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Brief report: Violent false memories and engagement in aggressive and delinquent behavior: An investigation in adolescents

Manila Vannucci [a, *], Annalaura Nocentini [b], Carlo Chiorri [c], Ersilia Menesini [b]

[a] Department of NEUROFARBA – Section of Psychology, University of Florence, Italy
[b] Department of Educational Sciences and Psychology, University of Florence, Italy
[c] Department of Educational Sciences, University of Genoa, Italy

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ABSTRACT

The present study investigates the relationship between violent false memories and delinquent and aggressive behavior in a sample of adolescents. Two hundred eleven participants completed measures of aggressive and delinquent behavior and performed a modified version of the Deese-Roediger-McDermott (DRM) paradigm, a false memory task for lists of associated words. Participants were presented with a list of ambiguously violent words and three lists of neutral words. For each list a free recall task was performed. Violent false memories were significantly associated with delinquent behaviors in both genders, whereas a significant correlation with aggressive behaviors was found only in males. A multilevel multiple regression showed that the prediction of delinquent behaviors was improved by entering violent false memories into the model as a further predictor, whereas no effect was found for aggressive behaviors. These findings indicate a significant association of violent false memories with delinquent behavior in adolescents.

Introduction

In current models of aggressive behavior, the contribution of cognitive processes in learning and maintaining aggressive behavior over time is central (Anderson & Bushman, 2002; Crick & Dodge, 1994). The General Aggression Model (GAM, Anderson & Bushman, 2002) holds that the enactment of aggression is mainly based on the learning and activation of aggressive concepts and scripts. These cognitions, derived from both personal (e.g. traits, values) and situational (e.g. exposure to aggressive cues) variables, contribute to the likelihood of someone acting aggressively by affecting the appraisal and decision processes involved in understanding others' behavior and in choosing how to behave personally.

Recent studies (Laney & Takarangi, 2013; Takarangi, Polaschek, Hignett, & Garry, 2008; Vannucci, Nocentini, Mazzoni, & Menesini, 2012) have gone a step further in investigating cognitive processes and distortions underlying aggressive behavior, by showing that chronically or temporarily aggressive people may also develop severe memory distortions, being more likely to remember clearly violent yet completely false information.

* Corresponding author. Department of NEUROFARBA – Section of Psychology, Via San Salvi 12, Padiglione 26, 50135 Firenze, Italy. Tel.: +39 055 2055863; fax: +39 055 6236047.
E-mail address: manila.vannucci@psico.unifi.it (M. Vannucci).

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In the first of these studies, Takarangi et al. (2008) introduced a modified and shortened version of the Deese-Roediger-McDermott (DRM) converging associates paradigm (Deese, 1959; Roediger & McDermott, 1995). In the standard version of DRM, participants study lists of neutral semantically-related words. In each list, all the words are associated with a non-studied but semantically-related lure (e.g. *bed, rest, awake*…all associated with the critical lure *sleep*) which is falsely recalled with relatively high probability. In the Takarangi et al. (2008) study, participants with high and low scores on a measure of aggressive personality were asked to recall three lists of neutral semantically related words (standard DRM lists) and an ambiguous list, comprised of homonyms that could be interpreted as having a violent or a kitchen theme (e.g. *cut, whip, mug, knife, beat*…). Half of the participants were also primed with a list of insult words that they had to read and recall before performing the memory task with the ambiguous list. The results showed that both trait aggression and priming with insult words were associated with an increase in the likelihood of falsely recalling non-presented violent words in the ambiguous list.

Using the same modified version of DRM paradigm, Vannucci et al. (2012) found that violent false memories for ambiguously violent words were positively associated with cyberbullying in males and females and traditional bullying in males. More recently, Laney and Takarangi (2013) have shown that aggressive-related memory biases also extend to more personal autobiographical events, with aggressive individuals being more prone to develop false memories for committing aggressive acts. Taken together, these findings suggest that aggressive people may easily remember violent information they never experienced.

None of the previous work investigated whether violent false memories were also associated with another kind of antisocial behavior, frequently co-occurring with overt aggressive behavior (e.g. fighting, arguing and threatening), namely, covert delinquent (rule-breaking) antisocial behavior (e.g. lying, stealing, setting fires, swearing and substance abusing). Although these two forms of antisocial behavior are highly correlated, they constitute two separable subtypes, showing different developmental trajectories and etiological factors (Burt, 2009; Moffitt, 1993; Tremblay, 2003), and there are some individuals who are involved in both types and some others only in one form.

Nevertheless, and somewhat surprisingly, most of the studies on cognitive functioning and cognitive biases focused only on overt aggressive behavior. In the few studies which directly compared the two subtypes of antisocial behavior, evidence for both similarities and differences has been reported. For example, Calvete (2008) found that maladaptive cognitive schemas predicted both aggressive and delinquent behavior 6 months later. However, Burt, Mikolajewski, and Larson (2009) found that physical aggression, but not delinquent behavior was associated with the hostile perceptions of others, suggesting that differences between aggressive and delinquent individuals might be more likely when interpersonally salient cognitions are examined.

Here we used the same paradigm as in Takarangi et al. (2008) to investigate whether violent false memories are associated with delinquent and aggressive behavior in adolescents, controlling for their co-occurrence. Given the relevance of gender (e.g. Loeber & Stouthamer-Loeber, 1998), we also tested its focal and moderator role in predicting antisocial behaviors.

Method

Participants

A sample of 211 adolescents (145 females; mean age: 15.9 years, SD = 1.3 years), enrolled in 9th–13th grades of high schools in Tuscany (Italy) participated in the study. Students received consent by schools and parents to participate in the study. They were asked to take part in a study on peer relationship quality, social behavior and memory skills.

Measures

Youth self-report

The Aggressive Behavior scale (19 items) and Delinquent Behavior scale (11 items) of The Youth Self Report (YSR, Achenbach, 1991, Italian adaptation in Pastorelli et al., 2002) were used. The Delinquent Behavior subscale includes 11 symptoms such as lying, running away from home, stealing, vandalizing, whereas the Aggressive Behavior subscale includes 19 symptoms such as being hot-tempered, getting in fights, attacking others, arguing a lot. Internal consistency was .73 and .76, respectively.

DRM paradigm

Three lists of 12 semantically associated neutral words, chosen from DRM lists (Roediger & McDermott, 1995) and one list of 12 ambiguous words, comprising only homonyms that could be interpreted as having a violent and/or a kitchen theme (more details in Vannucci et al., 2012) were used.

Procedure

Participants were tested in two separate sessions (2 weeks apart): At Time 1, the YRS was handed out in a classroom setting and at Time 2, the DRM paradigm was performed in small groups. Participants were asked to memorize and recall each list. The words were read aloud the approximate rate of 1 word every 1.5 s. At the end of each list, participants spent 1 min