



Aggressive scripts, violent fantasy and violent behavior: A conceptual clarification and review



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ABSTRACT

Aggressive scripts are stereotyped aggression-related event sequences typically acquired in early childhood, encoded in memory, rehearsed and elaborated, and then retrieved to guide aggressive behavior. In studies using non clinical and non offender populations, aggressive script rehearsal is commonly reported. Extant research suggests a tendency for aggressive script rehearsal to be activated by perceived personal affronts and constitutes imagined attempts to rebuke wrongdoing by others. Aggressive script rehearsal serves to prepare or rehearse intended acts or stimulate, maintain or regulate emotional or physiological arousal. Despite obvious relevance to violent offender assessment and treatment, research into aggressive script rehearsal is scarce and related terms such as violent fantasy are used interchangeably to describe comparable cognitive processes. Measures designed to assess aggressive scripts and violent fantasy are confounded. Further, few attempts have been made to define and differentiate the terms and there has been little progress in developing treatment procedures addressing these cognitive processes. The current review explores how aggressive scripts and violent fantasy are conceptualised with respect to their key characteristics and proposed acquisition processes and functions, noting commonalities and differences. Their relationship to violent behavior is described. Drawing on knowledge in related areas, including fantasy is likely to assist with the development of insight into the operation and function of aggressive scripts and their relationship to aggressive behavior, with implications for clinical practice.

1. Introduction

Antisocial cognitions are a major risk factor for criminal behavior (Andrews & Bonta, 2010) and a common treatment target in programs designed to reduce violent recidivism. The cognitions typically addressed in these interventions include violence-supportive attitudes, cognitive distortions, impulsive decision-making and poor problem solving. However, several researchers have noted that violent offender interventions tend to be compromised by an absence of overarching theory to elucidate the particular cognitions that require intervention, how these cognitions operate within a broader network of violence-related thinking, and the most effective methods for intervention (Gilbert & Daffern, 2010; Polaschek, Calvert, & Gannon, 2009). Consequently, the manner by which violence-supportive cognitions feature in the assessment and treatment of violent offending remains fragmented. This review explores a particularly important cognitive process, aggressive script rehearsal, and describes its relevance to aggressive behavior. We then seek to clarify how aggressive script rehearsal relates to violent fantasy. Although aggressive scripts have a central

role in contemporary models of aggressive behavior (e.g., General Aggression Model, GAM; Anderson & Bushman, 2002) they receive scant attention within the clinical literature. By contrast, violent fantasy is recognized as clinically important as evidenced by its inclusion in some structured violence risk assessment instruments such as the HCR-20^{v3} (Douglas, Hart, Webster, & Belfrage, 2013) and Violence Risk Scale (VRS; Wong & Gordon, 2009). In this paper we argue that the term ‘scripts’ (as opposed to fantasy) should be used to refer to these phenomenon, given the extensive theorising on the role of aggressive scripts, and issues with the term fantasy, which we will elaborate.

Cognitive psychologists have long emphasised the importance of mental representations and manipulations of routine or frequently practiced behaviors and activities with respect to future behavior, goal setting and planning (e.g., Abelson, 1981). Within social cognitive research and theorising, event ‘schemas’ or ‘scripts’ are conceptualised as templates that provide a description of events and mental rules to guide behavior in particular situations. The scripts construct has been disseminated across a range of areas of psychological research, for example, human sexuality (Simon & Gagnon, 1986), intimate relation-

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ships (Fehr, Baldwin, Collins, Patterson, & Benditt, 1999), and sexual offending (Ward & Hudson, 2000). The notion that violent individuals are prone to contemplate and plan violent actions is also a key focus of the most contemporary and comprehensive model of aggression and violence, the GAM (Anderson & Bushman, 2002). Recent research validates the notion that aggressive scripts play a role in the aggressive behavior of offenders (Gilbert, Daffern, Talevski, & Ogloff, 2013a, 2013b) and civil psychiatric patients (Podubinski, Lee, Hollander & Daffern, *in press*) and therefore should be considered more extensively in the assessment and treatment of violent offenders. At present, however, our understanding of scripts remains largely theoretical and there is little knowledge available regarding effective modes of intervention in this area, particularly with respect to forensic populations. There is also considerable conceptual confusion within this area, with the term ‘violent fantasy’ used interchangeably with ‘aggressive scripts’ by practitioners and in research.

The goal of this literature review is to explore how the aggressive scripts construct might be utilised more widely within the field of violent offender assessment and treatment. Building on an earlier paper (Gilbert & Daffern, 2010), this review begins by outlining the significance of the scripts construct to contemporary aggression theory. It then describes and integrates the available empirical literature relating to aggressive scripts, noting the shortcomings and issues that pervade this field and identifying areas where there is an absence of knowledge. It then explores the literature pertaining to sexual and non-sexual violent fantasies. This is done because there appears to be considerable conceptual overlap between aggressive scripts and violent fantasy with some evidence the two terms are used interchangeably by different researchers based upon what appears to be personal preference (e.g., different researchers utilising the same assessment tool, the Schedule of Imagined Violence (SIV, Grisso, Davis, Vesselinov, Appelbaum, & Monahan, 2000), refer to the measured construct as ‘fantasy’ (e.g., Nagtegaal, Rassin, & Muris, 2006; Watt, Kohphet, Oberin, & Keating, 2013) whereas others have used ‘scripts’ (Hosie, Gilbert, Simpson, & Daffern, 2014). It is our contention that considerable overlap exists between scripts and fantasy and as such, in an attempt to present a comprehensive review we have included literature relevant to both aggressive scripts and aggressive fantasies. Further to our description of scripts and fantasy and a theoretical overview of their origins and operation we have also included a review of literature exploring their relationships to aggression and violent behavior.

While this paper focuses on how scripts might be most appropriately conceptualised to benefit clinical interventions for violence, it is recognized that the causes of aggression and violence are multiple and include contextual as well as individual factors (Howells, 2011), with multi-modal treatment programs targeting a range of needs producing the largest effect sizes (Dowden & Andrews, 2000). To delineate the manner by which various terms are used within this paper, ‘aggression’ is defined as any form of behavior directed towards the goal of harming or injuring another living being who is motivated to avoid such action (Bushman & Anderson, 2001). ‘Violence’ is regarded as an extreme form of aggression in which the intention to harm another person involves a deliberate attempt to carry out serious physical injury (Berkowitz, 1993), whereas ‘violent offending’ refers to those violent acts that contravene legal codes (Howells, Daffern, & Day, 2008).

This traditional (narrative) review used Boolean search methods, MeSH headings and key words (i.e., aggression, violence, scripts, fantasy). Search terms were entered into three databases; CINAHL, MEDLINE Complete, and PsychINFO were searched using EBSCOhost and limited to English-language papers published in peer-reviewed journals. Following the initial search, Google and Google Scholar were added to the search strategy.

1.1. Theoretical overview

Descriptions of long-term memory structures that serve to influence behavior have been included in numerous academic disciplines over the last century and have been ascribed a variety of names and features (Greene & Graves, 2007). In the 1970s, cognitive psychologists Schank and Abelson (1977) first used the term ‘scripts’ to describe mental representations of real-world objects and events. Abelson (1981) defined a script as “a hypothesised cognitive structure that when activated organises comprehension of event-based situations” (pp.717). Scripts were regarded as structurally similar to non-event schema (e.g., expectations about personality types such as ‘extrovert’) and comprise expectations about the order as well as the occurrence of events.

Social cognition, which refers to the manner in which we interpret, analyse and remember information about the social world (Baron & Byrne, 1997), emerged as a dominant perspective in social psychology in the 1980s and centred on the notion that people process and make sense of complex social information by simplifying and organising this knowledge into cognitive structures known as schemas. All schema serve similar functions in that they influence: a) the encoding of new information, b) memories for old information, and c) inferences regarding missing information (Augoustinos, Walker, & Donaghue, 2006). These content-focussed constructs are distinct from the social information-processing mechanisms that give rise to them, that is, the cognitive processes linking biological, environmental and situational inputs to behavioral outputs (Huesmann, 1998). In this context, scripts became viewed as socially prescriptive knowledge structures enabling individuals to generalise from past experiences, circumventing the need to process information anew every time a situation is encountered (Augoustinos et al., 2006).

After social cognitive principles were applied to aggression and violence, scholars became interested in the development of aggressiveness as a trait that varied across individuals. Script theory (Huesmann, 1988, 1998), a key cognitive information-processing model that outlined the role of cognition in the maintenance of aggressive behavior, drew on the work of Bandura (1977, 1986) regarding the role of cognitive processing in social learning and Berkowitz's (1990) neoassociationist thinking. Here, aggression is characterised as a deeply ingrained personality trait that is related to genetic and psychological factors, emerging early in life and shaped by a child's life experiences (Huesmann, 1998). Scripts are identified as one of several cognitive variables mediating between inputs (e.g., biological factors) and aggressive behavior that combine to form an internal representation of the personality trait of aggressiveness (Huesmann & Eron, 1989). Scripts are stored in a person's memory and used as guides for behavior and social problem solving, anticipating the environmental events that are likely to happen, how the person should behave in response to these events and the likely outcome of those behaviors. Scripts incorporate both procedural (i.e., how things are done) and declarative knowledge (i.e., factual information about something). Individuals prone to aggression and violence are proposed to hold a greater number of aggressive scripts in memory, with these scripts being retrieved more frequently and accessed with greater ease (Huesmann, 1998).

Huesmann and Eron (1984) described the process by which aggressive scripts exert influence on an individual's level of aggressiveness across the lifespan. Aggressive scripts are acquired in early childhood through environmental exposure to aggression, which results in aggressive strategies being encoded, retained in memory and retrieved at a later stage to guide behavior. The encoding of aggressive responses requires a child to observe the behavior in other people and not reject it as completely inappropriate; it must be perceived as advantageous in some way. In order for aggression to remain part of an individual's behavioral repertoire it needs to be maintained in memory. Mental rehearsal of the aggressive script must take place and this may take several different forms including simple recall of the original

event, fantasising about it, or play-acting (Huesmann & Eron, 1989). Through this rehearsal, more abstracted aggressive strategies develop. Finally, to retrieve an aggressive script, the child must be able to access the script in memory, with the presence of those cues in existence at the time of encoding facilitating retrieval of a particular script. The more a child behaves aggressively and observes aggressive acts, the more they are exposed to aggressive scripts for encoding.

According to script theory (Huesmann, 1988, 1998), several factors determine the extent to which aggression becomes characteristic of an individual. Rehearsal of aggression-related scripts enhances their connectedness in memory, making them more accessible and more likely to be retrieved for social problem-solving. Aggression-related normative beliefs, or cognitions about the acceptability of aggressive behavior, are thought to prime schemas used to evaluate other's behavior, guide the search for social scripts and filter out inappropriate scripts and behavior (Huesmann & Guerra, 1997). Other factors such as one's interpretation of social cues, activated aggression-related schemas (e.g., the tendency to perceive others as having hostile intentions, the perception of the self as an 'avenger'), mood state and arousal, capacity to consider future consequences and perceived self-efficacy in responding non-aggressively also determine whether or not aggressive scripts will be enacted (Huesmann, 1998).

According to the GAM (Anderson & Bushman, 2002), a social-cognitive developmental model that provides an integrative framework for domain-specific theories of aggression, aggression propensity is influenced by an array of factors spanning four areas: situational instigators (e.g., provocation), personal preparedness (e.g., aggression-supportive beliefs), environmental modifiers (e.g., community violence), and biological modifiers (e.g., executive functioning deficits; Anderson, Gentile, & Buckley, 2007). Scripts are central to the maintenance of aggressive behavior by providing predictions of likely outcomes based on past experiences and rules about how to respond to situational cues. More recently, it has been hypothesised that aggressive script rehearsal may serve several additional functions, including: a) the regulation of mood and affective states, b) a coping mechanism whereby script rehearsal helps the person escape reality or regain a sense of control over perceived threats, c) a mental mechanism to re-live past experiences, or d) as a way of creating new experiences in a process of simulation (Sheldon & Patel, 2009). These suggested functions highlight conceptual confusion regarding the script construct and its relationship with related terms. It: (a) suggests confusion with the term rumination, (b) highlights similarities with the terms day-dreaming or fantasy, and (d) insinuates planning (see below for elaboration).

1.2. Findings from aggressive scripts research

In this section, the extant research regarding the relationship between aggressive scripts and aggression is examined. The extant aggressive script literature is presently underdeveloped, focussing on several areas which are described in turn: a) aggressive script rehearsal in non-violent individuals, b) the relationship between script rehearsal and aggression, c) the development of aggressive scripts, and d) the relationship between aggressive scripts and psychopathology. The key shortcomings of this literature are identified. While some studies have utilised different terms (e.g., 'violent fantasy'; Dunn & Hughes, 2001; Konijn, Nije Bijvank, & Bushman, 2007, the term 'aggressive script' is used throughout the following section since the studies included here do not appear to conceptually differentiate between the relevant constructs (unless the relevant term refers to a more specific type of script such as a particular act of violence).

1.3. Script rehearsal in non-violent individuals

Several non-clinical studies support a relationship between script rehearsal and aggression. In a sample of undergraduate females,

Nagtegaal et al. (2006) examined the relationship between thoughts of harming others, thought control strategies and aggressive behavior using the SIV (Grisso et al., 2000). They found that 60% of participants reported aggressive script rehearsal, the frequency of which ranged from several times a year to once a day. For the majority of these participants, the theme of the scripts involved verbal aggression (63%), with fewer reporting themes of physical aggression (23%), other content (11%) and sexual aggression (2%). Script rehearsal and selected thought control strategies, particularly thought suppression, were positively correlated with self-reported aggressive behavior.

In a study that examined the psychometric properties of the newly developed Justification for Violence scale in a non-clinical population, Kelty, Hall, and Watt (2011) found that individuals who endorsed violent sentiments were more likely to both mentally rehearse violence and engage in violent behavior. Watt and Brooks (2011) examined the relationship between self-reported psychopathic traits and various factors including gender, empathy, alcohol use, psychopathology and thoughts of violence in an Australian community sample, using a self-report inventory of violence supportive cognitions measuring instrumental and reactive thoughts. They found that thoughts of instrumental violence but not reactive violence were positively related to criminal tendencies.

Two studies have examined the incidence of aggressive scripts (note the term scripts was not used, the focus was on thoughts of killing another person, which they referred to as homicidal fantasy) and the triggers activating the process of rehearsal. Kenrick and Sheets (1993) asked undergraduates to provide detailed descriptions of their most recent thoughts of killing another person, assessing the frequencies, triggers and relationship to the target of the fantasies. Overall, the majority acknowledged at least one homicidal fantasy (68–69%), with the most commonly identified triggers for these fantasies including personal threat, public humiliation and threats to another person. Males were more likely to report having experienced homicidal fantasies, to describe them as being frequent and prolonged, and for their fantasies to have included the use of fatal weapons. In a similar study, Crabb (2000) assessed recent experiences of thoughts about killing and the specific weapons implicated amongst a sample of undergraduates. Forty-five per cent of the sample reported recollection of a recent homicidal fantasy, although the rate for males (60%) was twice that for females (32%). The most commonly cited triggers for fantasies were lovers' quarrels and trivial disputes, falling into the category of frustrating and threatening events; less common were fantasies representing a desire for thrill-seeking. Weapons such as firearms and knives featured in 75% of fantasies, with a preference for weapons use being associated with greater perceived efficacy in killing and in the ability to use them effectively.

A study by Egan and Campbell (2009) investigated whether sensational interests, sustaining fantasies, that is, the use of familiar and repetitive fantasies for consolation at times of distress, and selected personality traits were associated with physical aggression in a large non-clinical sample. Negative sustaining fantasies associated with power and revenge, dying and illness, withdrawal and protection and suffering, and narcissistic sustaining fantasies, comprising power and revenge, admiration of self and competition, were positively associated with both physical and verbal aggression, and anger and hostility. Overall, these studies appear to suggest that some level of aggressive script rehearsal is normal amongst those without any identified history of aggression and violence, and that this is commonly activated by perceived personal affronts or imagined attempt to rebuke perceived wrongdoing by others.

1.4. The relationship between aggressive scripts and aggression in offender populations

Several studies have investigated the relationship between scripts and aggression propensity in aggressive and violent individuals. Two

studies have demonstrated that scripts are positively related to aggression in criminal offenders. Drawing on the overarching framework of the GAM, Gilbert et al. (2013a, 2013b) retrospectively assessed the relationship between aggression-related cognitions and aggression of a sample of offenders. In the first study (Gilbert et al., 2013a), the role of three types of aggression-related cognitions, aggressive scripts (operationalized in their procedure as thoughts about hurting or injuring other people), normative beliefs supportive of aggression and Early Maladaptive Schema (EMS), in addition to trait anger were examined with respect to offenders' aggressive behavior. Sixty-one per cent of the sample acknowledged engaging in frequent rehearsal of aggressive scripts as measured by the SIV (i.e., between several times a year and several times a day), whereas 39% denied ever experiencing aggressive thoughts or reported that this only occurred once every few years. More frequent rehearsal of aggressive scripts was associated with greater past involvement in aggression, as were more positive attitudes to violence and higher trait anger. The second study (Gilbert et al., 2013b), using data derived from the same participants, examined whether aggressive scripts, normative beliefs supportive of aggression and trait anger assisted in explaining differences in aggressiveness amongst offenders with DSM-IV Axis II personality disorder symptoms and traits of psychopathy. The results confirmed a relationship between several personality disorders and aggression, and more importantly, that for the majority of those personality disorders with established relationships with aggression (Antisocial, Borderline, Paranoid and Schizotypal Personality Disorders, and psychopathy), the combination of aggressive scripts, favorable attitudes towards aggression and higher levels of anger provided an improved understanding of aggressiveness beyond personality disorder traits alone. These studies underscore the importance of considering the role of aggressive scripts when formulating an individual's propensity towards aggression and violence.

The findings of a further four studies provide evidence to indicate that violent individuals hold more established and accessible aggressive scripts. Lim, Day, and Casey (2011) investigated reactions to perceived provocation in samples of violent and non-violent offenders, assessing the relative contributions of hostile attributions and trait anger. Participants were provided a vignette of interpersonal provocation and asked about their likelihood of shouting, hitting and swearing at the protagonist. The results suggested that violent offenders were more likely than non-violent offenders to endorse aggressive reactions, with hostile attribution biases a stronger predictor of aggression expectancy than trait anger. Jouriles, Grych, Rosenfeld, McDonald, and Dodson (2011) used a word completion task to measure the level of aggression in the automatic cognitions of teenagers in contact with the juvenile justice system, examining how aggressive cognitions were related to violence within their interpersonal relationships. After controlling for attitudes towards dating violence, aggressive automatic cognitions were found to be positively associated with violence. Smith and Waterman (2004) examined processing biases for aggressive word content in offenders relative to undergraduates. Both violent offenders and more aggressive undergraduates demonstrated significant response biases to aggressive words, suggesting that aggressive thought content is more accessible to aggressive individuals. Deu (1998) examined the relationship between scripts and criminal offending including violence via the cognitive functions of impulsivity and cognitive flexibility. A sample of forensic inpatients were administered the Weigl card-sorting test, a test of cognitive flexibility, and the Stroop test, a test of response inhibition or impulsivity. Cognitive flexibility and impulsivity were found to interact in the use of aggressive script rehearsal as a method of planning and organising violent offences.

One study has examined the aggressive cognitions of those with extreme histories of violence. Meloy, Hempel, Mohandie, Shiva, and Gray (2001) explored the demographic, clinical and forensic characteristics of a sample of 34 male adolescent offenders who had committed mass murder (i.e., the intentional killing of at least three victims in a single incident), using biographical information derived from various

data sources such as courtroom testimony and perpetrator accounts. Almost half of the sample (44%) was described as preoccupied with aggressive script rehearsal on a daily basis. The researchers proposed that withdrawal into a fantasy-based world involving immersion in aggressive material such as violent video games as a result of negative social experiences including being bullied enabled these offenders to counteract experiences of global social failure. The findings point towards a relationship between more frequent script rehearsal and severe acts of violence.

Finally, one unpublished study has examined the possible functions of aggressive script rehearsal. Sheldon and Patel (2009) conducted a qualitative study of the aggressive scripts (thoughts and plans about harming others) of a sample of 25 patients admitted to a high-secure hospital, examining the nature and functions of pre-treatment scripts and differences in institutional risk-related behavior in the first 12 months of admission. Of the 25 participants, 64% ($n = 16$) reported rehearsing aggressive scripts during the first two months of admission. With regard to the qualities of scripts, Sheldon and Patel found variations in the extent to which they: a) comprised shifting themes or longer periods of reflection, b) were described as spontaneous or deliberately self-generated, c) contained severe violence, based on factors such as the inclusion of weapons and sexual themes. Two dominant functions of these scripts were also identified. The first function was to cognitively rehearse future acts. Planning the act in imagination alongside the acting out of offence-paralleling behavior (Daffern et al., 2007) enabled preparation for offending or maintenance of the arousal associated with the script and stimulation of new content. The second function was associated with emotional regulation, whereby patients accessed aggressive scripts during periods of negative affect to deal with distressing feelings (e.g., narcissistic injury or perceived threat), or used them to elevate an ambivalent mood such as boredom, or to enhance a pre-existing positive mood. Finally, no differences were found in institutional risk-related behavior (i.e., physical aggression, verbal aggression, sexualised behavior, hostage-taking) between those who acknowledged and those who denied rehearsing aggressive scripts, with the link between script rehearsal and action therefore unclear. They noted several limitations however, including the possibility for an impression management bias to have compromised the findings and the subjective nature of the self-report data.

1.5. The development of aggressive scripts

Research has also examined the acquisition processes for scripts and the role of scripts in children's aggression. Huesmann and Eron (1984) reported on a 22-year longitudinal study of children's involvement in aggression and the role of aggressive script rehearsal across several different countries. They found that aggressive scripts were consistently associated with later aggressive behavior, supporting the notion that cognitive rehearsal of aggression serves to influence the likelihood of future aggressive acts. Dunn and Hughes (2001) found that violent scripts, assessed through pretend play episodes, were significantly more common amongst conduct disordered pre-school age children than a control group. Three studies have also demonstrated that exposure to aggression is associated with a tendency towards behaving aggressively (Guerra, Huesmann, & Spindler, 2003; Musher-Eizenman et al., 2004; Smith, Fischer, & Watson, 2009), and the type and nature of exposure to aggression has been found to be important in the formation of aggressive scripts (Wilkinson & Carr, 2008). Novaco and Taylor (2008) investigated whether exposure to parental anger and aggression was related to the anger and aggression of 107 hospitalised male forensic patients with developmental disabilities. After controlling for a range of variables such as age, length of hospital stay and violent offence history, exposure to parental anger and aggression was significantly related to self-reported and staff-rated anger and aggression and physical assaults in hospital. The authors suggested that this finding supported a social learning theory perspective regarding the

manner by which aggressive scripts are acquired through parental modelling of anger and aggression. Similarly, a qualitative study by Polaschek et al. (2009) found that violent offenders tended to hold the implicit theory (akin to schema) ‘normalisation of violence’, recounting experiences of having been taught how to use aggression during childhood. Overall, this research corroborates the theorised acquisition process for aggressive scripts described by Huesmann (1998) and offers evidence to support the role of aggressive scripts in the development of habitually aggressive behavior.

Two laboratory studies have examined how aggressive scripts operate to influence aggression. Kirsh, Olczak, and Mounts (2005) investigated the effects of violent video game play and trait hostility on attention bias towards negatively valenced words by administering a non-clinical sample an emotional Stroop task following video game play. They found greater Stroop interference for participants high in trait hostility and for those playing violent video games. The results of this study suggest that exposure to violent video games biases attention towards negatively valenced information, potentially triggering already developed aggressive scripts. Krahe et al. (2011) examined the proposition that the reduced anxious and increased pleasant arousal that accompanies thinking about violence as a result of habitual exposure to media violence should cause more aggressive thoughts to be stimulated by a violent scene and should allow more aggressive scripts (scripts that would normally be inhibited by the anxious arousal) to be used proactively in social problem solving. For men there was a significant correlation between greater habitual media violence exposure and more rapid accessibility of aggressive cognitions after viewing the violent film clip, suggesting that exposure to aggressive material can lead to a short-term desensitisation to violence and increased retrieval of aggressive scripts.

1.6. The relationship between aggressive scripts and psychopathology

Several studies have explored aggressive scripts in clinical settings, identifying a link between more frequent script rehearsal, psychopathology and aggression. In a large sample of treatment-seeking outpatients Asnis, Kaplan, van Praag, and Sanderson (1994) examined the prevalence of past and current homicidal ideation. Twenty-two per cent of the sample reported past homicidal ideation, with the incidence more common amongst patients with histories of substance abuse (32%), bipolar disorder (21%) and schizophrenia (20%). Smaller proportions reported that their ideation had persisted over time (8%), or involved a specific plan (7%). Korn, Plutchik, and van Praag (1997) assessed the frequency and nature of homicidal ideation occurring in psychiatric patients with panic disorder at the time of panic attack onset. Using the Panic, Suicide and Aggression Scale (PSAS), a questionnaire designed to assess reported suicidal and aggressive thoughts and behaviors that occur during panic attacks, 5% of patients with panic disorder reported homicidal ideation during panic attacks, and for patients with comorbid depression the rate increased to 29%. Grisso et al. (2000) examined the prevalence of aggressive script rehearsal in patients hospitalised for serious mental disorders again using the SIV. In their study 30% reported recent aggressive script rehearsal, a rate that was approximately twice as great as the rate reported amongst a community-based non-patient sample. Furthermore, around 20% of patients reported recent script rehearsal over a 50-week follow-up period. Podubinski et al., (inpress) used the SIV to examine the frequency of violent script rehearsal in 200 patients admitted to hospital for psychiatric treatment in Melbourne, Australia; 39 (19.5%) reported rehearsing violent scripts “once every few years”, 22 (11.0%) reported script rehearsal “several times a year,” 10 (5.0%) “several times a month (less than once a week)”, 8 (4.0%) “once a week”, 12 (6.0%) “several times a week”, 7 (3.5%) “once a day,” and 12 (6%) “several times a day”. More frequent script rehearsal was associated with aggression during hospitalization (Podubinski et al., inpress).

1.7. Fantasies and sexually violent fantasies

Fantasies have been characterised as a learned thought process in which an individual creates a mental picture that combines a group of symbols into a script, with the individual having a central role in relation to a somewhat organised sequence of planned events (Rokach, 1990). Fantasies have been seen as largely independent of external behavior and as covert mental activity (Mellou, 1995), however, it has also been proposed that they can operate as either a substitute for action or preparation for later action (Beres, 1960), akin to script rehearsal. According to behavioral theory, fantasy content emerges through the principles of reinforcement, with the fantasies either being reinforced or themselves being reinforcing (Halderman, Zelhart, & Jackson, 1985).

A variety of functions of fantasising have been proposed. These include a means of psychological escape, an outlet for anger, a method of self-regulation and of mentally reorganising information, a way of facilitating learning, and to assist with preparation for an upcoming situation (Halderman et al., 1985; Klinger, 1990; Lynn & Rhue, 1988). Fantasies have also been described as a specific form of mental ‘simulation’, which is used by Taylor and Schneider (Taylor & Schneider, 1989) to refer to the cognitive construction of hypothetical scenarios or reconstruction of real scenarios. Simulation processes are proposed to represent a coping strategy central to problem-solving and emotion regulation by enabling people to prepare for future events, interpret past events, alter their emotional states and generate arousal, providing links between thought and action. Although the range of functions identified suggest that fantasies serve an important adaptive function, fantasies have also been linked to psychological disturbance. The presence of deviant sexual fantasies for instance represents one of the major factors in the contemporary diagnosis, theory and treatment of sexual offending (Curnoe & Langevin, 2002). Early researchers and theorists found that deviant sexual fantasies were a key feature of sadistic murderers (Brittain, 1970), proposing that fantasies operated as a drive mechanism for serial sexual crimes and sexual homicide (MacCulloch, Snowden, Wood, & Mills, 1983). Theoretical models such as Burgess, Hartman, Ressler, Douglas, and McCormack’s (1986) motivational model of sexual murder have been founded on the notion that cognitive structures contribute to the maintenance of patterns of behavior and have drawn on research investigating the role of sadistic fantasies, criminal reasoning and criminal fantasies in sexual offending. Other models of sexual offending also specify a critical role for sexual fantasies (Gee, Ward, & Eccleston, 2003; Knight & Sims-Knight, 2003).

Conceptual definitions of sexually violent fantasies within the literature vary. Typically, they have focussed on broad conceptualisations of sexual fantasy and the relationship between fantasy content and arousal (Bartels & Gannon, 2011; Gee, Ward, Belofastov, & Beech, 2006). For example, in highlighting the link between sexually violent fantasy and extreme sexual violence, Burgess et al. (1986) defined fantasy as “an elaborate thought with great preoccupation, anchored with emotions and having origins in daydreams...generally experienced as a collection of thoughts although the individual may also be aware of images, feelings and internal dialogue” (pp. 256). The most commonly used term within the literature is ‘deviant sexual fantasy’, although more specific terms have been used during consideration of particular sexual behaviors, such as ‘coercive fantasy’ in relation to rape (Bartels & Gannon, 2011). In a review of the literature, Maniglio (2010) reported that deviant sexual fantasies tend to be defined as an elaborate set of cognitions including thoughts, feelings, images and internal dialogue, that contain themes involving infliction of harm or pain during sexual intercourse, illegal or socially unacceptable sexual behavior, or otherwise inappropriate or non-consensual sexual activity.

Several researchers have since proposed precise definitions that aim to separate out those sexual fantasies that are directly associated with offending behavior from more general sexual fantasies that might

contain deviant themes but are unrelated to offending. [Gee, Devilly, and Ward \(2004\)](#) used the term ‘offence-focused fantasy’ to refer to those fantasies that contain sexually deviant material that, if acted out, would legally constitute a sexual offence. They further divided this category into two fantasy subtypes, 1) nonspecific offence fantasy which refers to those that are related to generally aberrant activities rather than to a specific offence and 2) offence-specific fantasies, which refer to particular offence characteristics (e.g., victim characteristic or offence behaviors). Most recently, [Bartels and Gannon \(2011\)](#) proposed the use of the term ‘high-risk sexual fantasy’, which refers to any mental imagery involving an elaborate sexual scenario or script with distorted aims or means, whose repeated use increases the risk of the fantasiser committing a sexual offence in the presence of certain contexts and dispositions. They propose that the benefits of this more precise conceptual definition include the application to fantasies derived from both memory and imagination, the isolation from fleeting sexual thoughts, and the inclusion of sexual behaviors with distorted aims and or means (e.g., rape, molestation, exhibitionism) that relate to risk of sexual offending without resorting to use of the term ‘deviant’.

A clear distinction has also been made between sexual fantasies and beliefs about the acceptability of the sexual behavior. For instance, it is noted that as rape fantasies are replayed, they may become more accepted and may guide the rapist's behavior ([Ryan, 2004](#)). This appears to suggest an interaction between fantasy and beliefs, as opposed to the assumption that the beliefs about the acceptability of behavior operate as a filter for possible behavioral responses. Similarly, [Bartels and Gannon \(2011\)](#) proposed that an individual experiencing sexual arousal towards a deviant sexual fantasy that is appraised negatively feels cognitive dissonance, resulting in attempts to reduce this feeling by developing distorted sexual attitudes that change how a fantasy is appraised in the future. Returning to aggressive script rehearsal, [Gilbert, Daffern, Talevski, and Ogloff \(2013c\)](#) also found that individuals who held beliefs that were supportive of violence were more likely to rehearse aggressive scripts, also suggesting an interaction between scripts and beliefs.

The importance ascribed to deviant sexual fantasies in sexual offending has been through their assumed role in the acquisition and maintenance of the deviant sexual interests and in motivating certain individuals to enact the imagery they have mentally simulated within their fantasies ([Bartels & Gannon, 2011](#)). Prominent researchers in this area have identified a range of functions for sexually violent fantasising (e.g., [Meloy, 2000](#)), and have proposed differences in functions based on the disposition and motivation of the offender ([Langton & Marshall, 2001](#)). [Gee et al. \(2003\)](#) explored the functions of sexual fantasy in offending by analysing interview transcripts of a sample of males convicted of sexual offences, using a grounded theory approach to examine the thoughts, emotions and behaviors associated with fantasising. The results led them to develop a descriptive model of the role of sexual fantasy during the offence process, the Sexual Fantasy Function Model, which specifies four functions that are perceived to be central to the process of sexual offending, that is 1) affect regulation, 2) sexual arousal, 3) coping, and 4) modelling.

Additional research supports these factors as central functions. In relation to the affect regulation function of sexual fantasies, research studies using retrospective methods support a relationship between negative affective states and deviant sexual fantasy (e.g., [DiGiorgio-Miller, 2007](#); [McKibben, Proulx, & Lusignan, 1994](#); [Proulx, McKibben, & Lusignan, 1996](#)). It has been proposed that this is achieved either by alleviating a dysphoric state or shifting offenders' attention away from negative moods, or by enhancing a neutral or positive psychological and physiological states ([Gee et al., 2003](#); [Ward, Hudson, & Keenan, 1998](#)). Furthermore, [Ward, Hudson, and Marshall \(1995\)](#) hypothesised that the use of mental representations of sex such as fantasies in addition to sexual activities themselves may assist an individual to cope with negative emotions through a cognitive deconstruction process involving a reduction in self-awareness as a result of a

shift in attention from an abstract level involving concern for long-term goals and maintaining a positive self-image, to a concrete level that involves a focus on short-term goals such as sexual gratification.

Although the role of sexual fantasies in providing positive reinforcement through sustaining pleasure has been well-documented amongst non-offenders, few studies have replicated these findings amongst sex offender populations. Nonetheless, this function is a defining feature of sexual fantasies and in the sex offender literature fantasies are generally viewed as serving to increase sexual activity, by stimulating sexual arousal and physiologically releasing sexual tension, potentially in preparation for an offence ([Carabellese, 2011](#)). With respect to the coping functions of fantasies, [Gee et al. \(2003\)](#) identified two sub-categories of coping amongst offenders with respect to their fantasies: control and escape. The control aspect refers to the ability to exert actual or perceived control over internal and or external threats. [Meloy \(2000\)](#) also notes that fantasies stimulate: 1) grandiosity since they can be perfect and compensate for perceived inadequacies, and 2) omnipotence due to the possibility of establishing imagined control over a victim. The escape function involves the individual's active or passive attempts to escape the realisation of his present situation, through either detachment or suppression of the realisation of a situation ([Gee et al., 2003](#)). A study by [Maniglio \(2011\)](#) found that the development of these methods of coping appears to originate from early traumatic experiences such as child abuse, which lead to psychological problems (i.e., psychiatric symptoms or painful mental states) and an absence of more appropriate coping strategies. Individuals may thus retreat into an internal imaginary world of deviant sexual fantasy to overcome the psychological pain and to achieve the satisfaction that is absent from reality.

Finally, the modelling function of fantasies has been frequently highlighted in the sexual offender literature. Sexual fantasies are conceived of as having an important role in simulating behaviors to prepare for future action, for example by assisting an individual to plan an offence or select a victim. [Ward and Hudson \(2000\)](#) have proposed two distinct cognitive planning mechanisms that can provide offenders with an automatic goal dependent action plan to partially facilitate subsequent sexually aberrant activity, emphasising differences in these implicit decision-making processes amongst sexual offenders. The first mechanism is offence scripts, in which familiar, goal-dependent actions influenced by past behavior are represented in memory in the form of cognitive scripts. They specify the conditions under which an offence plan can be enacted and develop from a past history of pairing situations and offending behavior, with experienced offenders having a number of coherent, interconnected scripts representing different offence situations and victims. By reliving past experiences, the themes that emerge are reinforced by repetitive action and rehearsal, incorporating aspects of the offending into a generic offence fantasy. This may then be rehearsed before, during and after a sexual encounter to re-experience the positive emotional state associated with the actual sexual experience ([Gee et al., 2003](#)). The second kind is mental simulations, where an offender imagines committing a sexual offence in considerable detail, and the process of selecting a primary goal (e.g., intimacy), imagining the circumstances in which a goal might be achieved and planning what to do and how to do it. This may result in automatic decision-making when an individual encounters the relevant environmental cues.

Despite the focus in the literature on the functional role of sexually violent fantasies, it has been noted that a large number of people who engage in deviant sexual fantasies have never behaved in a deviant sexual manner ([Leitenberg & Henning, 1995](#)). Consequently, a frequently debated issue is the aspects distinguishing between those individuals who may entertain deviant fantasies without ever acting them out and those for whom the fantasies are related to the acting out of deviant behaviors. [Williams, Cooper, Howell, Yuille, and Paulhus \(2009\)](#) questioned whether fantasies encourage the acting out of associated behaviors, represent reliving of previous acts, or whether a

third variable (e.g., sex drive) independently generates both fantasies and behavior. It has been proposed that dominant antecedent factors influencing the enactment of fantasies include stress, the offender's frame of mind and the level of planning (Ressler, Burgess, & Douglas, 1988). Amongst those who have a preoccupation or reliance on deviant sexual fantasies (Bartels & Gannon, 2011; Maniglio, 2010), their extensive use can provide the means for offence scripts to be created, which may be acted out if the relevant internal cues (i.e., negative affect) and external cues (i.e., environmental factors that match those in the fantasy) are present (Ward & Hudson, 2000). With respect to the relationship between deviant sexual fantasies and sexually-motivated serial homicides, it is theorised that for a considerable period of time, fantasy serves as a substitute for behavior, but once the fantasy builds to a point where inner tension is unbearable, the way for action is prepared (Schlesinger, 2000). It is generally accepted that there is a process in which obsessive and recurrent fantasies begin to escalate in frequency and intensity, with the offender acting out the sexual violence to temporarily satiate the fantasy. However, it is noted that there is a need for caution in avoiding over-generalising from extreme offender groups to other types of sexual offenders (Howitt, 2004).

There is also a recognition that sexual offender populations are likely to comprise individuals who may either be motivated to offend or do not want to offend but do so because they lack adequate skills to prevent offending. Ward and Hudson (1998) propose that the former may have made a determination to offend in the service of other needs (e.g., aggression) or as an end in itself (e.g. a belief they are entitled to sex), with those goals either related to positive or negative affective states depending on the actual aims of the offender. The latter, who wish to avoid offending, experience difficulties in handling intense negative emotions which leads to a loss of control, with deviant fantasies facilitating this process (Gee et al., 2004).

Building upon the literature describing the acquisition processes for sexual fantasies, studies have shown that deviant sexual fantasies are often well-established by adolescence (Howitt, 2004). Most researchers also propose that deviant sexual fantasies in sex offenders may originate from early negative experiences, especially sexual victimisation in childhood (MacCulloch, Gray, & Watt, 2000; Marshall & Marshall, 2000). A recent systematic review found that there is consistent evidence to indicate that, relative to non-sexual offenders and non-offenders, all sexual offenders are more likely to have experienced early traumatic experiences, including childhood sexual abuse (Maniglio, 2011). Through conditioning processes, initial sexual experiences are believed to be instrumental in providing the imaginal cues for a person to use during subsequent sexual activity (Abel & Blanchard, 1974; McGuire, Carlisle, & Young, 1965). Furthermore, the process of habituation, that is, the reduction in strength of a response to a stimulus after repeated exposure (Bartels & Gannon, 2011), results in the sexual fantasies containing increasingly deviant content (MacCulloch et al., 1983; Meloy, 2000).

1.8. Research into the relationship between sexually violent fantasies and offending

In this section, the more developed body of literature concerning the role of sexually violent fantasies in offending will be examined to ascertain 1) whether studies consistently support a link between sexually violent scripts and sexual violence, and 2) the factors contributing to this relationship.

1.9. Evidence for a relationship between sexually violent fantasies and aggression in non-offender populations

Several studies suggest a relationship between sexually aggressive fantasies and aggressive behavior amongst non-offender populations. Greendlinger and Byrne (1987) examined the role of coercive sexual fantasies amongst male college students as predictors of hypothetical

willingness to rape and self-reports of past sexually coercive behavior. They found that coercive fantasies were positively associated with both variables, suggesting that those participants describing fantasies of dominance, force and rape as an important part of their behavioral repertoire were more likely to characterise themselves as potential rapists and as past users of coercion in sexual interactions. Krahe, Beineck, and Scheinberger-Olwig (2007) conducted a longitudinal study examining the role of sexual scripts on subsequent sexual behavior. Using a sample of high school men, they found that normative acceptance of risk elements of sexual aggression in individuals' scripts for their own sexual behavior (e.g., drug and alcohol consumption, ambiguous communication of sexual intentions) predicted the acceptance of force in relationships as well as behavioral risk-taking, in addition to men's engagement in sexually aggressive behavior.

Williams et al. (2009) examined the correlation between deviant sexual fantasies and deviant sexual behaviors in a sample of undergraduates. They found a mean rate of fantasies across different categories of deviance of 52%, and with the exception of paedophilia, participants who reported engaging in deviant behaviors also reported having more fantasies about those behaviors (mean correlation of $r = 0.44$ across the nine categories). Deviant behaviors were more strongly correlated with their corresponding fantasy than with any other fantasy category, supporting the notion of specificity with regard to sexual deviance. Zurbriggen and Yost (2004) examined the relationship between sexual fantasies and attitudes relevant to sexual aggression in a non-clinical sample. They found that fantasies of dominance were positively correlated with rape myth acceptance, which itself has been found to consistently correlate with measures of aggressive sexual behavior. In sum, these findings might indicate that when individuals are more freely able to discuss their scripts with less concern for the consequences (as opposed to offending samples) the argument for scripts to play a causal role in behavior is stronger.

1.10. Evidence for a relationship between sexually violent fantasies and aggression in offender populations

Sexual fantasies have been found to be present amongst sexual offenders, including serial rapists (Burgess, 1988), serial sexual homicide (Prentky et al., 1989), juvenile sexual homicide offenders (Myers & Blashfield, 1997), juvenile repeat sexual offenders (Kenny, Keogh, & Seidler, 2001), mentally ill sexual offenders (A. D. Smith, 1999), and child molesters and exhibitionists (Dandescu & Wolfe, 2003). Sexual offenders have also been found to fantasise about their offences both prior to and after committing an offence. In a sample of high-risk sexual offenders, Woodworth et al. (2013) found that of those who disclosed that they fantasised sexually, 82% reported deviant fantasies (i.e., child, violent and combined child and violent). In sexual murderers, the rates entertaining deviant fantasies are similarly high, having been estimated as being over 80% (MacCulloch et al., 1983; Prentky et al., 1989). As such, it is generally accepted by forensic practitioners that sexual fantasies are implicated in sexually violent offending, particularly more serious acts (Howitt, 2004).

Despite this consensus, as research in this area has proliferated there has been recognition that the relationship between deviant fantasies and offending is complex. Firstly, several studies demonstrate contradictory findings. Daleiden, Kaufman, Hilliker, and O'Neil (1998) examined the sexual histories and fantasies of imprisoned youthful sexual offenders, comparing these with imprisoned non-sexual offenders and male college students. Fantasies were assessed on two scales and characterised as deviant (e.g., whipping, beating, torturing others) and nondeviant (e.g., hugging, kissing and undressing). They found that imprisoned samples did not report a greater frequency of deviant fantasies and fewer fantasies of nondeviant content, suggesting that criminal activity may be associated with suppressed levels of nondeviant fantasy rather than elevated levels of deviant fantasy. However

the researchers proposed that this finding may be due to offenders' minimisations during reporting of sexual fantasies, inaccurate self-disclosures and lack of insight. Similarly, Baumgartner, Scalora, and Huss (2002) found that, when comparing the fantasies of child molesters and nonsexual offenders, child molesters reported higher levels of exploratory and intimate fantasies but no differences on impersonal and sadomasochistic fantasies. Both groups of offenders were proposed to respond defensively with respect to fantasies in an effort to appear favorable. A study by Langevin, Lang, and Curnoe (1998) examined discrete groups of sexual offenders (paedophiles, exhibitionists, incest perpetrators and sexual aggressives), community controls and non-violent non-sexual offenders with respect to the proportions of men reporting general and deviant sexual fantasies. They found that the majority of sexual offenders reported having non-deviant sexual fantasies involving physically mature females and considerably fewer reported having deviant fantasies involving children or deviant sexual activities, when compared to the controls. They accounted for this finding by proposing that nondeviant fantasies may be the expression of a wish to be normal and not to be afflicted by sexual deviance or criminal behavior. Overall these findings demonstrate the difficulties in accurately quantifying and characterising fantasies; Langevin et al. (1998) also note that differences in results of studies may be due to factors such as variations in sample size, type of sex offender examined, and use of standard procedures and control groups. Given that fantasies of forced sexual contact are relatively common amongst community controls (Crepault & Couture, 1980; Langevin et al., 1998; Rokach, Nutbrown, & Nexhipi, 1988) and are considered to play an important role in healthy human sexuality, it is also apparent that merely having deviant fantasies does not necessarily mean that they will be acted out (Maniglio, 2010).

2. Conclusion

The empirical literature exploring aggressive scripts and their relationship to aggressive behavior supports social-cognitive perspectives, confirming the relevance of scripts to the onset and maintenance of aggression. It also supports the notion that aggressive scripts may be accessed through offender self-report; however, the most valid method for this assessment remains unclear. Extant research also appears to be compromised by several limitations. First, research into the characteristics, prevalence and outcomes of aggressive scripts has predominantly occurred in clinical and non-clinical settings rather than in offender populations where violence is commonplace. This has limited the extent to which scripts are included within violent offender assessment and treatment protocols. There are few studies that have systematically explored the nature of aggressive scripts in those individuals with histories of persistent and/or severe violence. Furthermore, there does not appear to be any published treatment protocol addressing aggressive scripts and there is no evaluation of any intervention targeting aggressive script rehearsal.

From a conceptual perspective, this review highlights considerable similarity in the functions and operation of scripts and fantasy. A common theme across the literature describing fantasy and scripts is the assumption that they can each play a preparatory and guiding role in subsequent behavior and it is significant that empirical evidence in support of these relationships has consistently been obtained. Several factors influencing their operation appear comparable, including their development through learning and modelling, past experiences of relevant situations and current normative beliefs.

The interchangeable use of the terms 'script rehearsal' and 'fantasy' by some researchers and the various measures that are used to assess the two constructs does make comparisons across studies difficult. Furthermore, the concept under investigation (e.g., violent fantasy) is sometimes poorly defined or lacking differentiation from other components of aggressive cognition (e.g., beliefs). Use of differing terms (scripts and fantasy) also creates confusion about the extent of planning

that is theoretically associated with the construct. It is also unclear what distinguishes a problematic aggressive script or fantasy from those that are more innocuous, with respect to aspects such as the frequency of rehearsal, the nature of the script itself and its relationship to other personal risk factors for violence such as anger, impulsivity and violence-supportive attitudes. Script rehearsal can serve as a coping mechanism to alleviate negative effect, the presence becoming problematic when an individual becomes reliant on them and when their content is harmful. Thus, in determining the importance of aggressive scripts to an individual's violent behavior, it would be necessary to ascertain the extent to which rehearsal of aggressive scripts occupies their thinking via assessment of aspects such as the frequency and duration of rehearsal. It would also be important to examine whether the scripts are used to assist with emotion regulation in the absence of alternative coping skills and importantly, the nature of aggressive behaviors being scripted. Presumably, rehearsing severe violence (e.g., stabbing somebody) is more problematic than rehearsing acts of verbal threats although there is little if any research that has asked violent offenders about the nature of aggressive scripts.

Given the extensive theorising on the role of aggressive scripts and their place in contemporary models of aggression our view is that researchers and practitioners should use the term 'scripts' (as opposed to fantasy). Bearing in mind the limited research in this area, this would clarify that the same construct is being investigated and assist in unifying the literature. Although the term fantasy is appealing due to widespread use, it is problematic in that it implies a construct that may be innocuous (although this is certainly not the case for sexually violent fantasy) and does not necessarily represent a precursor to action. The term script clearly describes a cognitive operation that serves a preparatory and guiding role in behavior. A 'script' is therefore more easily operationalised, referring to a potential characteristic of violence-prone individuals representing a tangible target of assessment and treatment. Furthermore, like scripts, 'violent fantasies' reflect elaborate sequences of cognitions. However, the term 'script' more specifically describes a stereotyped event sequence, fantasies are not necessarily tied to planned behavioral action and the functions of fantasy are varied, although primarily concern regulation of affect and/or physiological arousal. Scripts likely develop in early to late childhood. The process of fantasising may draw up, alter or shape scripts, creating more diverse or possibly focussed guides for subsequent behavior.

This review has not addressed the issue of measurement approaches. This is the subject of our on-going work. Briefly, future research needs to identify the most appropriate methods of reliably assessing aggressive scripts. The benefits of implicit and explicit approaches should be investigated. The most widely used measure of aggressive script rehearsal is the SIV, which was initially developed for the MacArthur Violence Risk Assessment to study the pervasiveness of self-reported violent thoughts by hospitalised patients (Grisso et al., 2000). The SIV has been used to measure the frequency of aggressive scripts in populations including inpatients, violent offenders, and university students (Gilbert et al., 2013c; Grisso et al., 2000; Hosie et al., 2014; Watt et al., 2013). Measures assessing related constructs, for example, the Anger Rumination Scale Angry, which assesses vengeful thoughts and angry memories, need to be critiqued in light of this review so that clinicians and researchers 1) are clear in their understanding of the constructs that are assessed by these measures, and 2) understand which of the relevant constructs are most important in terms of violence propensity. Although deliberate rehearsal of aggressive scripts would seemingly have the strongest relationship with subsequent violence because it emphasises violent intent and establishment of a script for action, the empirical literature has not adequately tested this hypothesis; it is plausible that the mere presence of aggressive thinking, established through repeated intrusive experiences may prime a person for impulsive violent acts when provoked. The extant literature has not differentiated between these processes; it has only shown that the

presence of script rehearsal is related to aggression and violence.

Finally, it is important to note that the extant literature on treatment of aggressive scripts is scant. One study has examined the effect of treatment interventions for aggressive scripts. Guerra, Henry, Huesmann, Tolan and The Metropolitan Area Child Study Research (2007) targeted aggressive fantasies as part of an early intervention for aggressive children. The treatment comprised the generation of pro-social solutions and effective active plans as well as the reduction in the endorsement of aggression as an appropriate behavior over the course of between 20 weeks and two years. They found that social cognitions including aggressive scripts could be modified, however, this occurred only in children from communities with lower rates of poverty and crime. Further research is clearly required. Importantly, given some similarities between aggressive script rehearsal and rumination and fantasy, researchers and clinicians might usefully draw from treatment principles and practices used to address rumination and fantasy to develop targeted interventions for individuals who report aggressive scripts.

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