Aggression: Its association with dysfunctional thought control processes, cognition, and personality

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Aggression: Its association with dysfunctional thought control processes, cognition, and personality

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Voor mijn vader
en
mijn moeder

Although I sometimes get depressed
and feel like giving up,
the discovery of my thoughts
gives me joy.
For until they find a way
to take my thoughts away,
I am free
(Rollo May, 1981)

Contents

Chapter 1

General Introduction

A definition of aggressive behaviour

Aggressive behaviour is one of the most complex human behaviours. It can be observed as a universal feature of behaviour in all societies and cultures, although some cross-cultural differences have been reported. Almost everybody has experienced aggression in one way or another. Extremely aggressive behaviour is seen in wars and criminal activities (e.g., rape, homicide and assault), but aggression also occurs in more daily social encounters such as insults in traffic or fights on the street. A variety of different behaviours may be identified as aggressive; therefore, it is difficult to formulate a general definition for this construct. In this thesis the widely accepted definition of human aggression of Bushman and Anderson (2001) will be employed: 'Human aggression is any behaviour directed toward another individual that is carried out with the proximate (immediate) intent to cause harm. In addition, the perpetrator must believe that the behaviour will harm the target and that the target is motivated to avoid the behaviour' (p. 274). Aggression is often confused with violence, but both terms are not identical. In Anderson and Bushman's (2002) definition, violence is described as 'aggression that has extreme harm as its goal (e.g., death)' (p. 29). In this Chapter, an overview of several factors commonly associated with aggressive behaviour will be presented first. Then, the General Aggression Model will be described shortly, followed by an overview of cognitive processes underlying aggressive behaviour. Huesmann's information processing model of aggression is put forward, as this framework plays a central role in this thesis. Finally, a second important framework in this thesis, the thought suppression paradigm, is explained. The Chapter ends with the aims and outline of this thesis.

In psychology, the division of (any) behaviour into instrumental, affective and cognitive components has been recognized for over a century. In Buss and Perry's (1992) study on the construction of the Aggression Questionnaire (AQ), data showed that this tripartite division also applies to the personality trait of aggression. More specifically, each of the four subscales of the AQ represents one of the three behavioural domains: verbal or physical aggression represents the instrumental and motor component of aggressive behaviour, anger the affective or emotional component, and hostility the cognitive component (Buss & Perry, 1992). In defining aggressive behaviour further, different dichotomies (i.e., two non-overlapping parts representing a whole) have been proposed, such as hostile aggression versus instrumental

aggression (e.g., Bushman & Anderson, 2001), impulsive aggression versus premeditated aggression (e.g., Barratt, 1991; Barratt & Slaughter, 1998) and proactive versus reactive aggression (e.g., Dodge & Coie, 1987; Raine et al., 2006). These three dichotomies have considerable conceptual overlap and can be reorganized into two basic dimensions of aggression. The first dimension of reactive aggression (or impulsive, hostile aggression) pertains to aggressive acts that are elicited by stressful conditions (e.g., Berkowitz, 1998). In other words, provocation leads to anger, which in turn leads to reactive aggression. The second dimension of proactive aggression (or instrumental, premeditated aggression) concerns aggression that is used as a means to obtaining a certain goal (besides behaving aggressively), for instance getting money by robbing a bank. This type of aggression does not result from frustration or intense emotions, but is carefully planned (Raine et al., 2006). The difference between these two dimensions of aggressive behaviour can be illustrated by the fact that they have been related to different personality characteristics. For example, reactive aggression has been associated with feelings of remorse and thought confusion, whereas proactive aggressive acts have been related to social gain and dominance (Barratt, Stanford, Dowdy, Liebman, & Kent, 1999). Furthermore, differences in information processing in reactively aggressive as compared to proactively aggressive persons have been observed. More precisely, reactive aggression was associated with low verbal information processing skills, whereas such a connection was not found for proactive aggression (Barratt & Slaughter, 1998).

Factors associated with aggressive behaviour

In the literature on aggressive behaviour, numerous factors have been associated with increased or decreased aggressive behaviour. In this paragraph, a non-exhaustive overview of some of the main contributors to the study of aggressive behaviour will be listed. First of all, previous studies have shown a relation between personality traits and aggressive behaviour. In a study by Gleason, Jensen-Campbell, and South Richardson (2004), agreeableness, one of the Big Five personality dimensions (Costa & McCrae, 1992), was negatively related to self- and peer-reported aggression in both male and female adolescents. Walker and Gudjonsson (2006) examined the relation between personality factors as measured by the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1991) and offending in a large sample of non-

clinical subjects of both sexes. It was shown that psychoticism, which can be characterized as an individualistic and insensitive attitude, was the strongest positive predictor of total offending scores (i.e., the sum of violent and non-violent offending) in both male and female participants. Tremblay and Ewart (2005) showed negative relations between agreeableness, extraversion, conscientiousness and emotional stability on the one hand, and various types of aggressive behaviour on the other. High levels of narcissism (grandiose self-views) were related to increased aggressive behaviour (Bushman & Baumeister, 1998). Further, individuals who score low on dissipation and high on rumination scales, that is, those people who tend to have thoughts of retaliation after being in a hostile situation, have also been found to exhibit more aggressive behaviour (Collins & Bell, 1997). Finally, high levels of sensation seeking and little consideration for future consequences (Joireman, Anderson, & Strathman, 2003) and a relation between the Behavioural Inhibition/Behavioural Approach System (BIS/BAS) and aggression have been observed, with BIS being associated with lower levels of aggressive behaviour (Smits & Kuppens, 2005). In sum, these results indicate that basic personality dimensions seem to play a role in the predisposition of various types of aggressive behaviour.

Secondly, cross-cultural differences in aggression and aggression-related variables have been documented in multiple studies. For instance, Grisso, Davis, Vesselinov, Appelbaum and Monahan (2000) reported ethnic differences in the nature and prevalence of aggressive fantasies in patients hospitalized for mental disorders and in a community control group. The authors found that more non-Caucasian (i.e., African-American and Hispanic-American) than Caucasian participants reported aggressive fantasies during the past two months, and this appeared to be true for both patients and community controls. In a study by Ramirez, Andreu and Fujihara (2001), Spanish students scored significantly higher on verbal aggression, hostility and anger, and significantly lower on physical aggression as compared to Japanese students. In contrast, Japanese students were more likely to indicate that they would act angrily in response to hypothetical vignettes of common anger-provoking situations (Ramirez, Santisteban, Fujihara, & Van Goozen, 2002). Finally, the justifications for interpersonal aggression to hypothetical scenarios depicting aggression in Japanese, American, and Spanish students were examined (Fujihara, Kohyama, Andreu, & Ramirez, 1999). The results showed that the Japanese students were less inclined to justify indirect verbal aggression and were more likely to

justify direct verbal aggression than their American and Spanish counterparts. Furthermore, American students more often approved of physical aggression in defensive situations than Japanese or Spanish students (Fujihara et al., 1999).

A third factor related to aggressive behaviour is gender. Men generally display more aggression than women. This is particularly true when considering direct or physical aggression (e.g., see recent meta-analyses by Archer, 2004). For instance, in the study pertaining to the construction of the AQ (Buss & Perry, 1992), men scored much higher on self-reported physical aggression than women, whereas they scored only somewhat higher on verbal aggression and just a little higher on hostility. There were no gender differences on anger, a finding that has been replicated in other studies as well (e.g., Archer & Haigh, 1997a; Campbell, 2006). Tremblay and Ewart (2005) report similar findings, that is, men scored higher on all AQ subscales, but only significantly so on physical aggression and total AQ scores. Male participants scored significantly higher on physical aggression, verbal aggression and hostility (as measured with the AQ) than female participants (Ramirez et al., 2001). Finally, male students were more likely to justify using physical aggression in any situation (varying from self-defence to a way of overcoming communication difficulties), and to approve of indirect verbal aggression in situations that are not involving circumstances that may justify aggressive behaviour (such as self-defence) as compared to female students (Fujihara et al., 1999).

A fourth factor that is associated with increased levels of aggressive behaviour is impulsivity, a failure to inhibit impulses. As stated above, impulsive aggression as opposed to premeditated aggression has been suggested to constitute a specific subtype of aggression (e.g., Barratt, 1991; Barratt & Slaughter, 1998; Barratt et al., 1999). Impulsivity has been related to aggression in numerous studies, although it is one of the most difficult constructs to define (for a list of varieties of impulsive behaviour, see Evenden, 1999). The relation between impulsivity and aggression has been described in several studies. For instance, Seager (2005) found that impulsivity, in combination with self-schemas of a hostile world, was related to a more violent criminal history and higher levels of psychopathy in a sample of incarcerated men. In a study by Barratt, Stanford, Kent and Felthous (1997), inmates who met the criteria for antisocial personality disorder scored higher on impulsiveness than non-inmate controls who were not diagnosed with antisocial personality

disorder. These studies confirm the relation between impulsivity and aggression.

Finally, a fifth category of factors associated with aggressive behaviour is exposure to aggressive behaviour. For instance, aggressive behaviour occurs when important others (such as family and peers) exhibit aggressive behaviour (Pettit, 1997), or when one is exposed to aggression in other sources, such as aggressive video games (e.g., Anderson & Dill, 2000; Kirsh, 2003), (lyrics of) aggressive songs (e.g., Anderson, Carnagey, & Eubanks, 2003), or aggressive television shows (e.g., Viemerö & Paajanen, 1992). Although these factors enhance aggressive behaviour, the relation between aggression in the media and aggressive behaviour seems to be mediated by other factors, such as high trait aggression (Bushman, 1995; Kiewitz & Weaver, 2001) and a high level of interaction with aggressive media (Calvert & Tan). More specifically, the latter study suggested that for participants rather than observers of a violent virtual reality game, the level of physiological arousal and the number of aggressive thoughts were higher.

Several attempts have been made to integrate these and various other aggression-related factors into one theoretical framework. One of the main contemporary aggression theories is the General Aggression Model (GAM) as described by Anderson and Bushman (2002). This theory proposes an elaborated multistage model of aggression, in which it is hypothesized that three main clusters of variables lie at the core of aggressive behaviour. These clusters are: (1) person and situation inputs, (2) cognitive, affective and arousal routes through which person and situation inputs exert their influence, and (3) outcomes of underlying appraisal and decision processes. The GAM is explained in more detail below.

The General Aggression Model

Cluster 1

Person inputs include personality traits, attitudes, beliefs, and values. These are factors that are more or less stable over time and across situations and indicate an individual's preparedness to aggress. Person-inputs have been examined in conjunction with various other types of aggressive behaviour, for instance delinquent behaviour (e.g., Eysenck, 1996; Timmerman & Emmelkamp, 2005), physical aggression, verbal aggression, hostility, and anger (e.g., McMahon & Watts, 2002; Ramirez, et al., 2001), and interpersonal aggression (e.g., Fujihara et al., 1999).

Examples of personality traits associated with aggressive behaviour have been listed above.

Situation inputs may be seen in factors such as provocation and frustration. Provocation occurs when someone is trying to make a person angry, for instance by making a certain remark. To frustrate someone means to try to make someone feel annoyed or discouraged by preventing them from achieving what they want, for instance by blocking someone's way (Anderson & Bushman, 2002).

Cluster 2

In cluster 2, cognitive states (such as hostile thoughts and aggression scripts), affective routes (such as mood and emotion), and arousal routes are listed that may have an influence on aggressive behaviour. For instance, cognitive states may assert their influence when someone, let us call him person A, is having hostile thoughts. When someone accidentally bumps into person A, he might think that the bump was an aggressive act instead of an accident. In this manner, cognitive states influence the interpretation of events and have an impact on the outcome behaviour. Affective and arousal routes are also listed in cluster 2 of the General Aggression Model. Temperature (e.g., Anderson, Anderson, & Deuser, 1996) and pain (e.g., Berkowitz, 1993a, 1998) are two examples of factors that have an influence on aggressive behaviour through the affective route. An example of a factor involved in the arousal route is provocation, or input from an irrelevant source such as arousal through exercise that is mislabelled [1] and transformed into aggressive behaviour (Anderson & Bushman, 2002).

1 A famous example of mislabelling of arousal is the experiment on the Capilano bridge, where male participants were asked 'survey questions' by an attractive female interviewer. Participants were assigned to high and low arousal conditions. In the high arousal condition (group 1), the interview was conducted while standing on the Capilano suspension bridge, a bridge hanging 70 meters above ground level. In the low arousal condition, the participant was either interviewed on a solid bridge only three meters above a small brook (group 2), or ten minutes after crossing the Capilano suspension bridge (group 3). In addition to the survey questions, all participants were asked to invent a short story about an ambiguous picture of a woman that was shown to them. Participants were also invited to call the interviewer if they wanted further information about the study. The men in the high arousal condition (group 1) invented a story that contained significantly more sexual imagery than the stories of the men in the low arousal condition (groups 2 and 3). Also, the men in group 1 were four times more likely to call the interviewer afterwards. These results became known as the 'excitation transfer effect': the arousal that is elicited by crossing the bridge is misattributed to the woman's attractiveness (Dutton & Aron, 1974). Similarly, when these men would have been confronted with someone bumping into them, the excitation transfer effect and the General Aggression Model would predict that men in the high arousal condition (on the Capilano bridge) would respond more aggressively as compared to men in the low arousal conditions.

Cluster 3

In cluster 3, outcomes of underlying appraisal and decision processes that influence aggressive behaviour are described. Immediate appraisal processes are automatic in nature; however, more effortful *re*appraisals come into effect when the immediate appraisal is unsatisfactory and at the same time important to the person. For example, the person described in the example above (person A) might reconsider his interpretation of the accidental bump when he perceived the encounter to be important and when he had the time and cognitive resources to think about the incident more thoroughly. Huesmann and colleagues (Huesmann, 1988, 1998; Huesmann & Guerra, 1997) and Dodge and colleagues (Crick & Dodge, 1994; Dodge & Coie, 1987; Dodge & Pettit, 2003) stress the importance of biased information processing in the acquisition and maintenance of aggressive behaviour. They consider biased information processing as one of the main factors related to increased aggressive behaviour. More specifically, in Huesmann's model (1988, 1998), hyperactive aggressive scripts have become the template for responding to a large amount of social stimuli. In Dodge's model, a hostile attribution bias is the central part of the dysfunctional information processing underlying aggression (e.g., Dodge & Pettit, 2003).

Cognitive processes underlying aggressive behaviour

Lately, the research into different cognitive processes underlying aggressive behaviour has been receiving increased attention. In both non-clinical individuals and in populations known for their aggressive behaviour, such as offender populations, several cognitive variables have been associated with aggression. For instance, aggressive beliefs and hostile responses to hypothetical scenarios about being harassed by peers were connected to aggressive behaviour in adolescents (Bellmore, Witkow, Graham, & Juvonen, 2005). Archer and Haigh (1997b) examined beliefs about aggression in a student sample and demonstrated that instrumental beliefs about aggression (i.e., aggression as a way of controlling others) were positively associated with the use of physical and verbal aggression, and with expressions of anger and hostility as measured by the AQ (Buss & Perry, 1992). In contrast, expressive beliefs about aggression (aggression as a loss of control) were negatively correlated to physical aggression (Archer & Haigh, 1997b).

Other cognitive variables associated with aggressive behaviour have been described by Harvey, Fletcher and French (2001). These authors argue that deficits in social reasoning, for instance the misinterpretation of social events, underlie the aggressive behaviour of children and adolescents. Also, Egan, Monson and Perry (1998) demonstrated that aggression-encouraging cognitions promoted aggression over the course of a school year in 11-year old children. In a study by Greenwald and Harder (1997), hostile-aggressive daydreams were related to an angry coping style in college students. Dysfunctional cognitions have also been studied in offender samples. For instance, Doucette-Gates, Firestone and Firestone (1999) found that the frequency of negative, aggression-related thoughts was significantly higher for violent offenders as compared to non-violent offenders. The authors employed the Firestone Assessment of Violent Thoughts (FAVT; Doucette-Gates et al., 1999) which incorporates four types of negative thoughts, namely social mistrust, thoughts of being disregarded, negative critical thoughts, and thoughts/expressions of overt aggression. Further evidence on dysfunctional cognitive activities comes from research on information processing deficits. For instance, sexual and violent offenders showed delayed responding on a modified version of the Stroop task[2] as compared to undergraduate students (Smith & Waterman, 2004a). This delay can be regarded as an indication of a perceptual bias for sex- and violence-related information as compared to neutral information and provides a further illustration for the relation between aggressive behaviour and dysfunctional cognition. Finally, Grisso et al. (2000) examined the nature and prevalence of self-reported violent thoughts. In their study, 30% of the sample of mentally ill patients reported to have violent thoughts as compared to 14% of the participants in the community control group. In addition, patients who reported violent thoughts engaged in more violent acts and scored higher on measures of psychopathy, anger, and impulsiveness as compared to patients who did not report such thoughts. In a stepwise regression analysis, the presence of violent thoughts explained an additional amount of variance, after controlling for variables commonly associated with aggression, namely anger, impulsiveness and psychopathy. This

2 In the original experiments by Stroop (which took place in 1935; as described by MacLeod, 1991), participants had to read aloud a word that was presented in one of five different colours. The words he used were 'red, blue, green, brown and purple'. These words were printed in their matching ink colours or in each of the other four ink colours. The results showed that participants took longer to read aloud a word that was not congruent with its colour as compared to a word printed in the congruent colour. For instance, it took longer to name the word 'red' when it was printed in blue ink. This effect became known as the Stroop interference effect.

suggests that violent fantasies made an unique contribution to aggressive behaviour and may be seen as an important risk factor for future violent behaviour. Overall, these studies indicate that there is a relation between dysfunctional cognitions and aggression.

Huesmann's information processing model of aggression

As mentioned before, Huesmann (1988, 1998) proposed an information processing model to explain the development of aggressive behaviour in early childhood and the maintenance of aggressive behaviour in later life. Huesmann assumes that in order to process information from the environment adequately and rapidly, a number of different schemas or scripts are formed. These scripts are based on memories about experiences at an early age, which are clustered and stored in several different scripts. Each time a person encounters a social problem, cues from the environment are evaluated and a search in memory is performed to find the appropriate script to guide behaviour. The scripts suggest what is likely to happen in the situation, what the person should do in response to these events, and what the likely outcome of this behaviour will be. Huesmann's (1988, 1998) model predicts that aggressive behaviour will occur when aggressive scripts are regularly retrieved and activated. The regular activation of aggressive scripts implies, above all, that a large number of aggressive scripts have become stored in memory. Therefore, it is important to look at the process by which scripts are constructed. First, the initial encoding of the observed behaviour takes place. This involves creating a representation of the experience in memory. Second, in order to maintain the initial encoding in memory, a script needs to be rehearsed regularly. Rehearsal involves mechanisms varying from simply recalling the original scene, to fantasizing, ruminating and play-acting. As a child fantasizes, elaborated connections to the script are generated, additional links to other concepts in memory are created, and the links within the scripts become strengthened. The scripts become more firmly represented and integrated in memory, thereby increasing the chance of reactivation in numerous situations. In this manner, aggressive scripts become the main template for response (Huesmann, 1988, 1998). The aggression model of Huesmann can be graphically summarized, as shown in Figure 1.

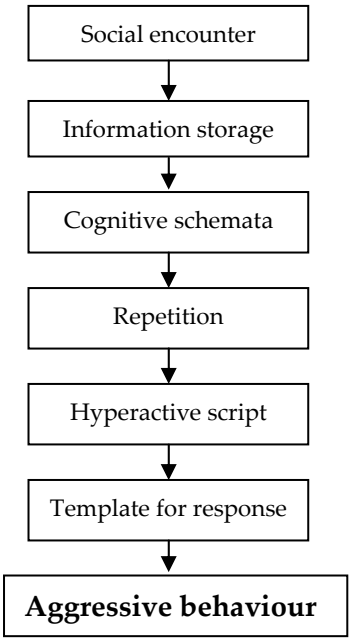


Figure 1. *Huesmann's (1988, 1998) information-processing model of aggression*

White bears

The relation between cognitive scripts and aggression, however, is not a simple one. Anderson, Anderson, Dill and Deuser (1998) stress the importance of examining how particular independent variables are related to aggressive behaviour and argue that the mere presence of a risk factor is not enough to generate aggressive behaviour. Some people will respond to triggers such as an increased temperature with aggressive behaviour, whereas others do not, depending on the coping strategy they tend to use. An example of a coping strategy that may be employed is the way they control their thoughts. The research on thought control strategies and their effect on behaviour has expanded greatly since the introduction of the so-called thought suppression paradigm (Wegner, Schneider, Carter, & White, 1987). Many contemporary psychologists are familiar with the thought suppression paradigm as an explanatory model of the persistent nature of intrusive thoughts in obsessive-compulsive disorder (OCD; American Psychiatric Association, 2000); however, the relation between thought control strategies and aggressive behaviour is unknown. Briefly, according to

this model, trying not to think about something increases the frequency and intensity of the thought that one is trying to suppress (i.e., becomes an intrusive thought).

In the white bear experiment by Wegner et al. (1987), the counterproductive nature of thought suppression was first documented. Participants were assigned to the initial suppression or the initial expression condition. In the initial suppression condition, participants were instructed not to think about white bears for five minutes, but to ring a bell whenever they did. During this period, they were asked to verbalize everything that came to mind. In a second period of five minutes, participants were instructed to express their thoughts about white bears. For participants in the initial expression condition, this order was reversed. Participants in the initial suppression condition reported more thoughts about white bears than participants in the initial expression condition. A heightened frequency of thought intrusions later on, when suppression instructions no longer applied, was also found (Wegner et al., 1987). This phenomenon is known as the rebound effect and pertains to the increase in the frequency of unwanted thoughts as soon as suppression attempts are ceased (e.g., Abramowitz, Tolin, & Street, 2001; Johnston, Hudson, & Ward, 1997; Rassin, 2005; Wegner & Zanakos, 1994). The thought suppression paradigm has been tested in clinical samples and moderating variables have been included, such as emotional valence and personal relevance of the target thought. A meta-analysis by Abramowitz and colleagues (2001) showed that the rebound effect is a particularly robust finding. In short, results from this line of research have shown that the suppression of unwanted thoughts results in an increase of the frequency of such thoughts.

The work by Wegner and colleagues inspired Wells and Davies (1994) to examine thought control processes more thoroughly. The authors suggested that suppression might not be the only thought control strategy and they constructed the Thought Control Questionnaire (TCQ). This instrument assesses individual differences in the use of five types of thought control strategies, namely distraction (to focus on something else), social coping (to talk to someone else about the thought), punishment (to punish yourself for having the thought), reappraisal (to re-interpret the thought), and worrying (to have a chain of negative thoughts and images). Research has shown that some thought control strategies, namely distraction and social coping, result in a decrease of unwanted thoughts and appear to be adaptive in nature (e.g., Abramowitz, Whiteside, Kalsy, & Tolin, 2003; McKay & Greisberg,

2002), whereas other strategies, such as worry and punishment are less effective and result in an increase of unwanted thoughts (e.g., Amir, Cashman, & Foa, 1997; McKay & Greisberg, 2002; Wells & Davies, 1994). The nature of the thought control strategy of reappraisal is less clear. Some studies found a positive association between reappraisal and measures of psychopathology (e.g., Abramowitz et al., 2003; Wells & Davies, 1994), whereas other studies reported a negative relation (e.g., Rassin & Diepstraten, 2003). Wells and Davies (1994) concluded that when reappraisal is flexible and periodic it may be fruitful, whereas reappraisal used in a rigid and perseverative manner may be dysfunctional. In order to study the nature of thought control strategies more thoroughly, Abramowitz et al. (2001) suggested that individual differences in pre-existing psychopathology should also be considered.

Aims and outline of this thesis

Aims

Several factors appear to be associated with the maintenance and exacerbation of aggressive behaviour. Within the cognitive domain underlying aggressive behaviour, (as outlined above) results show that several processes are importantly associated with aggressive behaviour. However, the role of rehearsal and aggressive fantasizing in the formation and exacerbation of aggressive behaviour have remained relatively unexplored. Furthermore, although the thought suppression paradigm and the impact of thought control strategies on the persistent nature of intrusive thoughts in obsessive-compulsive disorder have been thoroughly examined, the impact of these on *aggressive behaviour* has not been examined previously. Also, studying individual differences in pre-existing psychopathology and personality dimensions with regard to these variables has not been done in earlier studies. Therefore, the main goals of this thesis were threefold: (1) to examine the role of aggressive fantasies and the influence of the repetition of such thoughts on aggressive behaviour, (2) to examine the possible relation between thought control strategies and aggressive behaviour, and (3) to incorporate measures of psychopathology and personality in the research on these factors.

The Schedule of Imagined Violence (SIV; Grisso et al., 2000) will be used as a measure of violent thoughts. The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) will be used to assess the tendency to suppress unwanted thoughts, and the Thought Control

Questionnaire (TCQ; Wells & Davies, 1994) is used as a measure of individual differences in the use of five different thought control strategies. The Aggression Questionnaire (AQ; Buss & Perry, 1992) will be employed as a measure of aggressive behaviour. This is a 29-item questionnaire pertaining to physical aggression, verbal aggression, anger, and hostility. The AQ has been used as a measure of aggressive behaviour in many studies and although the AQ is a self-report measure and as such might introduce a bias in response patterns (i.e., a socially favourable response tendency), the association with more direct measures of observable aggressive behaviour has been shown in several studies. For instance, significant correlations between self-report scores on the AQ and nominations about aggressive behaviour by others, such as knowledgeable peers, have been reported (e.g., Buss & Perry, 1992). Also, Smith and Waterman (2004b) found significantly higher scores for aggressive individuals, that is, offenders convicted of a violent offence (e.g., murder, assault), as compared to non-violent offenders and as compared to undergraduate students on the physical aggression subscale of the AQ. Furthermore, Bushman (1995) conducted three experiments to assess the moderating effect of trait aggressiveness as indexed by the physical aggression subscale of the AQ on the relation between violent media and aggression. In the first study, participants who scored high on trait aggressiveness were more likely to choose a violent film to watch than low trait aggressive individuals. In the second study, participants rated their mood before and after watching a violent or non-violent videotape. High trait aggressive participants felt angrier than low trait aggressive individuals. Finally, in the third study, high trait aggressive individuals gave their (fictitious) opponents louder blasts of noise than did low trait aggressive participants (Bushman, 1995). Taken together, these studies show that the AQ is an adequate instrument for measuring aggressive behaviour, even though it is a self-report instrument.

Outline

The participants in the studies described in this thesis vary across the different chapters. By studying a number of different groups in society such as students, members of shooting associations, and offenders, and by including both male and female participants, it will be possible to examine these aggression-related factors more thoroughly. Further, this approach increases the generalizability of the findings. In Chapter 2, the usefulness of the thought suppression paradigm as an explanatory

model of impulsivity and aggressive behaviour is examined. The relations between intrusive thoughts, thought suppression, impulsivity and aggression are studied. Also, the influence of individual differences in psychopathology on the connections between thought intrusions, thought suppression, impulsivity and aggression are examined. In Chapter 3, the nature and prevalence of aggressive fantasies and thought control strategies are studied in a female student sample. Also, the relation between aggressive fantasies and thought control strategies on the one hand and aggressive behaviour on the other hand is described. Chapter 4 expands on the first two studies by examining a population known for its aggressive behaviour, namely a male offender sample. A matched community control group has also been included in this study to make meaningful comparisons to the offender sample. Again, measures of aggressive fantasies, thought control strategies and aggressive behaviour are administered. Chapter 5 describes the relation between aggressive fantasies, impulsivity, personality dimensions and aggression in members of a shooting association and a community control group. Chapter 6 summarizes and discusses the results of the studies described in Chapters 2 through 5. The strengths and weaknesses of the studies are discussed and directions for future research are provided.

Chapter 2

The usefulness of the thought suppression paradigm in explaining impulsivity and aggression

This Chapter is based on:
Nagtegaal, M.H., & Rassin, E. (2004). The usefulness of the thought suppression paradigm in explaining impulsivity and aggression. *Personality and Individual Differences, 37*, 1233 -1244.

Abstract

This study investigated (1) the usefulness of the thought suppression paradigm in understanding impulsivity and aggression and (2) the relation between intrusions, suppression and other thought control strategies on the one hand, and psychopathology on the other. Ninety undergraduate students filled in the White Bear Suppression Inventory (WBSI), the Thought Control Questionnaire (TCQ), the Minnesota Multiphasic Personality Inventory-2 (MMPI-2), five traits from the Eysenck Personality Profiler (EPP), and the Barratt Impulsivity Scale (BIS). No relationship between impulsivity and intrusion and suppression was found. However, significant correlations between aggression and intrusion were found. Intrusion, suppression, self-punishment, and psychopathology were all correlated positively. Implications of these findings for the dynamics between intrusion, thought control, and aggression are discussed.

Introduction

The young Tolstoy, or so the story goes, was standing in the corner of a room, after his brother had challenged him to stand there until he could stop thinking of white bears (Wegner, 1989). This left him standing there, puzzled, for a considerable amount of time. From this we may conclude that we do not seem to have much control over our minds, especially when it comes to controlling thoughts that are unwanted. The experience of unwanted, so-called intrusive thoughts is a phenomenon found in both clinical and normal populations (e.g., Rachman & De Silva, 1978; Wells & Morrison, 1994). Over 80% of the individuals in the general population experience intrusions.

'Normal' intrusions include thinking of cigarettes when one just quit smoking, the death of a loved one, an upcoming medical appointment, and so on. Examples of pathological intrusions are obsessions, addictions, and thought patterns characteristic of depression and panic-states (Wegner, 1989). Pathological intrusive thoughts have been described as being more frequent, more intense, longer lasting, producing more discomfort and invoking more resistance (Rachman & De Silva, 1978; Salkovskis & Harrison, 1984). What causes the transformation of normal unwanted thoughts into pathological ones? Wegner (1989) argued that trying not to think about an unwanted thought, that is thought suppression, is exactly the mechanism

underlying the thought becoming more intrusive (also, for a competing psycho-biological model on the transformation of normal thoughts into pathological intrusions involving serotonin, see Katz, 1991). Wegner et al. (1987)'s 'white-bear' experiment sought to investigate this hypothesis. In this experiment, participants in the initial suppression condition were instructed to suppress thoughts of white bears for five minutes and express these thoughts in a second period of five minutes.

For participants in the initial expression condition, this order was reversed. All participants were unable to suppress thoughts of white bears when instructed to do so, which was indicated by a mean frequency of almost seven white bear thoughts during the suppression period. Moreover, white bear thoughts were more frequent after initial suppression instructions compared to initial expression instructions. This effect was named the rebound effect: an increase in thoughts (about a white bear) after first having suppressed the thought (Wegner et al., 1987). This research became known as the thought suppression paradigm and was originally proposed as an explanatory model of the persistent nature of obsessions found in Obsessive-Compulsive Disorder (OCD; American Psychiatric Association, 2000). Hence, most contemporary experimental psychologists know the thought suppression paradigm as a model of intrusions in OCD. Since then, research on intrusive thoughts has expanded and has involved many different independent variables, included some clinical samples, has included variables such as emotional valence and personal relevance of the target thought and so on (for a meta-analysis, see Abramowitz et al., 2001). However, intrusions and thought suppression may be even broader concepts than already anticipated and may be worth investigating further.

For instance, Abramowitz et al. (2001) suggested that individual differences in psychopathology, which was not included in their meta-analysis, might be a factor contributing significantly to suppression effects. Also, intrusive thoughts may have legal consequences: when intrusive thoughts become violent in nature, these thoughts might lead to aggression and dangerous situations. Thinking about smoking a cigarette can be harmful to one's health, however, repeatedly thinking about killing your neighbour is an intrusive thought of a completely different level. One might think that violent intrusive thoughts or intrusive thoughts leading to violence would have been given much attention in psychological research. However, this is not the case. A literature search (using PsycInfo) into violence and intrusive thoughts

led to a very small body of literature. The literature that was found mostly dealt with intrusive thoughts as a symptom of the *victim's* trauma, not with intrusions as characteristics of the actor/perpetrator (e.g., McDevitt, Balboni, Garcia, & Gu, 2001; Mitchell & Hogg, 1997).

In one relevant study, violent thoughts were significantly related to violent acts and to measures of psychopathy, anger, and impulsiveness; problems that form major threats to society and often lead to aggressive and criminal behaviour (Grisso et al., 2000). Transferring insights from the thought suppression paradigm, one would expect suppression of (violent) intrusive thoughts to lead to an increase in the frequency of these thoughts, followed by a strengthening of and possibly compliance with the intrusion. Indeed, results from Grisso et al. (2000) suggest that violent behaviour as a response to violent intrusions could be seen as *impulsive violence*, which is defined as violence as the result of lack of inhibition. A social-cognitive model of aggression by Huesmann (1998) offers a theoretical model for a connection between imagined violence and violent behaviour.

In this model, assumptions from social information processing theories are used to explain violent behaviour following imagination. Frequently imagined violence (elaborate rehearsal) reinforces cognitive schemata or memories through which a person evaluates social situations. Each individual creates schemata based on personal experience, which serves two goals: (1) to attribute meaning to events and (2) to guide the choice of an appropriate response. Repetitive violent thoughts are hypothesized to activate aggressive schemata, making them more readily available, thus increasing the likelihood of reactivating aggressive scripts in later situations. Huesmann's model shows some similarities with the 'ironic process' theory proposed by Wegner and Erber (1992). In both models the hyper-accessibility of intrusive thoughts is a central feature, although they differ in the process underlying this hyper-accessibility.

In conducting this study we returned to the original paradigm by Wegner, investigating emotionally neutral thoughts. The rationale behind this is twofold. First, in Abramowitz et al. (2001)'s meta-analysis covering 28 studies into paradoxical effects of thought suppression, no differences in effect size -for neither an initial enhancement effect nor a rebound effect- for neither personal relevance nor valence of the target thought were found. Thus, participants did not differ in suppression attempts of emotionally neutral versus emotionally negative thoughts or in suppression attempts for thoughts about personal events (e.g., the

death of a loved one) versus thoughts without an emotional component (e.g., white bears). Following this finding, the authors suggest that the selection of the target thought should depend on the investigator's goals and a factorial design would be the ideal experimental set up (Abramowitz et al., 2001). Second, since the current research was the first to explore the relation between intrusion, suppression, aggression and impulsivity, it was considered best to use well-known and validated instruments to assess these variables rather than work with new or adjusted instruments.

In summary, it was argued that the thought suppression paradigm could possibly serve as an explanatory model of impulsivity and aggression and that, first of all, exploratory psychological research is called for. Especially since impulsivity and aggression are such major societal problems. This study follows up on Grisso et al. (2000) and explore which, if any, aspects of impulsivity would be linked to intrusive thoughts. The second goal was to examine the relation between intrusions, suppression and other control strategies on the one hand and psychopathology on the other, following recommendations by Abramowitz et al. (2001).

Method

Participants

Participants (N = 90) were students enrolled at the Erasmus University Rotterdam, The Netherlands. For participating in this study, participants received course credits or a small financial compensation. Sixty-one participants were female (67.8%), 26 male (28.9%) and three (3.3%) failed to provide data on their gender. Most were psychology students (n = 72; 80%), some studied medicine (n = 8; 8.9%) and ten (11.1%) studied something else.

Procedure

Participants were recruited by a notice presented on the message board at the university. The message read: 'Students wanted to participate in a questionnaire survey about, among other things, impulsivity'. No further explanation about the purpose of the study was given. Since participants did not know the rationale behind the study, contamination due to order of presentation of the questionnaires was not expected.

Further, no consequences were attached to participating and it was made clear that the data would be analysed anonymously. Therefore, the questionnaires were presented in the same randomly chosen order for all participants. The order of presentation was: the Barratt Impulsivity Scale, the Minnesota Multiphasic Personality Inventory-2, the Eysenck Personality Profiler, the White Bear Suppression Inventory, and the Thought Control Questionnaire.

Measures

Intrusion and suppression

The *White Bear Suppression Inventory* (WBSI; Wegner & Zanakos, 1994; Dutch translation by Muris, Merckelbach, & Horselenberg, 1996) is a 15-item self-report instrument originally developed to assess the tendency to suppress unwanted thoughts. A typical WBSI-item is 'I always try to put problems out of mind'. Items are answered on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*). Total scores (range: 15 to 75) are obtained by summing across items. Higher scores indicate stronger tendencies to suppress unwanted thoughts. Although originally intended to assess only thought suppression, recent factor analyses (Blumberg, 2000; Höping & De Jong Meyer, 2003; Rassin, 2003) suggest that the WBSI is best described by a two-factor structure, separating 'Thought Suppression' from 'Unwanted Intrusive Thoughts'. The intrusion factor deals with the mere occurrence of unwanted thoughts and includes items like 'There are images that come to mind that I cannot erase'. The two-factor scores, in addition to WBSI total scores will be used in this study.

The *Minnesota Multiphasic Personality Inventory* (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989; Dutch translation by Sloore, Derksen, Hellenbosch, & De Mey, 1993) is a standardized personality questionnaire that consists of 567 yes/no statements. The self-descriptions give a quantitative measurement of an individual's level of psychological adjustment, and attitude towards test taking (Friedman, Lewak, Nichols, & Webb, 2001). Two MMPI-2 content scales were included as alternative measures (cross-validation) of intrusive thoughts, that is Obsessiveness (OBS) and Bizarre mentation (BIZ). These scales are categorized in the section 'internal symptomatic behaviour'. OBS measures mostly indecision. People scoring high on this trait are characterized by an overly active but inefficient cognitive activity. Low scores suggest the opposite: people who make decisions

with self-confidence and efficacy. High BIZ characterizes people with psychotic thought processes and hallucinations. Also, impaired insight and a grandiose sense of self are common features of people scoring high on this scale. People scoring low on this variable do not report having these tendencies (Friedman et al., 2001). Profiles with VRIN and/or TRIN ≥ 80 and/or F ≥ 100 were excluded because these represent unacceptable response inconsistencies (Sloore et al., 1993). One protocol met these conditions, therefore all analyses including MMPI-2 scores relate to $n = 89$.

The *Eysenck Personality Profiler* (EPP; Eysenck, Wilson, & Jackson, 1996; Dutch translation by Muris, Schmidt, Merckelbach, & Rassin, 2000) assesses 21 primary personality traits each consisting of 20 items to be answered with yes, no or cannot decide. A total score for each trait is calculated separately (range 0 - 40). Each trait loads on one of three higher personality factors, namely Psychoticism, Extraversion and Neuroticism. Besides these traits, the EPP also includes a Lie scale. Five traits, all loading on Psychoticism, were presented to the participants. One trait, that is Obsessiveness, was included as a concurrent measure of intrusive thoughts. High scorers are (too) careful, conscientious and have a high need for order, routine and ritual. An example is: 'Are you always careful to pay back even the most trivial debt?'

The *Thought Control Questionnaire* (TCQ; Wells & Davies, 1994) was designed to assess individual differences in the use of thought control strategies. The TCQ is a self-report instrument containing 30 items answered on a 4-point scale (1 = *never*; 4 = *almost always*). The TCQ taps five strategies of mental control: Distraction (e.g., 'When I experience an unpleasant/unwanted thought, I do something I enjoy'), Social coping (e.g., '… I talk to a friend about the thought'), Worrying (e.g., '… I focus on different negative thoughts'), Punishment (e.g. '… I slap or pinch myself to stop the thought'), and Reappraisal (e.g. '… I try to re-interpret the thought'). Each strategy (range: 6 - 24) measures the tendency to use this strategy in controlling unwanted intrusive thoughts. Total scores are not used.

Impulsivity

Despite the fact that many psychological theories and personality systems consider 'Impulsivity' a major aspect of human psychology, the concept is not defined uniformly and equivocally. This is illustrated by difficulties in clinical practice where clinicians often have problems finding the exact behavioural dimensions on which to rate their patients'

impulsivity. Also, in research areas validity issues arise when a construct is not defined clearly. Whiteside and Lynam (2001) argue that impulsivity should be seen as an 'artificial umbrella term' (p. 687), describing distinctly different facets of psychological processes leading to impulsive behaviour. In accordance with Whiteside and Lynam (2001), in this study several measures of impulsivity were used in an effort to explore which, if any, psychological processes of impulsivity were connected to measures of intrusive thoughts.

The *Barratt Impulsivity Scale* (BIS; Barratt, 1994) is a 30-item self-report inventory, to be answered on a 4-point scale (1 = *-almost- never*; 4 = *-almost- always*). The BIS assesses impulsivity in three domains: an ideo-motor sub trait (e.g., 'I do things without thinking'), a careful planning sub trait (e.g., 'I act on the spur of the moment'), and a future-oriented coping stability sub trait (e.g., 'I get easily bored when solving thought problems'). A high score on one of the sub-domains suggests a tendency to be impulsive in the specified domain. Total scores range from 30 to 120.

From the *MMPI-2* (Sloore et al., 1993) the clinical scale Hypomania (Ma, scale 9) was used. Ma is related to energy level, irritability and egotism. High scorers' activities may become fragmented and scattered due to very high energy levels (Friedman et al., 2001). From the *EPP* (Eysenck et al., 1996), three traits measuring impulsivity were included. (1) *Risk-taking*: high scores indicate a tendency to live dangerously and to seek rewards with little concern for the possibility of adverse consequences. These people can be characterized as gamblers who believe that excitement adds spice to life. A typical item is: 'Do you quite enjoy taking risks?' (2) *Impulsiveness*: high scorers are inclined to act on the spur of the moment, make hurried, often premature decisions and are usually carefree, changeable and unpredictable. A typical item is: 'Do you mostly speak before thinking things out?' (3) *Sensation-seeking*: high scorers are seeking thrills in life, have an insatiable thirst for novel experiences and require excitement and adventure to keep boredom away. A typical item is: 'Would you like to try parachute jumping?'

Aggression

The sub trait 'Aggression' of the *EPP* (Eysenck et al., 1996) was used. This trait loads on the Psychoticism personality factor. High scorers are prone to express aggression directly as well as indirectly through behaviour such as temper tantrums, fighting, violent arguments and sarcasm. An example is: 'Would you hesitate to shoot a burglar who was

escaping with some of your property?' The clinical scale Psychopathic deviate (Pd, scale 4) and the content scale Anti-Social Practices (ASP) of the *MMPI-2* (Butcher et al., 1989) were used. Pd relates to the level of an individual's social adjustment, the (lack of) behavioural control, impulsivity, hostility and aggressive behaviour. Individuals scoring high on Pd are more inclined to act out. ASP is categorized in 'external aggressive tendencies' (Groth Marnat, 1997) and provides -among others- an indication of prior criminal activities (Butcher et al., 1989).

Psychopathology
As measures of psychopathology, the clinical main scales of the MMPI-2 were used. The widely used standard of a *K*-corrected *T*-score of ≥ 65 was employed as representing clinical elevations (Sloore et al., 1993).

Results

Intrusive thoughts, thought suppression, impulsivity and aggression

Correlations between the traditional measure of intrusions and suppression (WBSI) and concurrent measures of intrusive thoughts (MMPI-2 OBS & BIZ, and EPP Obsessiveness) were calculated and strong relationships between the WBSI scores and both OBS and BIZ (range: r = .42 to .52; p < .004) were found. Correlations between WBSI scores and EPP Obsessiveness did not reach significance, although a trend was found (r = .24 to .27; p < .02). Second, correlations between measures of intrusions and suppression and measures of impulsivity and aggression were calculated. Surprisingly, as can be seen in Table 2.1, neither intrusive thoughts nor thought suppression were related to any of the impulsivity measures. Significant correlations between WBSI total scores and two of the three aggression measures, namely EPP aggression and MMPI-2 Psychopathic deviate were found (r = .37 and r = .34, respectively; p < .004). A non-significant trend was found for WBSI total scores and MMPI-2 Antisocial Practices. Interestingly, when examining these correlations further, it was found that mostly WBSI items measuring intrusion were related to aggression.

Table 2.1 *Pearson correlations between intrusive thoughts, impulsivity and aggression*

	WBSI total	*WBSI intrusion*	*WBSI suppression*
Concurrent validity			
MMPI-2 obsessiveness	.51*	.50*	.42*
MMPI-2 bizarre mentation	.52*	.52*	.42*
EPP obsessiveness	.27	.24	.26
Impulsivity			
BIS total	.19	.17	.17
BIS ideo-motor	.24	.24	.19
BIS careful planning	.09	.10	.07
BIS future oriented	.14	.10	.15
EPP risk-taking	.11	.10	.07
EPP impulsiveness	.16	.16	.12
EPP sensation-seeking	.19	.16	.16
MMPI-2 hypomania	.24	.23	.20
Aggression			
EPP aggression	.37*	.39*	.28
MMPI-2 psychopathic deviate	.34*	.35*	.26
MMPI-2 antisocial practices	.24	.23	.21

Note. WBSI = White Bear Suppression Inventory, EPP = Eysenck Personality Profiler, MMPI-2 = Minnesota Multiphasic Personality Inventory, BIS = Barratt Impulsivity Scale.
A Bonferroni correction was applied to adjust for the number of correlations that were performed. The alpha (0.05) was divided by 14. Correlations were considered significant when $p < .004$, as indicated by *.

Intrusive thoughts, coping mechanisms and psychopathology

Next, correlations between measures of intrusive thoughts and coping strategies were calculated. WBSI total scores were correlated significantly with TCQ-Punishment ($r = .30$; $p < .004$). When examining this correlation further, it was found that mostly items measuring intrusion were related significantly to Punishment ($r = .27$; $p < .004$), although for suppression, a non-significant trend was found ($r = .26$; $p = .013$). WBSI suppression items were related to the coping style Distraction ($r = .30$; $p < .004$). Non-significant negative trends between WBSI total, intrusion and suppression and Social coping were found. All correlations between WBSI and TCQ measures are presented in Table 2.2.

To analyse the association between intrusive thoughts and psychopathology, participants were divided in two groups based on scores on MMPI-2 clinical main scales, with a cut-off point at 65. The strongest relations were found for the WBSI intrusion factor, indicated by significantly higher mean scores for participants scoring ≥ 65 on the Depression, Psychopathic Deviate, Paranoia and Psychastenia scales.

WBSI total scores were significantly higher for participants scoring ≥ 65 on Psychopathic deviate and Psychasthenia, and WBSI suppression scores were significantly higher for participants scoring ≥ 65 on Psychopathic deviate. Results are presented in Table 2.3. Significant *t*s indicated that participants scoring ≥ 65 on the pertinent MMPI-2 scale, scored higher on the WBSI.

Table 2.2 *Pearson correlations between intrusive thoughts and coping mechanisms (N = 90)*

TCQ	*WBSI total*	*WBSI intrusion*	*WBSI suppression*
distraction	.24	.16	.30*
social coping	-.21	-.23	-.14
worrying	.14	.15	.08
punishment	.30*	.27*	.26
reappraisal	.04	.08	-.05

Note. WBSI = White Bear Suppression Inventory, TCQ= Thought Control Questionnaire.
A Bonferroni correction was applied to adjust for the number of correlations that were performed. The alpha (.05) was divided by five. Correlations were considered significant when $p < .01$, as indicated by *.

Finally, as part of secondary analyses, the usefulness of the TCQ strategies to cope with intrusive thoughts were examined by correlating TCQ coping styles with MMPI-2 psychopathology. As can be seen in Table 2.4, only the use of Punishment was significantly correlated with more psychopathology; more specifically, with Depression, Psychopathic deviate, Paranoia, Psychasthenia, and Schizophrenia. Several non-significant trends were found for the other coping styles (all results are presented in Table 2.4).

Table 2.3 *Independent sample t tests between MMPI-2 clinical scales and WBSI*

MMPI	*WBSI total*	*WBSI intrusion*	*WBSI suppression*
hypochondriasis[1]	.99	1.47	.92
depression[1]	2.78	3.03*	1.92
hysteria[1]	1.74	1.96	1.08
psychopathic deviate	4.54*	4.25*	3.94*
masculinity-femininity[1]	.46	.14	.75
paranoia	2.75	3.39*	1.36
psychasthenia	4.08*	4.42*	2.79
schizophrenia	1.98	2.23	1.23
hypomania	.94	.81	.81
social introversion[1]	1.13	.96	1.13

Note. MMPI = Minnesota Multiphasic Personality Inventory-2. WBSI = White Bear Suppression Inventory.
[1]The number of participants scoring ≥ 65 was $N = 12$, therefore, caution should be taken when interpreting these results. A Bonferroni correction was applied to adjust for the number of analyses that were performed. The alpha (.05) was divided by ten. t (87) values were considered significant when $p < .005$, as indicated by *.

Table 2.4 *Pearson correlations between coping mechanisms and psychopathology (N=89)*

MMPI	*TCQ distraction*	*TCQ social*	*TCQ worrying*	*TCQ punishment*	*TCQ reappraisal*
hypochondriasis	.04	.06	.16	.26	.17
depression	.04	.04	.17	.34*	.23
hysteria	.01	.23	.11	.22	.16
psychopathic deviate	.09	.12	.07	.32*	.16
masculinity-femininity	-.04	-.04	-.06	-.05	.05
paranoia	.09	.09	.28	.38*	.11
pychasthenia	.03	.23	.24	.47*	.20
schizophrenia	.16	.16	.24	.40*	.19
hypomania	.27	-.07	.12	.22	.15
social introversion	.05	-.12	.13	.12	.10

Note. MMPI= Minnesota Multiphasic Personality Inventory-2, TCQ= Thought Control Questionnaire.
A Bonferroni correction was applied to adjust for the number of correlations that were performed. The alpha (.05) was divided by ten resulting in an alpha of .005. Correlations were considered significant when $p < .005$, as indicated by *.

Discussion

The present study was the first in examining the relation between intrusive thoughts and thought suppression on the one hand and behavioural disinhibition (impulsivity and aggression) on the other. Intrusive thoughts and thought suppression were significantly related to most measures of aggression but not to measures of impulsivity. Hence, the thought suppression paradigm might be useful in explaining (aspects of) aggression.

Wegner and Erber (1992)'s ironic process model can be used to explain this link. The mechanisms used to suppress an intrusive thought instead illicit it. These two mechanisms are the 'controlled distracter search', which is a search for a distracting thought to replace the target thought, and the 'automatic target search', a search for failures in suppression. As a person tries to search his mind for other thoughts, the target thought will pass once in a while as well. These failures are detected by the automatic target search and instead of suppression more target thoughts are evoked. The social-cognitive model by Huesmann (1998) offers an alternative explanation. In Huesmann's model, frequently imagined violence leads to the activation of cognitive schemata involving aggression that in turn leads to more aggression.

Contradictory to our hypotheses and to findings by Grisso et al. (2000), there was no connection between intrusive thoughts and (any of the different facets of) impulsivity. One explanation could be that people who think about something extensively, that is, people who experience many intrusive thoughts, will not be likely to score high on cognitive measures of impulsivity. However, this does not explain why other facets of impulsivity were not significantly related to intrusive thoughts.

The fact that a relation between intrusion and aggression was found but not between intrusion and impulsivity, might indicate a relation with a specific type of aggression not involving impulsivity, namely premeditated aggression. Aggression can be defined in many different ways, one of which distinguishes between impulsive and premeditated aggression. Impulsive aggression involves 'spur of the moment' aggression, whereas premeditated aggression involves thinking before acting. In a study examining these two types of aggression in 216 college students, impulsive aggression and premeditated aggression appeared as two independent constructs (Barratt et al., 1999).

Analyses of the relation between intrusive thoughts, thought suppression, and psychopathology resulted in significant differences between participants scoring ≥ 65 compared to those scoring < 65 on the MMPI-2 main scales Depression, Psychopathic Deviate, Paranoia and Psychasthenia. It seems that people with hostile, aggressive behaviour and a lack of behavioural control (Pd) are specifically vulnerable for experiencing both intrusion and suppression (as indicated by significant correlations with WBSI total scores, intrusion and suppression). Further, people who have a tendency to be paranoid and suspicious (Pa), people with obsessive-compulsive tendencies (Pt) and people with depressive mood state (D) score higher on the intrusion factor. People with obsessive-compulsive tendencies (Pt) also score higher on WBSI total scores. In this manner, it seems useful to follow Abramowitz et al. (2001)'s recommendation of taking into account individual differences in pre-existing psychopathology when examining intrusion and suppression.

The experience of intrusive thoughts was associated with a more frequent use of punishment as a control strategy. However, punishment does not appear to be a very useful control strategy. This is illustrated by the finding that punishment was correlated with several types of psychopathology, indicating that people who use punishment as a coping strategy have more emotional problems. Punishment has been found to correlate with psychopathology in several other recent studies

as well (e.g., Amir, et al., 1997; McKay & Greisberg, 2002; Reynolds & Wells, 1999). However, at present the exact nature of the relation is not known. Identifying control strategies associated with effective versus maladaptive psychological adjustment might help in understanding the way intrusive thoughts become pathological. Also, several treatment approaches for dealing with intrusive thoughts may be useful whereas others may not (Wells & Davies, 1994).

A number of shortcomings to this study can be identified. First, the study relied solely on self-report measures. This might have led to reporter bias due to participants' tendency to present themselves in a positive manner. However, for the students participating in this study there were no consequences attached to the information given, moreover, students knew all data would be analysed anonymously. Also, two out of three aggression scores were taken from the MMPI-2, an instrument that corrects for deceptive response styles (Butcher et al., 1989). Only one person was identified as trying to present himself favourably, and was excluded from the analyses, indicating that in our study participants did not try to present themselves in a socially desirable manner.

Second, the relation between intrusion and suppression on the one hand and aggression on the other was found in a student and largely female sample. It is commonly accepted that women compared to men are less aggressive, especially when physical aggression is the criterion (Geen, 2001). Therefore, aggression will have been only moderately present in this sample, which makes generalisation of the results difficult. However, it could be argued that this makes the results even stronger: if the connection can be found in a modestly aggressive population one can expect an even stronger relation in a population known for its aggressive behaviour. Still, caution is warranted in generalising the results and an important expansion of this research could be to study the phenomenon in a truly disinhibited population.

Third, the present study dealt with intrusive thoughts of which the content or emotional valence was not known. A second expansion of this study could be directed specifically at violent intrusive thoughts. It is possible that different results will be found. However, as a preliminary investigation of the phenomena, the use of existing scales on suppression was considered appropriate. A study measuring aggressive violent thoughts is currently being set up at our institute. In conclusion, the present findings are in line with previous research suggesting a link between thought suppression and certain types of

psychopathology. Moreover, the findings suggest a link between intrusion, suppression, and aggression, and it seems important to investigate this relation further.

Chapter 3

Aggressive fantasies, thought control strategies, and their connection to aggressive behaviour

This Chapter is based on:
Nagtegaal, M.H., Rassin, E., & Muris, P. (2006). Aggressive fantasies, thought control strategies and their connection to aggressive behaviour. *Personality and Individual Differences, 41,* 1397-1407.

Abstract

The present study examined the relations between aggressive fantasies, thought control strategies and aggressive behaviour in a sample of non-clinical female participants (*N* = 72). First, the nature and prevalence of aggressive fantasies and thought control strategies were examined. Then, the relation between these constructs and aggressive behaviour was studied by means of correlations and regression analysis. Results indicated that aggressive fantasies were a common experience in these non-clinical participants, and that suppression, distraction and cognitive reappraisal were prevalent strategies to control aggressive intrusive thoughts. Most importantly, it was found that thought suppression and aggressive fantasies were positively correlated with aggressive behaviour. A regression analysis underlined the link between thought suppression and aggressive behaviour, but the relation between aggressive fantasies and aggressive behaviour was no longer significant. Further, some indications were found for distraction being an adaptive strategy for controlling aggressive intrusive thoughts.

Introduction

While extensive research has been conducted on aggression, relatively few studies have focused on thought processes, or feelings and emotions of violent individuals (Doucette-Gates et al., 1999). For example, whereas it is clear that dysfunctional thought processes lie at the core of cognitive therapy -which is one of the current treatment methods for aggression (Goldstein, Nensén, Daleflod, & Kalt, 2004)- instruments for assessing aggression-related cognition are sparse (Doucette-Gates et al., 1999). In a similar vein, many risk factors have been identified for aggressive behaviour, such as disruptive behaviour during childhood, substance use problems, and psychopathy (Webster, Douglas, Eaves, & Hart, 1997). However, surprisingly little attention has been directed at the construct of aggression itself, or more specifically, at the cognitive processes underlying aggressive behaviour.

Some studies have shown that aggressive thoughts, aggressive feelings or aggressive attitudes are related to aggressive behaviour. For instance, aggressive beliefs and hostile responses to hypothetical scenarios about being harassed by peers have been shown to be connected to aggressive behaviour in adolescents (Bellmore et al., 2005). In addition, research in non-clinical participants (Archer & Haigh,

1997b) has demonstrated that instrumental beliefs about aggression (aggression as a way of controlling others) are positively associated with expressions of anger and hostility, and the use of physical and verbal aggression as measured by the Aggression Questionnaire (AQ; Buss & Perry, 1992). In contrast, expressive beliefs about aggression (aggression as a loss of control) were negatively correlated to physical aggression. Finally, it has been found that the frequency of four different types of negative thoughts was significantly higher for violent individuals as compared to non-violent individuals (Doucette-Gates et al., 1999).

Huesmann (1988, 1998) proposed an information-processing model to explain the development of aggressive behaviour in early childhood. In this model cognitive processes play an important role. Huesmann assumes that in order to process information from the environment adequately and rapidly, a number of different programs or scripts are formed. Memories about experiences at an early age are clustered and stored in different scripts. Each time a person encounters a social problem, cues from the environment are evaluated and a search in memory is performed to find the appropriate script to guide behaviour. The scripts suggest what is likely to happen in the situation, what the person should do in response to these events, and what the likely outcome of this behaviour will be.

Huesmann's (1988, 1998) model predicts that aggressive behaviour will occur when aggressive scripts are retrieved and activated. The regular activation of aggressive scripts implies, above all, that a large number of aggressive scripts have become stored in memory. Therefore, it is important to look at the process by which scripts are constructed. First, the initial encoding of the observed behaviour takes place. This involves creating a representation of the experience in memory. Second, to maintain the initial encoding in memory, a script needs to be rehearsed regularly. Rehearsal involves mechanisms varying from simply recalling the original scene, to fantasizing, ruminating and play-acting. As a child fantasizes, elaborated connections to the script are generated, additional links to other concepts in memory are created, and the links within the scripts become strengthened. The scripts become more firmly represented and integrated in memory, thereby increasing the chance of reactivation in numerous situations. In this manner, aggressive scripts become the main template for response (Huesmann, 1988, 1998).

As described above, rehearsal is considered as one of the key variables through which scripts become intensified and stored in

memory (Huesmann, 1988, 1998). From this it can be hypothesized that variables involving rehearsal or repetition should be connected to aggressive behaviour. The present study examined two of such variables, namely aggressive fantasies and thought control strategies.

Only a few studies have examined the relation between aggressive fantasies and aggressive behaviour. For instance, Grisso et al. (2000) found that self-reported aggressive fantasies were related to violent acts, anger, impulsiveness, and psychopathy. Similarly, in a study by Greenwald and Harder (1997), hostile-aggressive daydreams were related to an angry coping style. The first goal of the present study was to further examine the connection between aggressive fantasies and aggressive behaviour. In keeping with Huesmann's (1988, 1998) theory, it was expected that self-reported aggressive fantasies would be positively related to aggressive behaviour.

The research on thought control strategies and their effect on behaviour has expanded greatly since the introduction of the thought suppression paradigm (Wegner et al., 1987). In short, results from this line of research have shown that suppression of unwanted thoughts results in an increase of the frequency of such thoughts. The counterproductive nature of thought suppression is illustrated in the so-called rebound effect, which can be defined as an increase in the frequency of unwanted thoughts as soon as suppression attempts are ceased (e.g., Abramowitz et al., 2001; Rassin, 2005; Wegner, 1994). In a study by Nagtegaal and Rassin (2004), preliminary evidence was obtained for a connection between thought suppression and aggression. More precisely, the tendency to suppress intrusive thoughts was significantly related to the psychopathic deviate scale of the Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher et al., 1989) and the aggression subscale of the Eysenck Personality Profiler (EPP; Eysenck et al., 1996).

The work by Wegner and colleagues inspired Wells and Davies (1994) to examine thought control processes more thoroughly. These researchers constructed the Thought Control Questionnaire (TCQ) to assess individual differences in the use of five types of thought control strategies, namely distraction, social coping, punishment, reappraisal, and worrying. Research has shown that some thought control strategies, namely distraction and social coping result in a decrease of unwanted thoughts, and appear to be adaptive in nature (e.g., Abramowitz et al., 2003; McKay & Greisberg, 2002), whereas other strategies, worry and punishment, are less effective and result in an increase of unwanted

thoughts (e.g., Amir et al.,, 1997; McKay & Greisberg, 2002; Wells & Davies, 1994). The nature of reappraisal is less clear. Some studies (e.g., Abramowitz et al., 2003; Wells & Davies, 1994) found a positive whereas other studies (e.g., Rassin & Diepstraten, 2003) found a negative relation between reappraisal and measures of psychopathology. Wells and Davies (1994) concluded that when reappraisal is flexible and periodic it may be fruitful, whereas reappraisal when used in a rigid and perseverative manner may be dysfunctional in nature. The second goal of the present study was to further explore the relations between thought control strategies and aggression. It was hypothesized that suppression and the thought control strategies of worry and punishment would be positively connected to aggressive behaviour, whereas the strategies of social coping and distraction would be negatively related to aggression. For reappraisal, no specific expectations were formulated.

In summary, in this study the relations between aggressive fantasies and thought control strategies on the one hand, and self-reported aggressive behaviour on the other hand were studied. The inclusion of two types of cognitive factors that might play a role in the exacerbation of aggression, also made it possible to examine the relative contributions of these factors to aggressive behaviour.

Method

Participants

Participants were 72 undergraduate psychology students (all females) enrolled at Erasmus University Rotterdam in The Netherlands. Mean age was 19.75 years (*SD* = 2.24, range: 17 to 26). All participants had the Dutch nationality, but they came from a different ethnic background, which was defined as the participant's country of origin. That is, 50 participants (69%) were Caucasian, 12 participants (17%) had an Asian background, whereas the remaining ten participants had either a Mediterranean background (five participants, 7%), an African background (one participant, 1%) or a mixed ethnic background (four participants, 6%). Students received a small financial compensation or course credits for their participation.

Measures

A modified version of the *Schedule of Imagined Violence* (SIV; Grisso et al., 2000) was used. The original SIV contains nine questions on aggressive fantasies. With permission of the original author (T. Grisso, personal communication, July 22, 2003), the first and second author of this article independently translated the questionnaire into Dutch (SIV-NL) and back to English. Translated items were discussed and differences were resolved. In this process, a number of alterations to the SIV were made. To decrease the number of participants answering 'never' on the first question ('Do you ever have daydreams or thoughts about physically hurting or injuring some other persons?'), general instructions were included in which it was stated that most people occasionally experience aggressive thoughts. Further, the specification of 'physically' hurting someone in the first question was removed, and the time period (i.e., two months) was no longer specified.

As a result of the modifications, the first question of the SIV-NL is 'How often do you have daydreams or thoughts about doing damage to or injuring other people?' (Frequency). The response scale ranges from never (0) to several times a day (6). Questions 2 through 9 each inquire about different characteristics of the aggressive fantasies: recency, chronicity, theme, type of harm, target, familiarity, severity, and proximity. Questions about gender, age, nationality and ethnical background are also included, following recommendations by Grisso et al. (2000). All items have fixed answering categories (see Table 3.1). In addition, SIV status (SIV+ or SIV-) can be determined by combining the variables frequency and recency. Participants who report aggressive thoughts (ranging from 'several times a day' to 'several times a year') and who had these within the past two months (ranging from 'today' to 'in the past two months') are labelled as SIV+. Participants who report to never have experienced aggressive thoughts, those who did not know the last time they had such thoughts, or participants who reported to have experienced aggressive thoughts 'more than two months ago', are considered SIV-.

The *White Bear Suppression Inventory* (WBSI; Wegner & Zanakos, 1994; see also Muris et al., 1996) is a 15-item self-report instrument assessing the tendency to suppress unwanted thoughts. A typical WBSI-item is 'I always try to put problems out of my mind'. Items are answered on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*). Total scores are obtained by summing across items (range: 15 to 75). A higher

score indicates a stronger tendency to suppress unwanted thoughts. For the purpose of the present study, items of the WBSI were rewritten in such a way to assess the suppression of aggressive thoughts specifically. A typical item of the WBSI-Aggression (WBSI-A) is 'I always try to put aggressive thoughts out of mind' (see Muris, Merckelbach, Horselenberg, Sijsenaar, & Leeuw, 1997; these authors followed a similar procedure for adapting the WBSI to spider fear).

The *Thought Control Questionnaire* (TCQ; Wells & Davies, 1994) was designed to assess individual differences in the use of thought control strategies. The scale contains 30 items that have to be answered on a 4-point scale (1 = *never*; 4 = *almost always*). As mentioned before, the TCQ taps five strategies of mental control that can be employed when experiencing unpleasant, unwanted thoughts: distraction (e.g., 'I do something I enjoy'), social coping (e.g., 'I talk to a friend about the thought'), worrying (e.g., 'I focus on different negative thoughts'), punishment (e.g., 'I slap or pinch myself to stop the thought'), and reappraisal (e.g., 'I try to re-interpret the thought'). For the purpose of the present study, the TCQ items were also reformulated to assess individuals' tendency to cope with aggressive thoughts (TCQ-A; e.g., 'When I experience an unpleasant/unwanted *aggressive* thought, I do something I enjoy').

The *Aggression Questionnaire* (AQ; Buss & Perry, 1992; Meesters, Muris, Bosma, Schouten, & Beuving, 1996) has 29 items that are answered on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*). There are four subscales: physical aggression (e.g., 'Once in a while I can't control the urge to strike another person'; nine items), verbal aggression (e.g., 'I tell my friends openly when I disagree with them'; five items), anger (e.g., 'I flare up quickly but get over it quickly'; seven items), and hostility (e.g., 'I am sometimes eaten up with jealousy'; eight items). For each subscale, a total score can be computed by summing up relevant items. All items are also combined in a total aggression score, which ranges from 29 to 125.

Procedure

The four self-report questionnaires were randomly distributed in a large-scale questionnaire study that was conducted at the psychology institute of the Erasmus University Rotterdam. Participants were recruited via a notice board at the university and were not informed about the rationale behind the study. They were allowed to complete the

questionnaires at home and to return them to the researchers as soon as they had finished them.

Statistical analyses

Data were first examined for normality of scores by calculating Kolmogorov-Smirnov's *Z* scores. Results indicated a mild departure from normality for TCQ worry ($Z = 1.38$, $p < .05$) and TCQ punishment scores ($Z = 1.44$, $p < .05$). Reliability of scores was examined by means of Cronbach's alpha. To examine the relations between SIV status, thought control strategies and aggressive behaviour, point biserial and Pearson correlations were computed. To examine the relative contributions of aggressive fantasies and thought control strategies to aggressive behaviour, a regression analysis was conducted.

Results

Forty-three participants (59.7%) reported aggressive fantasies, with a frequency ranging from 'several times a year' to 'once a day'. Twenty-four participants met the SIV+ criteria (33%), which means that they reported aggressive fantasies that occurred within the past two months. The remaining 48 participants (67%) were defined as SIV-. Participants who were SIV+ did not differ significantly from participants who were SIV- with respect to age [t (70) < 1.0], or Caucasian descent [χ^2 (1) = .52, p > .05]. In Table 3.1, the answers on the various SIV questions are shown.

Cronbach's alpha showed acceptable to high levels of reliability for WBSI-A scores and all AQ and TCQ-A subscales (see Table 3.2). The mean WBSI-A score was 27.06 (SD = 10.18), suggesting a moderate tendency to suppress aggressive thoughts (cf. Wegner & Zanakos, 1994). Inspection of the TCQ-A scores indicated that the thought control strategies distraction (M = 14.82, SD = 3.98) and cognitive reappraisal (M = 14.25, SD = 3.10) were more frequently employed than social coping (M = 13.11, SD = 3.89), worrying (M = 11.82, SD = 2.68, and punishment (M = 10.11, SD = 2.71; see Table 3.2). Paired sample t-tests showed that most pairs differed significantly (ts between 1.24 and 9.66; ps < .05), with the exception of the pairs distraction versus reappraisal (t = 1.24, p > .05) and social coping versus reappraisal (t = 1.77, p > .05).

Table 3.1 *Descriptive characteristics of aggressive fantasies as measured with the Schedule of Imagined Violence (SIV)*

SIV characteristics	*N*	*Response categories*	*%*
frequency	72	never	40
		several times a year	29
		several times a month	19
		once a week	4
		several times a week	6
		once a day	1
		several times a day	0
recency	43	today	5
		past 2 days	7
		past 3-7 days	9
		during past month	23
		during past two months	12
		more than two months ago	28
		don't know	16
chronicity	43	as long as remember	19
		since several years	12
		since several months	5
		since specific event	5
		don't know	56
		different	2
theme	43	physical hurt	23
		verbal aggression	63
		sexual aggression	2
		other	12
type	43	same	44
		different	23
		don't know	33
target	43	same person	16
		different people	72
		don't know	12
familiarity	43	known people	56
		sometimes known/unknown	35
		unknown people	9
		don't know	0
severity	43	less severe	26
		more severe	2
		not changed	37
		don't know	35
proximity	43	near	58
		not near	35
		don't know	7

Note. For the SIV characteristics 'frequency' and 'recency', the number of respondents was $N = 72$. For the remaining SIV characteristics, only those respondents who were SIV+ were included (i.e., $N = 43$).

Table 3.2 *Descriptive statistics for questionnaires measuring thought control strategies and aggressive behaviour (N =72)*

	M	*SD*	*Range*	*α*
WBSI-A suppression	27.06	10.18	15-68	.79
TCQ-A distraction	14.82	3.98	6-24	.89
TCQ-A social coping	13.11	3.89	6-22	.85
TCQ-A worrying	11.82	2.68	6-20	.61
TCQ-A punishment	10.11	2.71	6-18	.65
TCQ-A reappraisal	14.25	3.10	9-22	.63
AQ total	72.01	18.01	37-108	.91
AQ physical	20.42	6.91	10-44	.81
AQ verbal	13.10	3.03	7-19	.59
AQ anger	17.64	5.46	7-28	.76
AQ hostility	20.86	6.59	8-36	.83

Note. WBSI-A = White Bear Suppression Inventory-Aggression, TCQ-A = Thought Control Questionnaire-Aggression, AQ = Aggression Questionnaire.
M = Mean, *SD* = Standard Deviation, *α* = Cronbach's alpha

Next, point biserial and Pearson correlations were computed to examine the relations between aggressive fantasies and thought control strategies on the one hand, and aggressive behaviour as indexed by the AQ on the other. Results showed that SIV status was positively and significantly correlated with hostility (r = .24) and with total aggression scores (r = .20). WBSI-A suppression was significantly associated with all aggression subscales (all rs between .25 and .48). The links between TCQ-A scores and aggressive behaviour were generally as predicted. That is, TCQ-A worrying was positively related to hostility (r = .26) and TCQ-A punishment was linked to hostility (r = .35) and total aggression scores (r = .27), whereas TCQ-A distraction was negatively correlated with anger (r = -.28). Reappraisal appeared to be positively related to hostility (r = .32). In contrast with predictions, social coping was not negatively related to aggression (for all correlations, see Table 3.3).

Table 3.3 *Correlations between aggressive fantasies, thought control strategies and aggressive behaviour (N = 72)*

	AQ total	*AQ physical*	*AQ verbal*	*AQ anger*	*AQ hostility*
SIV status[1]	.20*	.19	.07	.08	.24*
WBSI-A suppression	.48**	.41**	.25*	.34**	.48**
TCQ-A distraction	-.22	-.23	-.20	-.28*	-.03
TCQ-A social coping	.10	.17	.21	.10	-.10
TCQ-A worrying	.10	.00	.02	.01	.26*
TCQ-A punishment	.27*	.12	.18	.21	.35**
TCQ-A reappraisal	.18	.16	.02	-.02	.32**

Note. SIV = Schedule of Imagined Violence, WBSI-A = White Bear Suppression Inventory, TCQ-A = Thought Control Questionnaire-Aggression, AQ = Aggression Questionnaire.
[1]Point biserial correlations were computed to examine the correlation between SIV status and AQ scores. Pearson correlations were performed for WBSI-A and TCQ-A correlations with AQ.
* $p < .05$, ** $p < .01$

Linear regression analysis was performed to examine the relative influence of aggressive fantasies, and thought control strategies on aggressive behaviour. In this analysis, SIV status, WBSI-A, and the five TCQ-A subscales were the predictors, whereas AQ total score was the dependent variable. The linear regression model explained 38% of the total variance [$F(7, 64) = 5.52$, $p < .001$]. The model indicated that suppression ($ß = .43$; $t = 4.00$, $p < .001$) was positively and that distraction ($ß = -.36$; $t = 3.00$, $p < .01$) was negatively related to aggressive behaviour.

Discussion

The present study supported the hypothesis that aggressive fantasies and certain thought control strategies are related to aggressive behaviour. SIV status was significantly related to hostility and total aggression scores. Suppression was most strongly related to aggression scores, although several significant correlations between specific thought control strategies and aggression were also found.

Thirty-three percent of the participants in the present study met the criteria for SIV+ status. In Grisso et al.'s (2000) non-patient community sample, only 14% reported such aggressive fantasies. With respect to this finding it should be borne in mind that the Dutch version of the SIV (SIV-NL) differed in some important aspects from the original instrument. Most importantly, the general instruction of the SIV-NL states that the experience of aggressive fantasies is quite common. It is likely that this instruction has led to a higher percentage of participants reporting aggressive fantasies. Additionally, in Grisso et al. (2000)'s original SIV, more stringent criteria for defining aggressive fantasies

were employed. That is, aggressive fantasies referred to incidents about 'physically' hurting someone. These differences might account for the clear difference in the prevalence of aggressive fantasies between the two samples. Alternatively, it is possible that socio-economic or cultural differences between the two samples play a role in the observed difference in the prevalence of aggressive fantasies (i.e., comparing the United States of America and The Netherlands).

In contrast to the results obtained by Grisso et al. (2000), no differences in age, or ethnic background were found when comparing individuals reporting aggressive fantasies to those reporting no aggressive fantasies. However, the student population in the present study might have been too small and homogeneous to examine these variables properly. All our participants were female, their age ranged only from 17 to 26 years and the Caucasian ethnic background was prevalent. On the other hand, the present study was the first examining aggressive fantasies in a student population in The Netherlands and similar findings might be found in future (replication) research.

As expected, the results indicated that aggressive fantasies were related to aggression. The aggression model by Huesmann (1988, 1998) can be employed to account for this result. The model states that rehearsal causes script strengthening and increases the likelihood of reactivation in later situations. As rehearsal increases, the scripts become more firmly encoded and integrated in memory. Based on these assumptions, it was hypothesized that aggressive fantasies would involve such rehearsal and that aggressive fantasies would be related to aggressive behaviour. Indeed, the positive correlations between aggressive fantasies and several aggression subscales are consistent with this hypothesis.

Suppression as a general thought control strategy was most strongly related to aggression. That is, WBSI-A correlated with all AQ subscales, indicating that suppression is related to a variety of aggressive behaviours. Further, the regression analysis showed that suppression was the strongest predictor of total aggression scores. This result suggests that suppression is not very effective in controlling aggressive thoughts. As expected, both worry and punishment were also positively correlated with aggression. Altogether, these results are in keeping with the pattern of correlations as found between suppression and thought control strategies and other types of psychopathology (e.g., Abramowitz et al., 2001; Purdon, 1999), and seem to indicate that suppression, worry

and punishment are less effective thought control strategies for controlling aggression.

For TCQ-A distraction a negative relation with aggression was found, as illustrated by the negative correlation with anger scores and the finding that distraction emerged as a significant negative predictor for total aggression scores in the regression analysis. This result fits nicely with previous findings suggesting that distraction is a functional thought control strategy, which is associated with lower levels of psychopathology (e.g., Amir et al., 1997). Unexpectedly, a positive correlation between reappraisal and hostility was found. This finding suggests that this thought control strategy is maladaptive in nature. A possible explanation might be that reappraisal involves a certain amount of rehearsal and that, consequently, reappraisal leads to strengthening of cognitive scripts as described by Huesmann (1988, 1998). Indeed, most items of the reappraisal subscale of the TCQ seem to involve repetition of the thought, which may lead to script strengthening.

A limitation of the present study is the use of a normal (student) sample and one should be cautious to generalize the current findings to other populations. An important extension to our study would be to include a sample known for its aggressive behaviour, for instance a prisoner sample. Second, although the instruments that were used have good reliability and validity, all the measures were self-report questionnaires. One disadvantage of self-report measures is the susceptibility to generate socially desirable response patterns. However, the participants in this study knew that their data would be analysed anonymously and that no consequences were attached to participation. Nevertheless, including a behavioural outcome measure, or instruments that correct for possible reporter bias could improve the generalization of the results.

A second limitation concerns the correlation design of the study. This indicates that a connection exists between aggressive fantasies and aggressive behaviour and between certain thought control strategies and aggressive behaviour, but it does not permit drawing conclusions about causality. In other words, it may well be that aggressive fantasies and certain thought control strategies are antecedents of aggressive behaviour, but the possibility cannot be ruled out that the cognitive phenomena are merely by-products of aggressive behaviour.

For future research, it is recommended that the links between aggressive fantasies and dysfunctional thought control strategies, and aggressive behaviour are further investigated. Such research should

include male participants and a behavioural outcome measure. Future studies might also benefit from studying populations known for their aggressive behaviour. Finally, it could be examined whether a focus on functional thought control strategies and the development of treatment programs based on this notion might be useful to decrease aggressive behaviour.

Chapter 4

Aggression-related cognition in incarcerated male offenders:

A comparison with community controls

This Chapter is based on:
Nagtegaal, M.H., Rassin, E., & Muris, P. (under revision). Aggression-related cognition in incarcerated male offenders: A comparison with community controls. *Criminal Behaviour and Mental Health.*

Abstract

In the present study, the relationship between aggressive fantasies, thought control strategies and aggressive behaviour was examined in a sample of incarcerated male offenders and a community control group. Sixty-six offenders and 55 controls (all male) filled out the Schedule of Imagined Violence, the White Bear Suppression Inventory, the Thought Control Questionnaire, the Eysenck Personality Profiler, and the Aggression Questionnaire. The prevalence rate of aggressive fantasies was relatively high: 38% of the offenders and 41% of the community controls reported aggressive fantasies within the past two months. A MANCOVA showed significantly higher levels of suppression, worrying, punishment and distraction for the offenders compared to the controls. While various cognitive mediators (e.g., aggressive fantasies, suppression, and social coping) were correlated with aggression scores, regression analyses indicated that thought suppression was the only significant and unique predictor of aggression scores in both samples.

Introduction

In current aggression theories (e.g., Berkowitz, 1990, 1998; Huesmann, 1988, 1998), human aggression is described in a number of different stages. During the first stage, aversive stimuli elicit a lower-order fight (attack) reaction, which is considered to be a relatively automatic response tendency. The strength of this tendency is determined by factors such as genetics and previous experiences. During the second stage, cognitive processes occur that act as moderators of aggressive behaviour as they may either control or magnify a person's response to aversive stimuli (Berkowitz, 1998). A growing body of studies on violent behaviour in offenders focuses on such cognitive processes.

In general, these studies have demonstrated that there is a connection between aggression-related cognition and violent behaviour in offenders. For instance, attributions of hostile intent were related to psychopathy scores (Vitale, Newman, Serin, & Bolt, 2005). A study by Archer and Haigh (1997a) showed that instrumental beliefs about aggression (i.e., aggression as a way of controlling others) were positively related to overt aggression, anger and hostility, whereas expressive beliefs about aggression (i.e., aggression as a loss of control) were negatively related to manifestations of physical and verbal aggression. Deu and Edelmann (1997) compared the fantasies of

predatory sex offenders (those who have planned their offence in detail) and opportunist sex offenders (those who committed their crime spontaneously). A projective technique was used to elicit the offenders' criminal fantasies. In the fantasies of predatory offenders, the crime scenes were described as more organized, planned and elaborated as compared to the fantasies described by opportunist offenders. Finally, Polaschek, Collie and Walkey (2004) demonstrated that offenders with current or previous convictions of violence scored significantly higher on a scale measuring criminal attitudes to violence than men without such convictions. Altogether, these findings indicate that second-stage cognitive processes seem to play an important role in the aetiology and maintenance of aggressive behaviour in offenders.

Huesmann (1988, 1998) specified how cognitive processes are involved in the formation of aggressive behaviour. His information-processing model proposes that persistent aggressive behaviour can be explained as the result of hyper-activated clusters of information (i.e., scripts, schemata). In short, memories about experiences in the past are stored and clustered in a number of different scripts. These scripts are used to guide behaviour as they make it easier to respond adequately and rapidly to environmental cues. Huesmann (1988, 1998) assumes that persistently violent people have acquired hyperactive aggression schemata, and that these scripts are used as the main template of response. In this way, aggressive behaviour will be triggered easily in numerous situations. According to Huesmann (1988, 1998), several steps are involved in the strengthening of aggression-related scripts. After the initial encoding of the experiences in memory has taken place, rehearsal is one of the key variables through which these scripts are formed and strengthened. Through rehearsal, for instance by means of recollection, rumination or fantasizing, the number and strength of the connections to the initial encoded memory are increased and the script becomes more strongly embedded in memory.

In a recent study by Nagtegaal, Rassin and Muris (2006) two cognitive variables that are possibly involved in such rehearsal, namely aggressive fantasies and thought control strategies, were examined in relation to symptoms of aggression in a sample of non-clinical female subjects. It was hypothesized that aggressive fantasies and maladaptive thought control strategies, those resulting in an increase of unwanted thoughts, such as suppression, worrying and punishment (e.g., Amir et al., 1997; McKay & Greisberg, 2002; Wells & Davies, 1994) would be connected to aggression. On the other hand, effective thought control

strategies, such as distraction and social coping were hypothesized to be negatively related to aggression. The maladaptive nature of punishment as a thought control strategy was also shown in Chapter 2, in which significant correlations between punishment and several types of psychopathology were found (Nagtegaal & Rassin, 2004).

Results showed that aggressive fantasies were significantly associated with hostility and total aggression scores, as measured by the Aggression Questionnaire (AQ; Buss & Perry, 1992). Furthermore, the thought control strategies of suppression, worrying, punishment and reappraisal were positively linked to aggression scores, whereas distraction was negatively correlated with aggression. The authors suggested that rehearsal, as a variable involved in script strengthening, might account for these results (Nagtegaal et al., 2006). Another study by Nagtegaal and Rassin (2004) also documented a positive link between the thought control strategy of suppression and aggressive behaviour, as indexed by the psychopathic deviate scale of the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher et al., 1989) and the aggression subscale of the Eysenck Personality Profiler (EPP; Eysenck et al., 1996).

The present study was set up as a replication and extension of previous studies by Nagtegaal and colleagues (Nagtegaal & Rassin, 2004; Nagtegaal et al., 2006), and examined the relations between aggressive fantasies and thought control strategies on the one hand, and aggression on the other hand. One obvious limitation of the earlier research was that those studies relied solely on analogue samples (i.e., students). The present study examined a group known for their aggressive behaviour, namely an offender sample, and compared them with community controls. All participants completed measures of aggressive fantasies, thought control strategies and aggression. This made it possible to examine the following hypotheses. First, offenders were expected to display higher levels of aggression than the controls. In similar vein, it was hypothesized that offenders, compared to controls, would display an increased frequency of aggressive fantasies, higher levels of the maladaptive thought control strategies of suppression, worrying, and punishment, and lower levels of the more effective strategies of distraction and social coping. Furthermore, it was expected that within the community control and offender groups, aggressive fantasies and thought control strategies involving rehearsal (i.e., suppression, worrying, and reappraisal) would be positively related to

aggression scores, while strategies involving no such rehearsal (i.e., distraction and social coping) would be negatively linked to aggression.

Method

Participants

Offender sample

Participants were 66 male offenders in a Dutch prison. Initially, 88 offenders participated in the study, but 22 had to be excluded because they did not fully cooperate or did not fill out their questionnaires completely. There were no differences with regard to age [$t(79) < 1.0$] or the type (i.e., violent versus non-violent) of index offence [$\chi^2(1) = .51$, $p > .05$] between completers and non-completers of the questionnaires. Mean age of the offenders was 32.98 years ($SD = 8.97$, range: 20 to 61). The (highest) level of education was primary school for eight offenders (12%), 17 (26%) had completed pre-vocational secondary education (VMBO), seven (11%) had finished senior general secondary education (HAVO), 18 (27%) had completed secondary vocational education (MBO), and eight offenders (12%) had finished a professional education or university. Seven offenders (11%) did not report their level of education, whereas one offender (2%) indicated that he left school prematurely.

Information about the index crimes that were committed by the offenders was obtained by means of self-report. Twenty-one participants committed a violent offence: 10 (15%) offenders committed (attempted) manslaughter or murder, and 11 (17%) offenders reported various other violent crimes. Non-violent offences were divided into 16 (24%) cases of drugs-related crimes (trafficking, possession, and/or dealing), 11 (17%) cases of theft or burglary, and five (8%) financial crimes. Six offenders claimed to be innocent (9%), whereas seven offenders (11%) did not report what crime they had committed. For these last two groups of offenders, their crimes were considered missing values. Due to the fact that the questionnaires were returned anonymously, it was not possible to compare the self-reported crimes to official crime records.

Ethnic background was defined as the country of origin of both the father and the mother. The ethnic background was diverse; therefore, subgroups were created to allow more meaningful comparisons. These subgroups were Caucasian, Mediterranean, Asian, African, Arabic and a Mixed group, in case the father and the mother of the participant had a

different ethnic background. Twenty-six of the offenders (39%) had a Caucasian background, 17 offenders (26%) were of Mediterranean descent, 11 (17%) were African, and one (2%) was Arabic. Five offenders (8%) had a mixed ethnic background and six offenders (9%) did not specify their parents' country of origin.

Community control sample

The community control group consisted of 54 male participants. Mean age was 36.33 years (*SD* = 9.44, range: 20 to 57). As to the educational level, it should be noted that three participants (6%) had finished primary school, seven (13%) had completed pre-vocational secondary education (VMBO), nine (17%) had finished senior general secondary education (HAVO) or pre-university education, 18 (33%) had finished secondary vocational education (MBO), and 16 (30%) had completed a professional education or university. One participant (2%) in the control group did not complete any type of education.

Community controls were asked about whether they had committed serious crimes for which they had spent time in prison. If this was the case, they were excluded from participation in the study. The ethnic background in the control group was rather homogeneous. Fifty-two participants (96%) had a Caucasian background, one person (2%) was Asian, and one participant (2%) did not provide information about the ethnic background of his parents. The offender sample did not differ from the control group in terms of age [$t(116) < 1.0$], or level of education [$\chi^2(4) = 9.15$, $p > .05$], but a significant difference in ethnic background (Caucasian versus non-Caucasian) was found [$\chi^2(1) = 42.27$, $p < .01$].

Measures

A modified version of the *Schedule of Imagined Violence* (SIV; Grisso et al., 2000) was used (for an overview of the modifications, see Chapter 3). The original SIV contains nine questions on aggressive fantasies, whereas the SIV-NL consists of 13 questions. The first question of the SIV-NL is 'How often do you have daydreams or thoughts about doing damage to or injuring other people?' (frequency). Questions 2 through 9 each inquire about different characteristics of the aggressive fantasies: recency, chronicity, theme, type of harm, target, familiarity, severity, and proximity (see Table 4.1). These items have fixed answering categories. Questions about gender, age, nationality and ethnic background are also included, following the recommendations by

Grisso et al. (2000). SIV status (SIV+ or SIV-) can be determined by combining the variables frequency and recency. Participants who report aggressive thoughts (ranging from 'several times a day' to 'several times a year') and who had experienced these thoughts within the past two months (ranging from 'today' to 'in the past two months') are labelled as SIV+. Participants who reported to have never experienced aggressive thoughts, those who did not know the last time they had such thoughts, or participants who reported to have experienced aggressive thoughts 'more than two months ago', are classified as SIV-.

The *White Bear Suppression Inventory* (WBSI; Wegner & Zanakos, 1994; see also Muris et al., 1996) is a 15-item self-report instrument assessing the tendency to suppress unwanted thoughts. A typical WBSI-item is 'I always try to put problems out of mind'. Items are answered on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Total scores are obtained by summing across items (range: 15 to 75). A higher score indicates a stronger tendency to suppress unwanted thoughts. For the purpose of the present study, items of the WBSI were rewritten in such a way to assess the suppression of aggressive thoughts specifically. A typical item of the WBSI-Aggression (WBSI-A) is 'I always try to put *aggressive* thoughts out of mind' (see Muris et al., 1997; these authors followed a similar procedure for adapting the WBSI to spider fear).

The *Thought Control Questionnaire* (TCQ; Wells & Davies, 1994) was designed to assess individual differences in the use of thought control strategies. The scale contains 30 items that have to be answered on a 4-point scale (1 = *never*, 4 = *almost always*). As mentioned before, the TCQ taps five strategies of mental control that can be employed when experiencing unpleasant, unwanted thoughts: distraction (e.g., 'I do something I enjoy'), social coping (e.g., 'I talk to a friend about the thought'), worrying (e.g., 'I focus on different negative thoughts'), punishment (e.g., 'I slap or pinch myself to stop the thought'), and reappraisal (e.g., 'I try to re-interpret the thought'). The items do not sum up to a total TCQ score. For the purpose of the present study, the TCQ items were also reformulated to assess individuals' tendency to cope with aggressive thoughts (TCQ-Aggression; e.g., 'When I experience an unpleasant/unwanted *aggressive* thought, I do something I enjoy').

The *Aggression Questionnaire* (AQ; Buss & Perry, 1992; see also Meesters et al., 1996) has 29 items that are answered on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). There are four subscales: physical aggression (e.g., 'Once in a while I can't control the urge to strike

another person', 9 items), verbal aggression (e.g., 'I tell my friends openly when I disagree with them', 5 items), anger (e.g., 'I flare up quickly but get over it quickly', 7 items), and hostility (e.g., 'I am sometimes eaten up with jealousy', 8 items). For each subscale, a total score can be computed by summing up relevant items. All items are also combined into a total aggression score, which ranges from 29 to 125.

The *Eysenck Personality Questionnaire-Revised Short Scale* (EPQ-RSS; Eysenck & Eysenck, 1991; see also Sanderman, Arrindell, Ranchor, Eysenck, & Eysenck, 1995) is a 48-item yes/no self-report personality questionnaire. The questionnaire is divided into four subscales, each consisting of 12 items: neuroticism (N), extraversion (E), psychoticism (P) and a lie scale (L) which measures social desirability. For the purposes of the present study, only the lie scale was included in the analyses. The Lie scale consists of items like 'Are *all* your habits good and desirable ones?'. As offenders have a tendency to present themselves in a socially desirable manner (e.g., Polaschek et al., 2004), this scale was included as a control variable.

Procedure

All offenders of two wards in the high-security prison 'De Schie' in Rotterdam, The Netherlands were approached with the request to participate in this study. First, the offenders were given a brief presentation about the general nature and purpose of the study, after which they had the opportunity to ask questions. Further, it was made clear that participation would not have any consequences for their stay in prison and that the data would be analyzed anonymously. After this, informed consent forms were completed. Those offenders who agreed to participate, filled out the questionnaires in the privacy of their own cell. The community control group was approached through the Internet. Both groups were offered a small financial compensation for their participation.

Statistical analyses

Data were first examined for normality of scores by calculating Kolmogorov-Smirnov's Z scores. Results indicated that for the control group, the distribution of TCQ-A punishment scores was non-normal ($Z = 1.46$, $p < .05$). The other (sub)scales were within the normal range (i.e., $p > .05$) for both samples. The reliability of scores on the WBSI-A, TCQ-A,

AQ, and EPQ-RSS Lie scale, was examined by means of Cronbach's alphas. Besides TCQ-A social coping (α = .46) for the offender sample, all alphas indicated moderate to high levels of reliability (α > .60 for both samples, see also Table 4.2).

Between-group differences were evaluated by means of a multivariate analysis of variance, in which social desirability was included as a covariate (i.e., MANCOVA). To examine within-group relations between aggressive fantasies and thought control strategies on the one hand, and aggressive behaviour on the other, point-biserial and Pearson correlations were calculated. Finally, regression analysis was employed to examine the relative contributions of aggressive fantasies and thought control strategies to aggressive behaviour.

Results

General findings

First, the influence of social desirability was examined. For the offender sample, a mean score of 6.30 (*SD* = 2.90) was found, which did not differ significantly from the mean score of 5.96 (*SD* = 2.75) in the control group [$t(118) < 1.0$]. Additionally, point-biserial and Pearson correlations between social desirability and SIV status, WBSI-A, TCQ-A and AQ were computed. For the offender sample, social desirability was significantly negatively related to SIV status (r = -.38), physical aggression, anger and total aggression scores (rs between -.25 and -.40), and significantly positively related to distraction (r = .38). For the community control group, social desirability was significantly negatively related to SIV status (r = -.28), and all aggression subscales (rs between -.27 and -.40). In sum, in both offenders and controls social desirability was associated with lower levels of aggression and aggression-related cognition (i.e., aggressive fantasies as indexed by the SIV). To correct for the influence of social desirability, this variable was entered as a covariate in all subsequent analyses.

Aggressive fantasies

Thirty-five offenders (53%) and 27 controls (50%) reported aggressive fantasies, with a frequency ranging from 'several times a year' to 'several times a day'. Twenty-five offenders (38%) were classified as SIV+, these participants reported aggressive fantasies that occurred

within the past two months. When dividing the group offenders into those persons who had committed a violent index offence (N = 21) versus those who had committed a non-violent index offence (N = 32), it was found that five violent offenders (24%) and 16 non-violent offenders (50%) were SIV+. In the control group, 22 participants (41%) were identified as SIV+. There were no significant differences in the prevalence rate of SIV+ status between the total group of offenders and controls [$\chi^2(1) < 1.0$], nor between the violent offenders, non-violent offenders and controls [$\chi^2(2) < 1.0$], nor within the offender sample (when comparing violent versus non-violent offenders; [$\chi^2(1) < 1.0$]). Within both the offender and the control sample, SIV+ and SIV- participants did not differ significantly with regard to age [$t(62) < 1.0$, and $t(52) < 1.0$, respectively] or ethnic background [both χ^2s$(1) < 1.0$]. The level of education between SIV+ and SIV- participants could not be compared in Chi-square analyses since there were too many empty cells.

In Table 4.1, the answers on the various SIV items for both offenders and community controls are shown. In line with Grisso et al. (2000), differences in the content of aggressive fantasies between offenders and controls were examined. There were no differences between offenders and controls on 'theme, physical hurt', 'type, same each time', 'target, same person', 'familiarity, known person', 'severity, escalation in seriousness', or 'proximity, near person' (all [$\chi^2(1)$s < 1.0].

Table 4.1 *Descriptive characteristics of aggressive fantasies (in percentages) for offenders and controls as measured with the Schedule of Imagined Violence*

SIV characteristics	*Response categories*	*Offenders*	*Controls*
frequency	never	47	50
	several times a year	27	19
	several times a month	15	15
	once a week	0	7
	several times a week	3	2
	once a day	2	2
	several times a day	6	6
recency	today	9	22
	past 2 days	6	7
	past 3-7 days	9	22
	during past month	31	19
	during past two months	17	11
	more than two months ago	3	7
	don't know	26	11
chronicity	as long as remember	29	48
	since several years	6	22
	since several months	9	0
	since specific event	31	7
	don't know	17	22
	different	9	0
theme	physical hurt	51	30
	verbal aggression	37	48
	sexual aggression	0	4
	other	11	19
type	same	34	26
	different	51	56
	don't know	14	19
target	same person	17	19
	different people	71	70
	don't know	11	11
familiarity	known people	49	30
	sometimes known/unknown	37	44
	unknown people	6	19
	don't know	9	7
severity	less severe	37	26
	more severe	20	11
	not changed	26	44
	don't know	17	19
proximity	near	49	48
	not near	37	44
	don't know	14	7

Note. For the SIV characteristics 'frequency' and 'recency', the number of respondents was $N = 66$ offenders and $N = 54$ community controls. For the remaining SIV characteristics, only those respondents who were SIV+ were included (i.e., 25 offenders and 22 community controls).

Differences between offenders and control subjects

The descriptive statistics for the EPQ-RSS, WBSI-A, TCQ-A, and AQ scores are presented in Table 4.2. The differences between scores on these scales for the offenders and the controls were examined by means of a MANCOVA (with social desirability as a covariate). A significant main effect for group was found [$F(10,108) = 2.39$, $p < .05$].

Table 4.2 *Mean scores and standard deviations (corrected for social desirability) on questionnaires measuring aggression, and thought control strategies of offenders (n = 66) and controls (n = 54)*

	Offenders		*Controls*	
	M (SD)	*α*	*M (SD)*	*α*
WBSI-A suppression	39.46 (16.87)$_a$	.92	33.81 (13.24)$_b$	.94
TCQ-A distraction	15.58 (4.63)$_a$	.86	12.56 (4.08)$_b$	.88
TCQ-A social coping	11.92 (3.01)$_a$	.46	12.11 (3.36)$_a$	.72
TCQ-A worrying	11.93 (3.26)$_a$	.62	9.98 (3.08)$_b$	.79
TCQ-A punishment	10.23 (3.48)$_a$	.72	8.81 (2.64)$_b$	.73
TCQ-A reappraisal	13.07 (3.59)$_a$	.69	12.59 (3.08)$_a$	.65
AQ total	78.64 (20.50)$_a$	.90	73.52 (23.00)$_a$	.94
AQ physical	24.58 (8.86)$_a$	.83	23.54 (8.99)$_a$	.88
AQ verbal	14.42 (3.55)$_a$	.62	13.65 (3.29)$_a$	.62
AQ anger	17.61 (5.57)$_a$	.69	16.15 (6.96)$_a$	.89
AQ hostility	22.03 (6.63)$_a$	.77	20.19 (7.38)$_a$	.86

Note. Means with different subscripts indicate a significant between-group difference at $p < .05$.
WBSI-A = White Bear Suppression Inventory-Aggression, TCQ-A = Thought Control Questionnaire-Aggression, AQ = Aggression Questionnaire.
M = Mean, *SD* = Standard Deviation, *α* = Cronbach's alpha

Follow-up ANCOVA's showed that, compared to community controls, offenders scored significantly higher on WBSI-A suppression [$F(1,120) = 4.40$, $p < .05$], and the TCQ-A scales of worrying [$F(1,120) = 10.95$, $p < .01$], punishment [$F(1,120) = 6.04$, $p < .05$] and distraction [$F(1,120) = 13.56$, $p < .001$]. Surprisingly, there were no significant differences in aggression scores between offenders and controls [all $F(1,120)$s between .95 and 2.54, all ps > .05].

Relations between aggressive fantasies, thought control strategies, and aggression

Offender sample

Partial correlations between aggressive fantasies and thought control strategies on the one hand and aggression on the other were computed for the two samples separately (while correcting for social desirability).

A number of significant correlations were found. As expected, SIV status, suppression, and reappraisal were significantly positively related to most aggression scores. Unexpectedly, worrying showed only one significant correlation with aggression. Further, the expected negative correlation between distraction and aggression was not found. Finally, it should be mentioned that the TCQ-A scales of punishment and social coping also showed significant positive correlations to aggression (see Table 4.3).

Stepwise linear regression analyses (while correcting for social desirability) were carried out to examine the relative contributions of aggressive fantasies and thought control strategies to aggression scores. In these analyses, social desirability was entered on the first step, whereas SIV status, WBSI-A, and the five TCQ-A subscales were entered as predictors on the second step. The AQ total score was the dependent variable. For step 1, the regression model explained 9% of the total variance [$F(1,65) = 6.00$, $p < .05$]. Most importantly, the variables entered on the second step accounted for an additional 36% of the variance [$\Delta R^2 = .36$, $F(8,65) = 5.67$, $p < .01$]. Suppression ($ß = .47$, $t = 3.95$, $p < .05$) appeared to be the only variable that made an independent and significant contribution to aggression scores.

Table 4.3 *Correlations between aggressive fantasies and thought control strategies on the one hand, and aggression scores on the other hand, for offenders (n = 66)*

	AQ total	*AQ physical*	*AQ verbal*	*AQ anger*	*AQ hostility*
SIV status[1]	.41**	.50**	.28*	.31*	.13
WBSI-A suppression	.54**	.51**	.29*	.49**	.42**
TCQ-A distraction	-.02	-.08	-.05	.07	.03
TCQ-A social coping	.30*	.16	.30*	.30*	.30*
TCQ-A worrying	.15	-.05	.21	.25*	.19
TCQ-A punishment	.28*	.11	.30*	.32**	.27*
TCQ-A reappraisal	.24	.12	.27*	.25*	.18

Note. [1]All correlations were partial *r*s (in which we corrected for social desirability). The partial *r* between SIV status and AQ scores was obtained by means of an ANCOVA (because the former variable was dichotomous).
* $p < .05$, ** $p < .01$
AQ = Aggression Questionnaire, SIV = Schedule of Imagined Violence, WBSI-A = White Bear Suppression Inventory-Aggression, TCQ-A = Thought Control Questionnaire-Aggression.

Community controls

As expected, for the community controls, SIV status, suppression, and worrying were significantly positively related to aggression scores (all *r*s between .16 and .66). In contrast with the expectations, reappraisal did not correlate positively with aggression scores and distraction did not

correlate negatively with aggression scores. Furthermore, the TCQ-A scale of punishment also correlated positively with most of the aggression scores (see Table 4.4). Stepwise linear regression analyses were performed (see above). On step 1, the model accounted for 16% of the variance [$F(1,53) = 9.52$, $p < .01$], whereas on step 2 an additional 48% was explained [$\Delta R^2 = .48$, $F(8,53) = 9.56$, $p < .01$]. Again, suppression ($ß = .44$, $t = 3.64$, $p < .05$) appeared to be the only significant positive predictor of aggression.

Table 4.4 *Correlations between aggressive fantasies and thought control strategies on the one hand, and aggression scores on the other hand, for controls (n = 54)*

	AQ total	*AQ physical*	*AQ verbal*	*AQ anger*	*AQ hostility*
SIV Status[1]	.55**	.51**	.54**	.46**	.39**
WBSI-A suppression	.66**	.51**	.51**	.56**	.64**
TCQ-A distraction	.17	.06	.07	.19	.24
TCQ-A social coping	-.03	-.18	.01	.11	.01
TCQ-A worrying	.44**	.28*	.32*	.39**	.50**
TCQ-A punishment	.40**	.16	.35*	.35*	.52**
TCQ-A reappraisal	.11	.03	.23	.04	.16

Note. [1]All correlations were partial *r*s (in which we corrected for social desirability). The partial *r* between SIV status and AQ scores was obtained by means of an ANCOVA (because the former variable was dichotomous).
* $p < .05$, ** $p < .01$
AQ = Aggression Questionnaire, SIV = Schedule of Imagined Violence, WBSI-A = White Bear Suppression Inventory-Aggression, TCQ-A = Thought Control Questionnaire-Aggression.

Discussion

The present study examined two cognitive correlates of aggression, namely aggressive fantasies and thought control strategies, among offenders and a community control group. In contrast to the expectations, offenders did not report more aggressive fantasies or higher levels of aggression than community controls. On the other hand, significant differences between the two groups were found with respect to the use of certain thought control strategies. That is, as predicted, offenders displayed higher levels of suppression, punishment and worrying. However, they also displayed more distraction as compared to controls, which is not in keeping with the hypotheses.

In both samples, aggressive fantasies and the thought control strategies of suppression and punishment were correlated to aggression scores. In addition, several correlations between thought control strategies and aggression were found that seemed to be more specific for either the offenders or the community controls. In the regression

analyses, suppression appeared as the main predictor of aggression scores for both samples. Overall, the results of the current study provide partial support for the hypotheses formulated at the start of this study. That is, cognitive factors such as aggressive fantasies and thought control strategies involving rehearsal are related to aggression, as we predicted based on the aggression model by Huesmann (1988, 1998).

Thirty-eight percent of the offenders and 41% of the community controls met the SIV+ criteria. Surprisingly, these prevalence rates did not differ between offenders and controls. This is in contrast with Huesmann's (1988, 1998) theory, which would predict a higher prevalence of such fantasies for the offenders. The prevalence rates of both offenders and controls were somewhat higher than those obtained for the female non-clinical sample (SIV+ = 30%) of Nagtegaal et al. (2006). Further, compared to Grisso et al.'s (2000) community sample, in which a prevalence rate of 14% was found, and the hospitalized patient sample, in which 30% of the participants were SIV+, the prevalence rates in the present study were fairly high. However, it should be borne in mind that the SIV-NL differed in important ways from the original SIV (see also Nagtegaal et al., 2006), and it is most likely that these modifications account for the differences in prevalence with Grisso et al.'s (2000) study. Also, it is important to note that the present study is the first that examines aggressive fantasies with the (modified) SIV in an offender sample, therefore it is unknown how this type of participants respond to such a measure of aggressive fantasies. Finally, it should be mentioned that both samples did not differ significantly with regard to the content of the aggressive fantasies. These results are largely in line with the findings by Grisso et al. (2000), who also found few differences in the characteristics of aggressive fantasies.

Within both the offender and the community sample, there were no differences in age or ethnic background when comparing SIV+ versus SIV- participants. These findings are in line with the lack of differences with regards to these demographic variables as found in female non-clinical subjects (Nagtegaal et al., 2006) but are in disaccord with the results reported by Grisso et al. (2000). It is possible that socio-economic and/or cultural differences between the United States and The Netherlands account for these diverging results. Alternatively, it seems to be the case that, at least in The Netherlands, the report of aggressive fantasies across samples with different cultural backgrounds is relatively common.

Unexpectedly, there were no differences in aggression scores between offenders and controls. One explanation could be that either the offenders or the controls in the present study scored differently from previously reported norm scores in comparable samples. The mean aggression scores for the offenders in the present study were comparable to scores reported by Archer and Haigh (1997a) and Smith and Waterman (2004b), somewhat higher than scores reported by Williams, Boyd, Cascardi and Poythress (1996) and lower than scores reported by Smith and Waterman (2004c). These mixed results illustrate the view that no conclusive norms for aggression scores for offenders have been established yet and it is suggested that this issue should receive more empirical attention in future research (see also Smith & Waterman, 2004c). For the community controls, the aggression scores were somewhat higher than previously reported findings in comparable samples (e.g., Suarez, Lewis, & Kuhn, 2002). Alternatively, it could be that either the offender or the control sample was not representative of their respective population. For the offenders, the least aggressive group may have agreed to participate, whereas the control group, which was approached through the Internet, may have consisted of a non-representative, relatively aggressive group. In addition, there was a significant difference between the two samples in ethnic background, which also makes it difficult to compare the two samples.

Although the offenders did not report higher levels of aggressive fantasies and aggression, their thought control strategies were different from the community controls. As predicted, offenders were more likely to use suppression, worrying and punishment. Furthermore, offenders also more often employed distraction as a way to control their intrusive aggressive thoughts. Offenders' increased score of distraction was not anticipated, it was assumed that this type of thought control strategy would be more frequently observed in the control group. In general, the results were in keeping with previous research showing that suppression, worrying and punishment are associated with aggression (Nagtegaal & Rassin, 2004; Nagtegaal et al., 2006), as well as with other types of psychopathological phenomena (e.g., Amir et al., 1997; Nagtegaal & Rassin, 2004; McKay & Greisberg, 2002; Rassin, 2003; Wegner, 1989), and further underline that these three strategies are maladaptive in nature.

For both offenders and community controls, SIV status, suppression and punishment were significant correlates of aggression. The relation between suppression and aggression was also confirmed by the

regression analyses, which indicated that this variable made a significant and independent contribution to aggression scores in both samples. These results are in line with the hypothesis that certain thought control strategies can be seen as cognitive factors that are involved in the pathogenesis of aggression. Huesmann's (1988, 1998) theory may be employed to account for this result. Based on this theory, it can be hypothesized that the thought control strategy of suppression eventually promotes rehearsal, which is viewed as a crucial factor in the strengthening of aggression-related cognitive scripts.

Some limitations of the present study should be acknowledged. First, the study solely relied on self-report measures and obviously this method is sensitive to reporter bias effects. This may be particularly true for the offenders, which is an issue that has been noted by several other authors (e.g., Polaschek et al., 2004). Although social desirability was specifically included in this study to correct for such response tendencies (especially in offenders), the tendency to present oneself favourably may have influenced the pattern of results. Indeed, although the scores on social desirability did not differ across the samples, significant negative correlations between social desirability, aggression, and aggression-related cognition were found. Clearly, future research might benefit from including other, indirect assessment methods. For instance, experimental laboratory tasks, judgments by others, direct behavioural observation, or official records may be useful for measuring aggression. A promising task for identifying cognitive schemata underlying aggressive behaviour is the binocular rivalry task (Seager, 2005). In binocular rivalry, two distinctly different images are presented, one to each eye. These images provide such different retinal information that binocular predominance occurs: observers report seeing only one image, instead of fusing them into one (Fox, 1991). Following the assumption that cognitive schemata form the template of response in any given situation, violent men should be more prone to see violent cues as opposed to non-violent cues. Indeed, it has been demonstrated that the frequency of violent perceptions correlated significantly with assault convictions and psychopathy (Seager, 2005).

A second limitation is concerned with the cross-sectional design of the study. The offenders and controls completed a set of questionnaires for measuring current levels of aggression and aggression-related cognition. With such an approach, it is not possible to draw conclusions regarding causality. Follow-up studies should try to examine the connection between aggressive fantasies and dysfunctional thought

control strategies and subsequent aggressive behaviour in a prospective way. In the offenders, for example, recidivism rates could be used to achieve this goal.

To our knowledge, the present study is the first to examine the link between aggressive fantasies, thought control strategies, and aggression in an offender sample. The findings lend support to the hypothesis that aggressive fantasies and rehearsal-promoting thought control strategies may be seen as cognitive factors involved in aggression. More specifically, the results suggest that maladaptive thought control strategies in particular, seem to be associated with aggressive behaviour. It is therefore suggested that more attention is given to the way in which people deal with intrusive aggressive thoughts. A relatively short intervention such as psycho-education on the maladaptive nature of certain thought control strategies may already result in a decrease in the use of such strategies and subsequent aggressive behaviour. Similar suggestions have been made by Serin and Kuriychuk (1994) who noted: 'Psychopathic or persistently violent offenders must appreciate that they process information differently from others, and that they must compensate for this if they wish to control the consequences of their behaviour better' (p. 438). Clearly, this issue warrants further research.

Chapter 5

Do members of shooting associations display higher levels of aggression?

This Chapter is based on:
Nagtegaal, M.H., Rassin, E., & Muris, P. (under revision). Do members of shooting associations display higher levels of aggression? *Psychology, Crime and Law.*

Abstract

According to public opinion, members of shooting organizations (i.e., shooters) are thought to be more aggressive than other groups in society. Also, guns are generally seen as stimuli that elicit aggressive behaviour. The present study examined whether shooters are really more aggressive than non-shooters. Shooters and non-shooters were compared on measures of aggressive behaviour, aggressive fantasies, impulsivity, and main personality dimensions (i.e., neuroticism, psychoticism, and extraversion). The results showed that members of shooting associations were *less* aggressive and impulsive than non-members, even when controlling for their tendency to present themselves in a more favourable manner. These findings suggest that there is no reason to consider hobby shooters a-priori as more aggressive. A possible explanation could be that for shooters, their positively coloured experiences with guns have changed the aggression-eliciting effect that normally occurs when interacting with guns (i.e., the weapons effect). These findings are discussed in light of the cognitive script theory of aggression.

Introduction

In April 2004, people in The Netherlands were shocked when they learned that a man, who was later found to be a member of a shooting association, shot and killed three people and then committed suicide (Derksen & Haighton, 2004; 'Doden bij', 2004). Immediately, a public debate arose in which some argued that shooting association membership should be discouraged or even forbidden (Scharroo, 2004). Several politicians proposed stricter rules for (members of) shooting associations, for instance that they should not be allowed to store their guns in the house ('Strengere regels', 2004; Eerdmans, 2004; Scharroo, 2004). The incident fuelled the idea that individuals who are aggressive tend to choose 'aggressive' leisure time activities such as hobby shooting ('Schietclubs woedend', 2004). In another line of reasoning, shooting, or even the presence of firearms, may cause people to become aggressive (see also Berkowitz & LePage, 1967), however, to our knowledge, no empirical evidence indicates that members of shooting associations are more aggressive than the average individual, although a vast amount of literature exists on the relation between guns and aggressive behaviour.

The effect that weapons have on aggressive behaviour has been receiving empirical attention since the late 1960s. In a now classic experiment by Berkowitz and LePage (1967), it was found that angered participants administered more electric shocks in the presence of a gun (i.e., when a gun was lying on the table) than when no object or a neutral object was present. This effect became known as the 'weapons effect': the mere presence of guns as aggression-eliciting stimuli. The study by Berkowitz and LePage (1967) inspired a body of research with regard to the weapons effect. Generally, these studies compare behaviour of participants in the weapon condition with behaviour of participants in the non-weapon condition. In the weapon condition, participants handle a gun or a gun is present in the room. In the non-weapon condition, an unrelated object like a football is handled or is present in the room. The outcome measures that are used usually involve one or more measures of aggressive behaviour.

It has been found that participants in the weapon condition assigned longer prison sentences to perpetrators in a hypothetical scenario depicting a crime (Dienstbier, Roesch, Mizumoto, Hemenover, Lott, & Carlo, 1998), that the presence of a weapon during the course of a crime reduces the validity of eyewitness testimony (Mehrkens Steblay, 1992), that participants in the weapon condition add more hot sauce to a glass of water they believed that another subject would have to drink and that they showed a greater increase in testosterone levels (Klinesmith, Kasser, & McAndrew, 2006). Testosterone has consistently been associated with aggressive behaviour in animals (for instance, see Brain & Haug, 1992), although results regarding the relation between testosterone and human aggressive behaviour have been mixed (see Archer, 2006). Recently, it was shown that cortisol moderates the relation between testosterone and overt aggressive behaviour in delinquent male adolescents (Popma et al., 2007). Overall, these findings indicate a robust effect of weapons as aggression-eliciting stimuli, a result that was also found in a meta-analysis by Carlson, Marcus-Newhall and Miller (1990).

Several theories have been proposed to account for the weapons effect. Originally, the mere presence of a gun as a situational cue was thought to elicit aggression (Berkowitz & LePage, 1967). Later on, Berkowitz (e.g., 1990, 1993b) attributed the weapons effect to a process of priming. Anderson, Benjamin and Bartholow (1998) describe the way this priming occurs in more detail. The priming of weapons (in words or pictures) activates related concepts in memory, thereby triggering

(more) aggressive cognitions. Subsequent appraisal and decision processes are influenced by these aggressive cognitions and the likelihood of reacting aggressively increases. This 'hostile state of mind' (Anderson et al., 1998, p. 164) not only increases the chance of interpreting information in a more aggressive manner, but also causes the individual to seek out information consistent with these beliefs. In this manner, 'the gun pulls the trigger' (C. A. Anderson et al., 1998, p. 308). Huesmann (1988, 1998) proposed a similar explanation on the development of aggressive behaviour in his information-processing theory.

Recently, it has been proposed that there are individual differences in the susceptibility to the weapons effect (Bartholow, Anderson, Carnagey, & Benjamin Jr, 2005). It was hypothesized that the weapons effect would not occur for people who do not associate weapons with aggression. Bartholow and colleagues compared a group of hunters with a group of non-hunters and found that hunters were more inclined to have a positive association with guns (experiment 1), that a priming effect occurred when hunters were presented with pictures of assault guns, but not with pictures of hunting guns (experiment 2), and that hunters showed more aggressive behaviour (i.e., administered a louder and longer punishing noise to a participant who was thought to be in another room) in response to a picture of an assault gun as opposed to a hunting gun (experiment 3).

These findings suggest that the weapons effect is indeed mediated by individual differences in the perception of guns. That is, pre-existing individual differences in knowledge structures between hunters and non-hunters seemed to have an impact on the interpretation of aggressive stimuli in these three experiments. Although many different knowledge structures have been identified, Bartholow et al. (2005) note that two are particularly relevant to their research, namely perceptual schemata and behavioural scripts. These are the same cognitive phenomena that play an important role in the theory postulated by Huesmann (1988, 1998). Bartholow and colleagues (2005) suggest that their results can be explained in light of this theory. More specifically, for hunters, aggression scripts do not seem to be activated in the presence of hunting guns.

In sum, the findings of the studies discussed above consistently show an aggression-eliciting effect of weapons across various types of experiments and participants. Also, the study by Bartholow et al. (2005) suggests that familiarity with guns decreases the weapons effect

potential if the pertinent guns are associated with non-hostile activities (e.g., leisure hunting). In this line of reasoning, it can be hypothesized that other groups in society who (also) associate guns with non-aggressive activities, such as members of shooting associations, will not show an increase in aggressive behaviour even though they interact with guns on a regular basis. In the present study, this hypothesis was tested by comparing individuals who join shooting associations to individuals who are not a member of such an association in their aggression proneness.

Two groups of participants (shooters and non-shooters) were compared with respect to aggressive behaviour, personality dimensions, impulsivity and aggressive fantasies. Furthermore, within each group, correlations between these factors and aggressive behaviour were computed, and the unique contribution of each variable to total aggression scores was examined.

Method

Participants

Participants were 59 members of shooting associations and 67 community controls (all males). For the shooters, the mean age was 41.93 years (SD = 13.49, range = 15-82), while in the control group, the mean age was 38.82 years (SD = 14.59, range = 12-75). The difference in age was not significant [$t(124) < 1.0$]. In both groups, most participants were from Dutch origin (i.e., both parents were Dutch). In the shooting sample, one participant was from a non-Dutch origin, while there were three non-Dutch participants in the control group.

Procedure

Members of shooting associations throughout the Netherlands were invited to participate in an online questionnaire study. A community control group was recruited by means of an advertisement on the Internet. All participants received a small financial compensation for taking part in this study.

Measures

The *Aggression Questionnaire* (AQ; Buss & Perry, 1992; see also Meesters et al., 1996) has 29 items that are answered on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). There are four subscales: Physical aggression (e.g., 'Once in a while I can't control the urge to strike another person'), Verbal aggression (e.g., 'I tell my friends openly when I disagree with them'), Anger (e.g., 'I flare up quickly but get over it quickly'), and Hostility (e.g., 'I am sometimes eaten up with jealousy'). For each subscale, a total score can be computed by summing up relevant items. All items are also combined in a total aggression score, which ranges from 29 to 125.

A modified version of the *Schedule of Imagined Violence* (Grisso et al., 2000) was used (for an overview of the modifications, see Chapter 3). The original SIV contains nine questions on aggressive fantasies, whereas the SIV-NL consists of 13 questions. The first question of the SIV-NL is 'How often do you have daydreams or thoughts about doing damage to or injuring other people?' (frequency). Questions 2 through 9 each inquire about different characteristics of the aggressive fantasies: recency, chronicity, theme, type of harm, target, familiarity, severity, and proximity (see Table 5.1). These items have fixed answering categories. Questions about gender, age, nationality and ethnic background are also included, following the recommendations by Grisso et al. (2000). SIV status (SIV+ or SIV-) can be determined by combining the variables frequency and recency. Participants who report aggressive thoughts (ranging from 'several times a day' to 'several times a year') and who had experienced these thoughts within the past two months (ranging from 'today' to 'in the past two months') are labelled as SIV+. Participants who reported to have never experienced aggressive thoughts, or those who did not know the last time they had such thoughts, or participants who reported to have experienced aggressive thoughts 'more than two months ago', are classified as SIV-.

The *Urgency, lack of Premeditation, lack of Perseverance, Sensation seeking impulsive behaviour scale* (UPPS; Whiteside & Lynam, 2001) is a 45-item self-report questionnaire measuring four different psychological processes leading to impulsive behaviour: Urgency (a tendency to commit rash or regrettable actions as a result of intense negative affect, e.g., 'I have trouble controlling my impulses'), (lack of) Premeditation (a tendency to react without careful thinking and planning, e.g., 'I have a reserved and cautious attitude toward life'), (lack of) Perseverance (a

tendency to stop completing a task due to easy boredom, e.g., 'I tend to give up easily'), and Sensation seeking (the tendency to seek excitement and adventure, e.g., 'I generally seek new and exciting experiences and sensations'). All items are scored on a 4-point scale: 1 = *strongly disagree*, 4 = *strongly agree*. A higher score indicates a tendency to be impulsive in the specified domain.

The *Eysenck Personality Questionnaire* (EPQ; Eysenck & Eysenck, 1991; see also Sanderman et al., 1995) was used as a measure of basic personality traits. The questionnaire contains 48 dichotomous items (yes or no) that can be allocated to four subscales: Neuroticism (emotional instability, e.g., 'Does your mood often go up and down?'), Extraversion (sociability, assertiveness and focus on the outside world, e.g., 'Do you enjoy meeting new people?'), Psychoticism (an individualistic, cold and insensitive attitude, e.g., 'Do you prefer to go your own way rather than act by the rules?'), and Social desirability (a willingness to present oneself in a socially desirable manner, e.g., 'Are *all* your habits good and desirable ones?').

Statistical analyses

Data were first examined for normality of scores by calculating Kolmogorov-Smirnov's *Z* scores. Results indicated that for the shooters, the distributions of AQ verbal aggression scores and the EPQ neuroticism and psychoticism scores were slightly non-normal (*Z*s > 1.00, *p*s < .05). In the control group, AQ verbal aggression and anger, and EPQ neuroticism and psychoticism were distributed non-normally (*Z*s > 1.00, *p*s < .05). Despite the fact that a small departure from normality was found for these subscales, most scores were distributed normally and parametric tests were employed.

Results

First, the reliability of scores on the AQ, UPPS, and EPQ scales were examined by means of Cronbach's alpha. Besides AQ verbal aggression and EPQ psychoticism (in both groups), all alphas indicated moderate to high levels of internal consistency (αs > .65, see Table 5.1). Second, the influence of social desirability was examined. For the shooters, a mean score of 7.20 (*SD* = 2.41) was found, which was significantly higher than the mean score of 5.93 (*SD* = 3.17) in the control group [$t(124) = 2.52$, $p < .05$].

In addition, correlations between social desirability and AQ subscales, SIV status, UPPS factors, and scores on other EPQ-scales were computed. For the shooters, social desirability was significantly negatively related to all AQ subscale scores, SIV status, UPPS urgency and lack of perseverance, and EPQ neuroticism (*r*s between -.30 and -.52, *p*s < .05). For the control group, social desirability was significantly negatively related to AQ physical aggression, anger and total aggression scores, SIV status, UPPS urgency and sensation seeking, and EPQ extraversion and neuroticism (*r*s between -.27 and -.40, *p*s < .05). In sum, the influence of social desirability was twofold: shooters scored significantly higher on social desirability than controls and several negative correlations (i.e., a decrease in scores on the other measures) between social desirability and other measures were found in both groups. Therefore, subsequent analyses were conducted while correcting for social desirability.

Group differences

The descriptive statistics for the AQ, UPPS, and EPQ scores are presented in Table 5.1. The differences between scores on these scales for the shooters and the controls were examined by means of a multivariate analysis of variance, with social desirability as the covariate (MANCOVA). A significant main effect for group was found [$F(12,111) = 8.43$, $p < .01$]. Follow-up ANCOVAs showed that, compared to controls, shooters scored significantly higher on EPQ extraversion [$F(1,122) = 6.16$, $p < .01$] and significantly lower on all AQ subscale scores, UPPS lack of premeditation, urgency and lack of perseverance, and EPQ psychoticism and neuroticism [*F*s(1,122) between 5.02 and 39.88, *p*s < .05].

Table 5.1 *Mean scores (standard deviations) for shooters (n = 59) and controls (n =67) on measures of aggression, impulsivity and personality*

	Shooters			*Controls*	
	Adj. M (SD)	α		*Adj. M (SD)*	α
AQ physical	17.66 (5.12)	.65	**	23.21 (7.93)	.79
AQ verbal	12.12 (2.72)	.60	*	13.48 (3.03)	.44
AQ anger	13.07 (4.81)	.73	**	17.08 (5.70)	.75
AQ hostility	16.92 (5.52)	.76	**	20.58 (7.16)	.82
AQ total	59.76 (14.30)	.87	**	74.35 (18.55)	.89
UPPS urgency	20.58 (5.62)	.84	**	27.88 (6.07)	.82
UPPS lack of premeditation	19.08 (4.51)	.81	**	23.08 (5.66)	.86
UPPS lack of perseverance	16.31 (4.49)	.80	**	19.88 (5.33)	.82
UPPS sensation seeking	30.02 (7.52)	.84		31.15 (7.55)	.83
EPQ psychoticism	2.25 (1.49)	.48	**	3.64 (1.63)	.30
EPQ extraversion	8.02 (2.28)	.88	*	7.06 (2.81)	.82
EPQ neuroticism	2.20 (2.06)	.72	**	4.88 (3.37)	.85

Note. α = Cronbach s Alpha. *Adj. M* = estimated marginal means when correcting for social desirability, *SD* = standard deviation. AQ = Aggression Questionnaire, UPPS = Urgency, lack of Perseverance, lack of Premeditation, Sensation seeking impulsive behaviour scale, EPQ = Eysenck Personality Questionnaire.
* $p < .05$, ** $p < .01$.

Thirty members of a shooting association (51%) and 30 controls (55%) reported aggressive thoughts, with a frequency ranging from 'several times a year' to 'several times a day' (see Table 5.2). Only 14 shooters (24%) were classified as SIV+, these participants reported aggressive thoughts that occurred within the past two months. In the control group, 29 participants (43%) were identified as SIV+. In chi-square analyses, the difference in SIV+ status between shooters and controls was significant [$\chi^2(1) = 20.12$, $p < .05$]. However, when carrying out logistic regression analysis in order to control for social desirability in SIV status, the difference was no longer significant [Wald $\chi^2(1) = 1.40$, $p > .05$].

In line with Grisso et al. (2000), differences in the content of aggressive thoughts between shooters and controls were also examined. The variables 'theme, physical hurt', 'type, same each time', 'familiarity, known person' were significantly different between the two groups [$\chi^2(1)$s between 4.24 and 4.66, ps < .05]. However, these differences became non-significant when controlling for social desirability. There were no differences on the other variables, that is 'target, same person', 'severity, escalation in seriousness', or 'proximity, near person' [$\chi^2(1)$s between .17 and 1.87, ps > .05].

Table 5.2 *Descriptive characteristics of aggressive thoughts (in percentages) for shooters and controls as measured with the Schedule of Imagined Violence (SIV)*

SIV characteristics	*Response categories*	*Shooters*	*Controls*
frequency	never	49	45
	several times a year	31	15
	several times a month	9	8
	once a week	2	9
	several times a week	3	12
	once a day	5	3
	several times a day	2	9
recency	today	5	15
	past 2 days	3	8
	past 3-7 days	5	12
	during past month	5	5
	during past two months	5	6
	more than two months ago	5	3
	don't know	22	9
chronicity	as long as remember	36	45
	since several years	29	21
	since several months	0	3
	since specific event	21	14
	don't know	14	14
	different	0	3
theme	physical hurt	36	31
	verbal aggression	43	48
	sexual aggression	0	3
	other	21	17
type	same	29	48
	different	64	35
	don't know	7	17
target	same person	36	17
	different people	64	79
	don't know	0	3
familiarity	known people	50	59
	sometimes known/unknown	29	31
	unknown people	21	10
	don't know	21	0
severity	less severe	29	21
	more severe	21	10
	not changed	36	41
	don't know	14	28
proximity	near	50	59
	not near	50	38
	don't know	0	3

Note. For the SIV characteristics 'frequency' and 'recency', the number of respondents was $N = 59$ shooters and $N = 67$ controls. For the remaining SIV characteristics, only those respondents who were SIV+ were included (i.e., 14 shooters and 29 controls).

Correlates of aggression in both groups

Shooters

Partial correlations (correcting for social desirability) between aggressive thoughts, impulsivity factors, and personality dimensions on the one hand and aggression on the other were computed (see Table 5.3). A number of significant correlations were found. Most importantly, SIV status, UPPS urgency and sensation seeking, and EPQ neuroticism were significantly positively related to various types of aggression.

Stepwise linear regression analyses were carried out to examine the relative contributions of personality dimensions, impulsivity factors and aggressive thoughts to total aggression scores. In these analyses, social desirability was entered on step 1, SIV status, UPPS and EPQ subscales were entered on step 2, whereas the AQ total aggression score was the dependent variable. For step 1, the regression model explained 27% of the total variance [$F(1,58) = 20.93$, $p < .01$], more precisely, social desirability made a significant (negative) contribution to total aggression scores ($ß = -.52$, $t = 4.58$, $p < .01$). The variables entered on step 2 accounted for an additional 37% of the variance [$F(9,58) = 9.71$, $p < .01$]. The only variable that made a significant positive unique contribution to aggression scores was UPPS urgency ($ß = .58$, $t = 4.78$, $p < .01$).

Table 5.3 *Correlations between aggressive thoughts, personality characteristics and aggression scores in members of a shooting association (n = 59)*

	AQ total	*AQ physical*	*AQ verbal*	*AQ anger*	*AQ hostility*
SIV status[1]	.54**	.48**	.31*	.42**	.36**
UPPS urgency	.66**	.34**	.19	.64**	.64**
UPPS lack of premeditation	.03	.12	-.05	-.00	-.01
UPPS lack of perseverance	.09	-.01	-.15	.05	.26*
UPPS sensation seeking	.19	.39**	.30*	.05	-.09
EPQ neuroticism	.47**	.19	.10	.53**	.45**
EPQ psychoticism	.08	.26*	.05	-.12	.05
EPQ extraversion	.08	.11	.14	-.05	.07

Note. [1]All correlations were partial *r*s, corrected for social desirability. The partial *r* between SIV status and AQ scores was obtained by means of an ANCOVA (because the former variable was dichotomous). AQ = Aggression Questionnaire, SIV = Schedule of Imagined Violence, UPPS = Urgency, lack of Perseverance, lack of Premeditation, Sensation seeking impulsive behaviour scale, EPQ = Eysenck Personality Questionnaire.
* $p < .05$, ** $p < .01$.

Controls

For the control group, SIV status, UPPS urgency and EPQ neuroticism were positively correlated to various subscale scores of aggression. Lack of premeditation and sensation seeking correlated negatively with most aggression scores (see Table 5.4). Stepwise linear regression analyses were performed (see above). On step 1, the model accounted for 11% of the variance [$F(1,65) = 8.21$, $p < .01$], indicating that social desirability had a significant negative influence on aggression scores ($ß = -.34$, $t = 2.87$, $p < .01$). On step 2, an additional 45% of the variance was explained [$F(9,65) = 7.89$, $p < .01$]. In this case, EPQ neuroticism ($ß = .50$, $t = 4.31$, $p < .01$) and psychoticism ($ß = .25$, $t = 2.50$, $p < .01$) appeared as unique and significant positive predictors of aggression.

Table 5.4 *Correlations between aggressive thoughts, personality characteristics and aggression scores in controls (n = 67)*

	AQ total	*AQ physical*	*AQ verbal*	*AQ anger*	*AQ hostility*
SIV status[1]	.38**	.46**	.17	.33*	.14
UPPS urgency	.43**	.23	.17	.49**	.37**
UPPS lack of premeditation	-.31**	-.22	-.19	-.26*	-.26*
UPPS lack of perseverance	-.08	.01	-.22	-.00	-.10
UPPS sensation seeking	-.17	.06	.05	-.31*	-.26*
EPQ neuroticism	.61**	.21	.29*	.60**	.70**
EPQ psychoticism	.16	.35**	.14	.02	-.04
EPQ extraversion	-.15	-.08	-.01	-.20	-.15

Note. [1]All correlations were partial *r*s, corrected for social desirability. The partial *r* between SIV status and AQ scores was obtained by means of an ANCOVA (because the former variable was dichotomous). AQ = Aggression Questionnaire, SIV = Schedule of Imagined Violence, UPPS = Urgency, lack of Perseverance, lack of Premeditation, Sensation seeking impulsive behaviour scale, EPQ = Eysenck Personality Questionnaire.
* $p < .05$, ** $p < .01$.

Discussion

The results of the present study demonstrate that members of shooting associations scored differently on aggression and aggression-related variables as compared to controls. However, shooters did not score higher on these measures, on the contrary, members of shooting associations scored lower on aggression, personality dimensions, impulsivity, and aggressive thoughts. Although these decreased scores were partly due to a socially desirable response style, even when correcting for social desirability in subsequent analyses, shooters scored significantly lower than controls on most subscales. More specifically, members of shooting associations were less characterized by an

individualistic, cold and insensitive attitude (psychoticism), were less emotional unstable (neuroticism), showed less impulsive behaviour in several different domains, reported less aggressive thoughts, and exhibited less aggressive behaviour than participants in the control group. The finding that members of shooting associations scored significantly higher on extraversion, a measure of a sociable and assertive attitude and a focus on the outside world, corroborates these results.

The idea that aggressive individuals choose 'aggressive' leisure time activities such as shooting was also not substantiated by the results of the present study. Indeed, when the shooters were asked to indicate why they became a member of a shooting association, 64% answered 'for relaxation', 52% indicated that they visited the club 'to socialize', 59% reported to view shooting as a hobby, whereas only 6% indicated 'losing extra energy/frustration' as one of the reasons for their membership (it was allowed to give more than one answer, therefore, the total does not add up to 100%).

It should be noted that, in The Netherlands, possession of guns is generally not allowed and it is a rather complicated and lengthy procedure to become a full member of a shooting association. A background-check and safety-procedure is carried out, which involves a search through criminal records, an examination by the police, a registered candidate-membership of a shooting association for at least a year and regular shooting-practice at the association (Koninklijke Nederlandse Schutters Associatie, 2006). In addition, members have to abide by several Dutch laws pertaining to gun ownership and it is regularly checked whether these rules are followed. Only after this extensive procedure, a candidate-member becomes a full member and is given a permit to carry a gun. This might explain why members of shooting associations are less aggressive than other people. However, the screening that occurs does not involve measures of aggression, personality or impulsivity, but mostly looks at criminal behaviour. Also, if the screening procedure really had the effect of selecting out all individuals who could become aggressive, there may not have been any shooting incidents with members of shooting associations. Our purpose was to test whether there were any personality differences in the shooting association group that may have accounted for the incidents.

The results of the present study fit nicely with the findings of Bartholow et al. (2005). Although Berkowitz (1990, 1993) and Huesmann (1988, 1998)'s theoretical frameworks would predict that the presence of

weapons increases the chance of behaving aggressively due to rehearsal and subsequent activation of a hyperactive aggressive script, Bartholow and colleagues (2005) hypothesized that this may not be the case for people who do not see guns as aggressive stimuli. According to these authors, the explanation on the association between weapons and aggressive behaviour by Berkowitz (1990, 1993) and Huesmann (1988, 1998) depends upon the assumption that weapons are seen as instruments designed to kill, objects that hurt others. If a weapon is not associated with violence, it would not activate related aggressive concepts in memory and one would not expect a relation between weapons and aggressive behaviour.

Following this line of reasoning, Bartholow and colleagues (2005) hypothesized that certain groups in society like hunters, would not associate guns with aggression but with objects that are used in sports and recreation. Indeed, they found that for hunters, weapons (hunting guns) generated different - less aggressive - thoughts, feelings and behaviours. The authors suggested that pre-existing individual differences in knowledge structures (cognitive scripts) between hunters and non-hunters influenced the interpretation of aggressive stimuli in their experiments (Bartholow et al., 2005). Translating these results to the current study, it can be hypothesized that shooters, like hunters, do not associate guns with aggression but with the fun they experience while being at the shooting association. Likewise, the continued interaction with the guns at the shooting association will not result in more aggressive behaviour. Indeed, we found that shooters scored lower on aggression, which provides further evidence for the suggestion that individual differences in knowledge structures changes the impact that aggressive stimuli have on actual behaviour (cf. Bartholow et al., 2005).

In order to explore the relations between personality dimensions, impulsivity factors and aggressive thoughts on the one hand, and aggression scores on the other, correlations were computed. Multiple significant correlations appeared in both groups. For instance, neuroticism, urgency and SIV status were generally correlated with various types of aggressive behaviour, in both shooters and non-shooters. In addition, some correlations were found that were characteristic for either the shooters or the controls. In the additional regression analyses, different factors emerged as unique contributors of total aggression scores. For the shooters, urgency was the only significant (positive) predictor and for the controls neuroticism and

psychoticism were independent (positive) predictors of total aggression scores. It seems that for members of a shooting association, impulsive behaviour due to negative affect is associated with aggressive behaviour.

The connection between neuroticism and psychoticism and aggression has been previously found (e.g., Gleason, Jensen-Campbell, & South Richardson, 2004; Tremblay & Ewart, 2005; Walker & Gudjonsson, 2006), and suggests that people who are characterized by a hostile and individualistic attitude (psychoticism) or emotional instability (neuroticism) behave more aggressively. The finding that the independent predictors of total aggression scores varied somewhat across both groups provides another indication that there may be differences in underlying knowledge structures, or cognitive scripts, between the two samples (c.f., Bartholow et al., 2005).

Some limitations of the current study need to be addressed. First, all variables were measured by means of self-report scales and this implies that reporter bias cannot be ruled out. Indeed, social desirability appeared to have a significant impact on the data. However, as social desirability was explicitly measured in this study, it was possible to correct for its influence in the statistical analyses. Nevertheless, future research may benefit from including concurrent measures, such as peer reports or behavioural observations.

A second shortcoming has to do with a possible selection bias that could be operating in this study. As mentioned before, gun ownership and participation in a shooting association in the Netherlands is subject to significant scrutiny and regulation. Thus, members of shooting associations are carefully screened with respect to variables that could influence the dependent variables in our research. It would be interesting to replicate the study in another country, where gun ownership is less restrictive, for instance the United States. Nevertheless, the current findings give no reason to argue that shooting association membership is associated with increased levels of aggression, at least not in the Netherlands. This clearly contradicts the public opinion of the people in this country.

Third, in order to provide a straightforward empirical test of the hypothesis as put forward by Bartholow and colleagues (2005), it is preferable to directly test differences in underlying knowledge structures by means of an experimental task, such as the priming task described by Anderson, Anderson and Deuser (1996) and C.A. Anderson et al. (1998). Another task that appears promising is the

binocular rivalry task. In binocular rivalry, two distinctly different images are presented, one to each eye. These images provide such different retinal information that binocular predominance occurs: observers report seeing only one image, instead of fusing them into one (Fox, 1991). Following the assumption that cognitive schemata form the template of response in any given situation, violent men should be more prone to see violent cues as opposed to non-violent cues. Indeed, it has been demonstrated that the frequency of violent perceptions correlated significantly with assault convictions and psychopathy (Seager, 2005). Although such an experimental task was not included in the present study the measures that were used may contribute to identifying which characteristics may be involved in differences in aggressive responding of various groups in society. Nevertheless, future research may be directed at more directly examining differences in knowledge structures, for instance the priming task or the binocular rivalry task.

Fourth, the obtained data was cross-sectional in nature, which does not permit drawing conclusions about causality. In other words, it is not possible to conclude whether certain personality traits, impulsivity factors and aggressive thoughts are causing aggressive behaviour or whether these are merely by-products of people who are aggressive in nature.

As a final note, as mentioned before, political proposals as a reaction to a shooting incident in the Netherlands included discouraging membership of shooting associations and forbidding storage of hobby guns in the house. Although members of shooting associations were not more aggressive in the present study and these results suggest that stricter rules for shooting associations may not be necessary, there are some indications that the limitation of the storage of hobby guns may be wise. For instance, Hepburn and Hemenway (2004) found that people in countries with more firearms are more at risk of being murdered. They also found that the risk of being killed increased linearly with the number of firearms that were available in the house. The authors suggested that the fact that guns are physically more lethal than other weapons, such as knives, may account for this higher prevalence rate of homicide. In case of an argument or fight, the chance of a fatal outcome increases when a gun (instead of another weapon) is readily available (Hepburn & Hemenway, 2004). Therefore, it may be wise to keep storage of guns in the household limited, also for people who at present are allowed to possess such weapons like hobby shooters.

Chapter 6

Summary and general discussion

While extensive research has been conducted on aggression and numerous aggression-related factors have been identified, several aspects of aggressive behaviour have remained relatively unexplored. More specifically, research on aggressive fantasies and thought control strategies and their impact on aggressive behaviour, has been scarce. Also, studying individual differences in pre-existing psychopathology and personality dimensions with regard to these variables has not been done previously. This thesis aimed at further exploring these and several other aspects of aggression. The aggression theory by Huesmann (1988, 1998) played a central role in this thesis. Huesmann supposes that individuals have several different cognitive scripts available that help guide behaviour. For instance, there is a script on how to behave while driving a car and another script helps guide behaviour at a formal occasion. These scripts consist of a series of set behaviours and in this manner, persons are able to respond to information from the environment adequately and rapidly. The scripts are based on experiences at an early age and memories about these experiences are clustered and stored in different scripts. Each time a person encounters a social problem, cues from the environment are evaluated and a search in memory is performed to find the appropriate script to guide behaviour. The scripts suggest what is likely to happen in the situation, what the person should do in response to these events, and what the likely outcome of this behaviour will be (Huesmann, 1988, 1998).

Huesmann states that persistently aggressive individuals have acquired hyperactive cognitive aggression scripts which are used as the template of response to numerous situational cues. In this manner, aggressive behaviour will occur in many different situations and under varying circumstances. According to Huemann, several steps are involved in the strengthening of aggressive scripts. After the initial encoding in memory has taken place, repetition becomes one of the most important variables that creates and strengthens (aggressive) scripts. By means of repetition, for instance by recalling, contemplating or fantasizing, the number of connections and the strength of the connections to the initial encoded memory increase. In this thesis, among other things, the hypothesis that variables that involve such repetition could be related to aggressive behaviour was examined. In the current chapter, the main results will be summarized and discussed. Furthermore, strengths, weaknesses, and suggestions for future research will be discussed.

In Chapter 2, the usefulness of the thought suppression paradigm in explaining impulsivity and aggression was examined. This paradigm was originally proposed as an explanatory model of the persistent nature of the obsessions and intrusive thoughts that characterize obsessive-compulsive disorder (OCD; American Psychiatric Association, 2000). In the study presented in Chapter 2, it was hypothesized that intrusive thoughts might also be related to behavioural disinhibition, namely impulsive and aggressive behaviour. Secondly, it was hypothesized that individual differences in psychopathology could influence the connections between thought intrusions, suppression, impulsivity and aggression. Third, besides thought suppression, we were interested in studying other thought control strategies and their connection to thought intrusions and psychopathology. In order to examine these hypotheses, measures of thought intrusion, suppression and other thought control strategies, impulsivity, aggression, and psychopathology were administered to a sample of 90 university students (males and females).

As hypothesized, the results showed that intrusive thoughts and thought suppression were significantly related to most measures of aggression. In contrast to expectations, thought intrusion and suppression were not related to impulsivity[3]. As a possible explanation for the combined findings (i.e., a relation between intrusion and aggression and not between intrusion and impulsivity), it can be put forward that a specific subtype of aggressive behaviour might be involved here, namely proactive aggression. This dimension of aggressive behaviour involves premeditated aggression and careful planning. When this planning, a construct that contrasts with impulsive behaviour, becomes more and more frequent, intense and longer-lasting, it might turn into intrusive thoughts (Rachman & De Silva, 1978).

Further, as hypothesized, thought intrusions were related to several complaints of psychopathology and to punishment as a thought control strategy (but not to the other four TCQ thought control strategies). In addition, punishment was the only TCQ thought control strategy that was related to multiple clinical scales of a measure of psychopathology. More specifically, when punishment was used as the typical way to control unwanted intrusive thoughts, participants reported higher levels

[3] In hindsight, the lack of a relation between impulsivity and intrusive thoughts is not so surprising. Impulsive behaviour occurs when someone acts on the spur of the moment whereas intrusive thoughts involve thinking about something for an extensive period of time. Therefore, these constructs appear to be measuring different behavioural tendencies.

of depression, hostility, paranoia, suspiciousness, and aggression, and displayed lower levels of behavioural control. This indicates that punishment is not an effective way to control (any type of) thought intrusions. Interestingly, the destructive nature of punishment, although this involves punishment by other people, has been recognized for a number of years. An example of this notion comes from the offender literature, in which it is recognized that punishment alone is not an effective way of reducing recidivism in working with offenders. When an offender's risks and needs[4] have not been met, they will not be likely to reduce their criminal activities once they get out of prison (Andrews & Bonta, 1994). As Hollin and McMurran (2004) state, punishment is a destructive way of trying to change behaviour, since it tries to suppress criminal behaviour through fear and intimidation. As suggested by the results of the study presented in Chapter 2, it appears that the non-productive nature of punishment might also characterize punishment that is not brought about by other people but by the person himself (self-punishment). It is possible that this punishment also involves suppression, a type of thought control strategy that has been identified as maladaptive in this study as well.

Another addition to the thought suppression literature is the finding that there were individual differences in pre-existing psychopathology and the vulnerability to experience thought intrusion and thought suppression. People with hostile, aggressive behaviour and a lack of behavioural control were particularly vulnerable for experiencing both intrusion and suppression. Individuals with obsessive-compulsive tendencies also scored higher on intrusion and suppression. Further, persons who have a tendency to be paranoid and suspicious, persons with obsessive-compulsive tendencies and persons with depressive mood state scored higher on the intrusion factor. These results add to the scarce existing literature on individual differences in suppression attempts. Previous studies have found a relation between depressive mood and an increase of unwanted thoughts (e.g., Rachman, 1997; Wenzlaff, Wegner, & Roper, 1988), and individuals with highly developed mathematic skills seem to suffer more from thought

[4] In the Risks-Needs-Responsivity principle (Andrews & Bonta, 1994), it is stated that many offenders have a variety of risks and needs that need to be addressed in trying to reduce recidivism. Examples of their *risks* are impulsivity, personality disorders, previous violence and so on. They *need* a place to live, to work and, as is often the case, to stop taking drugs. In the *responsivity principle* it is stated that treatment programs should be delivered in a style and modus that is consistent with the abilities and learning style of the offender. If these factors are not addressed, which is the case in 'pure' punishment strategies, offenders will not change their behaviour and they will continue to commit crimes.

suppression (Ruthledge, Hollenberg, & Hancock, 1993). However, the present study is the first which studied thought suppression, thought intrusion and several different manifestations of individual differences in pre-existing psychopathology simultaneously. Furthermore, these results confirm Abramowitz et al. (2001)'s recommendation of taking into consideration differences in pre-existing psychopathology when examining thought intrusion and suppression.

In Chapter 3, the nature and prevalence of aggressive fantasies and thought control strategies and their connection to aggressive behaviour was studied. In a female student sample, self-report measures of violent fantasies, thought control strategies, and aggressive behaviour were administered. It was expected that self-reported aggressive fantasies would be positively related to (an increase in) aggressive behaviour. Secondly, it was hypothesized that the thought control strategies of suppression, worrying, and punishment would be positively related to aggressive behaviour, whereas the strategies of social coping and distraction would be negatively related to aggression. For the thought control strategy cognitive reappraisal, no specific expectations were formulated. For these female students, it was relatively common to experience aggressive fantasies, as indicated by the finding that almost 60% of the participants reported aggressive fantasies. The frequency of the aggressive fantasies ranged from once a day to several times a year. The fantasies mostly involved verbal aggression, although fantasies about physical hurt were also quite common. Interestingly, the fantasies most likely involved multiple persons who were known to the participant.

Thought control strategies were employed to control unwanted thoughts, usually by either distracting oneself from the thought or by trying to re-interpret the thought (i.e., cognitive reappraisal). Several factors were related to measures of aggression. For instance, aggressive thoughts were related to hostility and total aggression scores. As predicted, positive correlations emerged between the thought control strategies of suppression, worrying, and punishment on the one hand and aggression scores on the other, whereas negative correlations between distraction and several subscales of aggression were found. Cognitive reappraisal was related to hostility. Although no specific hypotheses were formulated for the relation between reappraisal and aggression, the connection between reappraisal and hostility can be explained when examining the items on the subscale measuring cognitive reappraisal more closely. It appears that they involve a certain

amount of rehearsal which may lead to strengthening of the aggression scripts (see Huesmann, 1988, 1998). Also, reappraisal has been related to increased psychopathology in previous experimental studies (e.g., Abramowitz et al., 2003; Wells & Davies, 1994) and Wells and Davies (1994) further concluded that reappraisal used in a rigid and perseverative manner may be dysfunctional in nature. It is possible that the results in Chapter 3 reflect this particular dysfunctional behavioural style.

Regression analyses were carried out to examine the relative influence of aggressive thoughts and thought control strategies on total aggression scores. No unique contribution of aggressive thoughts to total aggression scores was found, whereas suppression emerged as an independent positive predictor of total aggression scores and distraction as an independent negative predictor of total aggression scores. These findings suggest that suppression of these thoughts is the most unproductive way of controlling aggressive thoughts (although worrying and punishment were also connected with increased aggressive behaviour), whereas distraction is an effective thought control strategy.

Although - to our knowledge - this study was one of the first studies that examined aggressive thoughts in a female student sample (in which only 2% of the thoughts had a sexual theme) and one should be cautious with generalizing these results to other populations, the findings are in accordance with perspectives taken in recent treatment programs for sex offenders. For instance, the German *Institut für Sexualwissenschaft und Sexualmedizin des Universitätsklinikums Charité Berlin* (Institute for Sexology and Sexual Medicine at the University of Berlin, Germany), runs several projects with regard to the treatment of (potential) sex offenders. In sex offenders with deviant sexual preferences, the sexual fantasies themselves are not considered as dangerous. Rather, the focus of the treatment methods lies on controlling the outcome behaviour and not on controlling the fantasy life[5]. The mere experience of aggressive thoughts is therefore no reason for concern (Institut für Sexualwissenschaft und Sexualmedizin, 2005; K.M. Beier, personal communication, December 15, 2005). The outcome behaviour after

[5] One of the projects of the German institute is called *'Kein Täter werden'* (Do not become a perpetrator) and focuses on men who have sexual fantasies about children but have not (yet) acted on these fantasies and who desire to be treated in order not to become a sex offender. These men are invited to the institute and receive psychodiagnostics and treatment for free. Having sexual fantasies about children in these men is considered a chronic disease that - by current scientific insights - *can not be cured*. Rather, the goal of this treatment is to teach the potential perpetrators to deal with their sexual fantasies in a way that does not harm the children or themselves.

experiencing aggressive fantasies may – at least partially – be influenced by the thought control strategy that is employed.

In Chapter 4, it was considered valuable to expand on the work presented in the previous Chapters by studying a population known for its aggressive behaviour, namely an offender sample. The previous studies solely relied on analogue samples (i.e., students), in which the base rate for aggressive behaviour is fairly low. This shortcoming to the previous studies was addressed in Chapter 4, by examining possible differences in aggressive fantasies, thought control strategies and their relation to aggressive behaviour in persons who have actually behaved aggressively. The participants in this study were offenders and community controls. It was expected that offenders would display an increased frequency of aggressive fantasies, higher levels of aggression and maladaptive thought control strategies (i.e., suppression, worrying and punishment), and lower levels of the more effective strategies of distraction and social coping. Also, for both the offenders and the controls, it was hypothesized that the thought control strategies involving rehearsal (i.e., suppression, worrying and reappraisal) would be related to increased aggression scores, while the thought control strategies involving no such rehearsal would be negatively linked to aggression (i.e., result in a decrease of aggressive behaviour).

The results showed that the prevalence rate of aggressive thoughts in both samples was fairly high: 38% of the offenders and 41% of the community controls reported such thoughts during the past two months (non-significant difference). As predicted, significantly higher levels of the ineffective thought control strategies of suppression, worrying and punishment were found for the offenders as compared to the community controls. With regard to the effective thought control strategies, a significant difference was found between the offenders and the controls on distraction. However, the offenders scored higher than the controls, which was in contrast with the expectations. In both samples, aggressive thoughts and the thought control strategies of suppression and punishment were correlated to a broad range of aggression scores. In addition, several correlations between thought control strategies and aggression were found that seemed to be more specific for either the offenders or the community controls. In the regression analyses, suppression was the only significant and unique predictor of aggression scores in both offenders and controls.

These findings relate to the findings in the previous Chapters in important ways. First, the prevalence rate of aggressive thoughts did not

differ between offenders and community controls. This supports the notion presented above, that aggressive fantasies themselves, although related to aggression, are not the strongest indication of aggressive behaviour. Second, more evidence relating to the detrimental nature of certain thought control strategies was found. In particular, the relation between suppression, worrying, punishment and aggression shows that these thought control strategies may not be very effective. Suppression appears to be most strongly related to increased aggressive behaviour, since this factor appeared as a unique predictor of aggression scores in regression analyses in both offenders and controls.

Chapter 5 focused on members of shooting associations. According to lay public opinion, members of shooting organizations (shooters) are more aggressive than other groups in society. Also, weapons are generally seen as stimuli that generate aggressive behaviour, an effect that is known as the 'weapons' effect (e.g, Berkowitz & LePage, 1967; for a meta-analysis, see Carlson et al., 1990). However, there is no empirical evidence that indicates that members of shooting associations are indeed more aggressive. In this study, it was examined whether the popular notion that members of a shooting association display higher levels of aggression than individuals who are not a member of such an association could be supported with empirical evidence. Furthermore, the relations between aggressive thoughts, personality factors and impulsivity on the one hand and aggressive behaviour on the other, in both shooters and non-shooters, were studied. Again, measures of personality, impulsivity, aggressive thoughts and aggressive behaviour were administered. The results showed that social desirability had a significant influence on questionnaire scores in both shooters and control participants. Also, shooters, compared to controls, scored significantly higher on social desirability. Therefore, social desirability was entered as a covariate in subsequent analyses. Nevertheless, shooters scored significantly *lower* on most scales measuring aggression and associated variables (impulsivity, psychoticism and neuroticism), contradicting public opinion. Members of shooting associations only scored higher on extraversion.

When examining the prevalence rate of aggressive fantasies in shooters and controls, it was found that 24% of the shooters and 43% of the controls reported aggressive fantasies. Although this difference is quite large, it was not significant when correcting for social desirability in the analyses. These findings suggest that there is no reason to consider shooters as more aggressive than individuals who are not a

member of a shooting association. Also, it appears that the regular interaction with guns in the members of a shooting association was not associated with higher levels of aggression (although this hypothesis was not directly tested). The relations between aggressive thoughts, personality and impulsivity and total aggression scores were also examined. Although neuroticism, urgency, and reporting aggressive thoughts were generally correlated with aggressive behaviour in both groups, the independent predictors of total aggression scores varied across the shooter and control groups. In members of shooting associations, it was found that acting impulsively due to negative affect (urgency) was positively related to aggression, whereas neuroticism and psychoticism were uniquely positively associated with aggression in controls.

In sum

Overall, the studies in this thesis offer support for the notion that aggressive fantasies and certain thought control strategies are related to aggressive behaviour. More specifically, the main results may be summarized as follows. **Aggressive thoughts** were correlated to reports of aggressive behaviour in a female student sample (Chapter 3), in offenders and controls (Chapter 4), and in members of shooting associations and control participants (Chapter 5). Further, significant correlations were found between the **thought control strategies** of suppression and punishment on the one hand, and aggression on the other hand in female students (Chapter 3), and in an offender and control sample (Chapter 4). In these studies in Chapter 3 and 4, suppression also appeared to be the only significant positive independent predictor of total aggression scores. Furthermore, suppression and punishment as thought control strategies were related to measures of psychopathology, indicating that they may not be very adaptive ways of dealing with intrusive thoughts (Chapter 2). Other thought control strategies, for instance distraction and social coping, appeared to be more effective, since these were not or negatively related to psychopathology (Chapter 2) and aggression (Chapter 3 and 4).

With regard to **personality dimensions** and aggression, it was found that neuroticism correlated positively with total aggression scores in shooters and in non-shooter control participants (Chapter 5). Additionally, in control participants, neuroticism appeared as an independent predictor of aggression scores. Significant positive

correlations appeared between a subtype of **impulsivity** (urgency) and total aggression scores for the members of the shooting associations and control participants. In addition, sensation seeking was positively correlated with aggression scores in shooters and negatively correlated with aggression scores in control participants. Furthermore, urgency was found to be an independent predictor of total aggression scores for the members of a shooting association. Taken together, these results suggest that aggressive thoughts, certain thought control strategies, some personality factors and one specific type of impulsive behaviour (i.e., urgency) are robustly connected to measures of aggression. Furthermore, it may be valuable to take them into consideration as possible risk and vulnerability factors for aggressive behaviour.

The aggression model by Huesmann (1988, 1998) can be employed to account for several of the results that were found in Chapters 2 through 5. As mentioned before, Huesmann's information-processing model tries to explain the development of aggressive behaviour in early childhood and the exacerbation and maintenance of aggressive behaviour later on in life. Huesmann assumes that persistently violent individuals have acquired hyperactive aggression schemata, and that these scripts are used as the main template of response to any situational cue. In this way, aggressive behaviour will be triggered easily. The model further states that rehearsal is one of the factors that causes script strengthening and increases the likelihood of reactivation in later situations. As rehearsal increases, the scripts become more firmly encoded and integrated in memory. Based on these assumptions, it was hypothesized that aggressive fantasies and certain thought control strategies would involve such rehearsal and that they would be related to aggressive behaviour. Indeed, fantasizing about aggression, and using suppression and punishment as thought control strategies, were related to higher aggression scores. In addition, neuroticism and acting impulsively due to negative affect (urgency) were also related to aggressive behaviour. These results are graphically summarized in Figure 2.

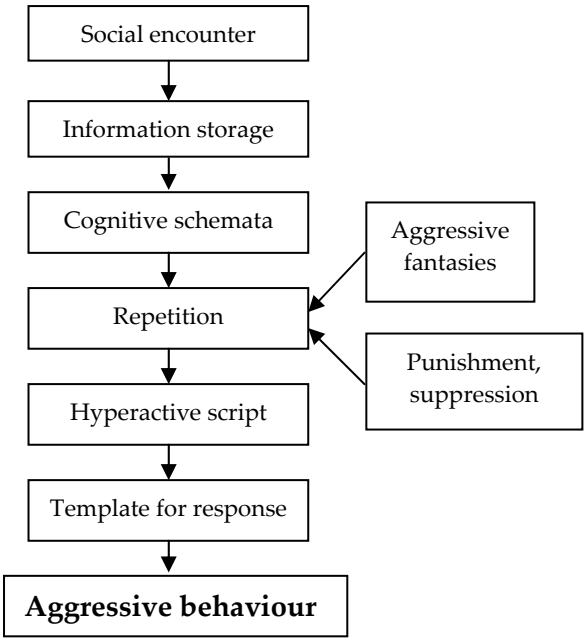


Figure 2. *Results of the present study in light of Huesmann's (1988, 1998) information-processing model of aggression*

Shortcomings and future directions

Several shortcomings of the current research can be identified. First, the studies presented in this thesis solely relied on self-report measures. This might have led to reporter bias due to participants' tendency to present themselves in a positive manner. It is likely that this effect was stronger for some of the groups that were studied, for instance, the members of the shooting association or the offender sample. Indeed, social desirability was significantly higher for shooters, as compared to non-shooters, although such a difference was not found in the offender sample. While designing these studies, it was known that a socially desirable response style might influence the results, and therefore, social desirability was included as a control variable. Furthermore, participants responded anonymously and they knew that there were no consequences attached to the information given. As a second limitation, it can be argued that some of the constructs would have been better studied by including measures other than self-report. This might be particularly true for the construct of aggressive behaviour (which was

studied by means of the self-report Aggression Questionnaire). However, as stated before (Chapter 1), the AQ has been related to more direct measures of aggressive behaviour in several studies (e.g., Buss & Perry, 1992; Smith & Waterman, 2004b; Bushman, 1995), which illustrates the fact that the AQ has good convergent validity and is a robust measure of aggression. For the offender sample, one could argue that it would have been better to use more direct measures of aggression such as official records of re-arrest and reconviction. However, in criminological research, self-reports as a measure of criminal or aggressive behaviour are quite common and may be even preferred over official records (e.g., see McNiel et al., 2002). That is, official records are thought to be under-representing the actual criminal behaviour. As an example, in a recent study into the effectiveness of drug treatment programs, recidivism data was used as the outcome measure of criminal behaviour (Holloway, Bennett, & Farrington, 2006). When both self-reports and official data were available, the authors disregarded the official records of re-arrest and reconviction and only looked at self-reported criminal behaviour. The reason for this was that the authors considered self-reports to provide fuller and more recent evidence of offending, and therefore more valuable (Holloway et al., 2006). Behavioural measures or observer ratings (e.g., by fellow students) could also have been employed, however, as mentioned above, behavioural measures also have their limitations as they may be confounding the exact construct that you are trying to measure. An example of this can be found in the study by Enticott, Ogloff, Bradshaw and Daffern (2007) in which institutional violence was used as an outcome measure for aggression in a psychiatric hospital. The incidents were recorded by the hospital's staff members, who have been trained to ensure that institutional aggressive behaviour is reduced to a minimum. The mere presence of these staff members probably had an effect on the (unexpectedly small) amount of aggressive incidents that occurred.

Other constructs, such as aggressive thoughts and thought control strategies, are simply not measurable or detectable through other measures than self-report and these could not have been studied in another way. Nevertheless, including a behavioural outcome measure could have strengthened the conclusions that can be drawn. Examples of these measures have been discussed in the previous Chapters and include experimental laboratory priming tasks of aggression words or pictures, which appear to be valuable in identifying an information processing bias (e.g., Anderson et al., 1998), and the binocular rivalry

task for identifying cognitive schemata underlying aggressive behaviour (Seager, 2005). Other measures that could be considered for future research are judgments by others or direct behavioural observations.

A third limitation concerns the cross-sectional design of the studies. The results indicate a connection between several factors and aggressive behaviour, but they do not permit drawing conclusions about causality. In other words, it may be that aggressive thoughts, certain thought control strategies and several personality dimensions are antecedents of aggressive behaviour, but the possibility cannot be ruled out that they are merely by-products of aggressive behaviour. A suggestion for future research could be to include follow-up assessments of the individuals that participated in our studies and to see whether the factors that appeared to be related to aggressive behaviour, are also related to aggressive behaviour in the future. This type of prospective research may shed more light on questions regarding causality.

As a final note, as discussed above, whereas some thought control strategies (suppression and punishment) were ineffective, as shown by their connection to measures of psychopathology and aggression, other thought control strategies, for instance distraction and social coping appeared to be more adaptive ways of controlling one's thoughts. These techniques were not or negatively related to aggressive behaviour or psychopathology. Future research could be directed at developing a relatively short intervention - such as psycho-education - that teaches adaptive ways to control unwanted thoughts and that explains which thought control strategy should better not be used. This may result in a decrease in the use of dysfunctional thought control strategies (and subsequent aggressive behaviour). In several cognitive-behavioural treatment programs that focus on improving control over unwanted impulses, for instance Aggression Replacement Training (ART; Goldstein et al., 2004), and Dialectic Behaviour Therapy (DBT; e.g., Linehan & Kehrer, 1993), distraction is already used as a technique in trying to enhance behavioural control. For instance, individuals are thought to control their behaviour by focusing on their breathing pattern or by counting to ten before acting. These therapies usually emphasize replacing certain inadequate thoughts or cognitions with other, more constructive thoughts. The results of the present thesis suggest that another step into more behavioural control might be to employ an adaptive thought control strategy such as distraction and social coping and to refrain from using suppression, worrying and punishment as ways to control unwanted thoughts.

References

Abramowitz, J.S., Tolin, D.F., & Street, G.P. (2001). Paradoxical effects of thought suppression: A meta-analysis of controlled studies. *Clinical Psychology Review, 21*, 683-703.

Abramowitz, J.S., Whiteside, S., Kalsy, S.A., & Tolin, D.F. (2003). Thought control strategies in obsessive-compulsive disorder: A replication and extension. *Behaviour Research and Therapy, 41*, 529-540.

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders. Text Revision* (4th ed.). Washington, DC: APA.

Amir, N., Cashman, L., & Foa, E.B. (1997). Strategies of thought control in obsessive-compulsive disorder. *Behaviour Research and Therapy, 35*, 775-777.

Anderson, C.A., Anderson, K.B., & Deuser, W.E. (1996). Examining an affective aggression framework: Weapon and temperature effects on aggressive thoughts, affect, and attitudes. *Personality and Social Psychology Bulletin, 22*, 366-376.

Anderson, K.B., Anderson, C.A., Dill, K.E., Deuser, W.E. (1998). The interactive relations between trait hostility, pain and aggressive thoughts. *Aggressive Behavior, 24*, 161-171.

Anderson, C.A., Benjamin, A.J., & Bartholow, B.D. (1998). Does the gun pull the trigger? Automatic priming effects of weapon pictures and weapon names. *Psychological Science, 9*, 308-314.

Anderson, C.A., & Bushman, B.J. (2002). Human aggression. *Annual Review of Psychology, 53*, 27-51.

Anderson, C.A., Carnagey, N.L., & Eubanks, J. (2003). Exposure to violent media: The effects of songs with violent lyrics on aggressive thoughts and feelings. *Journal of Personality and Social Psychology, 84*, 960-971.

Anderson, C.A., & Dill, K.E. (2000). Video games and aggressive thoughts, feelings, and behaviour in the laboratory and in life. *Journal of Personality and Social Psychology, 78*, 772-790.

Andrews, D.A., & Bonta, J. (1994). *The psychology of criminal conduct.* Cincinnati, OH: Anderson Publishing.

Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology, 8*, 291-322.

Archer, J., & Haigh, A.M. (1997a). Beliefs about aggression among male and female prisoners. *Aggressive Behavior, 23*, 405-415.

Archer, J., & Haigh, A.M. (1997b). Do beliefs about aggressive feelings and actions predict reported levels of aggression? *British Journal of Social Psychology, 36*, 83-105.

Archer, J. (2006). Testosterone and human aggression: An evaluation of the challenge hypothesis. *Neuroscience and Biobehavioral Reviews, 30,* 319-345.

Barratt, E.S. (1991). Measuring and predicting aggression within the context of a personality theory. *Journal of Neuropsychiatry, 3*, S35-S39.

Barratt, E.S. (1994). Impulsiveness and aggression. In J. Monahan & H.J. Steadman (Eds.), *Violence and mental disorder: Developments in risk assessment.* (pp. 61-79). Chicago: University of Chicago Press.

Barratt, E.S., & Slaughter, L. (1998). Defining, measuring and predicting impulsive aggression: A heuristic model. *Behavioral Sciences and the Law, 16*, 285-302.

Barratt, E.S., Stanford, M.S., Kent, T.A., & Felthous, A.R. (1997). Neuropsychological and cognitive psychophysiological substrates of impulsive aggression. *Biological Psychiatry, 41*, 1045-1061.

Barratt, E.S., Stanford, M.S., Dowdy, L., Liebman, M.J., & Kent, T.A. (1999). Impulsive and premeditated aggression: A factor analysis of self-reported acts. *Psychiatry Research, 86*, 163-173.

Bartholow, B.D., Anderson, C.A., Carnagey, N.L., & Benjamin Jr, A.J. (2005). Interactive effects of life experience and situational cues on aggression: The weapons priming effect in hunters and nonhunters. *Journal of Experimental Social Psychology, 41*, 48-60.

Bellmore, A.D., Witkow, M.R., Graham, S., & Juvonen, J. (2005). From beliefs to behaviour: The mediating role of hostile response selection in predicting aggression. *Aggressive Behaviour, 31*, 453-472.

Berkowitz, L. (1990). On the formation and regulation of anger and aggression. *American Psychologist, 45*, 494-503.

Berkowitz, L. (1993a). Pain and aggression: Some findings and implications. *Motivation and Emotion, 17*, 277-293.

Berkowitz, L. (1993b). *Aggression: Its causes, consequences, and control.* New York: McGraw-Hill.

Berkowitz, L. (1998). Affective aggression: The role of stress, pain, and negative affect. In R.G. Geen & E. Donnerstein (Eds.), *Human aggression. Theories, research, and implications for social policy.* (pp. 49-72). San Diego, CA: Academic press.

Berkowitz, L., & LePage, A. (1967). Weapons as aggression-eliciting stimuli. *Journal of Personality and Social Psychology, 7*, 202-207.

Blumberg, S.J. (2000). The white bear suppression inventory: Revisiting its factor structure. *Personality and Individual Differences, 29*, 943-950.

Bond, M.H. (2004). Aggression and culture. *Encyclopedia of Applied Psychology, 1*, 91-98.

Brain, P.F., & Haug, M. (1992). Hormonal and neurochemical correlates of various forms of animal 'aggression'. *Psychoneuroendocrinology, 17*, 537-551.

Bushman, B.J. (1995). Moderating role of trait aggressiveness in the effects of violent media on aggression. *Journal of Personality and Social Psychology, 69*, 950-960.

Bushman, B.J., & Anderson, C.A. (2001). Is it time to pull the plug on the hostile versus instrumental aggression dichotomy? *Psychological Review, 108*, 273-279.

Bushman, B.J., & Baumeister, R.F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology, 75*, 219-229.

Buss, A.H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology, 63*, 452-459.

Butcher, J.N., Dahlstrom, W.G., Graham, J.R., Tellegen, A., & Kaemmer, B. (1989). *Manual for administration and scoring: MMPI-2.* Minneapolis, MN: University of Minnesota Press.

Calvert, S.L., & Tan, S.-L. (1994). Impact of virtual reality on young adult's physiological arousal and aggressive thoughts: Interaction versus observation. *Journal of Applied Developmental Psychology, 15*, 125-139.

Campbell, A. (2006). Sex differences in direct aggression: What are the psychological mediators? *Aggression and Violent Behaviour, 11*, 237-264.

Carlson, M., Marcus-Newhall, A. & Miller, N. (1990). Effects of situational aggression cues: A quantitative review. *Journal of Personality and Social Psychology, 58*, 622-633.

Collins, K., & Bell, R. (1997). Personality and aggression: The dissipation-rumination scale. *Personality and Individual Differences, 22*, 751-755.

Costa, P.T., & McCrae, R.R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment, 4*, 5-13.

Crick, N.R., & Dodge, K.A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74-101.

Deu, N., & Edelmann, R.J. (1997). The role of criminal fantasy in predatory and opportunist sex offending. *Journal of Interpersonal Violence, 12*, 18-29.

Derksen, D., & Haighton, M. (2004). *Onafscheidelijk waren ze, tot Sandra vertrok [They were inseparable-until Sandra left].* De Volkskrant, April 17, 2004.

Dienstbier, R.A., Roesch, S.C., Mizumoto, A., Hemenover, S.H., Lott, R.C., & Carlo, G. (1998). Effects of weapons on guilt judgements and sentencing recommendations for criminals. *Basic and Applied Social Psychology, 20*, 93-102.

Doden bij schietpartij in Tiel [People killed at shooting incident in Tiel, April 21, 2004.]. http://www.nu.nl

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., & Pettit, G.S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology, 39*, 349-371.

Doucette-Gates, A., Firestone, R.W., & Firestone, L.A. (1999). Assessing violent thoughts: The relationship between thought processes and violent behaviour. *Psychologica Belgica, 39*, 113-134.

Dutton, D.C., & Aron, A.P. (1974). Some evidence for heightened sexual attraction under conditions of high anxiety. *Journal of Personality and Social Psychology, 30,* 510-517.

Eerdmans, J. (2004). Aanvalsplan tegen wapengeweld [Plan of attack against violence with weapons]. *Weblog Joost Eerdmans*, December 9, 2004, retrieved May 13, 2007.

Egan, S.K., Monson, T.C., & Perry, D.G. (1998). Social-cognitive influences on change in aggression over time. *Developmental Psychology, 34*, 996-1006.

Enticott, P.G., Ogloff, J.R.P., Bradshaw, J.L., & Daffern, M. (2007). Brief report. Contrary to popular belief, a lack of behavioural inhibitory control may not be associated with aggression. *Criminal Behaviour and Mental Health, 17*, 179-183.

Evenden, J.L. (1999). Varieties of impulsivity. *Psychopharmacology, 146*, 348-361.

Eysenck, H.J. (1996). Personality and crime: Where do we stand? *Psychology, Crime and Law, 2*, 143-152.

Eysenck, H.J., & Eysenck, S.B.G. (1991). *Manual of the Eysenck Personality Scales (EPS Adult).* London: Hodder & Stoughton.

Eysenck, H.J., Wilson, G., & Jackson, C. (1996). *Manual for the Eysenck Personality Profiler.* Guilford: Psi-Press.

Fox, R. (1991). Binocular rivalry. In D. Regan (Ed.), *Binocular vision* (pp. 93-110). Boca Raton, FL: CRC.

Friedman, A.F., Lewak, R., Nichols, D.S., & Webb, J.T. (2001). *Psychological assessment with the MMPI-2*. Mahwah, NJ: Lawrence Erlbaum.

Fujihara, T., Kohyama, T., Andreu, J.M., & Ramirez, J.M. (1999). Justification of interpersonal aggression in Japanese, American, and Spanish students. *Aggressive Behavior, 25*, 185-195.

Geen, R.G. (2001). *Human aggression* (2nd ed.). Buckingham: Open University Press.

Gleason, K.A., Jensen-Campbell, L.A., & South Richardson, D. (2004). Agreeableness as a predictor of aggression in adolescence. *Aggressive Behavior, 30*, 43-61.

Goldstein, A.P., Nensén, R., Daleflod, B., & Kalt, M. (2004). *New perspectives on aggression replacement training: Practice, research and application.* Chichester, West Sussex: John Wiley.

Greenwald, D.F., & Harder, D.W. (1997). Fantasies, coping behavior, and psychopathology. *Journal of Clinical Psychology, 53*, 91-97.

Grisso, T., Davis, J., Vesselinov, R., Appelbaum, P.S., & Monahan, J. (2000). Violent thoughts and violent behavior following hospitalization for mental disorder. *Journal of Consulting and Clinical Psychology, 68*, 388-398.

Groth Marnat, G. (1997). *Handbook of psychological assessment* (3rd ed.). Oxford: John Wiley.

Harvey, R.J., Fletcher, J., & French, D.J. (2001). Social reasoning: A source of influence on aggression. *Clinical Psychology Review, 21*, 447-469.

Hepburn, L.M., & Hemenway, D. (2004). Firearm availability and homicide: A review of the literature. *Aggression and Violent Behaviour, 9*, 417-440.

Hollin, C., & McMurran, M. (2004). Series Editor's preface. About the series. In A.P. Goldstein, R. Nensén, B. Daleflod, & M. Kalt (Eds.), *New perspectives on aggression replacement training. Practice, research, and application.* (pp. xi-xiv). Chichester, West Sussex: John Wiley.

Holloway, K.R., Bennett, T.H., & Farrington, D.P. (2006). The effectiveness of drug treatment programs in reducing criminal behaviour: A meta-analysis. *Psicothema, 18*, 620-629.

Höping, W., & De Jong Meyer, R. (2003). Differentiating unwanted intrusive thoughts from thought suppression: What does the White Bear Suppression Inventory measure? *Personality and Individual Differences, 34*, 1049-1055.

Huesmann, L.R. (1988). An information processing model for the development of aggression. *Aggressive Behavior, 14,* 13-24.

Huesmann, L.R. (1998). The role of social information processing and cognitive schema in the acquisition and maintenance of habitual aggressive behavior. In R.G. Geen (Ed.), *Human aggression: Theories, research, and implications for social policy* (pp. 73-109). San Diego, CA: Academic Press.

Huesmann, L.R., & Guerra, N.G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality and Social Psychology, 72*, 408-419.

Institut für Sexualwissenschaft und Sexualmedizin (2005). Prävention von sexuellem Kindesmissbrauch im Dunkelfeld [Prevention of sexual child abuse by potential perpetrators]. http://www.charite.de/ch/swsm/doc-pdf/Presseinfo.pdf

Johnston, L., Hudson, S.M., & Ward, T. (1997). The suppression of sexual thoughts by child molestors: A preliminary investigation. *Sexual Abuse: A Journal of Research and Treatment, 9*, 303-319.

Joireman, J., Anderson, J., & Strathman, A. (2003). The aggression paradox: Understanding links among aggression, sensation seeking, and the consideration of future consequences. *Journal of Personality and Social Psychology, 84*, 1287-1302.

Katz, R.J. (1991). Neurobiology of obsessive compulsive disorder: A serotonergic basis of Freudian repression. *Neuroscience and Biobehavioral Reviews, 15*, 375-381.

Kiewitz, C., & Weaver, J.B. (2001). Trait aggressiveness, media violence, and perceptions of interpersonal conflict. *Personality and Individual Differences, 31*, 821-835.

Kirsh, S.J. (2003). The effects of violent video games on adolescents. The overlooked influence of development. *Aggression and Violent Behaviour, 8*, 377-389.

Klinesmith, J., Kasser, T., & McAndrew, F.T. (2006). Guns, testosterone, and aggression. *Psychological Science, 17*, 568-571.

Koninklijke Nederlandse Schutters Associatie (2006). *Statuten Koninklijke Nederlandse Schutters Associatie [Statutes of the Royal Dutch Association of Shooters].* Amersfoort: KNSA.

Linehan, M.M. & Kehrer, C.A. (1993). Borderline personality disorder. In D.H. Barlow (Ed.), *Clinical handbook of psychological disorders* (pp. 396-441. New York: The Guilford Press.

May, R. (1981). *Freedom and Destiny.* New York: W.W. Norton & Co.

McDevitt, J., Balboni, J., Garcia, L., & Gu, J. (2001). Consequences for victims: A comparison of bias- and non-bias-motivated assaults. *American Behavioral Scientist, 45*, 697-713.

McKay, D., & Greisberg, S. (2002). Specificity of measures of thought control. *Journal of Psychology, 136*, 149-160.

MacLeod, C.M. (1991). Half a century of research on the Stroop effect: An integrative review. *Psychological Bulletin, 109*, 163-203.

McMahon, S.D., & Watts, R.J. (2002). Ethnic identity in urban African American youth: exploring links with self-worth, aggression, and other psychosocial variables. *Journal of Community Psychology, 30*, 411-431.

McNiel, D.E., Borum, R., Douglas, K.S., Hart, S.D., Lyon, D.R., Sullivan, L.E., et al. (2002). Risk assessment. In J.R.P. Ogloff (Ed.), *Taking Psychology and Law into the Twenty-First Century* (pp. 147-170). San Diego, CA: Academic Press.

Meesters, C., Muris, P., Bosma, H., Schouten, E., & Beuving, S. (1996). Psychometric evaluation of the Dutch version of the aggression questionnaire. *Behaviour Research and Therapy, 34*, 839-843.

Mehrkens Steblay, N. (1992). A meta-analytic review of the weapon focus effect. *Law and Human Behavior, 16*, 413-424.

Mitchell, M., & Hogg, I. (1997). The emotional impact of collecting crime evidence: The work of the scenes of crime officers. *Issues in Criminological and Legal Psychology, 29*, 35-40.

Muris, P., Merckelbach, H., & Horselenberg, R. (1996). Individual differences in thought suppression. The White Bear Suppression Inventory: Factor structure, reliability, validity and correlates. *Behaviour Research and Therapy, 34*, 501-513.

Muris, P., Merckelbach, H.L.G.J., Horselenberg, R., Sijsenaar, M., & Leeuw, I. (1997). Thought suppression in spider phobia. *Behaviour Research and Therapy, 35*, 769-774.

Muris, P., Schmidt, H., Merckelbach, H., & Rassin, E. (2000). Reliability, factor structure and validity of the Dutch Eysenck Personality Profiler. *Personality and Individual Differences, 29*, 857-868.

Nagtegaal, M.H., & Rassin, E. (2004). The usefulness of the thought suppression paradigm in explaining impulsivity and aggression. *Personality and Individual Differences, 37*, 1233-1244.

Nagtegaal, M.H., Rassin, E., & Muris, P. (2006). Aggressive fantasies, thought control strategies and their connection to aggressive behaviour. *Personality and Individual Differences, 41*, 1397-1407.

Pettit, G.S. (1997). The developmental course of violence and aggression. *Anger, Aggression, and Violence, 20*, 283-299.

Polaschek, D.L.L., Collie, R.C., & Walkey, F.H. (2004). Criminal attitudes to violence: development and preliminary validation of a scale for male prisoners. *Aggressive Behavior, 30*, 484-503.

Popma, A., Vermeiren, R., Geluk, C., Rinne, T., Brink, W. Van den, Knol, D.L., et al. (2007). Cortisol moderates the relationship between testosterone and aggression in delinquent male adolescents. *Biological Psychiatry, 61,* 405-411.

Purdon, C. (1999). Thought suppression and psychopathology. *Behaviour Research and Therapy, 37*, 1029-1054.

Rachman, S. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy, 35,* 793-802.

Rachman, S., & De Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy, 16*, 233-248.

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

Ramirez, J.M., Andreu, J.M., & Fujihara, T. (2001). Cultural and sex differences in aggression: A comparison between Japanese and Spanish students using two different inventories. *Aggressive Behavior, 27*, 313-322.

Ramirez, J.M., Santisteban, C., Fujihara, T., & Van Goozen, S. (2002). Differences between experience of anger and readiness to angry action: A study of Japanese and Spanish students. *Aggressive Behavior, 28*, 429-438.

Rassin, E. (2003). The White Bear Suppression Inventory focuses on failing suppression attempts. *European Journal of Personality, 17*, 285-298.

Rassin, E. (2005). *Thought Suppression*. Amsterdam: Elsevier.

Rassin, E., & Diepstraten, P. (2003). How to suppress obsessive thoughts. *Behaviour Research and Therapy, 41*, 97-103.

Reynolds, M., & Wells, A. (1999). The Thought Control Questionnaire – psychometric properties in a clinical sample, and relationships with PTSD and depression. *Psychological Medicine, 29*, 1089-1099.

Ruthledge, P.C., Hollenberg, D., & Hancock, R.A. (1993). Individual differences in the Wegner rebound effect: Evidence for a moderator variable in thought rebound following thought suppression. *Psychological Reports, 72,* 876-880.

Salkovskis, P.M., & Harrison, J. (1984). Abnormal and normal obsessions: A replication. *Behaviour Research and Therapy, 22*, 549-552.

Sanderman, R., Arrindell, W.A., Ranchor, A.V., Eysenck, H.J., & Eysenck, S.B.G. (1995). *Eysenck Personality Questionnaire (EPQ). Een handleiding* [A manual]. Groningen, The Netherlands: C. Regenboog.

Scharroo, J. (2004). Voetbal, dat is pas een gevaarlijke sport. Strengere regels lossen volgens schietclubs niets op: Mafkezen houd je altijd [Soccer, now that's a dangerous sport. Stricter rules will not solve the problem according to shooting associations: There will always be lunatics]. *De Volkskrant, April 21,* 2004.

Seager, J.A. (2005). The importance of impulsivity and cognitive schema. *Criminal Justice and Behavior, 32,* 26-49.

Serin, R.C., & Kuriychuk, M. (1994). Social and cognitive processing deficits in violent offenders: Implications for treatment. *International Journal of Law and Psychiatry, 17*, 431-441.

Sloore, H., Derksen, J.J.L., Hellenbosch, G., & De Mey, H.R.A. (1993). *Minnesota Multiphasic Personality Inventory-2. Vlaams-Nederlandse vertaling en bewerking* [Flemish-Dutch translation and modification] Nijmegen, The Netherlands: PEN Test Publishers.

Smith, P., & Waterman, M. (2004a). Processing bias for sexual material: The emotional Stroop and sexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 16,* 163-171.

Smith, P., & Waterman, M. (2004b). Role of experience in processing bias for aggressive words in forensic and non-forensic populations. *Aggressive Behavior, 30*, 105-122.

Smith, P., & Waterman, M. (2004c). Levels of aggression and impulsivity in prisoners using self-report questionnaires. *The Bulletin of the International Society for Research on Aggression, 26,* 14-19.

Smits, D.J.M., & Kuppens, P. (2005). The relation between anger, coping with anger, and aggression, and the BIS/BAS system. *Personality and Individual Differences, 39*, 783-793.

Strengere regels voor schietclubs [Stricter rules for shooting associations, April, 21, 2004]. *Algemeen Dagblad.*

Suarez, E.C., Lewis, J.G., & Kuhn, C. (2002). The relation of aggression, hostility, and anger to lipopolysaccharide-stimulated tumor necrosis factor (TNF)-α by blood monocytes from normal men. *Brain, Behavior, and Immunity, 16*, 675-684.

Schietclubs woedend om strengere aanpak [Shooting associations furious about stricter rules, April 21, 2004]. *Telegraaf.*

Timmerman, I.G.H., & Emmelkamp, P.M.G. (2005). An integrated cognitive-behavioural approach to the aetiology and treatment of violence. *Clinical Psychology and Psychotherapy, 12*, 167-176.

Tremblay, R.E., & Ewart, L.A. (2005). The Buss and Perry Aggression Questionnaire and its relations to values, the Big Five, provoking hypothetical situations, alcohol consumption patters, and alcohol expectancies. *Personality and Individual Differences, 38*, 337-346.

Viemerö, V., & Paajanen, S. (1992). The role of fantasies and dreams in the TV viewing-aggression relationship. *Aggressive Behavior, 18*, 109-116.

Vitale, J.E., 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,* 99-115.

Walker, J.S., & Gudjonsson, G.H. (2006). The Maudsley Violence Questionnaire: Relationship to personality and self-reported offending. *Personality and Individual Differences, 40,* 795-806.

Webster, C.D., Douglas, K.S., Eaves, D., & Hart, S.D. (1997). *Historical Clinical Risk Management-20 (HCR-20). Assessing the risk of violence. Version 2.* Vancouver: Simon Fraser University and forensic Psychiatric Services Commission of British Columbia.

Wegner, D.M. (1989). *White bears and other unwanted thoughts: Suppression, obsession, and the psychology of mental control.* New York: Penguin Books.

Wegner, D.M. (1994). Ironic processes of mental control. *Psychological Review, 101*, 34-52.

Wegner, D.M., & Erber, R. (1992). The hyperaccessibility of suppressed thoughts. *Journal of Personality and Social Psychology, 63,* 903-912.

Wegner, D.M., Schneider, D.J., Carter, S.R., & White, T.L. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology, 53,* 5-13.

Wegner, D.M., & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality, 62,* 615-640.

Wells, A., & Davies, M.I. (1994). The thought control questionnaire: A measure of differences in the control of unwanted thoughts. *Behaviour Research and Therapy, 32*, 871-878.

Wells, A., & Morrison, A.P. (1994). Qualitative dimensions of normal worry and normal obsessions: A comparative study. *Behaviour Research and Therapy, 32*, 867-870.

Wenzlaf, R.M., Wegner, D.M., & Roper, D. (1988). Depression and mental control: The resurgence of unwanted negative thoughts. *Journal of Personality and Social Psychology, 55,* 882-892.

Whiteside, S.P., & Lynam, D.R. (2001). The Five Factor Model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30*, 669-689.

Williams, T.Y., Boyd, J.C., Cascardi, M.A., & Poythress, N. (1996). Factor structure and convergent validity of the aggression questionnaire in an offender population. *Psychological Assessment, 8*, 398-403.

Samenvatting

Er is uitgebreid onderzoek verricht naar agressie en van een aanzienlijke hoeveelheid factoren is bekend dat ze aan agressie zijn gerelateerd. Desondanks zijn enkele aspecten in het onderzoek naar agressie relatief onderbelicht gebleven. Er is bijvoorbeeld nauwelijks onderzoek gedaan naar cognitieve factoren als agressieve fantasieën en gedachtecontrolestrategieën. Daarbij zijn verschillen tussen individuen op vooraf bestaande psychopathologie en persoonlijkheidsdimensies en de invloed hiervan op de aard en prevalentie van agressieve fantasieën en gedachtecontrole-strategieën eveneens niet eerder in onderzoek meegenomen. Dit proefschrift richtte zich op het onderzoeken van deze cognitieve factoren. De agressie theorie van Huesmann (1988, 1999) stond hierbij centraal. In zijn informatieverwerkingsmodel stelt Huesmann dat individuen allerlei verschillende cognitieve scripts of schema's beschikbaar hebben op basis waarvan zij een snelle en adequate reactie op stimuli uit de omgeving kunnen geven. Zo bestaat er bijvoorbeeld een schema over hoe men in een auto rijdt en een schema over hoe men zich gedraagt tijdens een officiële gelegenheid. De scripts ontstaan naar aanleiding van ervaringen in het verleden. De herinneringen aan deze ervaringen worden opgeslagen en komen in verschillende scripts terecht. Elke keer dat een individu voor een sociaal probleem komt te staan, worden de cues uit de omgeving beoordeeld en wordt een toepasselijk script geselecteerd om het gedrag op te baseren. Huesmann veronderstelt dat agressieve individuen hyperactieve agressieschema's hebben ontwikkeld. Telkens als een agressief persoon wordt blootgesteld aan situationele cues, selecteert hij het agressiescript in plaats van op zoek te gaan naar een toepasselijk script. Op deze manier ontstaat agressief gedrag in vele situaties en onder vele omstandigheden.

Volgens Huesmann zijn verschillende stappen betrokken bij het versterken van agressiegerelateerde scripts. Nadat het initiële coderen (opslaan in het geheugen) van de stimuli heeft plaatsgevonden is herhaling een van de belangrijkste variabelen waardoor (agressie) scripts gecreëerd en versterkt worden. Door herhaling, bijvoorbeeld door de situatie voor de geest te halen, te overpeinzen of te fantaseren wordt het aantal verbindingen en de sterkte van de verbindingen naar de oorspronkelijk gecodeerde herinnering vergroot. Op deze manier wordt het script steeds meer verankerd in het geheugen. In dit proefschrift werd ondermeer de hypothese onderzocht of variabelen die herhaling met zich meebrengen gerelateerd zouden kunnen zijn aan

agressief gedrag. Dit hoofdstuk omvat de Nederlandstalige samenvatting van dit proefschrift.

In Hoofdstuk 2 werd het nut van het gedachteonderdrukkingsparadigma in het verklaren van impulsiviteit en agressie onderzocht. Dit paradigma werd oorspronkelijk voorgesteld om de persistente aard van obsessies en intrusieve gedachten te verklaren, die de obsessief-compulsieve stoornis (OCD; American Psychiatric Association, 2000) karakteriseren. In het onderzoek in Hoofdstuk 2 werd onderzocht of intrusieve gedachten ook gerelateerd zouden kunnen zijn aan ander gedisinhibeerd gedrag, te weten impulsiviteit en agressie. Een tweede hypothese die in dat hoofdstuk werd onderzocht, was of individuele verschillen in psychopathologie de relatie tussen intrusies, gedachteonderdrukking (suppressie), impulsiviteit en agressie konden beïnvloeden. De derde onderzoeksvraag die gesteld werd, was of gedachtecontrolestrategieën gerelateerd waren aan intrusieve gedachten en psychopathologie. Om deze hypothesen te onderzoeken werden diverse vragenlijsten afgenomen (intrusie en suppressie, impulsiviteit, agressie, en psychopathologie) bij een groep van 90 studenten (mannen en vrouwen).

In overeenstemming met de verwachtingen bleek dat intrusies significant gerelateerd waren aan de meeste subschalen van agressie. In tegenstelling tot de verwachtingen bleken intrusie en suppressie niet gerelateerd aan impulsiviteit[6]. Gezien het gelijktijdige optreden van beide bevindingen (dat wil zeggen, een relatie tussen intrusie en agressie maar geen relatie tussen intrusie en impulsiviteit), kan men denken dat het gaat om een specifiek subtype van agressief gedrag, namelijk proactieve agressie. Deze dimensie van agressie omvat agressief gedrag waarover men heeft nagedacht, gedrag dat van tevoren gepland is (en dus niet impulsief). Indien de planning extremere vormen aanneemt, bijvoorbeeld als deze meer en meer frequent, intensiever en langer in duur wordt, kan het op deze manier een intrusief karakter krijgen (zie ook Rachman & De Silva, 1978).

Met betrekking tot de tweede hypothese werd gevonden dat intrusies gerelateerd waren aan verschillende psychopathologische klachten en aan bestraffing als gedachtecontrolestrategie (maar niet aan de overige vier onderzochte TCQ gedachtecontrolestrategieën). Verder

[6] Achteraf gezien is dit laatste resultaat minder opmerkelijk dan in eerste instantie gedacht. Impulsief gedrag gebeurt spontaan of in een opwelling, terwijl intrusieve gedachten juist veel contemplatie met zich meebrengen. Beide constructen lijken dan ook eerder tegenovergestelde gedragingen te meten dan met elkaar verbonden te zijn.

bleek bestraffing de enige gedachtecontrolestrategie te zijn die gerelateerd was aan meerdere klinische hoofdschalen van de MMPI-2, een maat voor psychopathologie. Meer specifiek, proefpersonen die bestraffing gebruikten als de typische manier om hun intrusies onder controle te krijgen, rapporteerden meer klachten van depressie, vijandigheid, paranoia, achterdocht, agressie en vertoonden minder controle over hun gedrag. Deze relatie tussen bestraffing en psychopathologie geeft aan dat bestraffing geen effectieve gedachtecontrolestrategie is. Een derde bevinding in Hoofdstuk 2 was dat er individuele verschillen in vooraf bestaande psychopathologie en kwetsbaarheid tot het ervaren van intrusieve gedachten en gedachteonderdrukking waren. Individuen met vijandig, agressief gedrag, individuen met een gebrekkige gedragscontrole en individuen met obsessief-compulsieve neigingen waren in het bijzonder kwetsbaar voor het ervaren van intrusie en suppressie. Individuen die de neiging hebben paranoïde en achterdochtig te zijn en depressieve personen scoorden hoger op intrusie.

In hoofdstuk 3 werden de relaties tussen agressieve fantasieën en gedachtecontrolestrategieën aan de ene kant en agressie aan de andere kant onderzocht. Een groep vrouwelijke studenten beantwoordde vragenlijsten over agressieve fantasieën, gedachtecontrolestrategieën en agressief gedrag. Er werd verwacht dat zelfgerapporteerde agressieve fantasieën positief gerelateerd zouden zijn aan agressief gedrag (een stijging in agressief gedrag naarmate men meer agressieve fantasieën rapporteert). Ook werd verwacht dat de gedachtecontrolestrategieën suppressie, piekeren en bestraffing positief gerelateerd zouden zijn aan agressief gedrag, terwijl de strategieën sociale coping en afleiding negatief gerelateerd zouden zijn aan agressief gedrag. Voor de gedachtecontrolestrategie cognitieve herwaardering werd geen specifieke verwachting geformuleerd. Voor de groep vrouwelijke deelnemers uit hoofdstuk 3 was het relatief normaal om agressieve fantasieën te hebben: bijna 60% van de deelnemers aan het onderzoek rapporteerde agressieve fantasieën. De frequentie van de fantasieën varieerde van eenmaal per dag tot een aantal keer per jaar. De fantasieën gingen meestal over verbaal geweld, maar fantasieën waarin fysiek geweld voorkwam, werden eveneens vrij vaak gerapporteerd. Interessant was dat de fantasieën vaak gingen over meerdere mensen, die bovendien bekend waren bij de deelnemer aan het onderzoek. Gedachtecontrolestrategieën werden ingezet om ongewenste indringende gedachten te controleren, meestal door zichzelf af te leiden

van de gedachte of door te proberen de gedachte opnieuw te interpreteren (dat wil zeggen, cognitieve herwaardering). Verschillende factoren waren gerelateerd aan agressie. Agressieve fantasieën waren bijvoorbeeld gerelateerd aan vijandigheid en aan totale agressie scores. Zoals voorspeld bestonden er positieve correlaties tussen de gedachtecontrolestrategieën suppressie, piekeren, en bestraffing aan de ene kant en agressie scores aan de andere kant, terwijl negatieve correlaties tussen afleiding en verschillende subschalen van agressie gevonden werden. Cognitieve herwaardering was gerelateerd aan vijandigheid.

Regressie analyses werden uitgevoerd om de relatieve invloed van agressieve fantasieën en gedachtecontrolestrategieën op totale agressie scores te onderzoeken. Er werd geen unieke bijdrage van agressieve fantasieën op totale agressie scores gevonden. Echter, gedachteonderdrukking bleek een onafhankelijke en unieke positieve voorspeller van totale agressie scores te zijn en het zoeken van afleiding was een onafhankelijke negatieve voorspeller van totale agressie scores. Deze resultaten suggereren dat suppressie de meest onproductieve manier van gedachtecontrole is (hoewel piekeren en bestraffing ook gerelateerd waren aan een verhoogde score op agressie) en dat het zoeken van afleiding een effectieve gedachtecontrolestrategie is.

In hoofdstuk 4 werd een uitbreiding op het voorgaande onderzoek verricht door een groep deelnemers te onderzoeken die bekend staat om haar gewelddadige gedrag. In de hoofdstukken 2 en 3 bestond de onderzoeksgroep enkel uit niet-klinische deelnemers, namelijk studenten, bij wie de frequentie van gewelddadig gedrag relatief laag ligt. Aan deze tekortkoming werd tegemoet gekomen door mogelijke verschillen in agressieve fantasieën, gedachtecontrolestrategieën en hun relatie tot agressief gedrag te onderzoeken in een groep personen die daadwerkelijk agressief gedrag vertoond hebben, namelijk een groep gedetineerden. Naast deze gedetineerden werd een groep personen uit de gemeenschap onderzocht. Verwacht werd dat de gedetineerden een verhoogde frequentie agressieve fantasieën zouden rapporteren, verhoogde scores op een agressievragenlijst zouden hebben en vaker de ineffectieve gedachtecontrolestrategieën suppressie, piekeren en bestraffing zouden gebruiken. Verder werd verwacht dat de gedetineerden minder vaak effectieve gedachtecontrolestrategieën zoals afleiding en sociale coping zouden gebruiken. Voor beide groepen deelnemers (gedetineerden en controlegroep) werd verwacht dat de gedachtecontrolestrategieën die herhaling met zich meebrengen

(suppressie, piekeren en cognitieve herwaardering) gerelateerd zouden zijn aan verhoogde agressiescores, terwijl de gedachtecontrole-strategieën die geen herhaling met zich meebrengen zoals afleiding en sociale coping gerelateerd zouden zijn aan verlaagde agressiescores. De resultaten lieten zien dat de prevalentie van het rapporteren van agressieve gedachten relatief hoog was: 38% van de gedetineerden en 41% van de controlegroep rapporteerde dergelijke fantasieën in de afgelopen twee maanden. Dit verschil was niet significant. Zoals verwacht, gebruikten de gedetineerden significant vaker de ineffectieve gedachtecontrolestrategieën suppressie, piekeren en bestraffing dan de controlegroep. Wat betreft de effectieve gedachtecontrolestrategieën werd een significant verschil gevonden voor afleiding (en niet voor sociale coping) tussen de gedetineerden en de controlegroep, maar in tegenstelling tot de verwachtingen scoorden gedetineerden niet lager maar hoger op afleiding. In beide groepen proefpersonen waren agressieve fantasieën en suppressie en piekeren gerelateerd aan een brede range van agressiescores. Daarnaast werden verschillende correlaties tussen gedachtecontrolestrategieën en agressie gevonden die karakteristiek waren voor of de gedetineerden of de controlegroep. In de regressie analyses was onderdrukking de enige significante en unieke voorspeller van agressiescores bij zowel gedetineerden als bij controles.

Deze bevindingen zijn op een aantal belangrijke manieren gerelateerd aan de bevindingen in de eerdere hoofdstukken. Ten eerste, er was geen significant verschil tussen de prevalentie van de agressieve fantasieën bij de gedetineerden en de controlegroep. Dit resultaat ondersteunt het punt dat hierboven werd gesteld, namelijk dat agressieve fantasieën *an sich* niet de sterkste indicatie van agressief gedrag zijn. Ten tweede, er werd meer bewijs voor de schadelijke invloed van sommige gedachtecontrolestrategieën gevonden. Meer in het bijzonder, de relatie tussen suppressie, piekeren, bestraffing en agressie toont aan dat deze gedachtecontrolestrategieën niet erg effectief zijn. Suppressie lijkt het sterkst gerelateerd aan een verhoging van agressief gedrag, aangezien deze factor een unieke voorspeller van agressiescores in beide groepen deelnemers was.

Hoofdstuk 5 richtte zich op leden van een schietsportvereniging. In de opinie van leken zouden leden van een schietsportvereniging (schietsporters) agressiever zijn dan andere groepen personen in de maatschappij. Ook zouden wapens gezien worden als stimuli die agressief gedrag zouden uitlokken, een effect dat bekend staat als het 'wapen' effect (Berkowitz & LePage, 1967; voor een meta-analyse zie

Carlson et al., 1990). Er is echter geen empirisch bewijs dat schietsporters inderdaad agressiever zijn. In hoofdstuk 5 werd onderzocht of schietsporters agressiever zijn dan andere individuen in de maatschappij. Daartoe werden verschillende vragenlijsten afgenomen bij een groep schietsporters en een controlegroep van individuen die geen lid waren van een schietsportvereniging. Daarnaast werden de relaties tussen agressieve fantasieën, persoonlijkheidsfactoren en impulsiviteit aan de ene kant en agressief gedrag aan de andere kant onderzocht. De resultaten lieten zien dat sociale wenselijkheid bij beide groepen deelnemers een significante invloed had op de scores op de vragenlijsten (deze werden hoger). Ook scoorden de schietsporters significant hoger op sociale wenselijkheid dan de deelnemers aan de controlegroep. Om deze redenen werd sociale wenselijkheid meegenomen als covariaat in de overige analyses. Ondanks deze correctie scoorden schietsporters *lager* op de meeste schalen van de vragenlijsten, zij waren minder agressief, impulsief, psychotisch en neurotisch. Alleen op extraversie scoorden de schietsporters hoger dan de controlegroep. Verder werd een groot verschil in de prevalentie van agressieve fantasieën gevonden: 24% van de schietsporters en 43% van de controlegroep rapporteerde agressieve fantasieën. Na correctie voor sociale wenselijkheid was dit verschil niet meer significant. Deze bevindingen suggereren dat er geen reden is om te denken dat schietsporters agressiever zijn dan individuen die geen lid van een schietsportvereniging zijn. Daarnaast lijkt het erop dat een regelmatige interactie met wapens bij de schietsporters niet leidde tot hogere scores op agressie (hoewel deze hypothese niet direct onderzocht werd).

De relatie tussen agressieve fantasieën, persoonlijkheid, impulsiviteit en agressie werd ook onderzocht. Hoewel neuroticisme, impulsief handelen op basis van negatief affect (urgency) en het rapporteren van agressieve fantasieën bij beide groepen deelnemers gerelateerd waren aan agressie, bleek uit regressie-analyses dat de onafhankelijke en unieke voorspellers van agressie in beide groepen anders waren. Bij de schietsporters werd gevonden dat impulsief handelen op basis van negatief affect een unieke en positieve voorspeller van agressie was (een verhoging van agressief gedrag), terwijl neuroticisme en psychoticisme uniek gerelateerd waren aan agressief gedrag bij deelnemers uit de controlegroep.

Samenvattend

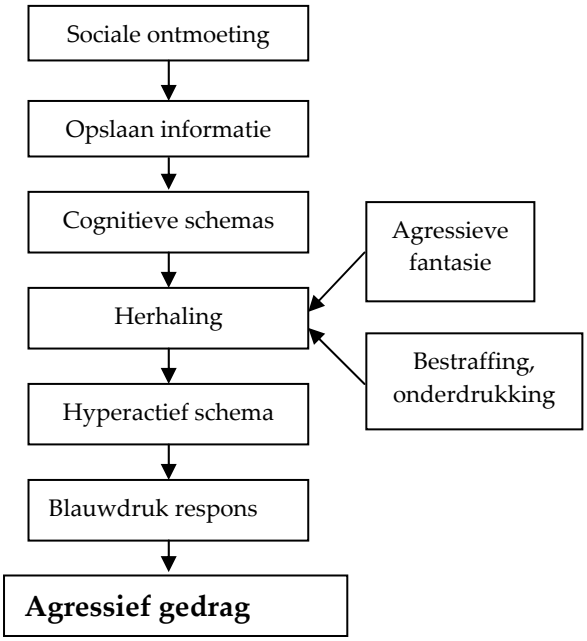
Over het geheel genomen ondersteunen de onderzoeken in dit proefschrift de opvatting dat agressieve fantasieën en sommige gedachtecontrolestrategieën gerelateerd zijn aan agressief gedrag. Meer in het bijzonder kan gesteld worden dat **agressieve gedachten** gecorreleerd zijn aan (zelfrapportage vragenlijsten over) agressief gedrag in vrouwelijke studenten (Hoofdstuk 3), in gedetineerden en een controlegroep uit de gemeenschap (Hoofdstuk 4), en in leden van een schietsportvereniging en een controlegroep van niet-schietsporters (Hoofdstuk 5). Verder, de **gedachtecontrolestrategieën** suppressie en bestraffing aan de ene kant en agressie aan de andere kant zijn significant met elkaar gecorreleerd in vrouwelijke studenten (Hoofdstuk 3), en in gedetineerden en een controlegroep (Hoofdstuk 4). In deze onderzoeken in hoofdstuk 3 en 4 bleek suppressie de enige significante unieke voorspeller van totale agressie scores te zijn. Verder bleken suppressie en bestraffing als gedachtecontrolestrategieën gerelateerd te zijn aan psychopathologie, waarmee aangegeven wordt dat deze strategieën niet erg effectief zijn in de omgang met agressieve gedachten (Hoofdstuk 2). Andere gedachtecontrolestrategieën, zoals afleiding en sociale coping, bleken meer effectief en adaptief te zijn, omdat deze niet of negatief gerelateerd waren aan psychopathologie (Hoofdstuk 2) en aan agressie (Hoofdstuk 3 en 4).

Wat betreft **persoonlijkheidsdimensies** en agressie werd gevonden dat neuroticisme positief met agressie scores correleerde bij schietsporters en deelnemers uit de controlegroep (Hoofdstuk 5). Neuroticisme bleek ook een unieke positieve voorspeller van agressiescores te zijn bij de deelnemers uit de controlegroep uit Hoofdstuk 5. Significant positieve correlaties bleken te bestaan tussen impulsief handelen op basis van negatief affect, een subtype van **impulsiviteit**, bij leden van een schietsportvereniging en de controlegroep uit dat onderzoek (Hoofdstuk 5). Het zoeken van sensatie, een andere variant van impulsief gedrag, was positief gecorreleerd met agressie scores in schietsporters en negatief gecorreleerd met agressie scores in de controlegroep. Verder bleek urgency een onafhankelijke en unieke voorspeller van agressie scores in schietsporters te zijn (Hoofdstuk 5). Wanneer men deze resultaten samen neemt, blijkt dat agressieve gedachten, bepaalde gedachtecontrolestrategieën, enkele persoonlijkheidsvariabelen en één type impulsief gedrag (namelijk urgency) robuust gerelateerd zijn aan agressie. Het lijkt erop dat deze

factoren als mogelijke risicofactoren en kwetsbaarheidsfactoren voor agressief gedrag in ogenschouw genomen dienen te worden.

Huesmann's agressie model

Het agressie model van Huesmann (1988, 1998) kan dienen als verklaringsmodel voor meerdere bevindingen in de Hoofdstukken 2 tot en met 5. Zoals al eerder gesteld tracht Huesmann's informatieverwerkingsmodel de ontwikkeling van agressief gedrag in de vroege kindertijd en het versterken en onderhouden van agressief gedrag op latere leeftijd te verklaren. In het model van Huesmann (1988, 1998) wordt verondersteld dat herhaling ervoor zorgt dat de bestaande scripts sterker worden opgeslagen en geïntegreerd in het geheugen. Op basis van deze veronderstellingen werd de hypothese geformuleerd dat agressieve fantasieën en bepaalde gedachtecontrolestrategieën dergelijke herhaling met zich meebrengen en op die manier gerelateerd zouden zijn aan agressie. De positieve correlaties tussen agressieve fantasieën en bepaalde gedachtecontrolestrategieën zijn consistent met deze hypothese. De resultaten worden samengevat in Figuur 2.



Figuur 2. *Resultaten van het huidige onderzoek in het kader van Huesmann's (1988, 1998) informatieverwerkingsmodel van agressie*

Tekortkomingen en aanbevelingen voor vervolgonderzoek

Er kunnen verschillende tekortkomingen van het onderhavige onderzoek worden geïdentificeerd. Ten eerste, de resultaten uit de onderzoeken in dit proefschrift komen voort uit zelfrapportage-vragenlijsten. Deze methode van onderzoek kan geleid hebben tot een vertekening van de resultaten, aangezien deelnemers aan onderzoek soms geneigd zijn zichzelf positiever te presenteren dan zij in werkelijkheid zijn. In dit proefschrift zou dat in het bijzonder kunnen gelden voor de gedetineerden en voor de leden van de schietsportverenigingen. Bij het opzetten van de onderzoeken in dit proefschrift was bekend dat sociale wenselijkheid de resultaten mogelijk zou kunnen beïnvloeden en om die reden werd sociale wenselijkheid toegevoegd als controle variabele. De schietsporters scoorden inderdaad significant hoger op sociale wenselijkheid dan de deelnemers uit de controlegroep, maar een dergelijke verhoogde score werd niet gevonden voor de groep gedetineerden. In verdere analyses werd waar nodig gecorrigeerd voor sociale wenselijkheid.

Een tweede tekortkoming die genoemd zou kunnen worden is het gegeven dat sommige van de gemeten constructen wellicht beter onderzocht hadden kunnen worden met andere onderzoeksmethoden. Dit geldt in het bijzonder voor het construct agressie (dat onderzocht werd door middel van de zelfrapportagevragenlijst, de 'Agressie Vragenlijst', AVL). Echter, zoals al eerder gesteld, de AVL is in verschillende onderzoeken gerelateerd aan meer directe maten van agressief gedrag (zie bijvoorbeeld Bushman, 1995; Buss & Perry, 1992; Smith & Waterman, 2004b), wat illustreert dat de AVL een goede convergente validiteit heeft en een robuuste maat van agressie is. Bovendien zijn zelfrapportagevragenlijsten in criminologisch onderzoek als maat van crimineel gedrag of agressie vrij gebruikelijk en deze onderzoeksmethode wordt soms zelfs geprefereerd boven het gebruik van officiële rapportages (zie bijvoorbeeld McNiel et al., 2002). Dat wil zeggen, bij officiële rapportages van crimineel of gewelddadig gedrag of cijfers van recidive of nieuwe arrestaties (meer directe maten van agressie) komt niet al het agressieve gedrag aan het licht. Als voorbeeld kan hiervoor een recent onderzoek naar de effectiviteit van behandelprogramma's voor drugsverslaafden dienen (Holloway et al., 2006). In deze meta-analyse werden recidive gegevens gebruikt als uitkomstmaat voor crimineel gedrag. Wanneer beide typen gegevens, zelfrapportage en officiële rapportages, in één onderzoek genoemd

werden, namen de auteurs alleen de zelfgerapporteerde cijfers over recidive mee in de berekening van de meta-analytische cijfers. De reden hiervoor was dat de onderzoekers van mening waren dat de zelfrapportages meer volledig en meer recent bewijs van crimineel gedrag zouden bevatten dan de officiële cijfers en daardoor waardevoller waren voor het onderzoek (Holloway et al., 2006). Tenslotte, gedragsmaten zoals gedragsobservaties hebben ook hun beperkingen aangezien ze de uitkomstmaat die men tracht te meten ongewenst zouden kunnen beïnvloeden. Een voorbeeld hiervan is het onderzoek van Enticott et al. (2007). In dit onderzoek was institutioneel geweld in een psychiatrisch ziekenhuis de uitkomstmaat voor agressief gedrag. Dit institutionele geweld werd gescoord door de stafleden van het psychiatrische ziekenhuis. De stafleden in een dergelijk ziekenhuis zijn er op getraind om institutioneel geweld zoveel mogelijk te voorkomen en hun (non-verbale en verbale) gedrag heeft waarschijnlijk invloed gehad op het onverwacht lage aantal incidenten in de kliniek ten tijde van het onderzoek.

Andere constructen, zoals agressieve fantasieën en gedachtecontrole-strategieën zijn eenvoudig niet te meten op een andere manier dan door middel van zelfrapportage. Desalniettemin zou het toevoegen van een uitkomstmaat op gedragsniveau de conclusies in dit proefschrift mogelijk versterkt kunnen hebben. Voorbeelden van dergelijke maten zijn al genoemd in de voorgaande hoofdstukken en bevatten onder andere experimentele taken zoals priming van agressieve woorden of plaatjes, die waardevol lijken te zijn in het identificeren van een informatieverwerkingsbias (zie bijvoorbeeld Anderson et al., 1998), en de binoculaire rivaliteit-taak die mogelijk cognitieve schema's onderliggend aan agressief gedrag zou kunnen meten (Seager, 2005). Andere onderzoeksmethoden die gebruikt zouden kunnen worden zijn gedragsobservaties door anderen (met daarbij de beperkingen zoals hierboven bediscussieerd) of beoordelingen door bekenden.

Een derde beperking aan de onderzoeken in dit proefschrift is het cross-sectionele design. De resultaten geven aan dat er een relatie bestaat tussen verschillende factoren en agressief gedrag, maar met een dergelijk onderzoeksdesign kunnen geen uitspraken gedaan worden over oorzakelijke verbanden. Met andere woorden, het zou kunnen dat agressieve fantasieën, bepaalde gedachtecontrolestrategieën en verschillende persoonlijkheidsdimensies antecedenten zijn van agressief gedrag, maar de mogelijkheid dat het slechts bijproducten zijn van agressief gedrag kan niet worden uitgesloten. Een suggestie voor

vervolgonderzoek is om de individuen uit dit proefschrift over enkele jaren opnieuw te onderzoeken en het onderzoek te herhalen. Dit type prospectieve onderzoek zou meer duidelijkheid kunnen geven over de oorzakelijke verbanden tussen de verschillende constructen.

Tenslotte, zoals hierboven aangegeven werd, zijn sommige gedachtecontrolestrategieën in het bijzonder ineffectief gebleken, zoals suppressie en bestraffing. Dit blijkt uit een relatie tussen deze gedachtecontrolestrategieën en agressie en psychopathologie. Andere gedachtecontrolestrategieën zoals afleiding en sociale coping lijken meer effectieve methoden van gedachtecontrole te zijn en zijn niet of negatief aan agressie en psychopathologie gerelateerd. Vervolgonderzoek kan zich richten op het ontwikkelen van een relatief korte interventie zoals psychoeducatie waarin uitgelegd wordt wat adaptieve en effectieve en minder adaptieve en effectieve methoden van gedachtecontrole zijn. Dit zou kunnen resulteren in een daling in het gebruik van minder effectieve gedachtecontrolestrategieën (en daaropvolgend agressief gedrag). In verschillende cognitieve gedragstherapieën die zich richten op het verbeteren van de controle over ongewenste impulsen, zoals de Agressie Hanterings Therapie (AHT; Goldstein et al., 2004) en de Dialectische Gedrags Therapie (DGT; zie bijvoorbeeld Linehan & Kehrer, 1993), wordt afleiding reeds gebruikt als techniek om de controle over het gedrag te vergroten. De afleiding zit bijvoorbeeld in het gebruikmaken van ademhalingstechnieken of door te leren tot tien te tellen voordat er overgegaan wordt tot gedrag. Op deze manier wordt meer controle over het gedrag aangeleerd. Deze therapieën benadrukken het vervangen van ongewenste gedachten of cognities met gedachten of cognities die wel gewenst zijn. De resultaten van dit proefschrift suggereren dat een andere stap in het bereiken van meer controle over gedrag het gebruikmaken van een adaptieve gedachtecontrolestrategie kan zijn, zoals afleiding en sociale coping. Het achterwege laten van gedachteonderdrukking, piekeren en bestraffing lijkt daarbij een andere belangrijke aanbeveling van het onderhavige onderzoek.

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About the author

About the author

Marleen Nagtegaal werd op 10 december 1975 in Rotterdam geboren. In 2002 rondde zij haar studie Klinische Psychologie aan de Universiteit van Amsterdam af. Zij behaalde daar eveneens de Basisaantekening Psychodiagnostiek. Haar afstudeeronderzoek betrof een onderzoek naar het meten van agressie met de Rorschach Inktvlekken Methode onder forensisch psychiatrische patiënten (ter beschikking gestelden, TBS). Daarnaast schreef zij een afstudeerscriptie over de vrijheid van de wil bij de toerekeningsvatbaarheidsbepaling van TBS patiënten. In september 2002 begon zij aan haar promotieproject aan de Erasmus Universiteit Rotterdam. Hierin onderzocht zij cognitieve processen die ten grondslag liggen aan agressie, waar het onderhavige proefschrift een overzicht van biedt. Sinds oktober 2005 is zij als onderzoeker verbonden aan het Wetenschappelijk Onderzoek en Documentatie Centrum (WODC) van het Ministerie van Justitie.

Marleen Nagtegaal was born on the 10th of December 1975 in Rotterdam. In 2002 she obtained her master degree in Clinical Psychology and a degree in performing Basic Psychodiagnostics from the University of Amsterdam. Her master thesis was about assessing aggression with the Rorschach Inkblot Method in Dutch forensic psychiatric inpatients (TBS patients). She also wrote an extended essay on free will and the determination of criminal responsibility on account of a mental disorder. In September 2002 she started working on her PhD at the Erasmus University Rotterdam, which was about cognitive processes underlying aggression. The present dissertation is the result of this project. Since October 2005 she has been working as a researcher at the research and documentary centre (WODC) of the Ministry of Justice.

Publications

First author (chronological)

Nagtegaal, M.H. (2001). *Het dilemma van de vrije wil: een deterministisch of humanistisch standpunt? Toegepast op de toerekeningsvatbaarheids-bepaling van psychisch gestoorde misdadigers.* [The dilemma of free will: a deterministic or humanistic point of view? Applied to the determination of criminal responsibility of psychologically disturbed offenders]. Unpublished undergraduate thesis, University of Amsterdam.

Nagtegaal, M.H. (2002). *The Rorschach aggression and co-operative movement variables: A study of reliability, validity and changes over time in forensic psychiatric inpatients.* Unpublished undergraduate thesis, University of Amsterdam.

Nagtegaal, M.H. (2003, July). *The Rorschach Inkblot Method as a useful tool to assess aggression in Dutch forensic psychiatric inpatients.* Presentation European Association of Psychology and Law, Ediburgh, Scotland.

Nagtegaal, M.H., & Rassin, E. (2003). *Pleidooi voor herstructurering.* Bespreking van: E.J.P. Brand. Het persoonlijkheidsonderzoek in het strafrecht: Een aanzet tot de gedragswetenschappelijke verantwoor-ding van de psychologische rapportage pro justitia, meer in het bijzonder van de toerekeningsvatbaarheidsbepaling. [Plea for restructuring. The personality assessment in criminal law: An initiative into the scientific behavioural justification of the psychological assessment procedure for court ordered assessments]. Deventer: Gouda Quint. 241 p. *De Psycholoog, 38*, 19-20.

Nagtegaal, M.H. (2004a). De 'besmetting' en andere ongenoegens. Bespreking van: De psychische stoornis in het strafrecht, symposium, Utrecht. [The 'infection' and other displeasures. A discussion of: The psychiatric disorder in criminal law, symposium]. *De Psycholoog, 39,* 628-629.

Nagtegaal, M.H. (2004b). Het dilemma van de vrije wil in de forensische psychologie. Publicatieprijs voor aankomende auteurs 2003. [The dilemma of free will in forensic psychology. Publication price for rising authors 2003]. *De Psycholoog, 39,* 3-9.

Nagtegaal, M.H. (2004c). Self-reported aggressive thoughts and physical aggression. *International Journal of Psychology, 39,* 333 Suppl. S.

Nagtegaal, M.H. & Rassin, E. (2004a, August). *Aggressive thoughts and physical aggression.* Posterpresentation 28th International Congress of Psychology, Beijing, China.

Nagtegaal, M.H., & Rassin, E. (2004b). The usefulness of the thought suppression paradigm in explaining impulsivity and aggression. *Personality and Individual Differences, 37,* 1233-1244.

Nagtegaal, M.H. (2005, April). *Shooting association membership, aggressive thoughts and personality.* Posterpresentation International Association of Forensic Mental Health Services, Melbourne, Australia.

Nagtegaal, M.H., Rassin, E., & Muris, P. (2006). Aggressive fantasies, thought control strategies and their relation to aggressive behaviour. *Personality and Individual Differences, 41,* 1397-1407.

Nagtegaal, M.H. & Kogel, C.H. De (2007, June). *Care and control in post-release supervision: Review of programs for different types of offenders.* Presentation International Association of Forensic Mental Health, Montreal, Canada.

Nagtegaal, M.H. (2007). Genen zijn geen noodlot. Bespreking van: Working together: Interdisciplinarity in forensic mental health, conference, Montreal, Canada. [Genes are not destiny. Discussion of: Working together: Interdisciplinarity in forensic mental health, conference]. *De Psycholoog, 12, 677-678.*

Nagtegaal, M.H., Rassin, E., & Muris, P. (under revision). Aggression-related cognition in incarcerated male offenders: A comparison with community controls. *Criminal Behaviour and Mental Health.*

Nagtegaal, M.H., Rassin, E., & Muris, P. (under revision). Do members of shooting associations display higher levels of aggression? *Psychology, Crime and Law.*

Co-author (chronological)

Watt, C. & Nagtegaal, M. (2000). Luck in action? Belief in Good Luck, Psi-Mediated Instrumental Response, and Games of Chance. *Journal of Parapsychology, 64,* 33-52.

Bruin, G. De, & Nagtegaal, M.H. (2003). De psychologie achter de rechtsgang. [The psychology behind the judicial process]. Bespreking van: P.J. van Koppen, D.J. Hessing, H.L.G.J. Merckelbach, & H.F.M. Crombag (Eds.). Het recht van binnen. Psychologie van het recht (2002). 1197 p. Deventer: Kluwer. *De Psycholoog, 38* (1), 21-22.

Watt, C. & Nagtegaal, M. (2004). Reporting of blind methods: An interdisciplinary survey. *Journal of the Society for Psychical Research, 68,* 105-114.

Gestel, B. Van, Knaap, L.M. Van der, Hendriks, A., Kogel, C.H. De, Nagtegaal, M.H., & Bogaerts, S. (2006). *Toezicht buiten de muren. Een*

systematische review van extramuraal toezicht op TBS-gestelden en vergelijkbare groepen in het buitenland. [Post-release supervision. A systematic review of supervision of forensic psychiatric patients and comparable groups in foreign countries]. Den Haag: WODC Cahier 2006-2.

Kogel, C.H. De, & Nagtegaal, M.H. (2006a). *Gewelds- en zedendelinquenten met een psychische stoornis. Wetgeving en praktijk in Engeland, Duitsland, Canada, Zweden en België.* [Violent and sex offenders with a psychiatric disorder. Legislation and everyday practice in England, Germany, Canada, Sweden and Belgium]. WODC/Boom serie Onderzoek en Beleid, nummer 240. Den Haag: WODC/Boom.

Kogel, C.H. De & Nagtegaal, M.H. (2006b). Is het gras elders groener? Internationaal netwerken in de TBS. [Is the grass greener elsewhere? International networking in forensic psychiatry]. In: M. Hildebrand & J. Meyer (red.). *Facetten van zorg. De Pompestichting 1966-2006. Liber Amicorum*. (pp. 114-129). Amsterdam: Spinhex & Industrie.

Kogel, C.H. De & Nagtegaal, M.H. (2007, June). *Post-release supervision: international review of legislative instruments.* Presentation International Association of Forensic Mental Health, Montreal, Canada.

Kogel, C.H. De & Nagtegaal, M.H. (in press). Toezichtprogramma's voor delinquenten en forensisch psychiatrische patiënten: Effectiviteit en veronderstelde werkzame mechanismen. [Supervision programs for offenders and forensic psychiatric patients: Effectiveness and supposed mechanisms]. WODC/Boom serie Onderzoek en Beleid. Den Haag: WODC/Boom.