



## Childhood traumatic events and adolescent overgeneral autobiographical memory: Findings in a UK cohort



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### ABSTRACT

**Background:** Overgeneral autobiographical memory has repeatedly been identified as a risk factor for adolescent and adult psychopathology but the factors that cause such over-generality remain unclear. This study examined the association between childhood exposure to traumatic events and early adolescent overgeneral autobiographical memory in a large population sample.

**Methods:** Thirteen-year-olds,  $n = 5,792$ , participating in an ongoing longitudinal cohort study (ALSPAC) completed a written version of the Autobiographical Memory Test. Performance on this task was examined in relation to experience of traumatic events, using data recorded by caregivers close to the time of exposure.

**Results:** Results indicated that experiencing a severe event in middle childhood increased the likelihood of an adolescent falling into the lowest quartile for autobiographical memory specificity (retrieving 0 or 1 specific memory) at age 13 by approximately 60%. The association persisted after controlling for a range of potential socio-demographic confounders.

**Limitations:** Data on the traumatic event exposures was limited by the relatively restricted range of traumas examined, and the lack of contextual details surrounding both the traumatic event exposures themselves and the severity of children's post-traumatic stress reactions.

**Conclusions:** This is the largest study to date of the association between childhood trauma exposure and overgeneral autobiographical memory in adolescence. Findings suggest a modest association between exposure to traumatic events and later overgeneral autobiographical memory, a psychological variable that has been linked to vulnerability to clinical depression.

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### 1. Introduction

Overgeneral autobiographical memory (OGM) refers to the tendency to retrieve memories of events from the personal past in a generalised way, with a lack of the event-specific details. OGM is typically assessed using the Autobiographical Memory Test (AMT, Williams & Broadbent, 1986), a task derived from Crovitz and Schiffrin (1974) in which participants are given cue words and asked to retrieve a memory of a specific event: an event which occurred on one particular day, at a particular time and place, in response to each. Initially described by Williams and Broadbent (1986) in a sample of suicidal patients, a large number of subsequent studies have established that OGM is reliably observed in

individuals with major depression (see Williams et al. (2007) for review and van Vreeswijk and Wilde (2004) for meta-analysis), and that OGM assessed within a depressive episode has a significant association with level of depressive symptoms at follow-up after controlling for baseline symptom severity (see Anderson, Goddard, & Powell, 2010; Gibbs & Rude, 2004; Sumner, Griffith, & Mineka, 2010; for meta-analysis). OGM has also been observed in adolescents with current major depression (Kuyken, Howell, & Dalgleish, 2006; Park, Goodyer, & Teasdale, 2002) or at high risk (Kuyken & Dalgleish, 2011) and been shown to predict depression onset in such samples (Hipwell, Sapotichne, Klostermann, Battista, & Keenan, 2011; Rawal & Rice, 2012). These findings have together led to considerable interest in the factors that may underlie the development of OGM, and its potential causal role both in determining initial onsets of depression and suicidality, and in maintaining or exacerbating existing mood disorders.

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The ability to retrieve autobiographical memories develops markedly during early childhood, under the influence of emerging language abilities, self-awareness, social interaction and culture (Nelson & Fivush, 2004) and is not complete until the capacity to construct a life story is acquired in adolescence. As a result, childhood represents a sensitive period, and exposure to traumatic events during this time has been repeatedly proposed as one feature that may contribute to the development of OGM. For example in an early paper Williams (1996) suggested that OGM may represent a form of cognitive avoidance, developing initially in response to the experience of childhood traumatic events, at a time when other more active coping strategies are unavailable. According to this theory, children who have been exposed to traumatic events, particularly early in life, retain (or revert to) a retrieval style in which memory searches are terminated at the level of general event representations, reducing the negative affect that would otherwise arise in response to the recollection of specific distressing memories.

Consistent with this suggestion, a large number of subsequent studies have identified associations between various aspects of childhood trauma exposure and OGM in adults (e.g. childhood sexual abuse (CSA): Aglan, Williams, Pickles, & Hill, 2010; Hauer, Wessell, Geraerts, Merckelbach & Dalgleish, 2008; Henderson, Hargreaves, Gregory, & Williams, 2002; Kuyken & Brewin, 1995; War Trauma, Brennen et al., 2010), as well as in child and adolescent samples (e.g. childhood trauma questionnaire in adolescent inpatients, De Decker, Hermans, Raes, & Eelen, 2003; adolescents with burn injuries, Stokes, Dritschel, & Berkerian, 2004; childhood maltreatment, Valentino, Toth, & Cicchetti, 2009). However there have also been a number of failures to replicate these associations (e.g. Arntz, Meeren & Wessell, 2002; Kuyken et al., 2006; Vrielynck, Deplus, & Phillipot, 2007; Wessel, Meeren, Peters, Arntz & Merckelbach, 2001) and it remains unclear whether exposure to childhood trauma alone is sufficient to produce OGM. Further, whilst there is some evidence that earlier onset CSA is associated with more pronounced OGM (e.g. Burnside, Startup, Byatt, Rollinson, & Hill, 2004; Crane & Duggan, 2009; Hermans et al., 2004), there has been little work to systematically examine whether the risk of OGM might vary as a function of the age at which trauma exposure first occurs, particularly for traumas other than CSA, and for samples in which OGM is assessed relatively close to the time of exposure, and before the development of severe and chronic psychopathology.

Moore and Zoellner (2007) reviewed existing empirical studies examining overgeneral autobiographical memory and traumatic events, concluding that due to significant limitations and inconsistencies: “results of studies assessing potentially traumatic childhood events do not support a strong, central role for such events or related posttraumatic reactions in overgenerality...” (p. 430). The main limitations identified were that (a) childhood trauma tends to be assessed by retrospective self-report (b) many studies focus on clinical rather than community samples; (c) studies differ in whether they examine associations between OGM and exposure to potentially traumatic events themselves, or the presence of post-traumatic reactions to these events (the latter of which may be confounded with the cognitive processes that contribute to OGM); (d) there is inadequate control for current and/or past diagnoses of major depression; and finally (e) there is inadequate consideration of exposure to traumatic events which may have occurred later in life (although these are common in those exposed to childhood trauma, e.g. Coid et al., 2001). As a result Moore and Zoellner argue that “well controlled studies of the association among trauma or potentially traumatic events, post-traumatic symptoms, and overgenerality are still needed...” (p. 433).

The current study utilises data from the ALSPAC birth cohort: a large and representative sample of UK children who have been

studied from their mother's pregnancy until adulthood (Boyd et al., 2012; Fraser et al., 2012; Heron et al., 2012). At age 13 a written version of the AMT was included in a postal questionnaire administered to ALSPAC children (Heron et al.). Although not the main focus of the ALSPAC study, the regular questionnaires completed by caregivers included items assessing exposures to a range of potentially traumatic events, from infancy onwards. This sample enabled us to examine the associations between trauma exposure and OGM, without the need to rely on retrospective self-report. Further it allowed us to examine these associations in *young adolescents*, overcoming problems of potential adult re-traumatisation and scarring from chronic major depression, which arise when examining adult samples. Finally the comprehensive battery of measures collected for all participants in the ALSPAC cohort allowed us to control for a range of potential socio-demographic confounders as well as diagnoses of depression at ages 7.5 and 10.5 years and child depressive symptoms close to the time of AMT testing.

Although the existing literature is inconclusive, we hypothesised that a) exposure to traumatic events in childhood would be associated with increased likelihood of overgeneral autobiographical memory at age 13 years, and b) this effect would remain after excluding children who had received a diagnosis of probable clinical depression at 7.5 or 10.5 years, and after adjusting for recent low mood and socio-demographic confounders.

## 2. Method

### 2.1. Study population

The sample comprised participants from the Avon Longitudinal Study of Parents and Children (ALSPAC: Boyd et al., 2012; Fraser et al., 2012; Golding, Pembury, Jones, & ALSPAC Study Team, 2001). ALSPAC is an ongoing population-based study investigating a wide range of environmental and other influences on the health and development of children. Pregnant women resident in the former Avon Health Authority (Bristol) in South-West England, having an estimated date of delivery between 1 April 1991 and 31 December 1992, were invited to take part, resulting in a ‘core’ cohort of 14,541 pregnancies and 13,976 singletons/twins alive at 12 months of age.

A comparison of the social circumstances of enrolled mothers who completed the eight month postnatal questionnaire with all mothers in the Avon region, and all mothers with infants under one year of age nationally (using data from the 1991 census) indicated that whilst the sample was broadly representative of mothers living locally, participating ALSPAC mothers were somewhat more likely to be white, married, to live in owner-occupied accommodation and to have access to a car in the household than either all local mothers, or all mothers nationally (Fraser et al., 2012).

Three primary sources of data collection were used for this study. First, self-completion questionnaires administered at least annually to the main caregiver (usually the mother), enquiring about her own and her study child's experiences, yielded data on trauma exposure. Second, since the age of seven years the whole cohort has been invited to an annual ‘focus’ clinic for a variety of face-to-face assessments, and affective symptoms were assessed using the Mood and Feelings Questionnaire (see later) at this annual interview of the children themselves, when they were approximately 12 years 10 months old. Third, the autobiographical memory questionnaire was given as part of a generic questionnaire about teen preferences called ‘Food and Things’, sent out when the children were just over 13 years old. More detailed information on the ALSPAC study is available on the web site: <http://www.alspac.bris.ac.uk>.

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