VULNERABILITY TO CHILDHOOD DEPRESSION: RACE AND AGE
DIFFERENCES

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ABSTRACT

This study examined race and age differences in children's vulnerability to depression, negative life events, and negative attributional styles to explain these events.. The relationship between parent-child depression and explanatory styles was also assessed. There were no significant age or race differences in depression. There were no significant racial differences in attributional or inferential styles. Younger children reported more internal and global attributional styles than older children. Younger children reported the consequences of negative life events as more disastrous than older children. In younger Caucasians, negative life events were the only predictors of depression in the equations assessing the role of attributional styles and stress in predicting depression. In older Caucasians, STAGLO predicted depression. In the equations assessing the role of inferential styles and stress in predicting depression, there was a significant consequence-stress interaction in older Caucasians. In older African-Americans, only stress predicted depression. In younger African-Americans, no cognitive style predicted depression. When groups were collapsed across race, negative life events and STAGLO were the only predictors of depression in the equations assessing attributional style and stress. The interaction terms were not significant. For equations assessing the role of event consequences and stress, there was a significant consequence-stress interaction in both age groups. Higher depression scores in parents were associated with higher child depression, more internal child attributions, and a greater tendency for the child to view the self as flawed.

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DEDICATIONS

I would like to dedicate this thesis to my parents, Peggy and Michael Longmire, who have provided me with a lifetime of encouragement. I would also like to dedicate this thesis to my best friend and fiancée, Jeff Lewis, whose constant love and support have meant the world to me.

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INTRODUCTION

Depression

Over 20 million American adults are diagnosed with a depressive disorder each year. This includes almost ten million diagnoses of major depression and over ten million diagnoses of dysthymic disorder. Twice as many women as men are affected by depression (National Mental Health Association, 2004). Depression places tremendous psychological and physical burdens on those suffering and causes enormous strains on the economy. Followed by heart disease it is expected to be the second most serious world health problem by 2020 (World Health Organization, 2004). Approximately 43.7 billion dollars per year are spent in the U.S. on depressive disorders. Most financial cost is due to job loss, but 12.4 billion dollars are spent on healthcare (Berto, D'llario, Ruffo, Di-Virgilio, & Rizzo, 2000).

Child and Adolescent Depression

Child and adolescent depression has garnered more clinical attention in recent years (Weiss, Weisz, Politano, & Carey, 1991). Depression is being diagnosed in younger populations in increasing rates (Birmaher, Brent, & Benson, 1998). Up to 20% of adolescents have experienced at least one depressive episode and over 2% of young children receive this diagnosis (Birhamer, Ryan, Williamson, & Brent, 1996). At any given time, 10-15% of children and adolescents will report moderate to severe depression (Smucker, Craighead, & Green, 1986). According to one study, the average length of a child or adolescent depressive episode is approximately one year (Kovacs, Obrosky, Gatsonis, & Richards, 1997). Approximately 7 percent of adolescents diagnosed with major depression commit suicide in adulthood (Weissman, Wolk, & Goldstein, 1999).

Suicide was the 3rd leading cause of death in 10-24 year olds in 1997 (Center for Health Statistics, 1997).

The age of first depression diagnosis in children is decreasing, highlighting the importance of research on younger populations (Lewinsohn, Rohde, Steeley, & Fischer, 1993). A study by the National Institute of Mental Health showed that over the last 40 years, the average age at first depressive episode has decreased by ten years (NIMH, 2002). Although recovery from a single episode of major depressive disorder in childhood is high, recurrence is extremely likely (Lewinsohn, Clarke, Seeley, & Rohde, 1994). One study reported a 70% recurrence rate of major depressive disorder in children (Kovacs, 1996). In samples of adults diagnosed with recurrent major depressive disorder, up to 40% have onset in childhood. A more recent longitudinal study reported a strong association between early-onset childhood depression, recurrence, and continuing diagnoses in adulthood (Weissman, Wolk, & Goldstein, 1999).

Child and Adolescent Risk Factors

Risk factors for childhood depression include family history and depression severity (Harrington, Rutter, Weissman, & Fudge, 1997; Weissman, et al., 1999). According to one report, children of depressed parents are three times more likely to experience depression themselves (U.S. Surgeon General, 1999). Gender does not appear to be a risk factor in young children as equal numbers of males and females are diagnosed. There is a rapid increase in depressive symptoms in females starting in adolescence (Angold & Rutter, 1992; Angold, Costello, & Worthman, 1998; Buchanan, Eccles, & Becker, 1992; Lewinsohn, Rohde, Seeley, & Fischer, 1993; Nolen-Hoeksema, 1994). One large meta-analysis reported a dramatic increase for girls in the transition

from childhood to adolescence with depression scores highest after age 14 (Twenge & Nolen-Hoeksema, 2002).

The mechanisms underlying this increase are not well understood, but it is likely to involve a variety of processes. Physiological changes in puberty may increase a female's risk for depression. One study found that pubertal status was the best predictor of depression for females but not males (Angold, Costello, & Worthman, 1998). Another study assessing almost 3,000 adolescent girls found that at each age, post-menarcheal girls had the highest depression rates and menarcheal stage was a better predictor of depressive symptoms than chronological age (Patton, Hibbert, & Carlin, 1996).

Other theorists emphasize socio-cultural precursors to depression. A female's self image appears to become increasingly more negative in the transition to adolescence, whereas a male's image remains more stable (Seligman, 1989). In one study, female adolescents were significantly more likely than boys to report not liking their looks (Kanner, Feldman, Weinberger, & Ford, 1987). Rao (1999) found that managing the demands of academics and relationships was more stressful for female adolescents than for males. Nolen-Hoeksema (1987) found that girls were more likely than boys to use rumination as a coping strategy for stressful events and that dwelling on negative events accounts for higher depression rates in girls.

Recognizing and Diagnosing Depression in Children and Adolescents

At one time scientists did not believe children and younger adolescents had a strong enough sense of "the self" to feel depressive symptoms (National Institute of Mental Health, 2002). Current research demonstrates that children show the full spectrum of adult depressive disorders (Voelker, 2003). Moreover, the basic diagnostic

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criteria for depression are the same for children, adolescents, and adults. Common features include symptoms such as sad mood, loss of interest in activities, and loss of energy.

Recognizing and diagnosing childhood depression may be more difficult because the way that symptoms are expressed may vary with developmental stage. Younger children may have a harder time describing depressive symptoms (Birmaher, et al., 1998; Ryan, Puig, & Ambrosini, 1987). Further, parents may have a difficult time recognizing major depression in younger children, misattributing depressive symptoms to disobedience (Fleming & Offord, 1990).

Depressive symptoms co-occur with attention, anxiety, and conduct disorders, further clouding the diagnostic picture. A younger child may have more trouble communicating emotional pain, so symptoms more common in depressed children and adolescents such as irritability, hostility, and boredom may be misdiagnosed as externalizing disorders rather than depression (National Institute of Mental Health, 2002). One study showed that children suffering from major depression were less likely to experience common adult symptoms such as weight loss and hypersomnia. These children displayed symptoms such as low self-esteem and impaired self-control (Kaslow, Rehm, & Siegel, 1984).

Ethnicity/Race and Depression

Just as researchers are beginning to examine age related differences in depression, they are also beginning to acknowledge that depression may manifest itself differently in different ethnic groups (National Advisory Mental Health Council, 1998). The addition of race and ethnicity as variables in depression research has grown in recent years (Senior

& Bhopal, 1994). According to the NIMH Basic Behavioral Science Task Force of the National Advisory Mental Health Council (1998) ethnicity and race are important variables to investigate in mental health research because various cultures and races may differ in psychological symptom manifestation. Although several advisory councils have noted the importance of such research, many clinicians ignore cultural and racial issues in diagnosing and treating mental disorders (Saez-Santiago & Bernal, 2002). Further, this is an area in which there are relatively few empirical investigations. One of the purposes of this study was to address such limitations in the research literature by examining racial differences in childhood depression.

Ethnic/Racial Differences in Adult Depression

Some studies examining differences in depression among large samples of Caucasians and African-Americans show that African-Americans report lower levels of depression (Blazer, McGonagle, & Swartz, 1994; Zhang & Snowden, 1999). Other studies show that African-Americans report higher levels of depression (Jones, Rhonda, & Snowden, 1993; Rodriguez, Allen, Frongillo, & Chandra, 1998). Still other researchers suggest that lower socio-economic status may account for any racial differences found (Elder, Nguyen, & Capsi, 1985; Gibbs, 1997). More than half of all African-Americans are classified as poor and their unemployment rate is twice that of Caucasians (Center for Disease Control and Prevention, 1995). Experiencing racism may be another factor in developing depressive symptoms as one study found that one third of a community sample reported a racist/discriminating episode causing psychological distress (Dana, 1998).

African-Americans share similarities with Caucasians such as language and this is an advantage in using African-Americans as a comparison group (Anderson & McNeilly, 1991). Major limitations in researching minorities of other ethnicities include language and cultural barriers. There has been little research comparing Hispanics to other racial groups. The National Comorbidity Survey (1994) indicated that Hispanics report more depressive symptoms than Caucasians and African-Americans. Another adult study found that major depression was more frequently reported in minority groups of Hispanics and African-Americans than Caucasians (Dunlop, Song, Lyons, Manheim, & Chang, 2003). Similar to African-Americans, higher rates of depression in Hispanics may be due to lower socio-economic status and discrimination, in addition to acculturative stress (Dana, 1998).

Ethnic/Racial Differences in Child/Adolescent Depression

African-American and Caucasian Samples

As with adults, most research focusing on ethnic/racial differences and depressive symptoms in children and adolescents includes Caucasian and African-American children but not other minority groups. Some studies indicate that African-American children score higher on depression inventories than Caucasian children (Garrison, Jackson, Martsteller, McKewown, & Addy, 1990; McDonald & Gynther, 1963). Others find no significant differences (Helsel & Matson, 1984; Lubin & McCollum, 1994; Flannery-Schroeder, & Kendall, 1995; Wrobel & Lachar, 1995). Kistner, David, and White (2003) note that these inconsistencies may be due to varying age ranges, diagnostic measures, and sample sizes used.

Cole, Martin, Peeke, Henderson, and Harwell (1998) assessed depressive symptoms in pre-adolescent African-American and Caucasians. They included 2 cohorts of each race in order to control for developmental differences (3rd-5th grade & 6th-8th grade). African-American third to fifth graders reported more depressive symptoms than Caucasians. Sixth to eighth graders showed no racial group differences. Although the authors suggested that ethnic differences in depression may be limited to elementary school children, they did not report the pattern of differences with increasing age or offer an explanation as to why differences in younger children were found but not in older children.   In a follow up to Cole and colleagues (1998), Kistner, David, and White (2003) sampled 3rd-5th grade children. African-American boys reported more depressive symptoms than Caucasian boys, with 12.5% of African-American boys meeting the cut-off for severe depression. Girls' reports did not differ as a function of race.

Some researchers suggest that differences between Caucasians and African-Americans may be attributed to academic achievement. According to the National Center for Educational Statistics (2001) African-American elementary school children have lower reading and math scores than Caucasians at every grade level.   Hedges and Howell (1999) suggest that African American children are at greater risk for depression because as a group they are lower in academic achievement. This may be particularly true for African-American males who tend to have lower achievement score than African-American girls.

Other Child Samples

Little research measures differences in depression in minority groups of children other than African-Americans. Of the research that does, most shows higher reports of

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depressive symptoms in minority children. Roberts, Roberts, and Chen (1997) found that African-American and Mexican American children in 6th through 8th grade displayed significantly higher rates of depression than other ethnic groups. Schraedley, Gotlib, and Hayward (1999) found significantly higher depression levels in Hispanic 9-12 year olds compared to Caucasians of that age group. Hispanics and African-Americans were also significantly more likely to report lower SES. The relationship between ethnicity and depressive symptoms was the same for boys and girls.   Higher life stress was also found to be a psychosocial correlate to greater depressive symptoms.

In one review of the literature pertaining to poverty and depression in children, African-American and Hispanic children reported more depressive symptoms than Caucasians, but were also significantly more likely to report low SES (Samaan, 1998). In another meta-analytic review including over approximately 60,000 children, Hispanics reported more depressive symptoms than Caucasians and African-Americans (Twenge & Nolen-Hoeksema, 2002). There were no significant relationships between self-reported depressive symptoms and a child's SES. This analysis included children and adolescents ages 8-16 and did not separate the age ranges. It may have been helpful to have separated age ranges in this analysis because of past research showing ethnic differences in younger children (Cole, Martin, Peeke, Henderson, & Harwell, 1998; Kistner, David, & White, 2003).

Research on early childhood depression suggests that race and age may interact to increase vulnerability to depression. This seems to be especially true in younger minority children who seem most vulnerable. Because depression, age, and race are rarely studied concurrently, one of the purposes of this study was to examine this interaction.

Hopelessness Theory of Depression

Numerous psychological, social, and biological theories have attempted to account for vulnerability to depression (Allen-Meares, Colarossi, Oyserman, & DeRoos, 2003). One such theory is hopelessness theory, a cognitive vulnerability model of depression. In this model, specific cognitive styles act as diatheses or vulnerability factors for depression. Individuals showing such styles are more likely to become depressed in the face of stress than individuals not showing such styles (Abramson, Alloy, & Metalsky, 1989). Hopelessness theorists propose that such vulnerabilities are learned in childhood, through exposure to aversive life circumstances (Rose & Abramson, 1992). According to hopelessness theory the cognitive diathesis for depression is a depressogenic causal attributional style. This attributional style consists of the tendency to make internal, stable, and global causal inferences about the occurrence of negative outcomes. Internal causal inferences are attributing negative life events to the self. Stable causal inferences are viewing negative life events as permanent or enduring. Global causal inferences are viewing negative events as spanning all situations.

More recently Abela (2001) has proposed two additional cognitive diatheses for depression in children; a depressogenic inferential style about the self, and a depressogenic inferential style about the consequences of negative life events. The two depressogenic inferential styles consist of the tendency to view the self as flawed and deficient following negative events and to view the consequences of negative life events as disastrous (Abela, 2001; Abramson et al., 1989).

There is a large body of research on the relationship between depressogenic attributional styles, stress, and symptoms of depression in adults (Kwon & Laurenceau, 2002). Early cross-sectional studies found that internal, global, and stable attributions did not predict depressive symptoms (Hunsley, 1989; Jacobson, 1987; Follette & Jacobson, 1987; Persons & Miranda, 1992; Ralph & Mineka, 1998; Robins & Hayes, 1995). More recently, the importance of employing longitudinal designs to measure the interaction between attributional style and life stress has become evident. Most support for hopelessness theory comes from studies utilizing longitudinal designs (Alloy & Clements, 1998; Alloy, 1997; Alloy & Abramson, 1999; Metalsky & Joiner, 1992; Metalsky & Joiner, 1997). In one large study, cognitively high risk individuals with no reports of major depressive disorder were significantly more likely over 5 years to develop depressive episodes and recurrences than low risk individuals (Alloy & Abramson, 1999). In another study, those with a more depressogenic style showed greater increases in depressive symptoms over a 10 week time period (Kwon & Laurenceau, 2002).

Attributional Style and Childhood Depression

A large number of cross-sectional studies involving children show significant associations between depression and depressogenic attributional styles, with most reporting a strong relationship (Seligman, Abramson, Semmel, &Von-Baeyer, 1984, Joiner & Wagner, 1995). In one meta-analytic review involving almost 8,000 children, internal, stable, and global attributions for negative life events were positively correlated with depressive symptoms. Higher depressive symptoms were related to external, unstable, and specific attributions for positive life events (Gladstone & Kaslow, 1995).

Another meta-analysis including more than 4,000 children found that a depressogenic attributional style was clearly cross-sectionally related to depressive symptoms. This was true across gender and sample type (Joiner & Wagner, 1995).

Attributional Style Predicting Childhood Depression: Prospective Designs

There are relatively few longitudinal studies assessing hopelessness theory in children. Some studies report no association between depressogenic diatheses and depression (Cole & Turner, 1995; Hammen, Adrian, & Hiroto, 1988). Others find strong associations (Dixon & Ahrens, 1992; Hillsman & Garber, 1995; Panak & Garber, 1992). Turner and Cole (1994) and Nolen-Hoeksema (1992) suggest that these inconsistencies occur because children younger than twelve are not capable of abstract reasoning and formal operational thought and so therefore cannot make causal attributions in as complex a fashion as is proposed in hopelessness theory (Abela, 2001). These researchers proposed that negative attributional styles in interaction with stress begin to predict symptoms of depression by age 12. Prior to that, negative life events would predict depression.

Test of the Hopelessness Theory in 3rd and 7th graders

Diathesis-Stress Component

To assess Turner and Cole (1994) and Nolen-Hoeksema's logic (1992), Abela (2001) compared 3rd grade boys and girls to 7th grade boys and girls on attributional style measures and stress and followed both groups of children over time to determine whether attributional style interacted with stress to predict depressive symptoms. He hypothesized those 7th grade children showing the cognitive diatheses proposed by hopelessness theory would report more depression in the face of negative life events than

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those not showing the styles. He hypothesized that 3rd graders would not show the styles and that only negative events would predict depression in this age cohort. He did not make specific hypotheses in regard to gender.

As hypothesized, in Abela's (2001) study, depressogenic attributional styles were associated with increased depressive symptoms in 7th grade boys and girls but not 3rd grade boys and girls. Depressogenic inferential styles about the self interacted with negative life events to predict depression in females of both grade levels but not males. Depressogenic styles concerning the consequences of negative life events interacted with stress to predict depression in both grade levels for both sexes. Although Abela noted gender differences in this study, he did not note whether other subject factors, such as race, impacted the data. Abela (2001) interpreted these results as indicating that 7th graders were cognitively capable of making depressogenic attributions, but that 3rd graders were not.

Parent-Child Correlations

According to hopelessness theory depressogenic attributions are learned in childhood. One potential source of such learning is parents. There have been a small number of studies in which parental attributional style was examined in conjunction with attributional style in children. Some studies find that parent attributional style is associated with greater likelihood of depressogenic styles in children (Seligman, et al., 1984; Stark, Schmidt, & Joiner, 1996).   Alloy and colleagues (2001) demonstrated that mothers of cognitively high risk undergraduates reported more stable and global attribution feedback for stressful events in their children's lives than parents of low risk students. In addition, mothers' inferential feedback predicted their children's likelihood

of developing a major, minor, or hopelessness sub-type of depressive episodes.   Other

studies do not find this association (Oliver & Berger, 1992, Turk & Bry, 1992; Kaslow,

Rehm, Pollack, & Seigel, 1988). Some researchers suggest that these inconsistencies are

due to varying sample sizes, sex of the child, and cognitive measures used (Alloy,

Abramson, Tashman, Berrebbi, Hogan, Whitehouse, Crossfield, & Moroco, 2001;

Tashman, 1997).

Maternal depression is also associated with children's attributional style (Jaenicke

et al., 1987; Goodman, Adamson, Riniti, & Cole, 1994). In one study, children's

attributional style for negative events and depressive symptoms were positively

correlated with their mothers' depression scores but not their fathers (Seligman, et al.,

1984). Garber and Flynn (2001) found significant positive correlations between maternal

history of depression and adolescent depressogenic attributional style and hopelessness.

Mothers reporting a history of depression had adolescent children who reported more

depressogenic attributions and more depression themselves over time than mothers

reporting no history of depression. This shows that one potential contributory factor to

an adolescent's cognitive risk for depression is a history of parental depression.

Rationale for Current Study

The purpose of this study was to apply the logic of the hopelessness theory of

depression to examine potential differences in vulnerability to depression among different

age and race groups of children. Although a great deal of research supports the utility of

hopelessness theory as an explanatory model of depression in adults, there have been

relatively few applications of the model to children. Moreover, there have been no

studies assessing whether hopelessness theory is a useful explanatory model of

depression in some ethnic groups but not in others. This is important to assess because racial differences in depression are understudied and correlates of such differences are unknown.

I hypothesize that factors associated with minority status will make it more likely that minority children will show depressogenic attributional and inferential styles at a younger age, perhaps accounting for ethnic differences in depression in younger children. Factors such as lower academic achievement, less peer acceptance, and experiencing prejudiced attitudes (Sadowski, 2001) may increase the likelihood of viewing the self as flawed, for example. To the extent that such factors cause an increase in negative explanatory style, minority children may be more vulnerable to develop depressive symptoms.

Hypotheses

1) There will be an age/race interaction in depression in the younger cohort with younger African-Americans reporting more depressive symptoms than younger Caucasians. Older Caucasian children will not differ from older African-American children.

2) There will be an age/race interaction in depressogenic attributional styles in the younger cohort with younger African-Americans reporting more depressogenic attributional styles than younger Caucasians. Older Caucasian children will not differ from older African-American children.

3) A Caucasian child's attributional style will interact with negative life events to predict depressive symptoms in the older age cohort but not in the younger age cohort.

4) An African-American child's attributional style will interact with negative life events to predict depressive symptoms in both age cohorts.

5) Parental attributional style and depressive symptoms will be positively correlated with children's attributional styles.

METHODS

Participants

A total of 188 children and 154 parents participated. Data were collected from four after-school care programs in New Hanover County, Brigade Boys and Girls Club, Community Boys and Girls Club, Wesley Memorial Methodist Church, and Southeastern Preschool Educational Center (SPEC).

Procedure

Participants were told that the purpose of the study was to "understand how children and parents cope with life stress." Program directors and/or researchers first obtained consent from parents. Parents then completed questionnaires. Within one week of data collection from parents, researchers met with the children and administered the children's questionnaires. After connecting the appropriate child with parent, all names and identifiers were destroyed to ensure anonymity.

Parents completed three questionnaires, including the Demographic Questionnaire (DQ), the Beck Depression Inventory (BDI; Beck, et al., 1996), and the Control, Attributions, and Expectations Questionnaire (CAEQ; Clements, 1990). Children completed four questionnaires, including the Children's Depression Inventory (CDI; Kovacs, 1981), the Children's Life Event Scale (CLES; Coddington, 1972, Kanner, et al., 1987),   Children's Attributional Style Questionnaire (CASQ; Seligman, et al., 1984), and the Children's Cognitive Style Questionnaire (CCSQ; Abela, 2001).

Materials

Parent Questionnaires

Demographic Questionnaire (DQ). This 10 item questionnaire, created for the current study, measures basic demographic characteristics. The question asking child and parent ethnicity/race was modeled after the current census (United States Census, 2000) to include African-American, Caucasian, and Hispanic categories. Socio-economic status (SES) was measured categorically by asking the parent if his or her child qualifies for free or reduced lunch in the school system.

Beck Depression Inventory (BDI). The BDI is a 21 item self-report measure of adult depressive symptoms. For the present study, the question on suicidal ideation was omitted.   Items were rated on a scale of 0-3. Higher scores indicated higher levels of depression. A score between 9 and 17 suggested mild depression. A score of 18 or higher indicated severe depression.   The BDI is a reliable and valid measure of adult depressive symptoms in both clinical (α =.86) and non-clinical (α =.81) samples (Beck, Steer, & Garbin, 1988). Good internal consistency was demonstrated in this study for the BDI (α =.90).

Control, Attributions, & Expectations Questionnaire (CAEQ). This modified version of the Attributional Style Questionnaire (Peterson & Seligman, 1984) assessed three dimensions of a depressogenic causal attribution style-internal/external, stable/unstable, and global/specific. Participants were asked to make causal and control attributions for their most recent stressful negative life event on 6 point Likert scales. Clements (1990) has demonstrated adequate reliability for this instrument for perceptions about positive events (α=.69) and for perceptions about negative events (α=.62).

Peterson, et al. (1982) found moderate reliability for perceptions about negative events (α=.75) and good test-retest reliability for internal (r=.64), stable (r=.69) and global (r=.51) negative life events. For the present study, adequate reliability was found for internal (α =.64), stable (α =.63), and global (α =.63) negative life events.

Child Questionnaires

Children's Depression Inventory (CDI). This 27-item self- report questionnaire measured the cognitive, affective, and behavioral symptoms of depression and is the most widely used depression self-report questionnaire for children (Hammen & Gotlib, 1992). For the present study, the question pertaining to suicidal ideation was omitted. Total scores on the CDI may range from 0-54. Individual items are scored on a 0-2 scale with higher scores representing more severe depression symptoms. A score of 13 indicates mild depression. A cutoff score of 19 indicates severe depression according to Kovacs (1984). Kovacs (1980) found good internal consistency of .87 and high test-retest reliability (α =.84) (Kanner, et. al, 1987). Abela (2001) found moderate (α=.39-.94) to high (α ranged from .89-.94) internal consistency in third and seventh graders. Good internal consistency was demonstrated in this study (α=.90).

Children's Life Events Scale (CLES). The CLES is a 67 item self-report life stress measure created by Abela (2001) and included 37 negative life event items from the Children's Hassles Scale (Kanner et. al, 1987) and 30 items from the Life Stress Scale (Coddington, 1972). For the purposes of this study, 52 of these items were used. Scores closer to 52 indicated that the child has experienced more negative events in the past two weeks. Kanner (1987) has demonstrated good internal consistency (α=.87) for this

instrument in a sample of 6-13 year old children. Good internal consistency was demonstrated in this study (α=.85).

Children's Attributional Style Questionnaire (CASQ). This 24 item self-report inventory assessed causal attributions for hypothetical negative life events. Abela (2001) adapted it from the original CASQ to assess the occurrence of negative life events only (Seligman, et al., 1984). Children were asked to choose which of two statements best describes the reason why that event may have occurred. This measure assessed the three dimensions of a depressogenic causal attributional style- internal/external, stable/unstable, and global/specific (Kanner, et. al., 1987). Higher numbers on this scale represented a more depressogenic attributional style (Abela, 2001). In previous research, moderate internal consistency for negative events (α = .42-.67) was found (Seligman, 1984).   Good test-retest reliability of .66 was also demonstrated for negative events across 6 months time (Nolen-Hoeksema, Girgus, and Seligman, 1986). Abela (2001) obtained moderate internal consistency for negative events in third graders (α = .56) and in seventh graders (α = .52). Moderate internal consistency for negative events was obtained in this study (α=.69).

Children's Cognitive Style Questionnaire (CCSQ). This 24 item self-report questionnaire assessed the tendency for a child to view him/herself as flawed following the occurrence of negative life events (self subscale) and the tendency for the child to catastrophize the consequences of negative life events (consequence subscale). An example of a deficient self question was 'You're the last person to be picked on a team in gym class.' An example of a disastrous consequence question was 'You gain a lot of weight and start to look fat.' Each response in part one was assigned a value from 0-3

and each response in part two a value from 0-2. Higher scores represent a greater tendency for the child to catastrophize the consequences of negative events and for the child to view him/herself as flawed following the occurrence of negative life events. Abela (2001) found moderate internal consistency for both the inferential style about consequences [3rd graders (α = .71 and .78); [7th graders (α =.66 and .77)] and the self, [3rd graders (α = .64 and .81); 7th graders (α =.68 and .78)] over a seven week interval. Abela (2001) found moderate test-retest reliability in 3rd graders (r=.41, p<.001); (r=.31, p<.001) and 7th graders (r=.46, p<.001); (r=.63, p<.001) for both parts of the questionnaire. Moderate internal consistency was demonstrated in this study for inferential styles about consequences (α=.77) and the self (α=.76).

RESULTS

All analyses were conducted with Statistical Package for the Social Sciences data analysis software (SPSS 12.0; Norusis, 2003).

Descriptive Statistics

Children were classified into racial groups on the basis of parent answers to the race question for their child (African-American or Caucasian). Fifty-two percent of the children were African-American and 48% were Caucasian. Children ranged in age from 7-16 years (M=10.44 years; SD=1.98). Only three of the older children were ages 15 or 16. Children were classified into age groups based on a median split of the age data (younger = 7-10 years; older = 11-16) Thus four groups participated in the study; younger African-American (n = 46), older African-American (n = 52), younger Caucasian (n = 50), and older Caucasian (n = 40). Chi-square (χ^2) analysis showed no differences in the number of children in each of these four groups,

χ^2 (1,188) =1.40, p>.05.

Forty-seven percent of children qualified for free or reduced childcare or lunch services and 53% of children did not qualify for these services. Fifty-one percent of the children were female and 49% were male. Chi-square analyses were conducted to determine whether the four race and age groups were differentially represented on socio-economic status and gender. There were no differences in gender between the four groups (all p's >.05). There was, however, a significant difference effect for economic status, χ^2 (3,176) = 21.42, p<.001. As can be seen in Table 1, greater numbers of African-Americans qualified for free or reduced lunch or childcare services. Socio-economic status was therefore used as a fixed factor in subsequent analyses.

Parents' mean age was 37.55 (*SD*=5.53). Eighty-six percent of parents were the children's mother, 13% were the father, and 1% served as the legal guardian. The majority of parents had only one child at the particular after school care or summer camp facility (64%), but 36% reported having two or more children. All parent demographic information can be seen in Table 2.

Table 1

Chi-Square Analyses for Gender and SES by Group
(N=188)

Variable	Younger African-American N	Older African-American N	Younger Caucasian N	Older Caucasian N
Gender				
Male	22	22	27	21
Female	21	26	20	29
Free/Reduced Services				
Yes	25	30	14	19
No	17	18	33	31

Table 2

Adult Demographic Characteristics: Percentages (N=154)

Sample Characteristics	%
Parent Race	
Caucasian	47
African-American	53
Relationship to Child	
Mother	86
Father	13
Guardian	1
Child's Primary Caregiver	
Yes	96
No	4
Currently on Anti-Depressants	
Yes	8
No	92
Parent Employment	
Yes	88
No	12
Parent Marital Status	
Dating	8
Married	42
Separated or divorced	42
Unmarried, but living together	8
Parent Education	
Less than high school	2
High school	18
Some college	38
Associate/technical	30
College	9
Beyond college	3

The means and standard deviations for child depression, attributional style, and stress variables by group for the entire sample can be seen in Table 3. Overall children scored in the non-depressed range although three of the groups' (younger African-American children, older African-American and older Caucasian) mean score were approaching or in the mildly depressed range. According to Kovacs (1981), a cut-off score of 13 on the CDI indicates mild depression, and a cut-off score of 19 indicates severe depression. The number of children in each group meeting the cut-off for mild, moderate, and severe depression can be seen in Table 4. More children in the younger African-American group met the cut-off for severe depression than in any other group.

Total scores on the CCSQ consequences and self subscales range from 0-36 and 0-24 respectively. Higher scores indicate a greater tendency to view the consequences of negative life events as disastrous or the tendency to view the self as flawed following the occurrence of negative life events (Abela, 2001). As can be seen in Table 3, scores ranged from 9.15-14 and 7.73-9.32 on the consequences and self subscales, respectively. Younger Caucasians displayed the highest CCSQ-consequences and self subscale mean scores.

Total scores for each dimension (internal, stable, global) of the CASQ range from 0-8; higher scores represent a greater tendency towards internality, stability, and globality. Lower scores represent a greater tendency toward being external, unstable, and specific. In line with Abela (2001) and the hopelessness theory (Abramson, Alloy, & Metalsky, 1989), the composite score or addition of stable and global (STAGLO) scores was computed and used as the depressogenic attributional style variable. STAGLO scores can range from 0-16. Higher scores represent more depressogenic

Table 3

Means and Standard Deviations for Child Depression, Stress, Attributional Style Scores by Group (N=188)

Variable	Older African-American		Younger African-American		Older Caucasian		Younger Caucasian	
	M	SD	M	SD	M	SD	M	SD
Children's Depression Inventory	10.17	7.16	14.54	10.00	12.28	7.46	9.32	4.49
Children's Life Event Scale	15.21	8.45	16.70	8.80	15.87	6.78	15.24	6.90
Children's Cognitive Style								
Consequences	11.29	5.75	12.22	5.99	10.15	7.43	14.00	5.98
Self	8.46	4.00	8.19	4.52	7.73	5.43	9.32	4.49
Children's Attributional Style								
Internal	2.69	1.75	3.50	1.90	2.59	1.58	3.38	1.58
Stable	3.04	1.50	2.78	1.87	2.72	1.80	2.48	1.59
Global	2.97	1.57	3.50	1.60	2.51	1.82	3.30	1.58
STAGLO	6.01	2.07	6.28	3.03	5.23	3.05	5.78	2.81

Table 4

Number of Children Meeting Depression Levels by Group (N=188)

Variable	Older African-American	Younger African-American	Older Caucasian	Younger Caucasian
CDI				
Non-Depressed	34	21	26	29
Mild	12	7	6	8
Severe	6	18	8	13

attributional styles. As can be seen in Table 3, African-Americans, especially younger African-Americans, had the highest mean STAGLO scores.

The means and standard deviations for parent depression and attributional style scores by race are reported in Table 5. African-American and Caucasian parents were equivalently non-depressed and overall did not display a depressogenic attributional style, scoring in the mid-range on each attributional dimension (Beck, Steer and Garbin, 1996; Clements, 1990).

Hypothesis One

According to the first hypothesis, there would be an age/race interaction in the younger cohort with younger African-Americans reporting more depressive symptoms than younger Caucasians. Older African-Americans were predicted not to differ from older Caucasians.

A 2 (older vs. younger) X 2 (African-American vs. Caucasian) X 2 (yes or no for free and reduced lunch) Analysis of Variance (ANOVA) was used to test Hypothesis One. CDI symptoms served as the dependent variable. As predicted, older African-American children did not differ from older Caucasian children in depression levels. Contrary to the prediction, however, there was not an age/race interaction in the younger cohort. Younger African-Americans did not report significantly more depressive symptoms than younger Caucasians, $F(1, 185) = 2.94$, p=.06, although there was a non-significant trend towards significance.

Hypothesis Two

According to the second hypothesis, there would be an age/race interaction in the younger cohort with younger African-Americans reporting more depressogenic

Table 5

Means and Standard Deviations for Parent Depression and Attributional Style Scores (N=154)

	Total		Caucasian		African-American	
Variable	M	SD	M	SD	M	SD
Beck Depression Inventory	7.42	6.32	7.34	6.27	7.91	6.40
Control, Attributions, Expectation						
Internal	5.78	2.56	5.67	2.58	5.98	2.60
Stable	6.74	2.68	6.63	2.83	6.85	2.46
Global	6.65	2.86	6.38	3.05	6.79	2.53

attributional styles than younger Caucasians. Older African-Americans were predicted

not to differ from older Caucasian children in depressogenic attributional styles.

A 2 (Older vs. Younger) X 2 (African-American vs. Caucasian) X 2 (yes or no on

free or reduced lunch) Multivariate Analysis of Variance (MANOVA) with CASQ

attributional styles (internal, stable, global, STAGLO) and CCSQ (consequences, self)

inferential styles serving as the dependent variables was used to test hypothesis two.

There was a multivariate effect of age on attributional styles, (Wilk's Lambda F (1, 173)

= 4.52, p<.01). Univariate analyses indicated that younger children reported more

internal ($M = 3.53$; F (1, 175) = 9.34, p<.01) and more global (M= 3.46; F (1,175) = 6.60,

p<.05.) depressogenic styles than older children ($M = 2.72$ and $M = 2.79$ respectively).

There was also a main effect of age on inferential styles, (Wilk's Lambda F (2,

177) = 3.66, p<.05). Univariate analyses indicated that younger children reported

consequences of negative life events as more disastrous (M=13.15) than did older

children (M=10.53), F (1,178) = 6.93, p<.01.

Significant racial differences were not found in children's reports of any

depressogenic attributional or inferential style. There was a significant multivariate effect

for SES, F (3, 183) = 3.26, p<.05, but no univariate effects.

Hypotheses Three and Four

Preliminary Correlational Analyses

Preliminary correlational analyses indicated that greater child depression was

associated with greater stress (r (186)=.35, p<.001) and STAGLO scores (r(183) =.26,

p<.001). Greater child depression was also associated with the tendency for children to

view consequences of negative life events as disastrous (r(185) =.22, p<.001) and the self as flawed following negative life events (r(186) =.22, p<.01).

In the older African-American group, greater child depression was associated with greater stress (r(51)=.48, p<.01). In the younger African-American group, child depression was not significantly correlated with any stress, attributional, or inferential style measure.

In the older Caucasian group, greater child depression was associated with greater stress (r(38)=.33, p<.01) and STAGLO scores (r(38)=.49, p<.01). Greater child depression was also associated with the tendency for children to view consequences of negative life events as disastrous (r(39) =.56, p<.001) and the self as flawed following negative life events (r(39) =.34, p<.05).

In the younger Caucasian group, greater child depression was associated with greater stress (r(48)=.58, p<.01) and STAGLO scores (r(48)=.43, p<.01). Greater child depression was also associated with the tendency for children to view consequences of negative life events as disastrous (r(49) =.35, p<.001) and the self as flawed following negative life events (r(49) =.29, p<.05).

Regression Analysis

According to hypotheses three and four, a Caucasian child's attributional style would interact with negative life events to predict depressive symptoms in the older age cohort but not in the younger age cohort. Negative life events alone were hypothesized to predict depressive symptoms in younger Caucasian children. An African-American's attributional style would interact with negative events to predict depressive symptoms in both age cohorts.

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Hierarchical regressions were used to test hypotheses three and four in the younger and older Caucasian groups, three equations for each of the four age and race cohorts. In the first equation, attributional style was assessed for each group. In the second equation, inferences about event consequences were assessed for each group. In the third equation, inferences about the self were assessed for each group. In line with Abela (2001) and hopelessness theory (Abramson, Alloy, & Metalsky, 1989), globality and stability were combined to form a composite attributional style score for these analyses (STAGLO). For the younger and older Caucasians, attributional or inferential styles (STAGLO, consequences, or self) were entered on the first step of the regression equation, CLES life stress on the second step, and the interaction of life stress and the attributional and inferential style variables on the third. CDI scores served as the dependent variable in each equation.

Because preliminary correlational analyses indicated that negative life events were the only measure significantly correlated with depression in the older African-American group, only negative events were entered in the regression equation addressing Hypotheses three and four for older African-Americans. Because preliminary correlational analyses indicated no significant correlations between stress, attributional, cognitive style and depression in the younger African-American group, regression analyses were not conducted on this group.

In older African-Americans, negative life events were significant predictors of greater depression, $R^2 \Delta = .22$; $F(1,49) = 14.66$, p<.05. The beta weight for negative life events was significant, $\beta = .48$. p < .05. No attributional or inferential style variables on any step were significant.

In older Caucasian children, STAGLO on step one was a significant predictor of greater depression, $R^2\Delta=.25$; F $(1,35) = 11.75$, p<.01. Negative events on the second step and the interaction of negative events and STAGLO were not significant, $R^2\Delta=.05$; F $(1,34) = 2.53$, p=.12; $R^2\Delta=.000$; F(1,33) = .01, p = .90.

With respect to the inferential style about event consequences, consequences on step one was a significant predictor of greater depression, $R^2\Delta = .33$; F $(1,36) = 18.18$, p<.01. Negative life events on step two was not significant, $R^2\Delta = .06$; F $(1,35) = 3.57$, p = .07. The interaction of higher consequence scores and more negative life events on the third step was a significant predictor of greater depression, $R^2\Delta=.18$; F(1,34) = 15.32, p<.01. When the interaction term was added on step three, the beta weight for negative events remained insignificant.

With respect to the inferential style about the self, self and negative events on steps one and two were significant predictors of greater depression, $R^2\Delta =.13$; F $(1,46) = 5.35$, p<.05; $R^2\Delta = .12$, F $(1,45) = 5.55$, p<.05, respectively. The interaction of self and negative life events on step three was not significant, $R^2\Delta = .00$; F $(1, 44) = 09$, p = .76. Beta weights for these regression equations can be found in Table 6.

Table 6

Summary of Hierarchical Regression Analysis for Variables Predicting
Depression in Older Caucasian Children (N=40)

Variable	B	SE B	β
Step 1			
STAGLO	1.12	0.33	0.50*
Step 2			
STAGLO	1.06	0.32	0.47*
Negative events	0.24	0.15	0.23
Step 3			
STAGLO	0.96	0.85	0.43
Negative events	0.21	0.31	0.20
STAGLO * Negative events	0.01	0.05	0.06
Step 1			
Consequences	0.57	0.13	0.57**
Step 2			
Consequences	0.53	0.13	0.54*
Negative events	0.28	0.15	0.25
Step 3			
Consequences	-0.71	0.33	-0.72*
Negative events	-0.32	0.19	-0.29
Consequences * Negative events	0.07	0.02	0.51**
Step 1			
Self	0.48	0.20	0.36*
Step 2			
Self	0.50	0.12	0.37*
Negative events	0.39	0.16	0.34*
Step 3			
Self	0.32	0.62	0.24
Negative events	0.31	0.31	0.28
Self * Negative events	0.01	0.03	0.15

Note: * significant at the .05 alpha level; ** significant at the .01 alpha
level

In younger Caucasian children, STAGLO and negative events on steps one and two were significant predictors of greater depression, $R^2\Delta = .19$; $F(1,45) = 10.60$, p<.01; $R^2\Delta = .17$; $F(1,44) = 11.44$, p<.01, respectively. When the interaction term was added on Step three, the $R^2\Delta$ was not significant, $R^2\Delta = .002$; $F(1,43) = .11$, p = .74.

With respect to inferential style about event consequences, consequences and negative events on steps one and two were significant predictors of greater depression, $R^2\Delta = .12$; $F(1,46) = 6.51$, p = .01; $R^2\Delta = .28$; $F(1,45) = 22.01$, p<.01 respectively. The interaction of consequences and negative life events on the third step was not significant, $R^2\Delta = .46$; $F(1,44) = 3.46$, p = .07.

With respect to the inferential style about the self, self and negative events on steps one and two were significant predictors of greater depression, $R^2\Delta = .07$; $F(1,46) = 3.96$, p<.05; $R^2\Delta = .28$; $F(1,45) = 19.68$, p<.01, respectively. The interaction of self and negative life events on the third step was not significant, $R^2\Delta = .03$; $F(1,44) = 2.35$, p = .13. Beta weights for these regression equations can be found in Table 7.

Table 7

Summary of Hierarchical Regression Analysis for Variables
Predicting Depression in Younger Caucasian Children (N=50)

Variable	B	SE B	β
Step 1			
STAGLO	1.66	0.51	0.44**
Step 2			
STAGLO	0.78	0.53	0.21
Negative events	0.77	0.23	0.47**
Step 3			
STAGLO	1.26	1.54	0.33
Negative events	0.89	0.45	0.55*
STAGLO * Negative events	-0.03	0.08	-0.18
Step 1			
Consequences	0.64	0.25	0.35*
Step 2			
Consequences	0.47	0.21	0.26*
Negative events	0.9	0.19	0.54**
Step 3			
Consequences	-0.41	0.52	-0.27
Negative events	0.13	0.45	0.08
Consequences * Negative events	0.05	0.03	0.75
Step 1			
Self	0.69	0.35	0.28*
Step 2			
Self	0.31	0.31	0.12
Negative events	0.91	0.21	0.55**
Step 3			
Self	-0.80	0.78	-0.33
Negative events	0.19	0.51	0.11
Self * Negative events	0.07	0.04	0.73

Note: * significant at the .05 alpha level; ** significant at the .01 alpha
level

Exploratory Analysis

The purpose of the above regression analyses was to fully explore the relationship between cognitive predictors and depression within each age and race group. However, because race differences were not found in the initial MANOVAs, racial groups were collapsed for the purpose of subsequent exploratory analyses. In these exploratory analyses, regressions were conducted assessing the contribution of attributional style, inferential styles, stress and their interactions in predicting depression within the younger (n=96) and older (n=92) age groups.

Preliminary Correlational Analyses

In the younger age cohort, preliminary correlational analyses indicated that greater child depression was associated with greater stress (r (89) =..37, p<.01) and STAGLO scores (r(94) =.27, p<.01). Greater child depression was also associated with the tendency for younger children to view consequences of negative life events as disastrous (r(95) =.25, p<.05).

In the older age cohort, greater child depression was associated with greater stress (r (89)=.42, p<.01) and STAGLO scores (r(89) =.33, p<.01). Greater child depression was also associated with the tendency for older children to view consequences of negative life events as disastrous (r(90) =.39, p<.01) and the self as flawed following the occurrence of negative life events (r(91)=.27, p<.01).

Regression Data Analysis

Six hierarchical regressions were used for exploratory analyses; three for each of the two age cohorts. In the first equation, attributional styles were assessed. In the second equation, inferences about event consequences were assessed. In the third

equation, inferences about the self were assessed.   In line with Abela (2001) and

hopelessness theory (Abramson, Alloy, & Metalsky,1989), globality and stability were

combined to form a composite attributional style score for these analyses (STAGLO).

Attributional or inferential style (STAGLO, consequences, or self) were entered on the

first step of the regression equation, CLES life stress on the second step, and the

interaction of life stress and the attributional and inferential style variables on the third.

CDI scores served as the dependent variable in each equation. Because preliminary

correlational analyses indicated that the self variable was not significantly correlated with

depression in the younger age group, a regression equation was not conducted using this

measure.

In younger children with respect to attributional styles, STAGLO on the first step

and negative events on the second step were significant predictors of greater depression,

$R^2\Delta$ = .08; $F(1,86)$ = 7.33, p<.01; $R^2\Delta$ = .17; $F(1,86)$ = 9.77, p<.01, respectively. The

interaction of STAGLO and negative life events on the third step was not significant, $R^2\Delta$

= .42; $F(1,84)$ = .01, p = .91.

With respect to the inferential style about event consequences, consequences on

the first step, negative events on the second step, and the interaction of higher

consequence scores and more negative life events on the third step were all significant

predictors of greater depression, $R^2\Delta$ = .08; $F(1,87)$ = 7.70; p<.01; $R^2\Delta$ = .21; $F(1,86)$ =

13.70, p<.01; $R^2\Delta$ = .25; $F(1,85)$ = 4.22, p<.05, respectively. When the interaction term

was added on step three, the beta weights for negative events was no longer significant.

Beta weights for these regression equations can be found in Table 8.

Table 8

Summary of Hierarchical Regression Analysis for Variables
Predicting Depression in Younger Children (N=96)

Variable	B	SE B	β
Step 1			
STAGLO	1.02	0.38	0.28**
Step 2			
STAGLO	0.77	0.37	0.21**
Negative events	0.44	0.14	0.32**
Step 3			
STAGLO	0.88	1.02	0.24
Negative events	0.47	0.29	0.34
STAGLO * Negative events	-0.01	0.06	-0.04
Step 1			
Consequences	0.51	0.18	0.29**
Step 2			
Consequences	0.47	0.17	0.26**
Negative events	0.50	0.13	0.36**
Step 3			
Consequences	-0.30	0.41	-0.17
Negative events	0.02	0.27	0.02
Consequences * Negative events	0.04	0.02	0.60*

Note: * significant at the .05 alpha level; ** significant at the .01 alpha
level

In older children, STAGLO on the first step and negative events on the second step were significant predictors of greater depression, $R^2\Delta = .33$; $F(1,85) = 10.39$, $p<.01$; $R^2\Delta = .48$; $F(1,84) = 13.94$, $p<.01$. The interaction of STAGLO and negative events on the third step was not significant, $R^2\Delta = .48$; $F(1,83) = .41$, $p = .52$.

With respect to the inferential style about event consequences, consequences on the first step, negative events on the second step, and the interaction of higher consequence scores and more negative events on the third step were all significant predictors of greater depression, $R^2\Delta = .34$; $F(1,86) = 16.19$, $p<.01$; $R^2\Delta = .51$ $F(1,85) = 11.24$, $p<.01$; $R^2\Delta = .58$; $F(1,84)=9.31$, $p<.01$, respectively. When the interaction term was added on step three, the beta weights for negative events was no longer significant.

With the respect to the inferential style about the self, self on the first step and negative events on the second step were both significant predictors of greater depression, $R^2\Delta = .28$; $F(1,87) = 7.55$, $p<.01$; $R^2\Delta = .49$; $F(1,86) = 17.84$, $p<.01$, respectively. The interaction of the self and negative events on the third step was not significant, $R^2\Delta = .51$ $F(1,85) = 2.68$, $p = .10$. Beta weights for these regression equations can be found in Table 9.

Table 9

Summary of Hierarchical Regression Analysis for Variables
Predicting Depression in Older Children (N=92)

Variable	B	SE B	β
Step 1			
STAGLO	0.77	0.24	0.33**
Step 2			
STAGLO	0.66	0.22	0.28**
Negative events	0.31	0.08	0.06**
Step 3			
STAGLO	0.95	0.51	0.41
Negative events	0.44	0.21	0.50*
STAGLO * Negative events	-0.02	0.03	-0.21
Step 1			
Consequences	0.44	0.11	0.40**
Step 2			
Consequences	0.34	0.11	0.31**
Negative events	0.31	0.09	0.33**
Step 3			
Consequences	-0.33	0.24	-0.29
Negative events	-0.16	0.18	-0.17
Consequences * Negative events	0.04	0.01	0.92**
Step 1			
Self	0.44	0.16	0.28**
Step 2			
Self	0.36	0.15	0.25**
Negative events	0.38	0.09	0.40**
Step 3			
Self	-0.17	0.37	-0.11
Negative events	0.15	0.17	0.16
Self * Negative events	0.03	0.02	0.48

Note: * significant at the .05 alpha level; ** significant at the .01 alpha
level

Summary of Regression Analyses

In younger Caucasians negative life events were the only predictors of depression in the equations assessing the role of attributional styles and stress in predicting depression. In older Caucasians, STAGLO predicted depression. In the equations assessing the role of inferential styles and stress in predicting depression, the interaction of event consequences and stress significantly predicted depression in older Caucasians. In older African-Americans, only stress predicted depression. In younger African-Americans, no cognitive style predicted depression. When groups were collapsed across race, negative life events and STAGLO were the only predictors of depression in the equations assessing attributional style and stress. The interaction terms were not significant. For equations assessing the role of event consequences and stress, there was a significant consequence-stress interaction in both age groups.

Hypothesis Five

According to my final hypothesis, there will be significant positive correlations between parent depression and attributional style and child depression and attributional styles. Higher depression scores in parents were associated with higher depression scores in children. Higher depression scores in parents were also associated with more internal attributional styles in children, $p<.001$, and the tendency for children to view the self as flawed following the occurrence of negative life events, $p<.01$. Higher depression scores in parents were associated with an increased report of stable depressogenic styles in parents, $p<.001$. Correlations between all variables can be seen in Table 10.

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Table 10

Correlations for Child and Parent Depression and Attributional Style Measures

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Child depression	1	0.21**	0.18*	0.16**	0.31**	0.26**	.31**	0.26**	0.06	0.04	0.06
2. Parent depression	0.21**	1	0.26**	0.02	0.07	0.02	0.02	0.20**	0.11	0.24**	0.12
3. Child internal	0.18*	0.26**	1	0.23**	0.31**	0.31**	0.04	0.01	0.09	0.13	0.09
4. Child stable	0.16*	-0.02	0.23**	1	0.50**	0.87**	0.13	0.16*	0.01	0.01	-0.01
5. Child global	0.31**	0.07	0.31**	0.50**	1	0.87**	0	0.05	0.19**	-0.17*	-0.15*
6. Child STAGLO	0.26**	0.02	0.31**	0.87**	0.87**	1	0.07	0.06	0.09	0.09	-0.09
7. Child consequence	0.31**	0.02	0.04	0.13	0	0.07	1	.60**	0.09	0.08	0.08
8. Child self	0.23**	0.20**	0.01	0.16*	0.05	0.06	.60**	1	0.06	0	-0.01
9. Parent internal	-0.06	0.11	0.09	0.01	0.11**	0.09	0.09	0.06	1	0.42*	0.42**
10. Parent stable	0.04	0.24**	0.13	0.01	-0.17*	-0.09	0.08	0	0.41**	1	0.86**
11. Parent global	0.07	0.12	0.09	-0.01	-0.15*	0.09	0.08	0.01	0.42**	0.86**	1

Note: * significant at the .05 alpha level; ** significant at the .01 alpha level

DISCUSSION

The purpose of this study was to examine differences in depression, negative life events, attributional styles, and inferential styles in younger Caucasian, younger African-American, older Caucasian, and older African-American children. To my knowledge this is the first study to concurrently examine age and race differences in vulnerability to depression utilizing the framework of hopelessness theory of depression.

Children's Depressive Symptoms

There were no differences in depressive symptoms as a function of age or race. Nor was there an age and race interaction in predicting depression. This is consistent with previous research showing that older African-American children do not differ from older Caucasian children in their reports of depressive symptoms (Shraedly, Gotlib, & Hayward, 1999; Twenge & Nolen-Hoeksema, 2002). This is inconsistent with some research showing that younger African-American children show more depressive symptoms than younger Caucasian children, although there was a trend in the direction of hypothesis one (e.g. Cole, Peeke, Martin, Henderson, & Harwell, 1998).

One difference between this sample and others is that as a group they were more depressed than those sampled by previous researchers. In this sample, the mean depression scores for all groups except younger Caucasians approached or exceeded clinical cutoffs for mild depression. In Abela's (2001) sample no groups met clinical criterion. Similarly in Cole et al., (1998) none of the younger aged cohort's means were above clinical cutoffs for depression. Thus our inability to find between group differences in depression may have reflected the relatively higher rates of depression reported by all groups in this sample.

Not all studies find race and age differences in depression. The lack of differences in this study is consistent with a small number of studies also showing no differences. For example, Twenge & Nolen-Hoeksema (2002) found no differences in depression between Caucasians and African-Americans ages 8-16. Similarly other researchers note no differences in Caucasian and African-American children ranging in age from 4-18 (Flannery-Shroeder & Kendall, 1995; Helsel & Matson, 1984).

It is important to note that younger African-Americans had the highest mean depression score, even though they did not differ statistically from any other group. Younger Caucasians had the lowest depression score. This disparity in scores is similar to the pattern seen in studies which do demonstrate significant depression differences in younger cohorts. Cole et al. (1998) found that younger African-American children report more depressive symptoms than younger Caucasian children, suggesting that racial differences in depression may be more prevalent in younger African-American children. In Cole's (1998) study, far more children were assessed. This suggests that the effect size in ethnic differences in depression may be smaller than the power afforded by the relatively smaller sample assessed in the current study. Thus researchers examining minority differences in depression may wish to include large sample sizes to detect what may be small, but important effects.

Children's Depressogenic and Inferential Styles

There were age differences in depressogenic and inferential styles. There were no between group differences in depressogenic attributional style or inferential styles as a function of race. Nor, as predicted, was there an interaction between age and race in attributional or inferential styles.

Depressogenic Styles

Younger children reported more internal and global attributions than older children. The tendency for younger children to make more internal attributions is consistent with the larger developmental literature which suggests that children younger than twelve make higher internal attributions than do older children. This is true even in situations in which these children have no objective control (Skinner, 1990; 1991; Weisz, 1986).

Previous researchers have suggested that the reason the diathesis-stress interaction does not predict depression in younger children is that younger children are unable to make cognitively complex attributions (Abela, 2001; Nolen-Hoeksema, 1992; Turner & Cole, 1994). Not only does this conclusion ignore the larger developmental literature, but data from this study suggest that this conclusion is flawed. Younger children made more internal and more global attributions than did older children.

One difference between this study and others is that between group differences were studied in addition to within group effects. Most researchers assess whether the diathesis stress interaction predicts depression within different age groups without first assessing whether different age groups are actually making the attributions at all (for review see Joiner & Wagner, 1995). Abela (2001), for example, did not compare younger and older age cohorts on attributional style. Rather he assessed the predictive utility of the diathesis-stress interaction within age group. He concluded that younger children weren't able to make the attributions on the basis of the finding that the interaction did not predict depression.

Abela (2001) suggests that the ability to make these attributions may be a schema-driven process. Therefore younger children may be less efficient at the types of information processing techniques that require this abstract reasoning (2001). The main effects for age on attributions in this study imply that younger children are indeed able to make these attributions. It may be important to more fully assess the main effects of age on attributional styles, in addition to the predictive utility of the interaction, before drawing conclusions that younger children do not have the cognitive capacity to make depressogenic attributions.

Inferential Styles

Consistent with Abela (2001), younger children in this sample perceived the consequences of negative life events as more disastrous than older children. Abela (2001) suggests that inferential styles about the consequences of negative life events emerge earlier in childhood than depressogenic styles. He theorizes that this occurs because the processes involved in perceiving the consequences of negative life events require less abstract reasoning and involve more direct environmental feedback than the processes involved in developing depressogenic styles. This study provides support for Abela's emphasis on the importance of children's inferential styles as cognitive precursors to depression. His logic regarding the early emergence of such styles relative to attributional style was not supported, as younger children in this sample also displayed depressogenic attributional styles.

Younger children made more global attributions and also more negative inferences about event consequences. Abela (2001) found an association between global attributions and inferences about the consequences of negative life events in younger

children, which was not found in this study. Thus Abela's (2001) data suggests that these dimensions may be tapping the same underlying construct, while these data suggest they do not. It may be important to further assess the degree to which these particular attributional and inferential styles are indeed measuring the same cognitive dimension in making decisions about the predictive utility of attributional style versus inferential style in younger children.

There were no differences between younger and older children in the tendency to view the self as deficient following negative life events. Abela (2001) found that younger children, especially females, were more likely to show this style than older children. Abela suggests that in females, negative inferences about the self may emerge earlier than attributional styles because concerns about body image, self-esteem, and self-efficacy emerge earlier in girls (2001).

In the current study, groups were matched for gender but gender was not used as a fixed factor. We may not have seen gender differences simply because we did not assess them. It may be important to further assess whether the differences Abela (2001) found reflect gender disparities or age disparities in order to draw reliable conclusions about whether younger children do indeed differ from older children in negative inferences about the self.

Racial Differences

We had predicted that age would interact with race such that younger African-Americans would be as likely to show depressogenic attributional and inferential styles as both older cohorts. Younger Caucasians would be less likely to show such styles than younger African-Americans. This was based on the empirical rationale that these styles

are learned through repetitive exposure to aversive life circumstances and the epidemiological literature indicating that younger African-American children are exposed to such stressors in greater degrees than younger Caucasian children (Hedges & Howell, 1999). Older children were not expected to differ by race because hopelessness theory suggests that depressogenic attributional styles, if they emerge, do so by age twelve (Abramson, Alloy & Metalsky, 1989).

Similarly to depression, one reason racial differences in attributional styles may not have been detected is the relatively high level of stress evidenced by all groups. Mean stress scores for the older cohorts were higher than those noted by Abela (2001), and in the younger cohort almost twice as high. Further, there were no age differences in reported stress. According to hopelessness theory, no differences in cognitive styles would be expected in groups exposed to the similar learning histories that such stress would create (Rose & Abramson, 1992).

It is important to note that our sample was not drawn from as representative section of the community as Abela's sample (2001). A substantial percent of this sample qualified for free and reduced lunch, with an overrepresentation of African-Americans in that group. Students not qualifying for free and reduced lunch were drawn from sections of the community representing low to lower mid-range SES groups.

We had hypothesized that greater stress would exist among African-American participants and that this stress would engender earlier development of depressogenic attributional styles in these participants. However the sample was homogeneous with respect to stress, perhaps because it was homogeneous with respect to SES (Abela, 2001; Cole, et al., 1998). We may not have been able to access stress differences due to

homogeneity of SES. Further studies assessing racial differences might want to assess ethnic groups across the range of SES to determine whether SES or ethnicity is associated with differences in stress levels or attributional styles.

Predictors of Child Depression

Younger Children

Regression equations were used to determine predictors of depression within each age and race cohort. No studies to my knowledge have assessed the predictive utility of the diathesis-stress interaction with specific racial groups. I had predicted that the attribution-stress interaction would predict depression in younger African-American children but would not predict depression in younger Caucasian children because greater stress would engender earlier development of negative attributional styles in African-American children (Sadowski, 2001). I also collapsed race groups and looked at predictors on depression within each age group.

Stability and globality composite scores (STAGLO) in interaction with stress did not predict depression in younger children, either Caucasian or African-American. Attributional style, inferential styles and stress predicted depression in younger Caucasian children, but not younger African-American children. With similar findings, Abela (2001) concluded that younger children did not have the cognitive capacity needed for attributional processing. These data suggest that younger children do indeed make these attributions, but that the attributions do not interact with stress in predicting depression in this age cohort.

Unlike Abela (2001), in this study, STAGLO scores accounted for a significant amount of variance in predicting depression in younger Caucasians. This suggests that

younger children do make depressogenic attributions and that, at least for Caucasians, these attributions predict depression. These findings regarding the interaction term are similar to many other studies, suggesting that the diathesis-stress interaction may not operate in young children in the predictive manner that hopelessness theory suggests is true for adults. It is possible that stress and depressogenic styles contribute independently but not interactively to depression in younger children, particularly Caucasian children. It would be important to replicate these findings with adequate power to fully embrace that interpretation.

Negative events predicted depression in younger Caucasian children, but not African-American children. This finding with regards to Caucasians is consistent with Abela (2001) and Nolen-Hoeksema, et al. (1992) who also reported that negative life events predicted depression in younger children. These researchers did not examine racial differences in their samples. Abela's (2001) sample was primarily Caucasian, and Nolen-Hoeksema, et al. (1992) did not report demographics on race. The finding that stress did not predict depression in younger African-American children in this sample points to the importance of including such demographics in future studies investigating children's vulnerability to depression. It is possible that African-American children differ from Caucasians in specific vulnerabilities to depression and that previous findings may reflect, in part, the makeup of the sample.

The fact that neither attributional nor inferential style predicted depression in younger African-American children suggests that there are other factors involved in depression onset in this particular group. This is interesting because, as a group, they showed the highest mean depression and stress scores. Thus we expected this group to be

the most attributionally vulnerable. These findings, while underpowered, suggest that hopelessness theory may not have much predictive utility with younger African-American children. It may be important to further describe vulnerability to depression in this cohort. The importance of understanding the etiological pathway to depression in this group is only underscored by their relatively high levels of depression.

When race groups were collapsed the pattern of findings among all younger children resembled the pattern of findings for younger Caucasian children. For example, STAGLO and consequences were independent predictors of depression when younger Caucasians were used as the group of analysis as they were when all younger children were the group of analysis. Neither attributions nor stress predicted depression in younger African-Americans. Thus the lack of findings with respect to African-Americans was completely obscured by the findings in younger Caucasians.

This cannot be due to lack of power in the African-American group relative to the Caucasian group. There were similar numbers of younger children in each age group. Thus, while underpowered, our findings with respect to race are likely representative. Thus any research which does not take race into account is likely to end up with results that are generalizable just to Caucasians.

Older Children

STAGLO attributions predicted depression in older Caucasian children but stress and the interaction term did not. This is inconsistent with a number of published reports finding that in interaction with stress, attributions prospectively predict depression in older children (Nolen-Hoeksema, Girgus, & Seligman, 1992; Turner & Cole, 1994; Abela, 2001). Because this study included fewer participants than those used in previous

research it is likely that this lack of finding reflects low power. It would be important to replicate this study with larger numbers to establish whether failure to find the interaction is a power issue

Stress predicted depression in older African American children but attributions did not. This is inconsistent with previous research but previous research has not assessed racial differences in attributions. Although likely underpowered, these data suggest that attributional processing does not appear to be an important etiological factor in older African American children's depression. Hopelessness theory may have limited utility in older African-American children relative to older Caucasian children. If this is true than it would be important to investigate what other variables in addition to stress render African-American children at higher risk for depression.

Inferences about the consequences of negative events interacted with stress to predict depression in older Caucasian children but not older African-American children. Only stress predicted depression in older African-American children. In Abela's (2001) study (2001), consequences interacted with negative events to predict depression in both older and younger children. Again, Abela's (2001) sample was predominately Caucasian. These data, as with the younger children's data, suggest that specific vulnerability to depression differs in older Caucasian and African-American children. It also points to the need for further research on the epidemiology of depression among different race groups.

It is interesting to note that younger children rated the consequences of negative life events as more disastrous and made higher internal and global attributions than older children. Inferences about consequences in interaction with stress predicted depression in

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older Caucasian children but the interaction between attributions and stress did not predict depression in either age cohort. These findings are inconsistent with Abela's (2001) suggestion that information about event consequences is more salient to younger children than information about attributions. However, they lend weight to Abela's suggestion that the cognitive diatheses proposed in hopelessness theory for adults may not be applicable to either younger or older children. It may be important to further explore the relationship between inferences about consequences and depression in order to assess the applicability of hopelessness theory to children. Assessing inferential styles may be a necessary extension of hopelessness theory in predicting child depression.

Inferences about the self and stress predicted depression in older Caucasian, but not older African-American children. The interaction of stress and inferences about the self was not a significant predictor of depression in either race group. It is interesting to note that Abela (2001) found the self-stress interaction only in girls. Thus there appear to be gender differences in the extent to which inferences about the self interact with stress in predicting depression and, in this study age and race differences. It may be important to more fully describe Abela's (2001) inference about the self variable. Greater understanding of the self-inference variable would allow researchers to determine for which groups this variable is an important etiological factor.

When race groups were collapsed the pattern of the findings among all older children resembled the pattern of findings for older Caucasians. For example, the interaction of consequences and stress predicted depression in older Caucasian children when they were the group of analysis. The same interaction predicted depression when all older children were the group of analysis. However, when older African-American

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children were the group of analysis, only stress predicted depression. Thus, when race groups were collapsed, the lack of findings with respect to older African-Americans inferential style was completely obscured by the findings in older Caucasians.

This was not due to lack of power in the African-American group relative to the Caucasian group. There were similar numbers of older children in each age group. Thus, while underpowered, our findings with respect to race are likely representative. This strongly suggests that any child depression research which does not take race into account is likely to end up with results that are generalizable just to Caucasians. It also further underscores the importance of continued research into ethnic differences in vulnerability to depression.

Clinical Implications

These data indicate that younger and older children display different vulnerabilities to depression. Further, factors associated with increased vulnerability to depression in African-American children appear to differ from factors associated with increased vulnerability in Caucasian children. One important consequence of this research is to inform clinicians about the likely precursors to depression in these age and racial groups. Clinicians working with older African-American children, for example, might do better focusing on stress as they attempt to remediate current depressive episodes and prevent future episodes. Clinicians working with older Caucasians might benefit from focusing on inferences about the consequences of such stress.

In this study racial differences in vulnerability to depression appeared to be greater than age differences. Previous literature has emphasized age differences and more is known about age differences in vulnerability than racial differences (National Institute

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of Mental Health, 2002). This study suggests that information about racial differences in vulnerability may have more clinical utility than information about age. It may be more useful for clinicians to know that attributions and inferences do not predict depression in African-Americans than it would be for them to know that inferences about consequences and stress independently rather than interactively predict depression in younger children. More investigations of the nature of such differences are needed as well as better clinical education in racial differences in depression vulnerability.

Of particular note in this study were differences found between older and younger children in the influence of causal attributions and inferences about the self on depression. It was clear that younger children do indeed have the capacity to form depressogenic attributions and that these attributions predict depression, albeit not in interaction with stress. Thus, clinicians should not assume that children lack the cognitive capacity to form these attributions. Indeed it appears that the presence of such attributions has a direct effect on depression vulnerability. Interventions aimed at changing attributional style rather than changing attributions about particular stressors may be more beneficial for children.

One difference between this sample and other studies in which attributions have not predicted depression is the relatively low SES of the sample. It likely that low SES is correlated with higher stress levels. Thus we may have found younger children making depressogenic inferences because of the relatively high level of stress associated with low SES. If this is true, then clinicians should be aware that the attributional pattern characteristic of hopelessness depression may develop earlier in low SES children and target intervention attempts accordingly.

Limitations

There were several limitations of this study. First, self-report questionnaires were used to assess parent and child depression and attributional styles. Results may have therefore been influenced by factors such as social desirability. Further, clinical interviewing might be a better way to build rapport and more accurately measure depressive symptoms. This was not possible in this study due to time constraints.

Second, data were cross-sectional in nature. As Abela (2001) states, a true test of hopelessness theory requires a longitudinal design. Such a design was not possible due to the practical constraints associated with the timely completion of a Master's thesis.

Third, although a large number of children (N=188) and parents (N=154) were surveyed, there was a small number of children in each age and race cohort (Ns ranged from 40-50). Future studies with a larger number in each age and race cohort may help to clarify the relationship between attributional styles and depression in children.

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