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Ethnic Differences at the Start of Treatment: An Examination of the Treatment for Adolescents with Depression Study (TADS)

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Abstract

The study examines ethnic/racial differences at the start of treatment in the Treatment for Adolescents with Depression Study (TADS). African American and Latino youth were compared to Caucasian youth on symptom presentation and cognitive variables associated with depression. Contrary to hypothesis, there were no significant differences in symptom presentation as measured by the interview-based items of the Children's Depression Rating Scale – Revised (CDRS-R). However, African American and Latino youth were both rated as demonstrating more severe symptoms on the observational items of the CDRS-R. In terms of cognitive variables associated with depression, African Americans reported fewer negative cognitive biases compared to Caucasians, but cognitive biases were significantly correlated with depression severity across ethnic groups.

Keywords

ethnic differences; depression; Latino and African American; cognitive variables

The field of clinical psychology has become increasingly interested in understanding ethnic differences in assessment and diagnosis (Gray-Little, 2002), and in whether the current empirically supported treatments (ESTs) are appropriate for ethnically diverse communities (Bernal & Scharron Del Rio, 2006). However, no previous studies have investigated whether ethnically diverse youth differ in symptom presentation upon entering treatment for depressive disorders, and ethnic differences may have implications for the assessment of depression in ethnically diverse youth. Additionally, cognitive-behavioral therapy is considered an EST for adolescent depression (Curry & Becker, 2008), but few empirical studies have examined whether the cognitive variables associated with depression are related significantly to depression across ethnic groups. To address these issues, this paper will examine ethnic differences at the initiation of treatment in the Treatment for Adolescents with Depression Study (TADS). Specifically, this study will examine whether Latino and African-American youth diagnosed with Major Depressive Disorder (American Psychiatric Association, 2004) differ from similarly diagnosed Caucasian youth in pattern of symptom

presentation, in the level of cognitive biases, and in the relationship of these biases with depressive symptoms.

Ethnic differences in symptom presentation

The current understanding of symptoms associated with adolescent depressive disorders has been primarily developed with Caucasian and Western samples, and these models are then applied to ethnically diverse communities without examining their validity (Stewart, 2008). However, cultural groups may exhibit different symptoms for the same underlying disorder (Gray-Little, 2002). Differences in symptom presentation may result in ethnically diverse groups being under-or over-diagnosed as the current DSM-IV criteria may not be equally applicable across groups (Stewart, 2008). Thus, it is important to examine whether ethnic groups vary systematically in their clinical presentation as a first step in understanding the validity of our current theoretical models of depression (Serefica & Vargas, 2006). Past research examining mean level differences across ethnic groups supports the notion that African Americans and Latinos exhibit different symptoms associated with depression.

Symptom presentation in African Americans

Past theoretical work with African American communities suggest that they may differ significantly in their symptoms of depression compared to Caucasian youth. The primary difference may revolve around each culture's view of depression and acceptability of the expression of sadness (Escobar, Rubio-Stipec, Canino, & Karno, 1989). For African Americans, distress in the face of multiple stressors, including discrimination, racism, and poverty, may be expected and thus not experienced as sadness (Ayalon & Young, 2003). Instead, African Americans may express their distress somatically as reactions to stressful social and environmental milieus (Jenkins, Kleinman, & Good, 1991). Empirically, the most consistent finding across studies of both adults and adolescents is that depressed African Americans exhibit greater somatic complaints compared to Caucasians (Choi, Meninger, & Roberts, 2006; Iwata, Turner, & Lloyd, 2002). In studies of adults, the difference in somatic and neurovegetative symptoms has been documented both in community and in treatment samples (Ayalon & Young, 2003; Canino, Rubio-Stipec, Canino, & Escobar, 2002), but for adolescents, these findings have not been replicated with a treatment sample.

Additionally, African American culture may discourage the expression of sadness as it viewed as a sign of weakness leading adolescents to deny such feelings (Manning & Hussong, 2002). Some have argued that instead of expressing depression as sadness, African Americans may demonstrate greater irritability and anger (Baker, 2001). Supporting this notion, African Americans are less likely to endorse affective symptoms (e.g., sadness, crying) compared to Caucasians (Iwata et al., 2002) and in contrast, African American adults and adolescents experience greater anger and irritability as part of their depression (Baker, 2001; Manning & Hussong, 2006).

Symptom expression in Latinos

As with African Americans, many studies have documented that Latinos may express their distress somatically (e.g., Choi, Meninger, & Roberts, 2006; Escobar et al., 1989), but no studies have examined this question in an adolescent treatment seeking sample. As with African Americans, it is hypothesized that Latinos respond to environmental stressors somatically because it is not as culturally acceptable to express discontent (Jenkins et al., 1991). In addition, Latino youth are at greater risk for suicidal ideation and suicide attempts compared to Caucasian youth (Zayas, Lester, Cabassam, & Fortuna, 2005).

Ethnic differences in depressive cognitions

There is limited research exploring differences across ethnic groups in cognitive variables associated with depression (e.g., attributional style, negative cognitive errors, and the cognitive triad of depressive thoughts about self, the world and the future (hopelessness)). The majority of this research has focused on differences in the mean level endorsed by different ethnic groups and thus interpreting whether groups are at differential risk for depression based on these cognitive variables. However, to date, this research is inconclusive. In one study, African American adolescents demonstrated a more negative cognitive triad when compared to Caucasian adolescents (Greening et al., 2005). On the other hand, when compared to African American youth, Caucasian youth scored significantly higher on depressive attributions for negative events (Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998; Waschbusch, Sellers, LeBlanc, & Kelley, 2003). Lastly, one study found no differences in the level of cognitive symptoms for African Americans and Latinos when controlling for socio-economic status (SES) (Kennard, Stewart, Hughes, Patel, & Emslie, 2006).

However, it may be more important to examine whether there are ethnic differences in the relations between these cognitive variables and depressive symptoms rather than to examine whether there are ethnic differences in mean level of depressive cognitions. Differences in the relations between cognitive variables and depression would have implications for the cultural applicability of the cognitive model of depression (Stewart, 2008). Specifically, if proposed depressive cognitions are not as strongly related to depressive symptoms among ethnically diverse youth as they are in Caucasian youth, the cognitive model of depression would be less applicable in guiding treatment of depressed minority youth. In fact, most of the research support for the correlation between cognitive variables and depression in youth comes from primarily Caucasian samples, and studies including diverse samples have not specifically examined ethnic differences (Ingram, Nelson, Steidtmann, & Bistricky, 2007). Given that these cognitive variables serve as the targets of intervention in cognitive-behavioral therapy, it is imperative to understand their salience in ethnically diverse populations.

Only two studies have examined the relations between cognitive variables and depression in adolescents across ethnic groups, and both suggest that the relationship is stronger for Caucasian youth compared to African American youth. Specifically, hopelessness and self-efficacy were more strongly related to depressive symptoms for Caucasian adolescents than for their African American peers, but there were no differences for cognitive errors (Kennard et al., 2006). Similarly, self-ideal discrepancy mediated the relations between family conflict and depression for Caucasian youth, but not for African American youth (Herman, Ostrander, & Tucker, 2007).

These findings highlight the importance of understanding ethnic differences not only in levels of depressive cognitions, but also in the relations of such cognitions to depression. Additionally, most of the previous samples did not include Latinos, making it difficult to draw any conclusions for Latinos. Furthermore, because not all of the studies controlled for socioeconomic status (SES), it is unknown whether ethnic differences are independent of SES. Lastly, none of studies examined cognitive variables in a sample of adolescents with clinical depression.

Current study

The current study aims to extend previous research by examining patterns of symptom presentation and cognitive variables in a clinically depressed adolescent sample at treatment initiation. We hypothesize that the profile of depressive symptoms will differ across groups.

Compared to Caucasian adolescents, Latino and African American adolescents are hypothesized to endorse more severe somatic and neurovegetative symptoms. Additionally, it is hypothesized that when compared to Caucasian youth, African American youth will endorse more severe irritability and less severe affective symptoms, and Latinos will endorse more severe morbid ideation. Finally, this study will explore whether African American and Latino youth report different levels of depressive cognitions, compared to Caucasian youth, and whether there are differences in the relations between these variables and depression across ethnic groups.

Methods

Sample

The sample for the current study is drawn from the baseline sample of The Treatment for Adolescents with Depression Study (TADS). The original sample was composed of 439 youths ages 12-17 with a primary DSM-IV diagnosis of current Major Depressive Disorder (n=55 African American; n=39 Latino). The original sampling procedures are described in detail elsewhere (TADS Team, 2005). Informed consent was obtained from parents and assent was obtained from the adolescents.

In terms of the current sample, adolescents who endorsed Asian (n=3), Pacific Islander (n=2), or "other" (n=16) ethnicity were excluded due to small sample sizes. In addition, subjects with missing income or parent education data were also deleted from the sample as these variables served as control variables (n=40 Caucasian, n=4 African American; n=2 Latino). Thus, the sample for the current study is comprised of 372 adolescents (56% female; n=51 African American, n=37 Latinos) with a mean age of 14.6. To be eligible for the study, both parents and children had to speak English fluently, thus excluding solely Spanish-speaking Latino families. Country of origin data were not collected for the Latinos in the study, but the majority of the Latino adolescents were from New York City (23 of 37). Adolescents across ethnic groups did not differ in age or gender distribution.

Demographic Measures

Parents reported annual family income on a 12-point scale (ranging from 1 = \$0-\$4,999 to 12 = More than \$200,000). Parents/caregivers indicated their level of education and that of their partners if both informants were not available, on a 10-point scale (ranging from 0 = not completing high school to 10 = doctoral degree). The highest level of education reported for either parent/primary caretaker was used in the current study.

Measures

Evaluator-rated depression symptoms—Independent evaluators assessed the participant's depression symptoms in the last week using the Children's Depression Rating Scale – Revised (CDRS-R) (Poznanski & Mokros, 1996). The CDRS-R is a semi-structured clinician-administered interview given separately to one parent and to the adolescent with overall ratings then synthesized by the clinician. The CDRS-R contains 14 items assessed by interview questions and 3 items assessed by behavioral observation. Each item is rated on either a 5-point or a 7-point scale of increasing severity, leading to a total raw score ranging from 17 to 113. The scale has demonstrated adequate to good psychometric properties, and for this sample, there was excellent interrater reliability based on audiotape reviews (intraclass correlation = .95) (TADS Team, 2005). With the exception of one Latina evaluator, all of the independent evaluators were Caucasian. A total score of 45 or higher was required as an inclusion criterion, reflecting at least moderate depression.

Scales and items from the CDRS-R were used to examine symptom presentation. A previous principal factor analysis of the CDRS-R (Guo, Nilsson, Heiligenstein, Wilson, & Emslie, 2006) revealed five factors: *reported* depressive mood (3 items), anhedonia (2 items), morbid thoughts (2 items), somatic symptoms (4 items), and *observed* depressive mood (3 items). Where possible, our hypotheses were tested using these factors. Because the items had different metrics, the total score on the set of items constituting each factor was used to assess these five dimensions of symptom presentation.

The CDRS-R irritable mood item did not load on any of these factors, but was analyzed independently because of our hypothesis regarding irritability. The somatic and neurovegetative symptoms were also examined individually (physical complaints, sleeping difficulty, fatigue) due to the fact that the somatic scale also included another item that was not a somatic symptom (impaired schoolwork).

Self-reported depressive symptoms—Adolescents also completed the Reynolds Adolescent Depression Scale (Reynolds, 1987). The 30-item scale assesses current level of depressive symptoms by asking adolescents to rate on a 4-point scale the frequency with which they experienced a symptom in the past week (1= almost never – 4 = most of the time). The RADS has demonstrated adequate psychometric properties and has been previously used in diverse populations (Reynolds, 1987). In the current study, the measure demonstrated good reliability across ethnic groups (Caucasian = .90; African American = .91; Latino = .90).

The RADS scale is comprised of four sub-scales according to a factor analysis of the original normative sample (Reynolds, 1987): depressed mood (8 items), negative affect (7 items), negative view of self (8 items), and somatic symptoms (7 items). Item scores on each factor were averaged to make up the scale scores to examine differences in symptom presentation.

Cognitive variables—Four self-report scales assessed cognitive variables associated with depression. The cognitive triad of depression (hopelessness about the future, world and self) was assessed with two scales. Hopelessness for the future was assessed with the Beck Hopelessness Scale (BHS; Beck & Steer, 1993). The 20-item measure asks adolescents to endorse as true or false various thoughts about the future. The scale has shown adequate psychometric properties with adolescents (Beck & Steer, 1993; Steer, Kumar, & Beck, 1993), and demonstrated good reliability across ethnic groups in the current sample (Caucasian = .88; African American = .87; Latino = .92). A total score assessed hopelessness with higher scores indicating greater hopelessness (range 0-20; mean 9.97, SD = 5.47). The Cognitive Triad Inventory for Children (CTI; Kaslow, Stark, Printz, Livingston, & Tsai, 1992) measures the adolescent's views of the self, world, and future, but because the BHS was used in TADS, only the self and world portions of the CTI were administered. The 24-item measure presented adolescents with positive and negative statements about themselves and the world and asked them to rate on a 3-point scale (yes, maybe, no) whether they held that view. The measure has demonstrated adequate psychometric properties (Kaslow et al., 1992), and demonstrated good reliability across ethnic groups in the current sample (Caucasian = .88; African American = .88; Latino = .90). A total score for each scale was used to measure the view of self (range 0-24, mean = 13.63, SD = 5.38) and of the world (range 0-23, mean = 11.98, SD = 5.38) with higher scores indicating more positive perceptions.

Given the high correlations between the BHS and the sub-scales of the CTI (CTI self and world $r=.74$, CTI self and BHS $r= -.63$, CTI world and BHS $r= -.59$), these scales were combined to reflect the cognitive triad of depression. The CTI view of self and world scales

were reverse scored, and all three scales were standardized and then averaged. Higher scores indicate a more depressive cognitive triad.

The Children's Attributional Style Questionnaire assessed the extent of stable, global, and internal attributions for positive events (CASQ; Seligman, Peterson, Kaslow, Tanenbaum, Alloy, & Abramson, 1984). The 24-item measure prompted adolescents with positive events and asks them to endorse either one of two attributions. The measure has demonstrated adequate psychometric properties (Seligman et al., 1984), and demonstrated adequate reliability across ethnic groups in the current sample (Caucasian $\alpha = .62$; African American $\alpha = .56$; Latino $\alpha = .59$). The total score was used to assess attributional style for positive events with higher scores indicating greater internal, stable, and global attributions for positive events (range 1-21; mean = 9.89, SD = 3.57).

The Children's Negative Cognitive Error Questionnaire assessed common cognitive errors associated with depression as hypothesized by Beck's model of depression (CNCE; Lietenberg et al., 1996). The 24-item measure presents adolescents with a situation and a distorted cognition and then asks them to endorse how similar that thought would be to their own thought on a 5-point scale. The measure has demonstrated adequate psychometric properties (Lietenberg et al., 1996) and demonstrated good reliability in the current sample across ethnic groups (Caucasian $\alpha = .94$; African American $\alpha = .93$; Latino $\alpha = .95$). The total score was used to assess negative cognitive distortions with higher scores indicating greater distortions (range 24-120; mean = 63.05, SD = 20.31).

Missing data—Some adolescents did not complete all of the measures. Listwise deletion was employed for specific analyses where a participant was missing data such that the sample changes slightly for each MANCOVA (from 349 to 372). An examination of the pattern of missing data using multiple chi-squares and Fisher's exact test indicated that it did not vary significantly across ethnic groups.

Statistical Plan

A series of univariate analyses were conducted to examine whether adolescents across ethnic groups differed on demographic characteristics. There were significant differences among ethnic groups in parental education and family income. Caucasian families had higher incomes than either African American or Latino families ($F(2, 369) = 6.87, p = .001$), and higher parental education levels than Latino families ($F(2, 369) = 3.47, p = .03$). Therefore, parental education and family income were used as covariates in subsequent multivariate analyses.

A series of multivariate analyses of covariance (MANCOVA) were used to minimize experiment-wise error and examined whether adolescents differed on the main outcomes of interest (evaluator-rated symptom patterns, self-reported symptom patterns, and cognitive variables), controlling for parent education and family income. In addition, the MANCOVAs also controlled for severity of depressive symptoms using either the total score on the CDRS-R for outcomes involving the RADS, or the total score of RADS for outcomes involving items of CDRS-R, or both for the cognitive variable outcomes. We controlled for severity of symptoms in order to rule out the possibility that any symptom level differences were due to ethnic differences in overall level of depressive symptoms. If the MANCOVA indicated significant group differences, *a posteriori* comparisons were conducted using least square means t-tests to examine whether Caucasians differed significantly from African Americans and Latinos on the individual measures. An alpha level of less than .05 was used for all reported statistical analyses. Covariate adjusted group means are presented in Tables 1 and 2.

Results

Control Variables

Parent education and family income were not significant predictors in any of the MANCOVAs, but total depressive symptoms using either the CDRS-R total score or the RADS total score were significant predictors in the analyses in which they were included. The CDRS-R and RADS are correlated significantly ($r=.41$, $p<.01$), and the correlations were similar across ethnic groups. On the full scale measures of depressive symptoms, there were no ethnic differences on the total score of the CRSD-R ($F=.02$, $p = \text{n.s.}$) but there was a trend for overall ethnic differences on the RADS ($F=2.05$, $p = .08$). African American adolescents reported fewer total depressive symptoms on the RADS compared to Caucasian adolescents (African American mean = 74.0, Caucasian mean = 80.4; $p = .04$), and there were no significant differences between Latinos and Caucasians.

Symptom Presentation

A MANCOVA assessed group differences in evaluator-rated symptom presentation as measured by the factor-based sub-scales of the CDRS-R. There was a significant main effect of ethnicity on symptom scale scores on the CDRS-R, Wilks' lambda = 0.92 $F(10,361) = 3.03$, $p<.01$. As seen in Table 1, evaluators rated African American ($p < .01$) and Latino adolescents ($p = .01$) as demonstrating more severe *observed* depressive symptoms compared to Caucasians. Contrary to our hypotheses, African Americans and Latino clients were not rated as having significantly more somatic symptoms compared with Caucasians. Also, contrary to our hypotheses, African Americans were not rated as showing less severe depressive mood symptoms and Latinos were not rated as demonstrated more severe morbid ideation compared to Caucasians.

The second MANCOVA tested for ethnic differences on selected specific items of the CDRS-R assessing irritability, physical complaints, excessive fatigue, and sleep disturbances. Contrary to our hypotheses, there was no significant main effect of ethnicity on these symptom items on the CDRS-R, Wilks' lambda = 0.98, $F(8,363) = .71$, $p = .69$.

The third MANCOVA tested for ethnic differences on the subscales of the RADS. Contrary to our hypotheses, there was no significant main effect of ethnicity on these on the subscales, Wilks' lambda = 0.97, $F(8,359) = 1.53$, $p = .14$.

Cognitive Variables

The final MANCOVA tested for group differences on the cognitive variables as assessed by the triad composite (CTI and BHS), CNCE, and CASQ. Two analyses were run, one controlling for self-reported depression and another controlling for evaluator rated depression. There was not a significant main effect of ethnicity on the cognitive variable measures when controlling for self-reported depression, Wilks' lambda = 0.98, $F(6, 351) = 1.58$, $p = .15$, but there was a significant main effect of ethnicity on the cognitive variable measures when controlling for evaluator-rated depression, Wilks' lambda = 0.96, $F(6, 351) = 2.68$, $p = .01$. As seen in Table 2, pairwise comparisons indicated that African Americans differed significantly from Caucasians on all three scales, whereas Latinos did not differ from Caucasians. On average compared to Caucasian adolescents, African American adolescents reported less hopelessness about the self, world, and future ($p < .01$), greater internal, global, stable attributions for positive events ($p = .01$), and fewer negative cognitive distortions ($p < .01$).

Pearson bivariate correlations were calculated between the cognitive variables (triad composite, CNCE, CASQ) and depressive symptoms as reported by the independent clinical

evaluator (CDRS-R) and self-report (RADS) for the three ethnic groups. Overall, greater levels of depressive symptoms were related to greater cognitive errors, more negative attributional style, and a more negative cognitive triad. As seen in Table 3, for Caucasian, African American and Latino adolescents, the self-reported depressive symptoms (RADS) were moderately significantly correlated with cognitive variables, although for Latino adolescents the triad composite was more strongly related to self-reported depressive symptoms than for Caucasian adolescents. However, in terms of clinician rated symptoms (CDRS-R), these all demonstrated a small significant correlation only for Caucasian adolescents. For African Americans, cognitive errors as measured by the CNCE were not correlated with clinician-rated depressive symptoms. For Latino adolescents, cognitive errors, cognitive triad, and attributional style for positive events were not significantly correlated with clinician-rated depressive symptoms, but the magnitude of correlation was similar to that of Caucasians.

Discussion

Overall, contrary to our hypotheses, there were no ethnic differences in the interview reported presentation of depressive symptoms. The only significant ethnic difference was that Latino and African American youth were observed and rated by interviewers as demonstrating more severe behavioral symptoms associated with depression. Although there were some mean level differences in the endorsement of the cognitive variables associated with depression between Caucasian and African American youth, there were few differences in the relationships between these variables and both self-reported and evaluator rated depressive symptoms. Thus, given the findings of the current study, it appears that the current models of depression may be applicable across ethnic groups.

One of the strengths of this study is that it is the first to explore ethnic differences in a sample of clinically depressed adolescents. However, the TADS study specifically selected adolescents with at least moderate symptoms of depression, thus excluding adolescents with less severe presentations (TADS team, 2005). The severity of our sample may explain the lack of differential symptom endorsement for somatic, neurovegetative, and morbid ideation for Latinos and African Americans when compared to Caucasians. Past research documenting these differences in adolescents has been conducted primarily with community samples (e.g., Iwata et al., 2002; Zayas et al., 2005), and these differences may not be salient for clinically depressed youth. In community samples diverse youth with overall less severe depressive symptoms may be more likely to endorse somatic, neurovegetative, and suicidal symptoms, but once the depressive symptoms reach clinical levels, the differences between the ethnic groups diminishes as Caucasian youth begin to endorse these symptoms equally. This line of reasoning would be consistent with the lack of group differences in a past study of an adolescent treatment sample that included a majority of inpatient adolescents (Roberts et al., 1995).

The only significant ethnic difference in symptom endorsement concerned the behavioral items of the CDRS-R (listless speech, flat affect, hypoactivity), where both Latinos and African Americans were rated as more severely depressed on these observational items than Caucasians. This pattern is interesting given that African Americans and Latinos did not endorse greater symptoms on any of the scales of the CDRS-R when compared to Caucasian youth. Similar patterns have been noted in previous research with adults. Although African Americans and Caucasians reported similar levels of symptoms on self-reported measures of depression, African Americans were rated as more severely depressed by evaluators than Caucasians (Brown et al., 1996).

Two factors may have influenced evaluators to rate ethnically diverse youth as more severe. First, there may be a bias by the primarily Caucasian evaluators assessing members of a different group. Implicit biases may affect how Caucasian evaluators interpret the behavior of ethnic minorities (Amodio & Devine, 2006; Dovidio, Kawakami, & Gaertner, 2002), and implicit bias activation has been found to influence clinical judgment (Abreu, 1999). Alternatively, Latino and African American youth may present slightly differently in a treatment setting than Caucasian youth. Latino youth due to cultural factors such as *respeto* (respecting people in authority) may behave more quietly, make less eye-contact, and verbalize less when interacting with evaluators (Marin & VanOss-Marin, 1991). African American youth may exhibit greater guardedness in their interviews as has been found with adult samples (Sue & Sue, 2007). Both of these presentations may lead to cultural misinterpretation of the adolescent's behavior as demonstrating flat affect, listless speech, and hypoactivity. These explanations are not mutually exclusive and the differential rating pattern may have resulted from an interaction of both evaluator bias and the behavior of the ethnically diverse youth. A third possible explanation for the differences in the observed symptoms may be that evaluators consistently judged ethnically diverse adolescents as more depressed than either their parents or themselves endorsed. So, Latinos and African Americans may enter treatment more depressed, but neither the parent nor the adolescent accurately report the severity of depression.

Unfortunately, we cannot ascertain which of these explanations led to the ethnic differences in the observed symptoms. However, given that the CDRS-R served as the primary outcome measure for the TADS treatment study and in other child depression studies, it is important to further understand the differential ratings by evaluators on these particular items. Moreover, these findings have larger implications for cultural competency. Clinical evaluators need to understand the cultural factors that may impact both their evaluation and the behavior of the youth in a clinical setting.

In terms of the cognitive variables associated with depression, it appears that there may be some ethnic differences between African American and Caucasian youth in the overall endorsement of depressive symptoms in self-report measures on the whole. When controlling for severity of depression using a self-report measure, there were no ethnic differences in the endorsement of the cognitive variables, but there were significant differences when controlling for severity using the evaluator-rated symptoms where African Americans reported fewer cognitive symptoms associated with depression compared to Caucasians. In fact, although African Americans and Caucasians were rated as equally depressed on the CDRS-R, control analyses found that African Americans reported fewer symptoms on the RADS compared with Caucasians.

Thus, the ethnic differences appear to revolve around the endorsement of depressive symptoms and cognitive variables on self-report measures. These differences may be due to a variety of factors. First, these measures are biased heavily on the cognitive and affective symptoms related to depression, and as discussed in the introduction, African Americans may be less likely to endorse such items due to cultural differences in the acceptability of the expression of sadness (Baker, 2001). Although we found no differences in the CDRS-R on these items, the CDRS-R takes into account adolescent, parent, and evaluator judgment and thus may be less influenced by the cultural restriction on affective expression.

Secondly, all of these measures were developed with majority Caucasian samples and these measures may not adequately capture the experience of depression for African American youth. An examination of the items of some of the measures suggests they may not be as salient for urban, culturally diverse youth (e.g., "Your parents take you to the beach and you have a good time."). Many of the items may not be applicable to either lower

SES or diverse communities, and as such they may need to be modified to best capture these cognitive errors in diverse communities.

Thirdly, these measures may not take into account cognitions and experiences that may be unique for African American youth. For example, race related cognitions involving racial identity and discrimination are absent from the current measures and may be more salient for African Americans. Cognitions related to private and public regard for one's race may be related worse mental health (Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). Additionally, perceived racism significantly predicts depression in African American youth (Nyborg & Curry, 2003). Thus, it may be important to consider cognitive components associated with both racial identity and reactions to discrimination when assessing depression in African American youth. Thus, perhaps these measures need to be culturally adapted to better capture the construct of depression in African Americans.

However, although there were differences on mean level responses, there were minimal significant differences in the correlations between the cognitive variables and depression severity across ethnic groups. This suggests that the current cognitive models of depression are applicable to African American and Latino youth, especially in a sample of clinically depressed youth. The lack of correlation between cognitive errors and severity of depression on the CDRS-R for African Americans may be due to fact that the items on the CNCE were normed with Caucasian youth. This study is only the third study to examine the relationship between these variables and because these findings differ from the two previous studies, future research should continue to examine the cultural validity of the cognitive model of depression.

There are several limitations to the current study. First, this study only generalizes to adolescents with moderate to severe major depression seeking treatment. Moreover, families in the TADS trial had to be willing to randomize into different treatments, and African Americans were less likely to continue with treatment randomization (May et al., 2007). Thus, the findings pertaining to African American youth may not generalize to all African Americans with depression. Future research should examine these questions in a more inclusive sample. Second, there was a small sample of Latino participants and the results for that group may have been underpowered, thus larger sample sizes may help address this issue. Third, it is important to note that the Latinos in the current sample had to speak English to participate in the study; therefore, these findings do not generalize to monolingual Spanish-speaking Latinos. Fourth, we only administered the positive attributions subscale of the CASQ, and the ethnic differences may not be evident on the negative attributions scale but more research is necessary to determine if this is the case.

Implications for Research, Policy, and Practice

This is the first study examining ethnic differences in a depressed adolescent treatment-seeking sample and future research should examine these questions in a broader sample of depressed youth. Given the findings of this study, it is important to understand the differential ratings on the observation items of the CDRS-R due to its widespread use in clinical trials. Future research should explore how clinical evaluators rate symptoms in cross-ethnic pairs to examine systemic biases. If such biases are indeed present and can be characterized, this research will aid in the development of cultural competency training. Additionally, future research should examine the cultural applicability of self-reported measures of depression as our findings suggest that there may be differential response on these measures compared with evaluator-rated symptoms that incorporate parent, adolescent, and evaluator report. However, our findings support the cultural applicability of the cognitive model of depression as there were minimal ethnic differences in the correlation between the cognitive variables and overall depressive symptoms. Future research should

examine the correlation between these variables while controlling for other factors as these analyses were precluded due to our small sample size.

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Table 1

Adjusted Means and Standard Deviations by Ethnic Group

	Caucasian		African American		Latino	
	M	SD	M	SD	M	SD
CDRS Symptom Scales¹						
Depression	13.01	2.51	12.14	2.90	12.34	2.90
Anhedonia	8.90	2.51	9.23	2.47	9.60	2.48
Morbid Ideation	3.92	2.51	3.52	2.47	3.13	2.43
Somatization	16.52	3.69	16.83	3.68	16.93	3.67
Observed symptoms	8.10 _a	3.35	9.86 _b	3.32	9.53 _b	3.31
CDRS Individual Items¹						
Irritability	4.79	1.51	4.68	1.48	4.40	1.48
Physical complaints	2.93	1.68	2.67	1.63	2.76	1.67
Difficulty sleeping	3.72	1.51	3.82	1.48	3.80	1.54
Excessive fatigue	5.19	1.51	5.07	1.48	5.48	1.48
RADS Symptom Scales²						
Depressed mood	2.90	0.50	2.77	0.57	2.92	0.59
Negative affect	2.25	0.50	2.13	0.49	2.01	0.53
Negative self image	2.51	0.67	2.35	0.63	2.37	0.65
Somatic symptoms	3.06	0.50	2.93	0.49	2.98	0.47

Note: Least square means adjusted for covariates of parental education and income and unequal cell sizes. Means that have different subscripts differ at $p < .05$.

¹N=366 (n=50 African American, n=35 Latinos).

²N=368 (n= 50 African American, n=35 Latinos). CDRS-R = Children's Depression Rating Scale-Revised; RADS = Reynolds Adolescent Depression Scale.

Table 2
Cognitive Variables Adjusted Means and Standard Deviations by Ethnic Group

	Caucasian		African American		Latino	
	M	SD	M	SD	M	SD
Controlling for CDRS-R						
Triad	0.08 _a	0.83	-0.30 _b	0.82	-0.18	0.84
CASQ	9.59 _a	3.49	11.01 _b	3.56	10.52	3.54
CNCE	65.08 _a	19.77	54.80 _b	20.16	59.78	19.98
Controlling for RADS						
Triad	0.04	0.66	-0.14	0.69	-0.08	0.66
CASQ	9.69	3.31	10.66	3.36	10.34	3.36
CNCE	64.33	17.38	57.52	17.82	62.28	17.76

Note: Least square means adjusted for covariates of parental education and income and unequal cell sizes. Means that have different subscripts differ at $p < .05$. N=357 (n=47 African American, n=36 Latinos). CDRS-R = Children's Depression Rating Scale-Revised; Triad = composite variable of Beck's Hopelessness Scale and Cognitive Triad Inventory self and world scale; CASQ = Children's Attributional Style Questionnaire; CNCE = Children's Negative Cognitive Error Questionnaire; RADS = Reynolds Adolescent Depression Scale.

Table 3
Correlations of Cognitive Variables with Evaluator-reported and Self-reported Depression by Ethnic Group

	Caucasian		African American		Latino	
	CDRS-R	RADS	CDRS-R	RADS	CDRS-R	RADS
Triad	0.26 *	0.64 *	0.49 *	0.67 *	0.30	0.82 *
CNCE	0.19 *	0.54 *	0.01	0.35 *	0.07	0.52 *
CASQ	-0.18 *	-0.37 *	-0.32 *	-0.32 *	-0.22	-0.66 *

* Note. Pearson correlations significant at $p < .05$. Bold signifies that correlations significantly differ using a Fisher's r to z transformation. Triad = composite variable of Beck's Hopelessness Scale and Cognitive Triad Inventory self and world scale; CASQ = Children's Attributional Style Questionnaire; CNCE = Children's Negative Cognitive Error Questionnaire.