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Brief report: Explaining differences in depressive symptoms between African American and European American adolescents

Sylvie Mrug [a, *], Vinetra King [a], Michael Windle [b]

[a] University of Alabama at Birmingham, USA
[b] Emory University, USA

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ABSTRACT

African American adolescents report more depressive symptoms than their European American peers, but the reasons for these differences are poorly understood. This study examines whether risk factors in individual, family, school, and community domains explain these differences. African American and European American adolescents participating in the Birmingham Youth Violence Study (N = 594; mean age 13.2 years) reported on their depressive symptoms, pubertal development, aggressive and delinquent behavior, connectedness to school, witnessing violence, and poor parenting. Primary caregivers provided information on family income and their education level, marital status, and depression, and the adolescents' academic performance. African American adolescents reported more depressive symptoms than European American participants. Family socioeconomic factors reduced this difference by 29%; all risk factors reduced it by 88%. Adolescents' exposure to violence, antisocial behavior, and low school connectedness, as well as lower parental education and parenting quality, emerged as significant mediators of the group differences in depressive symptoms.

Although the findings are somewhat mixed across studies (Anderson & Mayes, 2010), a number of investigations have found higher levels of depression among African American adolescents compared to their European American peers, with effect sizes ranging from small to medium (Emslie, Weinberg, Rush, Adams, & Rintelmann, 1990; Kistner, David-Ferdon, Lopez, & Dunkel, 2007). Multiple reasons for these differences have been proposed, but few have been empirically tested.

Theoretical models of depression point to key roles of individual vulnerabilities and environmental stress in the etiology of depression (Lewinsohn, Rohde, & Seeley, 1998). Because African American families are more likely to experience socioeconomic disadvantage, lower socioeconomic status (SES) may serve as a general marker of environmental stress that may explain higher levels of depressive symptoms in African American adolescents. However, low SES contributes to more specific stressors that may play a more proximal role in racial differences in adolescent depression, while being more amenable to interventions than SES. Ecological theories posit that socioeconomic disadvantage will affect child development through its impact on multiple domains, including families, neighborhoods, and schools, as well as the individual children (McLoyd,

* Corresponding author. University of Alabama at Birmingham, CH 415, 1720 Second Avenue South, Birmingham, AL 35294-1170, USA. Tel.: +1 205 975 9462.
E-mail address: smrug@uab.edu (S. Mrug).

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1998). Indeed, African American adolescents experience greater risks for depression across all these domains, including more parental depression and less nurturing and consistent parenting within the family, greater exposure to violence in their communities, poor academic functioning and low connectedness in the school context, and early puberty and greater antisocial behavior within the individual (Mrug, Loosier, & Windle, 2008; Pinderhughes, Nix, Foster, Jones, & the Conduct Problems Prevention Research Group, 2007; Swanson, 2003). The purpose of this study was to examine whether family SES, as well as these more specific risk factors, explain differences in depressive symptoms between African American and European American early adolescents.

Method

This cross-sectional study uses data from Wave 2 of the Birmingham Youth Violence Study (Mrug et al., 2008) conducted in Birmingham, Alabama, USA in 2004–2005. The study was approved by the Institutional Review Board of the University of Alabama at Birmingham. The sample included 594 early adolescents (*M* age 13.2 years, *SD* = .9) and their parents; 469 youth (79%) were identified by their parents as African American and 125 (21%) as European American; 52% were males. Additional 9 participants were identified as another race/ethnicity; these youth were excluded from this report. Adolescents were initially recruited from 17 Birmingham area schools selected through a school-based probability sampling procedure (42% participation rate), yielding a sample whose demographic composition (including racial distribution) was representative of the sampled population. Parents and adolescents provided informed consent and assent. During individual interviews, adolescents and parents provided information on the following variables.

Adolescents' depressive symptoms were measured with self-report on six items from the Major Depressive Disorder (MDD) scale of the Diagnostic Interview Schedule for Children Predictive Scales (DPS; Lucas et al., 2001). Items included loss of pleasure and interest in activities, low energy level, low self-worth, suicidal ideation, fatigue, and concentration difficulties. The six dichotomous items were summed (Cronbach's $\alpha = .68$).

Family SES was measured with parents' report of family income (13-item scale), their education level (8-item scale) and single parent status (vs. married).

More specific family risk factors included parental depression and parenting quality. Parental depression was measured with self-report on the Center for Epidemiologic Studies Depression Scale (CES-D) with the 20 items rated 1 (rarely) to 4 (most or all the time) and summed (Cronbach's $\alpha = .76$). Parenting quality was based on adolescent report of parental nurturance (5 items; Barnes & Windle, 1987), and harsh and inconsistent discipline (4 items each; Ge, Conger, Lorenz, & Simons, 1994). All scales were coded with higher scores indicating poorer parenting, standardized to z-scores and averaged (all items $\alpha = .64$).

Community risk included witnessing violence, measured with adolescent report of whether they witnessed a threat of violence, actual violence, or violence involving a weapon in their neighborhood, school, or home in the last 12 months (Mrug et al., 2008). The nine indicators (type of violence in each context) were summed.

School risks involved academic achievement and school connectedness. Academic achievement was assessed with parent report of adolescents' grades, ranging from 1 (mostly D's and F's) to 5 (mostly A's and B's). School connectedness was evaluated with adolescent self-report on 8 items from the School Connectedness Scale (Sieving et al., 2001), rated 1 (strongly disagree) to 4 (strongly agree) and summed (Cronbach's $\alpha = .77$).

Individual risks included pubertal development and two forms of antisocial behavior –aggression and delinquency. Pubertal development was measured with adolescent self-report of Tanner stages of pubic hair and breast (for girls) or penis/scrotum (for boys), using descriptions and pictures. The two pubertal variables were rated 1 (prepubertal) to 5 (fully developed) and averaged. Aggressive behavior was assessed with adolescent self-report using the 18-item overt aggression scale from the Form and Functions of Aggression measure (Little, Jones, Henrich, & Hawley, 2003). Items were rated on a 4-point scale (*Not at all true* = 1) to (*Completely true* = 4) and summed (Cronbach's $\alpha = .88$). Delinquency was measured with self-report asking about engagement in 27 different delinquent acts in the last 12 months (Elliott, Huizinga, & Ageton, 1985), including status offenses, theft, destruction of property, assaults, selling illegal substances, public disorder and robbery. The dichotomous items were summed (Cronbach's $\alpha = .80$).

Bivariate statistics were used to determine which adolescent and parent reported variables related to both race and adolescents' depression. These variables were then examined as mediators of differences between African American and European American adolescents' depressive symptoms using path analyses in Mplus 7. Initially, a direct effect model tested group differences in depressive symptoms. The analyses of indirect effects were then conducted in three steps. First, each risk factor was examined in a separate model, so results would not be confounded by its associations with other risk factors. The second model then included the three family SES indicators (income, education and single parent status) to evaluate the extent to which family SES explained racial differences in depressive symptoms. Finally, all risk factors that have been associated with both race and depressive symptoms were included in the third model. In each analysis, all paths were adjusted for adolescent gender and age, and the residuals of all mediators in the second and third models were allowed to covary. Significance of indirect effects was tested with bias-corrected bootstrapping using 1000 bootstrap samples (Preacher & Hayes, 2008).

Results

Racial differences emerged for all variables (Table 1). Compared to European American adolescents, African American adolescents experienced more depressive symptoms (Cohen's $d = .33$). In addition, parents of African American adolescents