unique benefits, such as emotional and practical support (Newcomb & Bagwell, 1995; Stanton-Salazar & Spina, 2005). However, not all friendships may be equally adaptive. For example, similar levels of aggression between adolescent friends have been found (Cairns, Cairns, Neckermann, Gest, & Gariépy, 1988; Espelage, Holt, & Henkel, 2003; Poulin et al., 1997), suggesting that friendships could also lead to negative outcomes. Is this the result of peer influence or is it the result of homophily, of similar youths attracting each other (also called *homophilic selection*; see McPherson, Smith-Lovin, & Cook, 2001)? In the first case, the

context would mold dispositions or influence them. In the second case, the dispositions would create the context. With regard to aggressive and antisocial behavior there is evidence for both processes. For example, Poulin and colleagues (1997; 2000) found that proactive aggressive boys spent time and made friends with other aggressive boys. Several studies have shown that deviant friends influence individual behavior with regard to antisocial behavior (Ary et al., 1999; Van Lier, Vuijk & Crijnen, 2005; Van Lier, Wanner, & Vitaro, 2007), delinquency (Burk, Steglich, & Snijders, 2007; Vitaro, Pedersen, & Brendgen, 2007), and aggression (see Chapter 6).

It seems likely that these two processes co-occur; adolescents may select themselves into aggressive peer groups on the basis of dispositions to status and stimulation goals, and in turn, they are also socialized by these aggressive peers. Previous research at least suggests that the propensity for increased aggression in the context of aggressive peers (Boivin & Vitaro, 1995; Espelage et al., 2003) indicates that aggressive adolescents make friends with other aggressive peers (i.e., selection similarity) and that their aggression may also be further increased by these relationships (i.e., social influence). Only recently, researchers have begun to test these two processes simultaneously. Recent developments in social network analysis have led to the construction of estimation models that can account for selection and influence processes while accounting for structural effects (e.g., reciprocity and transitivity). In this dissertation (see Chapter 6) we applied Simulation Investigation of Empirical Network Analysis (SIENA; Snijders, 2001; Snijders, Steglich, & Schweinberger, 2007) program that can handle such data. Analyzing selection and influence processes simultaneously reduces overestimation of both processes. Moreover, this overestimation is reduced because SIENA also accounts for structural network effects by controlling for the fact that individuals are nested in dyads, nested in triads, which are in turn nested in school grades (in our case). In sum, analyzing selection and influence processes with the SIENA program delivers a more complete picture of the effect of peer relations on the development of aggression. Moreover, it may tell us whether or not dispositions to status and stimulation goals (inferred from aggressive behavior) are in large measure shaped by the peer context.

1.6 This dissertation

To summarize, this dissertation examines individual dispositions and peer contexts that are associated with aggression. To this end, we focused on the possibility that individuals with more intense status and stimulation goals are more likely to display aggressive and rule-breaking behavior, especially in contexts that legitimize this kind of behavior. Most studies presented in this dissertation were conducted with the Dutch TRacking Adolescents' Individual Lives Survey (TRAILS), which biennially follows its participants from the age of ten until they are at least 25 years old. However, other studies have been conducted with adolescent samples from the United States and Finland. Together these studies present a picture of the relationships between peer context, physiology, and aggression in adolescent samples from different Western societies.

In the **first part** of this dissertation we assessed whether aggressive (and antisocial) children and adolescents had a stronger disposition to status and stimulation goals. In Chapter 2 we therefore looked at a specific form of aggression, namely bullying, to see whether bullies had more intense direct and indirect status goals. By concentrating specifically on bully-victim dyads, we looked at the differences between bullies and victims in status goals, functions of aggressive behavior, and social status. In addition, we looked at developmental differences between elementary and high school students and between boys and girls. Data for this study came from twenty school classes from South-West Finland.

In Chapter 3 we move to the relationship between physiology and aggressive, or more broadly, antisocial behavior. Here, we assessed whether aggressive and antisocial adolescents also had more stimulation goals. In this chapter we study the prospective relationship between low resting heart rate and antisocial behavior (i.e., aggression and rule-breaking behavior). Although previous studies found that low resting heart rate is associated with and may lead to antisocial behavior, there is no good empirical evidence for the underlying mechanism of this relationship. To address this limitation, we argued that the relationship between resting heart rate and antisocial behavior is mediated by a particularly intense need for stimulation, leading to sensation seeking and rule-breaking or even aggressive behavior. From the literature we added a possible other mechanism: that a low heart rate may predispose individuals to fearlessness which in turn may be associated with more aggression. These hypotheses were tested via a mediation model with the TRAILS dataset.

In the **second part** (Chapter 4 and 5) we studied the interaction between individual dispositions for intense stimulation goals (measured by autonomic underarousal) and the role of the peer context. More specifically, we looked at the interactive effects of peer context and physiological underarousal on aggression and antisocial behavior. In Chapter 4 we studied the influence of peers on adolescent antisocial behavior. In line with the person-environment hypothesis, we argued that the negative relationship between resting heart rate and antisocial behavior is only present in peer contexts that are characterized by high levels of aggressive behavior (i.e., bullying). Data from the TRAILS study were used to address this hypothesis. In Chapter 5 we focused on the effect of three physiological stress measures on different forms of aggression in girls. We argued that a blunted physiological response to stress, as an indicator of underarousal, would be associated with more relational aggression. Next to that, we argued that this overarousal would be associated with physical aggression, especially in peer contexts characterized by high levels of rejection and in individuals who are highly sensitive to peer rejection. These hypotheses were tested with data coming from an American summer camp for girls.

In the **third part**, staying within the domain of aggression and peer context, we added the possibility that dispositions and contexts are not independent factors. Rather, dispositions may shape contexts and may, in turn, be shaped by contexts. Both mechanisms may be going on at the same time. Chapter 6 assessed whether individual dispositions created the peer context (i.e., selection) or whether individual dispositions were shaped by peer contexts (i.e.,

socialization). In Chapter 6 we focused on the development of different forms and functions of aggressive behavior. By assessing friendship networks in nine schools from the USA, we were able to study selection and influence effect simultaneously. Specifically, we argued that these processes may work differently depending on forms and functions of aggression. To test this, we made use of the Simulation Investigation for Empirical Network Analysis, or SIENA program (Snijders, 2001; Snijders et al., 2007).

Finally, in Chapter 7, we focused on friendships of boys with an aggressive disposition. In this study we tested a homophily selection hypothesis against the idea that adolescents, whether or not they are aggressive, crave affection (Lindenberg 1996), so that their being befriended with other highly aggressive and little prosocial peers, is likely to be the result of default selection. Although previous studies have ascribed aggression similarity in friendships mainly to homophilic selection, we argued that highly aggressive boys may prefer the same friends as their less aggressive counterparts. However, due to their highly aggressive behavior, peers may refrain from befriending them and as a result these highly aggressive boys have to resort to their 'second choice', namely: other aggressive peers. In this way, the context is made by the disposition but, in turn, as a consequence of another context (rejected friendships), showing how dispositions and contexts can be intertwined in complex ways. Data for this study came from a peer-nomination subsample of the Dutch TRAILS study.

In Chapter 8 we will reflect on the findings from our studies and draw some conclusions. Moreover, in this final chapter the scientific and societal implications of our findings are discussed and directions for future research given.

PART I

Dispositions to status and stimulation goals

