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Depressive Symptoms in Low-Income, Urban Adolescents: Cognitive and Contextual Factors

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Abstract

This study examined the relationships among cognitive variables, family immigration history, negative life events, and depressive symptoms in a sample of 306 low-income, urban fifth- and sixth-grade children. Explanatory style and negative automatic thoughts were the cognitive variables examined. There were two key findings. First, children who were immigrants reported significantly more depressive symptoms, more negative life events, and more negative automatic thoughts than children who were not immigrants. Second, both explanatory style and negative automatic thoughts were significantly associated with depressive symptoms above and beyond the effects of child immigration history and negative life events. Finally, negative automatic thoughts mediated the relationship between child immigration history and depressive symptoms. We discuss the clinical and research implications of these findings.

Keywords

depression; urban; cognitive; context; immigration

According to cognitive theories of depression, individuals who possess habitually negative patterns of thinking are more likely to develop depressive symptoms, particularly when these negative thinking patterns interact with negative life events (e.g., Abramson,

Seligman, & Teasdale, 1978; Beck, 1976). Researchers have categorized a variety of different types of cognitive patterns, including spontaneous and transient cognitions (e.g., negative automatic thoughts, hopeless thoughts) and the more enduring belief structures that are thought to underlie them (e.g., explanatory style, dysfunctional attitudes; Ingram, Miranda, & Segal, 1998).

Despite extensive support for cognitive theories of depression in children and adolescents (e.g., Abela & Sullivan, 2003; Joiner & Wagner, 1995), only recently have researchers begun to explicitly evaluate the relation between cognitions and depression in children from low-income families, racial/ethnic minority groups, or urban environments despite evidence that youth from these contexts are exposed to more negative life events (Foster, Kupermine, & Price, 2004). This recent attention has produced some support for the utility of cognitive models of depression in diverse populations of children. For example, Reinemann and Teeter Ellison (2004) found that negative cognitions mediated the relationship between negative life events and depressive symptoms in a sample of urban, ethnic minority middle-school children, the majority of whom were African American. Similarly, Kennard, Stewart, Hughes, Patel, and Emslie (2006) demonstrated that a variety of cognitive variables, (i.e., self-efficacy, negative cognitive errors, and hopelessness) were associated with depressive symptoms in a diverse sample of adolescents. O'Donnell, Moreau, Cardemil, and Pollastri (2010) reported that explanatory style moderated the relationship between interparental conflict and depressive symptoms. And Cardemil, Reivich, and Seligman (2002), in a mediation analysis of the effects of a cognitive-behavioral depression prevention program, found that Latino children who benefited from the program appeared to do so via change in self-reported negative automatic thoughts.

Thus, emerging research suggests that cognitive theories have a potentially valuable role to play in explaining the development of depressive symptoms in low-income, urban children. However, none of the previous research has examined whether specific contextual variables that might be particularly salient for low-income, urban children could influence both the development of depressive symptoms and the relationship between depressive symptoms and cognitive variables. In the current study, we addressed this gap in the literature by examining cognitive risk factors in relation to two variables that are particularly salient for low-income, urban children: immigration status and negative life events.

In 2011, nearly one in four children lived with at least one foreign-born parent (Federal Interagency Forum on Child and Family Statistics, 2012), highlighting the growing number of immigrant families to the U.S. Immigrant families are more likely to live in poverty (Chaudry & Fortuna, 2010b), thus placing them at a higher risk for negative outcomes (Guarnaccia & Lopez, 1998; Zhou, 1997). Furthermore, despite cultural factors that mitigate risk (e.g., Golding & Burnam, 1990; Harker, 2001), the immigration experience is largely a stressful one for both children and adults (Pumariega & Roth, 2010) and is often associated with a variety of negative events that have been associated with depression, including exposure to violence (Jaycox, Stein, Kataoka, Wong, Fink, Esudero, et. al., 2002), a decline in socioeconomic status (Hernandez & Darke, 1999), and separation from family and social support systems (Garcia Coll & Magnuson, 1997). Moreover, many children of immigrants have parents with limited English proficiency (Chaudry & Fortuna, 2010a) who are less

likely to access the social and mental health services that could assist them and their children (e.g., Fortuny & Chaudry, 2011; Lopez, 2002).

In an effort to investigate cognitive risk factors for depression in relation to contextual variables such as immigration status and negative life events, we focused on two different types of cognitions that researchers have found to be associated with depression, explanatory style and negative automatic thoughts. Choosing these different types of cognitions allows for the evaluation of different theoretical relationships with immigration. Specifically, because explanatory style is a stable vulnerability factor for depression, it is plausible that it would interact with immigration experiences such that immigrant children who have a pessimistic explanatory style would be less likely to overcome the various stressors and difficulties commonly associated with immigration. In contrast, because negative automatic thoughts are more transient, it is plausible that they would mediate the relationship between immigration and depressive symptoms.

Working from within this general framework of cognitions and context, we evaluated several sets of hypotheses. First, we hypothesized that children who were immigrants would report more depressive symptoms and negative life events than children who were not immigrants. We also hypothesized that children who were immigrants would report more negative automatic thoughts than children who were not immigrants, but that there would be no relationship between explanatory style and immigration status. We expected to find this same pattern of results with children whose parents were immigrants. Second, we hypothesized that explanatory style and negative automatic thoughts would be significantly associated with depressive symptoms, above and beyond the effects of family immigration history. Third, we hypothesized that explanatory style would moderate the relationship between immigration and depression (i.e., the combination of a pessimistic explanatory style and an immigration history would increase the likelihood of reporting depressive symptoms). Fourth and finally, we hypothesized that negative automatic thoughts would mediate the relationship between immigration and depressive symptoms.

Method

Participants

This research was conducted in four different elementary schools located in two New England cities. All four schools were located in urban, low-income neighborhoods. Three of the four schools (Schools 1 – 3) reported that the familial economic situations of over 84% of the students made them eligible to receive free or reduced-price lunch. One school (School 4) reported that 44% of students were eligible to receive free or reduced-price lunch.

Of the 565 consent forms sent home to parents, a total of 306 (54%) children received parental consent and provided their own assent to participate in the study. The average age of children in the final sample was 10.73 ($SD=0.75$; range = 9–13). There were slightly more girls than boys in the study, and slightly more fifth graders than sixth graders. Approximately 4% of the sample identified themselves as African American and 8% as non-American Black, 7% identified themselves as Asian, 15% as Cape Verdean, 28% as Hispanic/ Latino, 26% as European American, 9% as Other, and approximately 2% of the

sample did not report their race/ ethnicity. With regard to immigration status, 22% ($n=67$) of the children reported that they were born outside of the United States, 65% ($n=186$) of the children reported that their father had been born outside of the U.S., and 62% ($n=182$) reported that their mother had been born outside of the U.S. Most of the parents who were born outside of the United States came from Puerto Rico and various Latin American countries (e.g., Dominican Republic, Colombia, and Guatemala). Two other countries from which a significant number of parents emigrated were Vietnam and Cape Verde. For the purposes of this study, we considered children and parents who emigrated from Puerto Rico to have been born outside of the U.S., recognizing that Puerto Ricans hold U.S. citizenship and thus may have different immigration experiences than members of other immigrant groups. Our rationale for this decision was based on the existing literature documenting the various stressors experienced by Puerto Rican immigrants, many of which are very similar to those experienced by immigrants from other parts of the world (e.g., Potter, Rogler, & Moscicki, 1995; Uriarte, Carrion, Jones, Carithers, Gorlier, & García, 2002).

Procedure

We visited the classrooms of all of the fifth- and sixth-grade students, described the study to them, and then provided consent forms for them to take home to their parents. We provided a pizza party for those classes that returned the most consent forms (irrespective of whether parents provided consent to participate). In addition, all students who participated in the study were given \$10 gift certificates to local shopping malls at each assessment. All participating children completed a series of self-report questionnaires (see below) in small groups of 5–15 students after school. Members of the research staff supervised children in this task, assisting any children who had difficulty by reading indicated portions aloud to them.

Measures

The Children's Depression Inventory (CDI; Kovacs, 1985)—The CDI is a standard 27-item symptom checklist that assesses depressive symptoms in children. Children report how often during the preceding two weeks they experienced a variety of depressive symptoms, including sadness, low self-esteem, crying, difficulty concentrating, and difficulty sleeping. Higher scores reflect higher levels of depressive symptoms. Previous research has demonstrated good levels of internal consistency ($\alpha = 0.84\text{--}0.87$; e.g., Kovacs, 1985). In the current study, internal consistency also was good ($\alpha = 0.85$).

The Automatic Thoughts Questionnaire (ATQ; Kazdin, 1990)—The ATQ is a 30-item questionnaire assessing the occurrence of negative thoughts on a 5-point Likert scale. Children indicate how often in the previous week they experienced a series of negative thoughts, including “The world doesn't like me” and “I can't do anything well.” Higher scores indicate more negative cognitions. Kazdin (1990) reported good reliability and found support for the measure's validity. Internal consistency in the current study was good ($\alpha = 0.96$).

Children's Attributional Style Questionnaire (CASQ-R; Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998)—The CASQ-R is a 24-item forced-choice

questionnaire that assesses a child's tendency to make internal, stable, and global explanations for negative and positive events. Children are presented with hypothetical situations (12 positive and 12 negative), each of which is followed by two possible explanations for the cause. For example, one of the positive hypothetical situations asks children to imagine that they get an "A" on a test. The two possible explanations that are offered as choices are "I am smart" and "I am good in the subject that the test was in." In the current study, internal consistency was low ($KR-20 = 0.53$), a finding that other researchers have also reported (e.g., Conley, Haines, Hilt, & Metalsky, 2001; Robinson, Garber, & Hilsman, 1995). We thus present our findings with the CASQ tentatively, in recognition of the low internal consistency of the measure.

The Life Events Questionnaire (LEQ; adapted from Coddington, 1972)—The LEQ is a 25-item checklist of life events that is designed for use with elementary schoolchildren. Eighteen of the events are major negative life events, such as "Your parents got divorced" and "A grandparent died." The other seven items describe less severe, often more subjective events, such as "You and your parents fought more often" and "Other children have been less friendly lately." Participants check off those events that had happened to them in the previous 12 months.

Results

Overall Means and Correlations

Table 1 presents means and correlations for the study variables. Overall, higher levels of depressive symptoms were significantly associated with a more pessimistic explanatory style ($r = -0.53, p < 0.0001$), more negative automatic thoughts ($r = 0.67, p < 0.0001$), and more negative life events ($r = 0.38, p < 0.0001$). Preliminary analyses also indicated that there were two demographic effects for our sample. Girls reported significantly more negative automatic thoughts than boys [$t(300) = 2.11, p < 0.05$], and there were differences across the four schools in both explanatory style [$F(3,272) = 11.47, p < 0.0001$] and negative life events [$F(3,299) = 5.28, p < 0.01$]. As a result, we included sex and school as covariates in all subsequent analyses. We also chose to include grade as a covariate in all analyses because of the general correlation between age and depressive symptoms that has been reported in the literature, particularly among girls (e.g., Nolen-Hoeksema, Larson, & Grayson, 1999; Twenge & Nolen-Hoeksema, 2002).

Family Immigration History

In order to examine the possible role of family immigration on depressive symptoms, we first looked at both the child's and parents' immigration histories. Using children's immigration history, we divided the sample into two groups: (a) children born outside of the U.S., and (b) children born in the U.S. Similarly, using parental immigration history, we divided the sample into three groups: (a) both parents born outside of the U.S., (b) one parent born in the U.S., and (c) both parents born in the U.S. In support of our hypotheses, results from ANCOVAs indicated that children born outside of the U.S. reported significantly more depressive symptoms [$F(1,296) = 6.52, p < 0.05, d = 0.41$], more negative life events [$F(1,296) = 8.92, p < 0.01, d = 0.35$], and more negative automatic thoughts

[$F(1,295) = 9.95, p < 0.01, d=0.41$] than children born in the U.S. Also in support of our hypothesis, there was no relationship between children's immigration history and explanatory style. Parental immigration history was not related to any of the child outcomes or either of the cognitive variables. There were no sex differences in the relationship between either child or parental immigration history and these variables.

Cognitive Variables

In order to determine the unique contributions of the cognitive variables to depression, above and beyond the effects of child immigration history, we next conducted a hierarchical regression analysis (see Table 2), in which we first regressed depressive symptoms on grade, gender, and the three dummy variables for school (Step 1). Next, we added the main effect of child immigration history (Step 2). In Step 3, we entered the main effect of negative life events. In Step 4, we added both cognitive variables into the regression equation. Results indicated that the addition of both cognitive variables significantly improved the prediction of depressive symptoms, above and beyond the main effects of grade, gender, school, child immigration history, and negative life events (change in $R^2 = 0.40, p < 0.0001$). In addition, both explanatory style [$F(1,262) = 41.09, p < 0.0001$] and negative automatic thoughts [$F(1,262) = 110.88, p < 0.0001$] made significant and unique contributions to the prediction of depressive symptoms.

In order to examine the possibility that the relationship between the cognitive variables and depressive symptoms might differ by sex, we included the interaction between sex and both cognitive variables. Neither interaction term was a significant predictor of depressive symptoms.

Interplay between Family Immigration History and Cognitive Variables

Explanatory style—To investigate the extent to which explanatory style would moderate the relationship between child immigration history and depressive symptoms, we first centered all of the psychosocial predictors and then tested the significance of interaction terms (Baron & Kenny, 1986). After entering the demographic variables in Step 1, we next added child immigration history in Step 2, followed by explanatory style in Step 3. In Step 4, we added the interaction term between child immigration history and explanatory style. The interaction term between child immigration status and explanatory style fell short of statistical significance [$F(1, 265) = 3.35, p < 0.10$].

To examine the possibility that the relationship between family immigration history and explanatory style might differ by sex, we included several additional interaction terms, including the two-way interactions between sex and family immigration history, and sex and explanatory style, and one three-way interaction among sex, family immigration history, and explanatory style. None of these interaction terms were significant predictors of depressive symptoms.

Negative automatic thoughts—Next, we examined the possibility that negative automatic thoughts would mediate the relationship between child immigration history and depressive symptoms. Following Baron and Kenney's (1986) guidelines, we conducted four

separate regression analyses. The first regression equation showed that child immigration history was significantly associated with depressive symptoms [$F(1,296) = 6.50, p < 0.05$]. The next regression equation confirmed that child immigration history was significantly associated with negative automatic thoughts [$F(1,296) = 10.18, p < 0.01$]. The third regression equation demonstrated that negative automatic thoughts were significantly associated with depressive symptoms [$F(1,295) = 242.43, p < 0.0001$]. Finally, when both child immigration history and negative automatic thoughts were included as predictors of depressive symptoms, child immigration history ceased to be significant [$F(1,293) = 0.31, p = \text{n.s.}$], while negative automatic thoughts remained significant [$F(1,293) = 230.74, p < 0.0001$]. Using Sobel's test, this reduction in variance was significant [$Z=48.80, p<0.0001$].

In order to examine the possibility that these mediation analyses might differ by sex, we also ran these regression analyses adding sex as an interaction term with the independent variable of interest. In none of the analyses was this interaction term significant.

Discussion

Our results indicate that children who were immigrants reported significantly more depressive symptoms and more negative life events than children who were not immigrants. These two findings were consistent with our expectations, as we had hypothesized that children who were immigrants would likely have faced more difficulties in the period of adaptation to the U.S. than comparable children who were not immigrants. Other researchers also have described the stressors faced by many recent immigrants to the U.S. (e.g., Guarnaccia & Lopez, 1998; Zhou, 1997), and so our findings are consistent with those from previous research.

Interestingly, while we found support for the importance of child immigration history, we did not find any support for the importance of parental immigration history, as there were no significant differences between children of immigrants and children of parents who were born in the U.S. This finding is somewhat inconsistent with research that has tended to find fewer mental health problems among first-generation immigrants than among subsequent generations, especially among Latinos (Alegría, et al., 2008). However, some recent research has begun to suggest that this pattern may be particularly strong among Mexican-origin immigrants, and less relevant to immigrants from other ethnic backgrounds (Alegría, et al., 2008). Given that this study was conducted in the Northeast, it is likely that relatively few were Mexican-origin, and so it is possible that this first-generation protective effect may not have been relevant in this sample. In addition, we speculate that the effects of immigration may be generation-specific, so that children's own immigration experience may be more closely connected to child outcome than the immigration experience of their parents. This may be due, in part, to the variability that likely exists across families in the time since immigration. Children from families whose parents immigrated more recently may experience more current stressors than children from families whose parents immigrated many years ago.

In addition to the effects of immigration, we also found support for the hypothesis that both explanatory style and negative automatic thoughts would play an important predictive role

in our sample, as both were significantly correlated with depressive symptoms. As noted earlier, this finding is consistent with emerging research on the utility of cognitive variables in children and adolescents from low-income, urban communities (e.g., Kennard et al., 2006; Reinemann & Teeter Ellison, 2004) and highlights the role that cognitive and cognitive-behavioral interventions may be able to play in helping children from these communities enhance their abilities to overcome the various challenges and negative events they face.

Our efforts to examine the interplay between family immigration and the cognitive variables yielded interesting results. First, in support of our hypotheses, we found that although children who were immigrants reported significantly more negative automatic thoughts than children who were not immigrants, there was no difference in explanatory style between the two groups. These findings are consistent with cognitive theory, which conceptualizes negative automatic thoughts as more proximal risk factors for depression and hence more responsive to external events, while explanatory style is a more stable, distal risk factor for depression, and thus less responsive to external events (e.g., Ingram et al., 1998).

Although researchers have found evidence that explanatory style acts as a moderator of various risk factors for depression, we did not find support for its role as a moderator of child immigration history. In contrast, we found support for the role of negative automatic thoughts as mediators of the relationship between immigration and depressive symptoms, suggesting that the stressors associated with the immigration experience might lead to increased negative thoughts and subsequently increased depressive symptoms.

Additional research is needed to examine the extent to which the cross-sectional associations that emerged in the present study hold true across time. The present study was limited by its cross-sectional design, precluding a full test of the order of effects among variables (Cole & Maxwell, 2003). The cross-sectional design also precluded the analysis of developmental effects on moderation or mediational processes.

If this finding is replicated in subsequent longitudinal research, it offers important implications for intervention. In particular, it suggests both the need to reduce youth exposure to immigration stressors through interventions at the policy level and also the need to provide immigrant youth with services that reduce negative automatic thoughts in response to those stressors that are experienced. Such interventions might build upon cultural strengths identified among immigrant families in prior research (increased religiosity, parental supervision, and familial social support; Golding & Burnam, 1990; Harker, 2001).

In summary, we were able to find several important associations among child immigration history, negative life events, cognitive variables, and depressive symptoms that will inform our research as we examine the development of these constructs over a two-year follow-up of this study. In addition to increasing our understanding of children from understudied populations, this type of research has the potential to lead to the development of treatment and prevention programs that more adequately consider the particular contexts of lives of the children they serve.

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Table 1

Means, standard deviations, and correlations among study measures

Measure	Mean	SD	N	1	2	3	4
1. Depressive symptoms (CDI)	7.76	6.71	303	--			
2. Explanatory style (CASQ-R)	4.83	3.07	276	-0.53***	--		
3. Negative automatic thoughts (ATQ)	22.46	22.01	302	0.67***	-0.41***	--	
4. Life events (LEQ)	4.69	3.44	303	0.38***	-0.27***	0.38***	--

*
 $p < 0.01$,**
 $p < 0.001$,***
 $p < 0.0001$.

CDI= Children's Depression Inventory; CASQ-R=Children's Attributional Style Questionnaire-Revised; ATQ=Automatic Thoughts Questionnaire; LEQ=Life Events Questionnaire.

Table 2

Cognitive variables: Hierarchical multiple regressions on depressive symptoms

Step	Predictors	Incremental change in R^2	β	t
Step 1	Demographic variables	0.01		
	Gender		0.06	1.06
	Grade		0.10	1.56
	School dummy code 1		0.03	0.36
	School dummy code 2		-0.10	-0.98
	School dummy code 3		-0.01	-0.07
Step 2	Child immigration history	0.03	-0.15	-2.60**
Step 3	Negative life events	0.09***	0.32	5.60***
Step 4	Cognitive variables	0.40***		
	Explanatory Style (CASQ-R)		-0.31	-6.41***
	Negative automatic thoughts (ATQ)		0.53	10.53***
Adjusted cumulative R^2		0.54		
Final F		34.00***		

*
 $p < 0.05$,**
 $p < 0.01$,***
 $p < 0.0001$