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EMPIRICAL RESEARCH

Acculturative Stress, Perceived Discrimination, and Vulnerability to Suicide Attempts Among Emerging Adults

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Abstract Cultural factors are often neglected in studies of suicidal behavior among emerging adults. The present study examined acculturative stress and perceived discrimination as statistical predictors of a suicide attempt history among an ethnically diverse sample of 969 emerging adults, ages 18–25 ($M = 18.8$). Females made up 68% of the sample, and the racial/ethnic composition included Asian, Latino, Black, and White (US-born and non-US-born) individuals. There were no statistically significant racial/ethnic differences in endorsement of a suicide attempt history, with an overall rate of 8% in the sample. Asian participants reported higher acculturative stress than all other racial/ethnic groups, while both Asian and Black participants reported having experienced more discrimination in the previous year, compared to other groups. Logistic regression analyses suggested that familial acculturative stress was associated with 2 times higher odds of endorsing a past suicide attempt, overall. More specifically, it was associated with over 2 times higher odds among Asian participants, over 4 times higher odds among Black participants, and over 3 times higher odds among non-US-born White participants, while social acculturative stress was associated with over 3 times higher odds of endorsing a past suicide attempt among Latino participants. Environmental acculturative stress was associated with decreased odds of endorsing a suicide attempt history, overall, but not when examined separately by racial/ethnic group. Perceived discrimination was associated with over 5 times higher odds of a suicide attempt, overall, and specifically was associated with over 3 times higher odds among Latino participants and over 10 times higher odds among White, US-born participants. These findings suggest the importance of addressing culturally-related variables in treatment with emerging adults of racially/ethnically diverse backgrounds to reduce risk for suicidal behavior.

Keywords Acculturative stress · Perceived discrimination · Suicide attempts · Emerging adulthood

Introduction

Although fewer individuals of racial/ethnic minority background die by suicide in the United States, compared to White Americans, surveys conducted in the past decade indicate growth in risk for suicidal behavior among young racial/ethnic minorities (Centers for Disease Control and Prevention 2008a). However, despite a recent increase in attention (Goldston et al. 2008; Leong and Leach 2008), there remains relatively little research that has examined the cultural context of suicidal behavior—particularly in the literature on emerging adulthood. Emerging adulthood—which includes the period of life between ages 18 and 25, is thought to be a time of identity exploration during which there is increased vulnerability for various types of risk behaviors (see Arnett 2000), including suicide attempts (Kessler et al. 2005). Furthermore, clinical

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depression—known to predict suicidal behavior in adolescence (Lewinsohn et al. 1994)—tends to peak in emerging adulthood (Kessler et al. 2003), with rates of onset and recurrence particularly high during this period of life (Rao et al. 1999). Understanding the cultural context in which suicidal behavior occurs during this period of development can assist researchers and clinicians in developing better interventions to prevent suicidal behavior among young racial/ethnic minorities.

There are presently few studies of which we are aware examining suicidal behavior in emerging adulthood. One of the few such studies, to our knowledge, found that close to 1 in 10 college students indicated that they seriously considered attempting suicide within the previous school year on the 1999–2000 National College Health Assessment Survey (Kisch et al. 2005). The 1995 National College Health Risk Behavior Survey found that students of Asian, Pacific Islander, American Indian, Alaskan Native, or of other ethnic backgrounds were more likely (15%) than White college students (10%) to report having seriously considered attempting suicide in the 12 months before the survey, while Black (11%) and Latino (11%) college students were just as likely as White students to report having seriously considered a suicide attempt. The same survey found that 18–24-year-old students were more likely (11%) than students aged 25 and older (8%) to report having seriously considered making a suicide attempt in the previous 12 months (Brenner et al. 1999). The 2007 Youth Risk Behavior Survey found that Latino (10%) and Black (8%) high school students were more likely to indicate having attempted suicide than were White students (6%) (CDC 2008b). There are no recent comparable surveys of which we are aware comparing emerging adults of different race/ethnic backgrounds. Knowing how culturally-related variables impact risk for suicidal behavior, above and beyond already known factors like depression, can be informative about how to adapt treatments to better serve ethnic minority emerging adults. Thus, the present study sought to examine the role of acculturative stress and perceived racial discrimination, stressors relevant to racial and ethnic minorities, in risk for suicide attempts.

Acculturative Stress, Depression, and Risk for Suicidal Behavior

Acculturative stress—i.e., stress related to the process of adapting to the beliefs, practices, and values of a dominant culture (Berry 1998)—has been identified as a factor that may impact risk for suicidal behavior among various race/ethnic groups. It encompasses the quality of the environment experienced by the acculturating individual (e.g., racial discrimination, perceived barriers to progress), change in family relationships (e.g., conflicts between family values and those of the dominant culture), diminished quality of social relationships (e.g., difficulty with language, in forming friendships), and attitudes toward the country/culture of origin (Fuertes and Westbrook 1996; Mena et al. 1987). Acculturative stress is associated with feelings of alienation and isolation and may put extensive pressure on important social support networks acculturating individuals may depend on for positive psychological adjustment (Harker 2001; Hovey and King 1996).

Acculturative stress previously has been found to be associated with other known predictors of suicidal behavior, including depression and suicidal ideation, among adolescents and emerging adults (Cho and Haslam 2010; Hovey and King 1996; Hwang and Ting 2008). A study with Asian American college students found that, while acculturation was associated with lower risk for current clinical depression, *acculturative stress* increased the odds of being clinically depressed, independently of global perceived stress (Hwang and Ting 2008). Cho and Haslam (2010) found that acculturative stress was associated with suicidal ideation (SI) among Korean immigrant and international students (but did not statistically predict SI after adjusting for general life stress and protective factors such as social support and living with both parents). In a sample ($N = 70$) of first- and second-generation Latino high school students from a bilingual program, Hovey and King (1996) found that acculturative stress statistically predicted concurrent suicidal ideation (e.g., within the previous month) above and beyond depressive symptoms. Given its association with depression and suicidal ideation, which are known to predict suicidal behavior in late adolescence (Lewinsohn et al. 1994), acculturative stress thus also may increase risk for suicide attempts in emerging adulthood.

Walker (2007) proposed that risk for suicidal ideation rises among African-Americans as a function of increases in acculturative stress and decreases in cultural buffers against suicide. That is, as African-Americans adopt dominant cultural values and beliefs, in the absence of traditional buffers (e.g., the tight-knit community or family unit), their risk for suicidality increases. This increased vulnerability may be partly due to conflicts between the external pressures to conform to the dominant culture and the internal more traditional pressure to reject assimilating to dominant traditions. A study with African-American college students found that those who attended a large state university reported higher acculturative stress than students who attended a historically Black college, presumably because they were a minority in the larger university (Joiner and Walker 2002). Another study found that acculturative stress increased the concurrent relationship between depression and suicidal ideation among African-American—but not among European-American—college

students (Walker et al. 2008). More specifically, the relationship between symptoms of depression and suicidal ideation strengthened for African-Americans who reported both high depressive symptoms and high levels of acculturative stress. This was not the case for those African-American students with lower acculturative stress (Walker et al. 2008). As one of the few studies to examine culture-related predictors of suicidal ideation among emerging adults, this research suggests that acculturative stress may increase vulnerability to suicidal behavior in emerging adulthood.

Perceived Discrimination, Depression, and Risk for Suicidal Behavior

Racial discrimination—i.e., "…unfair, differential treatment on the basis of race…" (Ong et al. 2009, p. 1259) is another continuing source of stress for racial and ethnic minorities that puts them at risk for mental health problems and may contribute to their risk for suicidal thoughts and behavior. For example, Klonoff and Landrine (1999) found that 96% of a sample of 520 African-Americans between ages 18 and 79 years reported they had experienced racial discrimination in the previous year and that experiencing racism was associated with higher self-reported psychiatric symptoms. The National Survey of Latinos (Brodie et al. 2002) found that 31% of respondents reported that they had personally experienced or knew someone who had experienced racial/ethnic discrimination (e.g., racial slurs, receiving less respect, poor quality of service because of their race/ethnicity). Latinos between ages 18 and 29 who had at least some college education were more likely than their older and less formally-educated counterparts to report having experienced discrimination, or knowing someone who had, in the 5 years preceding the survey. Given that emerging adults are more likely to report experiences of discrimination compared to older age groups (Kessler et al. 1999; Pérez et al. 2008), they may be more vulnerable to its harmful effects and thus at higher risk for suicidal behavior.

Indeed, previous research suggests a relationship between perceived discrimination and risk for mental health-related difficulties. For example, Araujo (2009) found a positive association between perceived daily discrimination experiences (i.e., receiving poor quality service because of ethnicity) and self-reported stress among more highly-acculturated than among less-acculturated Dominican women. Finch and colleagues (Finch et al. 2000) found a stronger association between discrimination and depression among acculturated Mexican–American immigrants than among less acculturated immigrants. Additionally, Flores et al.'s (2010) study of a sample of Mexican–American emerging adults found that the majority (94%) of those sampled had experienced racial/ethnic discrimination at least once, and 21% experienced racial/ethnic discrimination more than once. Furthermore, the study found that perceiving more discrimination statistically predicted greater severity of post-traumatic stress symptoms and health risk behaviors such as substance use. A community study of Chinese individuals living in Toronto found that discrimination was associated with higher self-reported depressive symptoms among individuals low in both perceived personal control and in self-esteem but not among less-vulnerable individuals (Dion et al. 1992). Furthermore, increases in perceptions of discrimination by adults and peers have been found to be associated with decreases in self-esteem and increases in depressive symptoms over time among Asian, Black, and Latino adolescents (Greene et al. 2006), which may increase risk for suicidal behavior. In fact, perceived discrimination was found to be positively associated with a higher rate of suicidal ideation and suicide attempts in a nationally representative sample of Asian Americans (Cheng et al. 2010). Thus, perceived discrimination should be examined as a possible risk factor for suicidal behavior in emerging adulthood.

The Present Study

Taken together, the above findings suggest a link between culturally-related stressors and risk for suicidal behavior among individuals of diverse racial and ethnic backgrounds. The present study sought to better understand the role of acculturative stress and perceived racial discrimination in suicidal behavior among an ethnically diverse group of emerging adults. Given that past suicidal behavior predicts future suicidal behavior (e.g., Brown et al. 2000), understanding culturally-related variables associated with a previous suicide attempt may provide information about how such factors predict future suicidal behavior. We hypothesized that acculturative stress would statistically predict whether individuals would report a suicide attempt history, beyond depressive symptoms, and explored the types of acculturative stress that best predicted endorsement of a suicide attempt history. We hypothesized that perceived discrimination would also be associated with a suicide attempt history.

Method

Participants

Emerging adults ($N = 969$; 68% female), ages 18–25 ($M_{age} = 18.8$, SD = 1.3), from a public university in the

northeastern United States took part in this study for introductory psychology research credit between 2007 and 2008. The ethnic composition of the sample was 33% White ($N = 321$; 192 US-born), 29% Asian ($N = 285$; 126 US-born), 18% Latino ($N = 170$; 133 US-born), 12% African-American/Caribbean-Islander ($N = 118$; 82 US-born), and 8% ($N = 75$; 51 US-born) of other ethnicities (31 who identified themselves as Middle Eastern, 42 who identified themselves as Biracial, and 2 who did not further specify their race/ethnicity). Thirty percent of the total sample was non-US-born. Most ($n = 121$; 94%) White, non-US-born participants reported that they were born in Eastern European countries. The majority of participants (78%) were college freshmen ($N = 752$), 21% ($N = 204$) were college sophomores, and the remainder ($N = 10$) indicated being either juniors, seniors, or of another status. Participants indicated having lived an average of 15 years (or over 80% of their lives, on average) in the US, with a range of 0.5–25 years.

Measures

Demographic Information

Participants completed a form inquiring about age, sex, race/ethnicity, self and parents' country of birth, number of years living in the US, and year in college.

Depressive Symptoms

Symptoms of depression were assessed by the PRIME-MD Patient Health Questionnaire [PHQ-9] (Spitzer et al. 1999), a 9-item self-report measure designed to screen for symptoms of Major Depression. Participants indicated how much they had been bothered by each symptom for the previous 2 weeks from 0 ("*not at all*") to 3 ("*nearly everyday*"). A total score was computed by summing the 9 items. The internal consistency of the PHQ-9 in the present sample was .80.

Suicide Attempt History

Participants completed self-report questions that assessed for SA history ("*Have you ever, in your whole life, tried to kill yourself or made a suicide attempt?*") and that were derived from the young adult version of the Diagnostic Interview Schedule for Children (Shaffer et al. 2000). Participants who endorsed a previous SA were asked to indicate how many previous SAs they had made (*How many times have you tried to kill yourself?*), whether any were made in the previous year (*How many times have you tried to kill yourself in the last year?*), to indicate how they made their most recent SA, and whether they received medical or mental health treatment as a result of the SA.

Acculturative Stress

The Social, Attitudinal, Familial, and Environmental (SAFE) acculturative stress scale consists of 24 statements examining four types of acculturative stress (Fuertes and Westbrook 1996; Mena et al. 1987). A principal components analysis with an oblique rotation (assuming components would be correlated) was conducted to identify whether items loaded onto four subscales identified previously by Fuertes and Westbrook (1996), given that the subscales were identified using a sample of Latino college students (and our sample was more ethnically diverse). Components with eigenvalues greater than 1 were retained. All but 1 item (which was subsequently excluded) loaded onto a component at values of .40 or above, but some items loaded onto different components than in Fuertes and Westbrook's (1996) study, with the exception of the Familial Acculturative Stress scale, which included all three items from Fuertes and Westbrook's analysis (along with one other). The first component consisted of 10 items primarily reflecting environmental pressures associated with acculturation (ENV), including stress related to assimilation (e.g., *It bothers me when people pressure me to assimilate*), problems with communication (e.g., *I have trouble understanding others when they speak*), and difficulty advancing due to their ethnicity (e.g., *In looking for a job, I sometimes feel that my ethnicity is a limitation*) ($\alpha = .88$). The second component consisted of 4 items primarily measuring quality of the family relationship (FAM) surrounding issues of acculturation (e.g., *Close family members and I have conflicting expectations about my future*) ($\alpha = .69$). The third component contained 4 items primarily measuring negative attitudes (ATTD) toward participants' culture of origin (e.g., *I feel uncomfortable when others joke about or put down people of my ethnic background*) ($\alpha = .62$). The fourth component contained 5 items reflecting the quality of social relationships (SOC) and inclusion (e.g., *I don't have any close friends, I don't feel at home*) ($\alpha = .73$).

Participants rated how stressful each item was on a Likert scale ranging from 1 (*Not stressful*) to 5 = (*Extremely Stressful*). Scores were computed by averaging ratings on each subscale (given that each subscale consists of a different number of items). The SAFE scale has adequate reliability for use with Asian, Latino, and African-American college students (Fuertes and Westbrook 1996; Joiner and Walker 2002; Mena et al. 1987). Cronbach's alpha for the overall measure was .90 in our overall sample and .89 or above for each race/ethnic group.

Perceived Discrimination

Perceived discrimination (PD) was measured by a modified version of the Schedule of Racist Events (Landrine and Klonoff 1996). The SRE is an 18-item scale designed to measure current (last year) and lifetime frequency, and subsequent stressful appraisal of racist events experienced by African-Americans. The measure was adjusted so that race-specific words (i.e., Black) were made general and applicable to all race/ethnicities (e.g., *How many times have you been treated unfairly by teachers and professors because of your race/ethnicity?*). We only inquired about discrimination experienced in the past year, with frequency rated on a Likert scale from 1 (*"Never happened"*) to 6 (*"Almost all the time"*), and perceived stress rated on a 6-point Likert scale ranging from 1 (*"Not at all"*) to 6 (*"Extremely"*). An average score was computed for perceived frequency of racial discrimination (PD) by averaging items 1–17 on that subscale. Landrine and Klonoff (1996) reported Cronbach alphas of .94–.95. For the present study, Cronbach's alpha was .88, indicating that this was an internally reliable measure of perceived discrimination for racially/ethnically diverse college students. The modified SRE showed good internal reliability among all race/ethnic groups (White, US-born: .77, White-non-US-born: .82, Asian: .90, Latino: .87, Black: .88, Other: .83).

Procedure

After providing informed consent, participants completed survey packets that included the above measures in groups of 2–8 (see Chan et al. 2009, for additional measures used). Participants with PHQ-9 scores over 9 were provided with a list of mental health treatment resources. These materials and procedure received full Institutional Review Board approval.

Statistical Analyses

Chi square analyses were conducted to examine gender and racial/ethnic differences in endorsement of a previous suicide attempt. Racial/ethnic differences in acculturative stress subscales and in perceived discrimination were examined via Multivariate Analysis of Variance (MANOVA), with follow-up univariate Analyses of Variance (ANOVAs) conducted to examine group differences on each scale. Post hoc *t* tests using Bonferroni corrections for multiple comparisons and corrections for heterogeneity of variance, when necessary, were used to examine differences between the mean for a particular ethnic group compared to the average of all other ethnic groups. Gender differences in acculturative stress and perceived discrimination were tested via independent samples *t* tests. Acculturative stress and perceived discrimination were examined as predictors of a suicide attempt history via logistic regression analysis. It should be noted that average scores on acculturative stress and perceived discrimination scales were not computed for participants for whom more than 20% of responses were missing on a particular subscale.

Results

Race/ethnic Differences

Approximately 8% ($N = 80$) of participants reported a history of a previous suicide attempt (82 originally reported a suicide attempt, but 2 participants later indicated their attempt was actually suicidal ideation), with these individuals reporting an average of 2.0 lifetime suicide attempts (SD = 2.1), and 10 (13%) of these individuals reporting that they had made a suicide attempt within the year preceding inquiry. Of the 80 individuals reporting an attempt, 22 (28%) participants indicated they had received medical treatment as a result of the attempt and 32 (40%) indicated they received mental health treatment following the attempt. There were no statistically significant ethnic differences in lifetime suicide attempt history, although rates varied between 4 and 10% among the different race/ethnic groups (see Table 1).

Omnibus racial/ethnic differences in culturally-related variables were identified via MANOVA, $F(25,3534) = 5.87$, $p < .01$, with follow-up ANOVAs used to examine race/ethnic differences on each scale. There were statistically significant omnibus ethnic differences on all culturally-related variables, with the exception of social acculturative stress (see Table 1). One-Way ANOVAs indicated no omnibus ethnic difference in depressive symptoms (PHQ-9 score), $F(5,961) = 1.10$, $p = .36$. Asians scored significantly higher on all SAFE subscales [Social (SOC): $t(967) = 2.74$, $p < .05$; Attitudinal (ATTD): $t(967) = 4.59$, $p < .01$; Familial (FAM): $t(966) = 2.89$, $p < .05$; Environmental (ENV): $t(486.0) = 5.90$, $p < .01$] and perceived discrimination (PD) [$t(452.0) = 4.03$, $p < .01$], compared to the average of all other ethnic groups combined. Black participants reported higher PD, $t(136.2) = 3.38$, $p < .01$, compared to combined ethnic groups. White, US-born participants scored lower than the other ethnic groups on all culture-related variables, except SOC, $t(319.6) = 2.39$, $p = .11$ (Bonferroni-corrected). White participants who were not born in the US reported lower PD, $t(221.0) = 5.58$, $p < .01$, but did not differ significantly from the other groups in acculturative stress.

Gender Differences

Across all race/ethnic groups, a higher proportion of females ($N = 64$; 10%) than males ($N = 16$; 5%) reported a suicide

Table 1 Culturally-related measures, depressive symptoms, and suicide attempt history by race/ethnicity

	Asian ($N = 285$) M (SD)	Latino ($N = 170$) M (SD)	Black ($N = 118$) M (SD)	Other ($N = 75$) M (SD)	White, non-US-born ($N = 129$) M (SD)	White, US-born ($N = 192$) M (SD)	Overall (N = 969) M (SD)	F/χ^2	p
SOC	2.2 (0.9)*	2.0 (0.8)	2.0 (0.9)	2.1 (0.9)	2.0 (0.9)	1.9 (0.8)	2.1 (0.9)	1.92	.09
ATTD	2.3 (0.8)**	2.1 (0.8)	2.3 (0.9)	2.1 (0.8)	2.1 (0.8)	1.8 (0.6)**	2.1 (0.8)	11.58	.000
FAM	2.4 (0.9)*	2.1 (0.9)	2.3 (1.0)	2.3 (0.9)	2.3 (1.0)	2.1 (0.9)*	2.3 (0.9)	3.13	.008
ENV	1.9 (0.8)**	1.7 (0.7)	1.7 (0.7)	1.6 (0.7)	1.6 (0.7)	1.4 (0.6)**	1.7 (0.7)	13.49	.000
PD	1.7 (0.6)**	1.6 (0.5)	1.7 (0.6)**	1.6 (0.5)	1.4 (0.4)**	1.3 (0.3)**	1.5 (0.5)	15.33	.000
PHQ-9=	7.2 (4.7)	6.6 (4.3)	6.6 (4.2)	7.3 (4.5)	6.3 (4.5)	6.7 (4.4)	6.8 (4.5)	1.10	.36
Attempt N (%)	27 (10%)	17 (10%)	5 (4%)	7 (9%)	10 (8%)	14 (7%)	80 (8%)	4.14	.53

Comparisons between each ethnic group and the average of all other groups were made using t tests with Bonferroni corrections for multiple comparisons. Differences in rates of a suicide attempt and ideation were examined via Chi Square, with differences in each group from what would be expected by chance ascertained via calculation of an adjusted standardized residual

SOC Social Acculturative Stress; *ATTD* Attitudinal Acculturative Stress; *FAM* Familial Acculturative Stress; *ENV* Environmental Acculturative Stress; *PD* Perceived frequency of racial discrimination

Note: One participant had a missing score for FAM, 6 had missing scores for ENV, 1 had a missing score for PD, and 2 participants had missing scores on the PHQ-9

* $p < .05$ (Bonferroni-corrected $p < .008$); ** $p < .01$ (Bonferroni-corrected $p < .002$)

attempt history, $\chi^2 = 5.44, p < .05$. There was no significant gender difference in SA history when examined separately within each race/ethnic group. Females scored higher than males on SOC ($M = 2.10$ vs. 1.94), $t(967) = 2.77, p < .01$, and ATTD ($M = 2.17$ vs. 1.98), $t(632.0) = 3.60, p < .01$, but not on FAM and ENV, nor on PD. Overall, women had higher depressive symptoms, compared to men ($M = 7.08$ vs. 6.20), $t(965) = 2.84, p < .01$.

Acculturative Stress and Perceived Discrimination as Predictors of Suicide Attempt History

Two logistic regression models were built to examine whether acculturative stress and perceived discrimination (PD) significantly predicted endorsement of a suicide attempt history. In Model 1, SOC, ATTD, FAM, and ENV, along with PD were entered into a logistic regression model, adjusting for age, sex, race/ethnicity, proportion of time in the United States (i.e., number of years in the US divided by participant age, as a proxy for degree of acculturation), and depressive symptoms (PHQ-9 total) (see Table 2). FAM and ENV significantly predicted suicide attempt history, along with depressive symptoms. For every unit increase on a given rating of FAM (on the 5-point scale ranging from *not stressful* to *extremely stressful*), the odds of having made a previous suicide attempt increased by about a factor of 1.8. However, for every unit increase on a given rating of ENV, the odds of having made a previous suicide attempt decreased by a factor of 0.6. No other form of acculturative stress significantly predicted a suicide attempt history in the sample, as a whole, nor did PD.

A second logistic regression model (Model 2) was built in which the interactions between culture-related variables and dummy variables reflecting racial/ethnic groups (with US-born White participants as the reference group) were added to Model 1 to predict suicide attempt history. To reduce multicollinearity, acculturative stress scales and perceived discrimination were centered around their means (see Jacard 2001). Interactions between race/ethnicity dummy variables and culture-related variables that did not significantly predict endorsement of a suicide attempt history were removed from the model, leaving interactions among race/ethnicity and both social acculturative stress (SOC) and perceived discrimination (PD). SOC × Asian, SOC × Latino, and SOC × Other race/ethnicity interactions significantly predicted a suicide attempt history, adjusting for other variables. As shown in Table 2, Asian participants had over 3 times higher odds of having made a suicide attempt, Latino participants had about 6 times higher odds of having made a suicide attempt, and participants of "other" ethnicities had over 5 times higher odds of having made a suicide attempt, compared to US-born White participants, for every unit increase in average SOC, adjusting for all other variables in the model. However, PD was associated with significantly lower odds of an attempt among Asian participants. In Model 2, there were also main effects of familial and environmental acculturative stress and of perceived discrimination, such that FAM and PD were associated with significantly higher odds of endorsing a suicide attempt history in the overall sample (OR = 2.01 and 5.76, respectively), while ENV was associated with lower odds of a suicide attempt (OR = 0.48).

Table 2 Logistic regression of suicide attempt history on culturally-related variables

	OR_{Model1}	95% CI	OR_{Model2}	95% CI
Age	1.17	(0.97, 1.41)	1.22*	(1.01, 1.48)
Sex (Female)	2.00*	(1.07, 3.75)	2.16*	(1.13, 4.16)
Race/ethnicity				
Asian	1.52	(0.66, 3.49)	1.34	(0.57, 3.13)
Latino	1.70	(0.73, 3.93)	0.90	(0.35, 2.36)
Black	0.58	(0.18, 1.86)	0.57	(0.18, 1.79)
White (Non-US-born)	1.34	(0.48, 3.68)	1.24	(0.44, 3.44)
Other	1.22	(0.41, 3.61)	0.80	(0.22, 2.87)
Proportion years in US	1.24	(0.42, 3.69)	1.10	(0.36, 3.42)
PHQ-9	1.11**	(1.05, 1.17)	1.14**	(1.07, 1.20)
SOC	1.29	(0.89, 1.88)	0.49^{+}	(0.22, 1.07)
ATTD	0.87	(0.59, 1.28)	0.79	(0.53, 1.19)
FAM	1.79**	(1.31, 2.44)	2.01**	(1.47, 2.76)
ENV	0.59*	(0.36, 0.97)	0.48**	(0.28, 0.82)
PD	1.52^{+}	(0.94, 2.46)	5.76*	(1.10, 30.08)
SOC × Asian			3.36*	(1.30, 8.66)
SOC × Latino			5.97**	(2.04, 17.45)
SOC × Black			2.76	(0.68, 11.25)
SOC × White (Non-US-born)			1.24	(0.42, 3.72)
SOC × other			5.32**	(1.59, 17.79)
PD × Asian			0.16*	(0.03, 0.97)
PD × Latino			0.54	(0.08, 3.59)
PD × Black			0.13^{+}	(0.01, 1.27)
PD × White (Non-US-born)			1.07	(0.12, 9.81)
PD × other			0.09^{+}	(0.01, 1.51)

OR Odds Ratio. A total of 954 participants were included in the analysis

SOC Social Acculturative Stress (centered); *ATTD* Attitudinal Acculturative Stress (centered); *FAM* Familial Acculturative Stress (centered); *ENV* Environmental Acculturative Stress (centered); *PD* Perceived frequency of racial discrimination (centered)

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$

To better-understand these interactions, separate logistic regressions—using Model 1—were conducted for each racial/ethnic group, and a different pattern of results emerged for each racial/ethnic group. As shown in Table 3, FAM significantly predicted a suicide attempt history among Asian, Black, and White-non-US-born participants. Among Latinos, both social acculturative stress (SOC) and perceived discrimination (PD) were associated with over 3 times higher odds of endorsing a suicide attempt history. However, SOC was not significantly associated with a suicide attempt history among Asian, Black, or non-US-born White participants, and PD was not statistically related to endorsement of a suicide attempt history among Asian or Black individuals. However, PD was statistically associated with endorsement of a suicide attempt history among White, US-born individuals (OR = 10.44).

Discussion

Emerging adulthood is a period of increased risk for suicidal behavior, particularly among racial and ethnic minorities (CDC 2008a), yet there is little research on vulnerability to suicidal behavior among racial/ethnic minorities during this critical period of development. The present study sought to contribute to research on culturally-related factors that might increase vulnerability to suicidal behavior in emerging adulthood by examining the relationships among acculturative stress, perceived discrimination, and endorsement of a past suicide attempt in an ethnically diverse sample of emerging adults attending a public urban university. Overall, our findings suggest that culturally-related stressors play a role in suicidal behavior but that the degree to which they play a role varies by racial/ethnic group. More specifically, familial and social acculturative stress and perceived discrimination statistically predicted endorsement of a suicide attempt history. Moreover, environmental acculturative stress statistically predicted lower odds of reporting a suicide attempt history, overall. When examining groups separately, familial acculturative stress was associated with previous suicide attempts among Asian, Black, and non-US-born White participants—but not among Latino nor among US-born White participants. Among Latino participants, social acculturative stress and perceived frequency of racial/ethnic discrimination were associated with endorsement of a

Table 3 Acculturative stress and perceived discrimination as predictors of suicide attempt history, by race/ethnicity

Race/ethnicity	Asian ($N = 283$)	Latino ($N = 169$)	Black ($N = 114$)	White, non-US-born ($N = 128$)	White, US-born ($N = 188$)
Predictors	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	0.97 (0.58–1.65)	1.26 (0.88–1.81)	1.83^{+} (0.95–3.54)	1.49^{+} (0.96–2.31)	0.84 (0.48–1.47)
Sex	2.38 (0.79–7.12)	1.22 (0.28–5.36)	Not included[a]	2.34 (0.38–14.59)	3.31 (0.66–16.57)
Prop. time	0.58 (0.10–3.29)	0.37 (0.03–5.20)	8.06 (0.03–2,493.40)	2.15 (0.06–71.78)	Not included[a]
PHQ-9	1.20 (1.09–1.32)**	1.16* (1.01–1.33)	1.00 (0.80–1.26)	0.92 (0.76–1.12)	1.09 (0.93–1.27)
SOC	1.51 (0.76–3.03)	3.10* (1.19–8.04)	1.41 (0.32–6.27)	0.74 (0.22–2.52)	0.76 (0.26–2.19)
ATTD	0.79 (0.38–1.65)	0.50 (0.18–1.36)	1.50 (0.23–9.69)	0.93 (0.28–3.03)	0.35 (0.10–1.26)
FAM	2.07 (1.12–3.82)*	1.23 (0.58–2.63)	4.17* (1.10–15.85)	3.79* (1.22–11.82)	1.73 (0.82–3.67)
ENV	0.49 (0.21–1.14)$^{+}$	0.77 (0.25–2.36)	0.36 (0.04–3.13)	0.49 (0.09–2.66)	0.28 (0.03–2.82)
PD	0.85 (0.36–2.00)	3.53* (1.17–10.63)	0.64 (0.09–4.59)	5.92 (0.67–52.20)	10.44* (1.30–83.99)

Given the relatively small sample size for the "other" ethnic group, there was not enough variability in the data to allow calculation of odds ratios

INE Impact of negative life events; *SOC* Social Accult. Stress (centered); *ATTD* Attitudinal Accult. Stress (centered); *FAM* Familial Accult. Stress (centered); *ENV* Environmental Accult. Stress (centered); *PD* Perceived frequency of racial discrimination (centered)

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$

[a] Not included in analysis for particular race/ethnic group due to insufficient variability in data

past suicide attempt history. This study is thus the first of which we are aware to find a relationship between culturally-related stressors and suicide attempts in an ethnically-diverse sample of emerging adults.

Unique group-level findings suggest that Asian-American young adults reported higher levels of acculturative stress, compared to other racial/ethnic groups. Moreover, they, along with Black participants, reported more racial/ethnic discrimination than other racial/ethnic groups combined. Despite experiencing more discrimination, Asian and Black participants had higher odds of having made a previous attempt—versus not—the more familial acculturative stress they reported. However, after adjusting for other variables, their perceptions of discrimination were not associated with a past attempt. Taken together, these findings are consistent with previous research linking acculturative stress to depression among Asian American college students and extend this risk to suicide attempts. Furthermore, our findings regarding the link between familial acculturative stress and suicide attempt history among Black emerging adults may be consistent with Walker's (2007) proposal that as Black individuals increase their identification with mainstream culture they might be at risk of losing cultural protective factors such as family cohesion and support due to increased family conflicts. Such loss of protective factors may, in turn, increase their risk for suicidal behavior. Future research might thus examine loss of social/family support as a potential pathway through which culture-related stressors might increase vulnerability to suicidal behavior among Black emerging adults.

Social acculturative stress—rather than familial acculturative stress—predicted a suicide attempt history for Latinos, specifically. Zayas et al. (2005), and more recently, Baca-Garcia et al. (2010) have posited that family-related acculturative stress may partly explain why teenage Latinas make suicide attempts. Accordingly, Céspedes and Huey (2008) found that increases in family conflict partially mediated the relationship between family dysfunction surrounding culturally-related issues (i.e., gender role discrepancy) and higher levels of reported depression. Thus, the finding that familial acculturative stress was not associated with a suicide attempt history among Latinos is inconsistent with previous research. However, a study of Latino college students at a predominantly Latino university found that support from friends—but not support from family—was a buffer against stress (Rodriguez et al. 2003). Perhaps among college-educated Latino emerging adults, stress related to the quality of social relationships is more strongly related to vulnerability to suicidal behavior than familial stress. Future studies should examine potential buffering effects of extended social support networks on the relationship between familial acculturative stress and suicidal behavior in emerging adulthood.

Perceived discrimination was associated with endorsement of a previous suicide attempt in our overall sample, but more specifically, among Latinos. This finding is consistent with previous research linking perceived discrimination to other factors (e.g., depressive symptoms) associated with risk for suicidal behavior (see, e.g., Dion et al. 1992; Finch et al. 2000). Future research should examine variables that

might explain how perceived discrimination might increase risk for suicidal behavior. For instance, previous research suggests that personal control partially mediates the relationship between perceived discrimination and psychological distress among Latino Americans, such that perceived discrimination is associated with lower personal control, and personal control, in turn, is negatively associated with psychological distress (Moradi and Risco 2006). Perceived discrimination might also result in risk for a suicide attempt to the degree that it lowers individuals' sense of mastery over their environment. Alternatively, the impact of discrimination on risk for suicidal behavior may vary as a function of other individual characteristics such as ethnic identity (Phinney 1990), individuals' private and public regard for their ethnic group (i.e., how they feel about their own group and their perceptions of how others view their group, respectively) (Sellers and Shelton 2003), the attributions people make for discrimination (e.g., internal versus external), the coping strategies they adopt in response to discrimination (see Harrell 2000, for a discussion), and the extent to which discrimination increases social isolation or loneliness (see Chang et al. 2010).

In particular, given that identity exploration is thought to be an important feature of emerging adulthood (Arnett 2000), ethnic identity may moderate the relationship between culture-related stressors and suicidal behavior among racial/ethnic minority emerging adults. For instance, Cross's racial identity development theory (1995) proposes that experiences of discrimination spur the development of an ethnic/racial identity, which provides the individual with an arsenal of defenses to counteract the harm caused by racism and discrimination. In fact, one longitudinal study of Black and Latino adolescents found that while experiences of discrimination affected changes in ethnic identity over time, the inverse was not observed (Pahl and Way 2006). In a related vein, Crocker and Major (1989) suggested that members of socially stigmatized groups, including racial/ethnic minorities, may focus on positive attributes of their groups to buffer against the harmful effects of negative stereotypes and racial/ethnic discrimination. Perhaps discrimination leads adolescents and emerging adults to explore the meaning of belonging to an ethnic group, and they may acquire specific skills that enable them to confront future experiences of discrimination. Future research should further explore the interaction between ethnic identity and perceived discrimination in predicting vulnerability to suicidal behavior.

There were two unexpected findings in the present study. The first unexpected finding was that environmental acculturative stress was associated with decreased odds of a suicide attempt in the overall sample. Given that this finding did not hold when examined separately by racial/ethnic group, it is possible that it was the result of statistically adjusting for other variables in the overall regression model. The second unexpected finding was that perceived discrimination was associated with increased odds of a suicide attempt history among White participants who were born in the US (but not among non-US-born White individuals, nor among Asian and Black individuals). Research with Chinese college students suggests that the salience and stability of ethnic identity has an impact on mood (Yip 2009). It could be that White racial identity is more salient in a college setting where the majority of students are not White, and individuals would thus be more vulnerable to the effects of perceived discrimination than in a college setting in which the majority of students are White and US-born. Future research should examine how factors such as the salience and stability of ethnic/racial identity also might impact vulnerability to suicidal behavior among White, US-born emerging adults.

The present findings support previous research suggesting that acculturative stress is associated with suicidality and extends the literature by identifying familial and social acculturative stress as associated with suicide attempts—but not necessarily for all racial/ethnic minorities. This research provides a start in examining the differential impact of cultural variables on suicidal behavior among emerging adults from diverse cultural backgrounds. Moreover, they point to the importance of examining racial/ethnic group differences in order to understand the unique ways in which the cultural context influences risk for suicide attempts. These findings might inform efforts to tailor interventions, particularly for emerging adults undergoing the acculturation process.

Strengths and Limitations

This is one of the few studies, to our knowledge, that has examined the role of different types of acculturative stress in explaining suicidal behavior among different racial/ethnic groups. However, some limitations should be noted. First, the cross-sectional design limits our ability to make any causal arguments for the relationships yielded, as suicide attempts were assessed retrospectively. It is always possible that a suicide attempt changes an individual's cultural environment by increasing acculturative stress, or that it changes an individual's current perceptions about culture-related stress. Second, we did not include a measure of general family stress to distinguish it from familial acculturative stress. It is possible that the familial subscale of the SAFE scale (i.e., items such as, "Close family members and I have conflicting expectations about my future") measured overall family conflict and stress. Third, the study's generalizability is limited to racial/ethnic minority emerging adults who are college students. It would be of interest to examine these questions in community samples of emerging adults. Fourth, this study did

not take into account within-group differences. Previous research has noted ethnic differences in lifetime suicide attempts—such as between Puerto Ricans and Cuban Americans (Baca-Garcia et al. 2010; Oquendo et al. 2004), and African Americans compared to Caribbean Americans (Joe et al. 2006). Immigrant generation status also may contribute to within-group variability in risk for suicidal behavior (see Peña et al. 2008). Phenomena such as the immigrant paradox (Alegría et al. 2008; Baca-Garcia et al. 2010) suggest that mental health risk differs across immigrant groups and generations. However, unique within-group characteristics (e.g., level of acculturation) have been found to yield different outcomes across immigrant subgroups (e.g., Latino subgroups). These complexities should be further examined in future research on suicidal behavior among racial/ethnic minority emerging adults. Finally, we used a proxy measure for acculturation (e.g., proportion of time in the US). To our knowledge, there is no indication in previous literature of a one-to-one relationship between proportion of time in the US and level of acculturation, per se, thus making this another limitation of our study.

Treatment Implications

These findings have a number of implications for treatment with emerging adults of racially/ethnically diverse backgrounds. First, the findings suggest that assessments with Black, Asian, and White, non-US-born emerging adults should inquire about the degree to which individuals are experiencing conflict with family members around the acculturation process. Moreover, interventions with Latino young adults should address perceptions of racial discrimination and stress in their social networks related to the acculturation process. Finally, this research suggests that clinicians working with suicide attempters should address different aspects of the acculturation process, depending on the individual's race/ethnicity.

Conclusions

Despite the impact of culture on emerging adulthood, culture is an often-neglected area of study in research aimed at understanding why young people engage in suicidal behavior. This study is the first of which we are aware to examine the relationship between acculturative stress, perceived discrimination, and suicidal behavior among racially/ethnically diverse emerging adults. It thus fills a long-standing void in this growing literature. The present findings highlight the importance of different forms of acculturative stress in helping to explain why young adults may have engaged in past suicidal behavior. It also suggests that suicide prevention and intervention should acknowledge the role of culturally-relevant factors, such as acculturative stress and perceived discrimination, to improve the identification of emerging adults who are at risk for suicidal behavior and to offer culturally competent treatment. To do so, clinicians need to better understand the cultural dynamics in which suicide attempts occur.

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