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Brief report: Overgeneral autobiographical memory in adolescent major depressive disorder

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ABSTRACT

The current study examined whether overgeneral autobiographical memory (OGM) bias serves as a state-like marker of major depressive disorder (MDD) in adolescence or whether it would also be observed in currently nondepressed adolescents with a history of MDD. We examined differences in OGM to positive and negative cue words between adolescents (aged 11–18 years) with current MDD ($n = 15$), remitted MDD ($n = 25$), and no history of any depressive disorder ($n = 25$). Youth and their parents were administered a structured diagnostic interview and adolescents completed the autobiographical memory test. Compared to never depressed adolescents, adolescents with current or remitted MDD recalled less specific memories in response to positive and negative cue words. The difference between the two MDD groups was small and nonsignificant. These findings suggest that OGM is not simply a state-like marker in currently depressed adolescents, but is also evident in adolescents with remitted MDD, indicating that it may represent a trait-like vulnerability that increases risk for relapse.

There is evidence that, even when prompted to recall specific autobiographical memories, depressed individuals are less likely do so than are nondepressed individuals (for a review, see Williams, Conway, & Cohen, 2007), a phenomenon known as Overgeneral Autobiographical Memory (OGM). There is also evidence that OGM predicts prospective increases in depressive symptoms and chronicity of major depressive disorder (see Sumner, Griffith, & Mineka, 2010; Van Daele, Griffith, Van den Bergh, & Hermans, 2014) and that it persists even after depression has remitted in adults (e.g., Brittlebank, Scott, Williams, & Ferrier, 1993; Mackinger, Pachinger, Leibetseder, & Fartacek, 2000). Importantly, there is emerging support for the role of OGM in youth depression (for a review, see Hitchcock, Nixon, & Weber, 2014). To date, however, only one study of which we are aware has examined whether OGM persists after remission of depression in adolescents (Park, Goodyer, & Teasdale, 2002). Unfortunately, this study only included 9 adolescents with remitted major depressive disorder (MDD), limiting power for comparisons with this group. This said, there was evidence that adolescents with current or remitted MDD exhibit more general OGM to positive cues than never depressed controls. Determining whether OGM remains following remission of MDD is important because adolescents with a history of MDD have a cumulative probability of recurrence of 40% by two years and 70% by five years (e.g., Rao, 2006) and determining whether OGM serves as a state- or trait-like marker of adolescent MDD may be the first step to help identify vulnerability for the illness and a target for intervention.

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The goal of this study, therefore, was to determine whether currently nondepressed adolescents with a history of past MDD exhibit similar OGM biases as adolescents with current MDD. Based on Park et al.'s (2002) findings, we predicted that currently and formerly depressed adolescents would exhibit more OGM to positive cues than never depressed adolescents. In addition, building from previous research showing that children at high-risk for first-onset of depression (Woody, Burkhouse, & Gibb, 2015) exhibit OGM to negative cues and OGM to negative cues predicts first onset of MDD in adolescents (Rawal & Rice, 2012), we predicted that currently and formerly depressed adolescents would also exhibit more OGM to negative cues than never depressed adolescents.

Method

Participants

Participants were drawn from a sample of 71 adolescents participating in a larger study of risk for adolescent depression. Six participants were excluded for not meeting inclusion criteria. Thus, the final sample consistent of three groups of adolescents who completed the AMT: current MDD ($n = 15$), remitted MDD ($n = 25$), and never depressed ($n = 25$). The average age of our sample was 14.03 ($SD = 2.02$, Range = 11–18), 86% were Caucasian (14% were Biracial), and 60% were female. To qualify for the current MDD group, adolescents were required to meet criteria for current MDD. To qualify for the remitted MDD group, adolescents were required to be in full remission from a prior episode of MDD at the time of the study. To qualify for the never depressed group, participants were required to be lifetime free of MDD. Exclusion criteria for all groups included a history of bipolar disorders, psychosis, or substance abuse or dependence. Table 1 presents descriptive statistics for the study sample.

Measures

The Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997) was used to assess for Axis I psychopathology (i.e., MDD history) and the Children's Depression Inventory (CDI; Kovacs, 1981) was used to assess for current depressive symptoms.

Children's autobiographical memory was assessed using the Autobiographical Memory Test (AMT: Williams & Broadbent, 1986). The AMT test consists of 10 emotional words, 5 positively valenced (happy, surprised, safe, successful, interested) and 5 negatively valenced (sad, lonely, hurt, careless, angry).[1] Words were presented to participants on index cards, alternating between positive and negative words, and participants were asked to retrieve a specific memory for each cue word. To ensure that participants understood the task, they completed three practice trials involving neutral words with feedback. During the practice trials, participants were instructed to not give the same memory for more than one cue word. Participants were given 60 s to retrieve a memory. All responses were audiotaped, transcribed, and then coded. Summary scores were calculated for each participant, reflecting the number of specific memories provided for each cue valence. All responses were coded by two independent raters and interrater reliability was excellent ($\kappa = .91$). Any discrepancies across raters were discussed until consensus was achieved.

Procedure

Participants were recruited from the community through fliers as well as television and newspaper ads. Parents were initially screened over the phone to determine their adolescents' potential eligibility. Upon arrival at the laboratory, parents were asked to provide informed consent and youth were asked to provide assent to be in the study. Next, a trained interviewer administered the AMT to the adolescent followed by the K-SADS-PL to the adolescent and parent, respectively.

Table 1
Descriptive statistics for the study sample.

	Control ($n = 25$)	Remitted MDD ($n = 25$)	Current MDD ($n = 15$)	F/χ^2
Age (*M*, *SD*)	13.96 (1.79)	13.92 (2.27)	14.33 (2.02)	0.22
Sex (% Female)	52%	56%	80%	3.33
Race (% Caucasian)	92%	80%	87%	0.47
Family Income (median)	$70,001–$75,000	$35,000–$40,000	$30,001–$35,000	2.64
CDI (*M*, *SD*)	2.65^{a} (2.50)	8.24^{b} (6.27)	23.13^{c} (11.01)	42.12^{*}
Age of MDD onset (*M*, *SD*)	–	11.64 (2.94)	11.66 (2.41)	0.00
Recurrent MDD (%)		$16\%^{a}$	$47\%^{b}$	4.42^{*}

Note. CDI = Children's Depression Inventory. MDD = Major depressive disorder. Means and percentages with different superscripts differ significantly.
$^{*}p < .001$.

[1] Given that word characteristics such as concreteness and imagability have been associated with OGM (Williams, Healy, & Ellis, 1999), we examined valence effects on these characteristics. There were no group differences (valence: positive, negative) on concreteness, $t(8) = 0.74$, $p = .49$, or imagability, $t(8) = -0.33$, $p = .75$, ratings as defined by the MRC Psycholinguistic Database (Wilson, 1988).

Adolescents then completed the CDI. Participants were compensated a total of $50 for their participation in the study. The university's institutional review board approved the project.

Results

To examine the influence of depression status on adolescents' autobiographical memory specificity, we conducted a 3 (Group: current MDD, remitted MDD, never depressed) × 2 (Valence: positive, negative cue words) repeated measures ANOVA with the number of specific memories recalled as the dependent variable. The ANOVA revealed significant main effects of Group, $F(1, 62) = 4.93$, $p = .01$, $n_p^2 = .14$, and Valence, $F(2, 62) = 4.06$, $p = .048$, $n_p^2 = .06$. However, the Group × Valence interaction was not significant, $F(2, 62) = 0.11$, $p = .89$, $n_p^2 = .004$. Examining the main effect of group collapsing across cue valence, we found that never depressed adolescents recalled significantly more specific memories than adolescents with current MDD, $F(1, 38) = 10.51$, $p = .002$, $n_p^2 = .22$, and remitted MDD, $F(1, 48) = 5.56$, $p = .02$, $n_p^2 = .10$, with the latter two groups not differing significantly, $F(1, 38) = 1.07$, $p = .31$, $n_p^2 = .03$. The main effect of group remained significant after statistically controlling for the influence of adolescents' gender and age (highest $p = .02$). The pattern of the Valence main effect was that, collapsing across groups, adolescents recalled fewer specific memories to negative than to positive cues ($p = .048$).

Discussion

The goal of this study was to examine whether OGM biases are a state-like correlate of current MDD in adolescents or whether they would also be observed in currently nondepressed adolescents with a past history of MDD. We found that adolescents with current or remitted MDD recalled fewer specific memories in response to both positive and negative cue words than adolescents with no history of MDD. In addition, adolescents with current and remitted MDD did not differ significantly in the number of specific memories generated despite the current MDD group reporting significantly higher current levels of depressive symptoms. Although there is always the danger of a Type II error when drawing conclusions from nonsignificant group differences, the effect size of the current versus remitted MDD group difference in OGM was small ($n_p^2 = .03$). In addition, a posthoc power analyses revealed that, to have adequate power to detect a significant difference between these groups given the observed effect size, we would have needed 236 participants, supporting our conclusion that the difference in OGM between current and remitted MDD adolescents is neither statistically, nor likely clinically, significant. However, the small sample size is a limitation of the current study and it will be important for future, larger studies to replicate this effect and to examine potential moderating variables, such as adolescents' IQ, age, sex, and trauma history.

Notably, although previous studies have found a link between youth depression and OGM for negative cues, the current study found no evidence for valence-specific effects. While previous studies examining OGM in youth populations have been largely consistent in demonstrating a bias for negative cues (for a review, see Hitchcock et al., 2014; but see also Park et al., 2002), the evidence for a valence-effect in adult samples is less consistent (cf. Wessel, Meeren, Peeters, Arntz, & Merckelbach, 2001). Therefore, one possibility is that OGM may become less valence specific as children age into adolescence and ultimately adulthood. Future studies examining OGM across development are needed to test this hypothesis.

The current results provide further support for the role of OGM as a trait-like marker of depression risk and extend previous adult findings (e.g., Brittlebank et al., 1993; Mackinger et al., 2000; Wessel et al., 2001) by documenting this pattern in an adolescent population. A limitation of the current study is the inability to determine if OGM was present prior to the first onset of MDD, thereby representing a putative vulnerability factor, or is the result of a previous episode of depression, representing a potentially scar effect. Second, the remitted depressed adolescents differed significantly from the healthy control adolescents in their current depression levels. Therefore, one possibility is that OGM among the currently and remitted depressed adolescents could be a result of differences in current depression levels. However, the current and remitted depressed adolescents also differed in their current depression levels; therefore, if the findings were due to differences in current negative affect, we would have expected the current MDD adolescents to also differ significantly from the remitted depressed youth in OGM. This said, future studies are needed to replicate this finding with a sample of remitted depressed and healthy control adolescents with comparable depressive symptoms.

The current results have potentially important clinical implications. Specifically, they suggest that OGM may be one potential therapeutic target to prevent depression recurrence in remitted adolescents. Specifically, preventative interventions designed to increase autobiographical memory specificity could potentially lower rates of recurrence in remitted depressed individuals, and shorten currently depressive episodes. For example, Memory Specificity Training (MEST; Raes, Williams, & Hermans, 2009) is one intervention that has shown promise in improving the specificity of participants' memory retrieval style. This intervention has also been shown to be effective in increasing specific memories in adolescents with current depression and decreasing their depressive symptoms (Neshat-Doost et al., 2013). While benefitting currently depressed youth, no research has examined the effectiveness of memory specificity training with remitted depressed participants. Future studies would benefit from using this intervention with remitted-depressed adolescents to determine if it improves memory specificity for both positive and negative cues and, therefore, reduces future depression risk among these individuals.

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