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Duration of US residence and suicidality among racial/ethnic minority immigrants

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Abstract

Purpose—The immigration experience embodies a range of factors including different cultural norms and expectations, which may be particularly important for groups who become racial/ethnic minorities when they migrate to the US. However, little is known about the correlates of mental health indicators among these groups. The primary and secondary aims were to determine the association between duration of US residence and suicidality, and 12-month mood, anxiety, and substance use disorders, respectively, among racial/ethnic minority immigrants.

Methods—Data were obtained from the National Survey of American Life and the National Latino and Asian American Survey. Multivariable logistic regression was used to determine the association between duration of US residence, and suicidality and 12-month psychopathology.

Results—Among Afro-Caribbeans, there was a modest positive association between duration of US residence and 12-month psychopathology ($P_{\text{linear trend}} = 0.016$). Among Asians there was a modest positive association between duration of US residence and suicidal ideation and attempts ($P_{\text{linear trend}} = 0.018, 0.063$, respectively). Among Latinos, there was a positive association between duration of US residence, and suicidal ideation, attempts and 12-month psychopathology ($P_{\text{linear trend}} = 0.001, 0.012, 0.002$, respectively). Latinos who had been in the US for >20 years had 2.6 times greater likelihood of suicidal ideation relative to those who had been in the US for <5 years (95 % CI 1.01–6.78).

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Conclusions—The association between duration of US residence and suicidality and psychopathology varies across racial/ethnic minority groups. The results for Latino immigrants are broadly consistent with the goal-striving or acculturation stress hypothesis.

Keywords

Suicidality; Migration; Racial/ethnic minorities; Psychopathology; Psychiatric disorders

Introduction

According to the Centers for Disease Control and Prevention, suicide is the tenth leading cause of death in the United States among persons ages 10 years and older, with an annual rate of 14.3 deaths per 100,000; suicide accounted for over 36,000 deaths in 2009 [1, 2]. Suicide rates vary across racial/ethnic groups. For example, in 2009, the suicide rate per 100,000 was 16.2 among Whites, 6.1 among Blacks, 13.4 among American Indians/Alaska Natives, and 7.2 among Asians/Pacific Islanders [2]. Racial/ethnic differences have also been seen in suicidal ideation, although rates of suicide attempt are fairly similar [3]. Psychiatric disorders, particularly mood conditions such as depression, and substance use and abuse, suicidal ideation, and suicide attempts are well-established risk factors for completed suicide [4–8].

The rapid growth of immigration to the US from Latin America, the Caribbean, and Asia is changing the racial/ethnic population of the US [9–11]. However, there is limited research on the relationship between immigration and suicidality, and little is known about the epidemiology of suicidality among these groups. The few studies that have examined this issue have focused on comparing suicidality among immigrants to US natives [12]. In general, risk for suicidality is lower among immigrants before migration (likely due to selection of healthy migrants) compared to those who are US-born, but this risk equalizes to that of the native population over time after migration [3]. For example, among young adults, suicide rates in Latin American countries such as Cuba, Mexico and Puerto Rico, which are the countries of origin of many Latino immigrants in the US, tend to be lower compared to suicide rates in the US [13]. Prevalence estimates of suicide ideation and attempts have also been shown to be lower in Vietnam and China [14] compared to the US population [15]. However, Mexican immigrants who migrate as children have higher risk of suicidal ideation relative to Latinos who remain in Mexico; this risk is similar to that of US-born Mexican Americans [12]. Similarly, individuals who migrate as children (age 12 or younger) have the same risk of mood and impulse control disorders as US natives, whereas those who migrate at age 13 or older had a lower risk [16].

Stressors that accompany migration such as disrupted social networks, devalued identity, unemployment, and legal uncertainties may account for poor psychological well-being and increased risk of psychiatric disorders among certain immigrant groups, particularly those who become racial/ethnic “minorities” once they are in the US [17]. There are two processes that may explain the tendency for risk of psychopathology in general, and suicidal behavior in particular, to be higher among US immigrants relative to their non-migrant counterparts from their respective country of origin. First, this risk may be due to immediate post-

migration stress. Post-migration stresses of immigrants may be due to cultural, social and environmental differences between their countries of origin and resettlement [18]. Under the scenario of immediate post-migration stress, we expect that risk of suicidal behavior is greater for immigrants who have been in the country for only a shorter period of time relative to those who have been in the country for longer. Research has shown that stress resulting from migration may also diminish with a longer stay and greater acculturation [19, 20]. However, before cross-cultural competence is achieved (if it is achieved), acculturation maybe stressful as it involves encounters with unfamiliar social and cultural norms and expectations, including newfound membership as a racial/ethnic "minority" for the majority of Asian, Latino, and Afro-Caribbean immigrants to the US [21]. Second, and partly as a result, the risk of suicidality may also reflect a consequence of deflated or unrealized aspirations and expectations [17]. Many immigrants who move to the US come with the motivation to seek better opportunities for themselves and their families than those found in their home countries [22]. Under this scenario, we expect that the risk of suicidal behavior increases the longer individuals have resided in the US if they have not achieved certain aspirations or expectations. This concept is parallel to the goal-striving stress phenomenon proposed by Parker and Kleiner [23] among African Americans, which reflects the discrepancy between socially derived aspirations and achievements. Sellers et al. [24] showed that the negative association between goal-striving stress and physical health was strongest for Caribbean Blacks compared to White Americans and African Americans. These results suggest that the adverse consequences of goal-striving stress may be more of a challenge for minority immigrant groups compared to natives in the US.

It is possible that these two processes operate differently across immigrant minority groups; racial/ethnic minority migrant groups have different immigration histories and a "universal" process of acculturation does not exist. Acculturation can be broadly defined as a phenomenon that results when groups of individuals come into continuous contact and results in subsequent changes in original cultural patterns of one or both groups [25]. Berry and Kim [26] concluded that different racial/ethnic groups faced different levels of acculturation stressors. Therefore, the process of acculturation may vary based on culture and/or the racial/ethnic group [27–29]. It is also crucial to note that people migrate to the US for different reasons. Researchers have distinguished between refugees and immigrants noting that refugees tend to be involuntarily uprooted from their countries while immigrants tend to migrate voluntarily to another country [26]. However, there is also heterogeneity among 'voluntary' immigrants. This population tends to migrate for economic reasons and educational advancement [30]. Therefore, due to differences in acculturation and reasons for migration, we hypothesize that the association between length of duration of US residence and suicidal risk among minority immigrant groups will differ across immigrant groups.

The primary aim of this study was to determine the association between duration of US residence and suicidality in the US among Afro-Caribbean, Asian, and Latino immigrants living in the US. The secondary aim was to examine the relationship between duration of US residence and 12-month mood, anxiety, and substance use disorders among racial/ethnic minority immigrants. To the authors' knowledge, this is the first study to examine the association between duration of US residence and suicidal behavior among multiple non-White immigrant groups.

Methods

Data source and sample

This cross-sectional study used data from the 2001–2003 National Survey of American Life (NSAL) and the 2002–2003 National Latino and Asian American Study (NLAAS), which are part of the Collaborative Psychiatric Epidemiology Surveys (CPES). The NSAL is a national probability study of Blacks of immediate Caribbean descent; this sample also includes African Americans and non-Hispanic Whites [31]. The NLAAS is a national probability epidemiological survey of Latinos and Asian Americans [32]. Details of the NSAL and NLAAS study designs have been discussed previously [31, 32]. Briefly, efforts were made to race-match interviewers to respondents, and interviews were conducted in-person and in the preferred language of the respondent (e.g., Spanish, Vietnamese, etc.) by bilingual interviewers [31, 32].

This analysis was limited to Afro-Caribbean respondents (N = 1,044) interviewed as part of the NSAL and Asian and Latino respondents (N = 1,638 and N = 1,622, respectively) interviewed as part of the NLAAS. Among Afro-Caribbean immigrants, 23 % were from Haiti, 39 % were from Jamaica, 12 % were from Trinidad and Tobago, and 26 % were from other Caribbean countries. Among Latino immigrants, 31 % were from Cuba, 13 % were from Puerto Rico, 30 % were from Mexico, and 26 % were from other Latin countries. Among Asian immigrants, 31 % were from Vietnam, 21 % were from the Philippines, 29 % were from China, and 19 % were from other Asian countries.

CPES data are publicly available (http://www.icpsr.umich.edu/icpsrweb/CPES/). The NSAL and NLAAS were approved by the University of Michigan Institutional Review Board and all participants provided informed consent.

Exposure ascertainment

Duration of US residence was determined by self-report. To protect respondent anonymity, the variable indicating time residing in the US was recorded as a categorical rather than a continuous variable in the CPES. This variable had five levels: US born, <5, 5–10, 11–20, >20 years in the US. We excluded respondents who were US born to focus on respondents who migrated to the US and <5 years served as the reference category. For the purposes of the current study, we define an “immigrant” as a person who was born outside of the US and do not distinguish between naturalized citizens, permanent residents, or persons who may be on temporary visas.

Outcome ascertainment

Suicidal ideation and suicide attempts were used as measures of suicidal behavior. The operational definition of suicidal ideation was self-report of having ever thought about seriously committing suicide (dichotomized as yes/no), and whether respondents had these thoughts in the past 12 months. Similarly, respondents were asked if they had ever attempted suicide (dichotomized as yes/no), as well as if they had last attempted in the past 12 months. Presence of mood, anxiety, and substance use disorders in the past 12 months (specifically, major depression, dysthymia, generalized anxiety disorder, alcohol abuse, alcohol

dependence, drug abuse and dependence) as categorized in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) was assessed using the World Mental Health version of the Composite International Diagnostic Interview (WMH-CIDI) [3]. These categories were collapsed into a dichotomous (any vs. no DSM-IV diagnoses in the past 12 months) variable for analysis. The reliability and validity of CIDI diagnoses relative to semi-structured clinical interview have been evaluated in the NSAL and NLAAS specifically [31, 32], and this instrument has moderate concordance with psychiatric interviews [33, 34].

Covariates

Demographic and socioeconomic characteristics considered as confounders were: gender (male as the reference group), educational attainment (categorized as less than high school (reference), high school, or greater than high school education), marital status (categorized as married/cohabitating (reference), divorced/separated/widowed, and never married) [3], and income-to-needs ratio (categorized as ≤1 (reference) versus >1). Income-to-needs ratio is a measure of household income adjusted for family size; it was categorized as ≤1 versus >1, with a ratio ≤1 indicating that a household income is below the federal poverty line [35]. Low income has been found to be associated with suicidal behavior [36]. Age of migration (categorized as ≤12 years old (reference), 13–17 years old, and ≥18 years old) was also examined as a confounder; these age categories were based on prior literature suggesting that the immigration experience of children, adolescents, and adults can have important implications for mental health [3]. For the analyses of suicidal ideation and attempts, lifetime history of DSM-IV mood disorders (major depressive disorder, dysthymia), generalized anxiety disorder, post-traumatic stress disorder, and substance use disorders (alcohol abuse, alcohol dependence, drug abuse, and drug dependence) as assessed by the CIDI were also considered as confounders [3]. To mitigate concerns of co-linearity, presence of these conditions were collapsed into a single binary [any vs. none (reference)] variable. Due to the interdependency between age, age of migration, and length of residency in the US we could not simultaneously adjust for age and age of migration in the multivariable models. We conducted sensitivity analyses adjusting for current age instead of age of migration.

Analytic approach

Sample weights were used to estimate the prevalence and distribution of suicidal ideation and attempts among the three immigrant groups. Three sets of logistic regression models were used to obtain odds ratios and 95 % confidence intervals (CIs) to determine the association between duration of US residence, and lifetime suicidal ideation, suicide attempts and 12-month mood, anxiety, and substance use disorders among Afro-Caribbean, Asian, and Latino immigrant populations. For each population, four nested models were used for suicidal ideation and suicide attempts each: (1) an unadjusted model, (2) a model adjusted for gender, education, income-to-needs ratio, and marital status (socio-demographic variables), (3) a model additionally adjusted for age of migration, and (4) a model additionally adjusted for lifetime history of mood, anxiety, and substance use disorders (suicidal ideation and attempt analyses only).

Analyses were performed using PROC SURVEYLOGISTIC in SAS v9.2 [37] accounting for the complex survey design. Tests for overall linear and non-linear trends were done using Cochran-Armitage and PROC GLM tests, respectively, and all p-values refer to two-tailed tests.

Results

Prevalence of suicidal behavior

Table 1 shows the distribution of participant characteristics according to lifetime history of suicidal ideation and suicide attempts for the three immigrant groups. Twelve, 8.8 and 10.1 % of Afro-Caribbeans, Asians, and Latinos reported suicidal ideation at some point in their lives, respectively; 5, 2.5 and 4.3 % of Afro-Caribbeans, Asians, and Latinos, respectively, reported making a suicide attempt at some point in their lives. Among Afro-Caribbeans, approximately one in five (N = 22) of those who reported ever having suicidal ideation last experienced these thoughts in the past year, and 3.7 % (N = 5) with a history of attempting suicide made an attempt in the past year. Among Asians, 20.1 % (N = 33) of those who reported suicide ideation last experienced these thoughts in the past year, and 11.4 % (N = 7) of those who reported lifetime suicide attempts reported making an attempt in the past year. Among Latinos, 22.4 % (N = 54) of respondents with a lifetime history suicide ideation experienced these thoughts in the past year, and 13.8 % (N = 16) of those who had ever attempted suicide did so in the past year. The percentages of respondents who refused to answer questions on suicidal ideation and suicide attempts among the three groups were negligible (0.0–0.2 %).

Duration of US residence and lifetime suicidal ideation

Table 2 shows the results from four nested logistic regression models assessing the association between duration of US residence and lifetime suicidal ideation by race/ethnicity. There was no significant association between duration of US residence and suicidal ideation for Afro-Caribbeans ($P_{\text{nonlinear trend}}$ = 0.814). In contrast, among Asians there was a modest positive dose–response association between duration of US residence and likelihood of suicidal ideation ($P_{\text{linear trend}}$ = 0.018). For example, compared to Asian immigrants who have been in the US <5 years, those who have been in the US for >20 years had 30 % greater odds of suicidal ideation (95 % confidence interval (CI) 0.46–3.64) in the fully-adjusted model, but this association was not statistically significant. Among Latinos there was a robust, positive association between duration of US residence and suicidal ideation in a dose–response manner ($P_{\text{linear trend}}$ = 0.001). Compared to Latino immigrants who had been in the US <5 years, those who had been here >20 years were nearly three times as likely [odds ratio (OR) 2.66, 95 % CI 1.25–5.66] to have had ever experienced suicidal ideation even after adjusting for gender, education, income-to-needs ratio, marital status, age at migration and lifetime mood, anxiety, and substance use disorders. These results persisted, especially among Latinos, when restricting the outcome to suicidal ideation reported in the past year (Table 3), but due to the small number of events these estimates are imprecise.

Duration of US residence and lifetime suicide attempt

Table 4 shows the results from four nested logistic regression models of the association between duration of US residence and lifetime suicide attempt by race/ethnicity. Similar to the findings for suicidal ideation, there was no significant association between duration of US residence and attempts ($P_{\text{nonlinear trend}} = 0.222$) among Afro-Caribbean immigrants. Among Asians, there was a modest positive association between duration of US residence and likelihood of suicide attempts, although the test for trend was only marginally significant ($P_{\text{linear trend}} = 0.063$). Among Latinos, there was a positive association between duration of US residence and suicide attempt ($P_{\text{linear trend}} = 0.012$), consistent with the results for suicidal ideation. After adjusting for gender, education, income-to-needs ratio, marital status, and age at migration, Latinos who had been in the US for >20 years had 4.27 times greater likelihood of suicide attempts relative to those who had been in the US for<5 years (95 % CI 1.32–13.8). This relationship was attenuated after accounting for lifetime history of mood, anxiety, and substance use disorders (Model 4, Table 3). Due to the small number of events, we could not estimate the relationship between duration of US residence and suicide attempts made in the past year.

Duration of US residence and 12-month mood, anxiety, and substance use disorders

Due to the small number of events, the estimates for past-year suicidal ideation were imprecise. However, suicidal ideation often occurs in the context of psychiatric disorders, and thus in order to examine the robustness of the relationship between duration of US residence and current mental health status, we examined the relationship between length of residency and past-year mood, anxiety, and substance use disorders. As shown in Table 5, the relationship between length of residence in the US and past-year disorders was similar to that observed for past-year suicidal ideation, especially among Latinos (Table 3). For example, among Latinos, residing in the US for >20 years was associated with almost three times the likelihood of meeting criteria for a mood, anxiety, or substance use disorder in the past 12-months relative to those who had been in the US <5 years (OR 2.83 95 % CI 1.25–6.41) ($P_{\text{linear trend}} = 0.002$). In contrast, among Afro-Caribbeans there was a negative association between length of residency and past-year disorders; compared to those who had been in the US for <5 years, those residing in the US for 11–20 years were 71 % less likely to meet criteria for 12-month mood, anxiety, and substance use disorders compared to those who migrated more recently (adjusted OR 0.29, 95 % CI 0.09–0.92) ($P_{\text{linear trend}} = 0.016$). Among Asians there was no significant association between duration of US residence and presence of a psychiatric disorder, consistent with the results for suicidal ideation.

Because of the interdependency between age, age at migration, and length of residence in the US we could not include all of these variables in the model simultaneously. Sensitivity analyses adjusting for current age instead of age of migration showed similar results to those described here (Table 6), indicating that our results were robust to adjusting for age as a continuous variable.

Discussion

The main finding of this study is that the relationship between duration of US residence and suicidality varies across racial/ethnic minority immigrant groups. The association between duration of US residence and suicidality was not statistically significant among Afro-Caribbeans, and a modest positive association was seen among Asians. However, among Latino immigrants as duration of US residence increased, the odds of suicidal ideation and suicide attempts also increased in a dose–response manner. The dose–response relationship also persisted for Latinos for the association between duration of US residence and 12-month mood, anxiety, and substance use disorders. However, for Afro-Caribbeans, those who were in the US for longer periods of time (>11 years) were less likely to report presence of 12-month disorders, which is consistent with the post-migration stress hypothesis. The results for Latino immigrants, and to some extent Asian immigrants, are broadly consistent with the goal-striving or acculturation stress hypothesis where suicide risk among immigrants increases the longer they live in the US.

It is possible that the reasons for migration may differ among racial/ethnic minority groups and/or their life trajectories are different after migrating. These differences may contribute to the current findings. For example, there might be differences in economic status. Reports have suggested that entrepreneurs continue to flourish among the Afro-Caribbean community while some Latino populations tend to have high rates of unemployment and poverty [38]. Among non-citizen households, the median income decreased 2.7 % for non-Hispanic households but 7.5 % for Hispanic households [39].

Although this study focused on characteristics of the immigrant, it is also important to consider characteristics of the host country and local environment where immigrants reside as factors that may influence psychopathology and suicidal behavior. For example, Kang et al. [40] reported that a higher proportion of immigrant elders residing in Arizona who did not live among ethnic enclaves, reported depression compared to respondents who lived among immigrant ethnic enclaves in New York City. Studies have also shown that the incidence of psychotic disorders among immigrants to the UK and the Netherlands increases as the population density of immigrants in the immediate area decreases [41–43]. It has been hypothesized that living in neighborhoods with higher ethnic density may ensure better social support and protect against social adversity [44]. Therefore, it is possible that the positive association between duration of US residence and suicidal behavior among Latino and Asian immigrant populations may reflect characteristics of their physical and social environment in the US that we were not able to examine.

Studies have shown that acculturation can be both a risk and protective factor for suicidality. It may act as a risk factor due to the erosion of coping strategies and cultural values [3, 45], yet it may serve as a protective factor due to improving social integration in the host country [3]. Whether acculturation acts as a risk or protective factor likely depends on characteristics of both the host country and the individual migrating, including social and cultural characteristics of their country of origin. Kposowa et al. [46] found that shorter duration of US residence was associated with higher suicide risk among residents in Riverside County, California, which has a large Latino population (45.5 %) [47]. This study found that social

integration was a protective factor for suicidality, which is contrary to our results for Latinos. Two factors likely contribute to these disparate findings: first, Kposowa looked at completed suicide, whereas we are examining suicidal ideation and attempts; and second, our analysis uses a nationally representative sample of Latinos, while suicide cases from Kposowa et al. were from a single site in California. In a small study of Black youth aged 18–24 (N = 250), Castle et al. [48] reported that acculturation was positively associated with suicidal ideation. Similarly, elevated rates of attempted suicide among racial/ethnic minority immigrants in European countries may indicate difficulties in the acculturation and social integration process [49]. Crawford et al. [50] found that suicide attempts were more common among women in certain minority groups compared to White and native samples in the UK. Kosidou et al. [51] showed that non-European immigrants had an increased risk of distress and markedly higher risk of suicide attempts compared to native-born Swedes. However, Lau et al. [52] found that difficulties in parent–child relationships were more strongly related with suicidal outcomes among less acculturated Asian Americans compared to more acculturated Asian Americans.

These results should be interpreted in light of study limitations. First, because of the cross-sectional nature of these data, the temporal relationship between duration of US residence and lifetime suicidal behavior cannot be established with certainty. However, the sensitivity analyses examining past year suicidal ideation, and past year mood, anxiety and substance use disorders were consistent with our results for lifetime suicidal behavior, especially for Latinos. Second, suicidal ideation and suicide attempts are rare events, which resulted in imprecise estimates in some of our analyses, particularly for Afro-Caribbeans and Asians. Therefore, these findings should also be interpreted with caution. Third, data were collected by self-report, which is subject to recall bias. Fourth, suicidal behaviors and psychopathology are associated with social stigma, especially among some racial/ethnic minority groups [53, 54] and, therefore, desirability bias may have affected reporting of suicidality and mental health disorders. If this were the case, our findings may actually be underestimates of the true association. Due to the relatively small number of events we were unable to look at the differences in the association between duration of US residence and suicidality within racial/ethnic subgroups (e.g., differences by gender or age at migration). Also, while we made use of community-based surveys, there is still a risk of selection bias; previous studies have indicated that immigrants to the US are more likely to be healthier than average, and that unwell immigrants are more likely return to their country of origin [3]. If these biases were operating in the NSAL and NLAAS then the findings reported here are likely underestimates of the true association. We were unable to consider immigration visa status (e.g., refugees, students, permanent residents), a variable which was not included in NSAL, which is an important risk factor for acculturative stress [55, 56]. Finally, with cross-sectional data, we were only able to determine the association between duration of US residence and suicidal behavior at one point in time. These associations may change over time. Longitudinal data are necessary to examine such period effects.

This study also has a number of strengths. Respondents were drawn from nationally-representative, population-based samples, which reduces selection bias and enhances the generalizability of findings. We examined the relationship between duration of US residence

and suicidal behavior and 12-month mood, anxiety and substance use disorders among three large immigrant groups in the US. We were also able to account for the role of psychopathology as assessed using a well-validated instrument.

The implications of these findings for public health are multifaceted. Suicidality, while understudied among immigrants, is a leading cause of death and important public health issue. The racial/ethnic composition of the US is changing with the rapid influx of immigrants from Latin America, Asia, and Africa [9–11]. Our findings indicate that the relationship between duration of US residence and suicidal behavior varies across racial/ethnic groups. These results suggest that suicide prevention and intervention programs for immigrants may need to be tailored differently depending on the target racial/ethnic group. The findings also imply that the acculturation process, at least as it relates to suicide risk, is not universal across racial/ethnic groups. That is, acculturation may act a risk factor for suicidal behavior for one group, while it may be a protective factor (or have no net effect) in other groups.

The findings from this study also point to areas for future research. Refugees are a unique immigrant group that may be at particularly heightened risk of suicidal behavior, but few studies have examined this population relative to other immigrant groups. The relationship between living in ethnic enclaves and suicidal risk is also an important area of research that should be studied further. The association between immigration status, an important factor in the migration process, and suicidal behavior should also be explored. Also, more longitudinal studies collecting data on duration of US residence and suicidal behavior among immigrants are needed so as to be able to determine the differences and similarities in these associations overtime.

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Table 1

Distribution of lifetime suicidal ideation and suicide attempts among Afro-Caribbean, Asian, and Latino Immigrants in the National Survey on American Life and the National Latino and Asian American Survey

	Afro-Caribbean (*N* = 1,438)		Asian (*N* = 2,095)		Latino (*N* = 2,554)	
	Suicidal ideation *N* (weighted %)	**Suicide attempt *N* (weighted %)**	**Suicidal ideation *N* (weighted %)**	**Suicide attempt *N* (weighted %)**	**Suicidal ideation *N* (weighted %)**	**Suicide attempt *N* (weighted %)**
Overall	119 (12.0)	39 (5.0)	191 (8.8)	56 (2.5)	263 (10.1)	117 (4.3)
Gender						
Female	76 (39.4)	22 (18.5)	119 (58.8)	41 (72.3)	171 (56.3)	89 (68.6)
Male	43 (60.6)	17 (81.5)	72 (41.2)	15 (27.7)	92 (43.7)	28 (31.4)
Marital status						
Married/cohabiting	34 (31.2)	12 (22.7)	98 (44.6)	31 (53.5)	145 (53.0)	57 (47.3)
Divorced/separated/wid.	23 (8.0)	5 (3.8)	21 (8.6)	8 (10.3)	60 (22.6)	31 (24.1)
Never married	62 (60.8)	22 (73.5)	72 (46.8)	17 (36.2)	58 (24.4)	29 (28.7)
Education						
< High school	21 (35.4)	12 (73.4)	19 (10.1)	3 (9.3)	100 (38.3)	49 (41.4)
High school	36 (23.1)	12 (13.3)	29 (15.6)	12 (20.5)	68 (26.9)	28 (21.2)
> High school	62 (41.5)	15 (13.2)	143 (74.3)	41 (70.1)	95 (34.9)	40 (37.4)
Income-to-needs ratio						
≤1	45 (38.1)	20 (53.1)	45 (29.2)	17 (29.1)	111 (39.9)	61 (49.2)
> 1	74 (61.9)	19 (46.9)	146 (70.8)	39 (70.9)	152 (60.1)	56 (50.8)
Age at migration						
≤12 years	25 (45.1)	4 (36.0)	43 (35.8)	14 (46.0)	47 (37.7)	19 (36.5)
13–17 years	12 (11.1)	5 (32.2)	11 (6.8)	1 (4.0)	16 (17.0)	9 (20.2)
≥18 years	24 (43.8)	4 (31.8)	70 (57.3)	22 (49.9)	65 (45.3)	32 (43.3)
Length of residence in the US						
< 5	8 (19.7)	2 (6.8)	18 (14.9)	4 (10.5)	10 (6.1)	3 (5.0)
5–10	8 (11.7)	1 (16.4)	15 (14.4)	4 (8.3)	15 (10.5)	8 (8.0)
11–20	22 (19.7)	6 (41.7)	43 (34.4)	14 (43.4)	29 (31.5)	15 (36.1)
> 20	25 (48.9)	4 (35.1)	48 (36.2)	15 (37.7)	74 (51.9)	34 (50.9)
Lifetime mood, anxiety, and substance use disorders						
Yes	66 (75.1)	29 (91.4)	91 (48.1)	37 (67.9)	189 (70.6)	95 (83.2)

	Afro-Caribbean (*N* = 1,438)		Asian (*N* = 2,095)		Latino (*N* = 2,554)	
	Suicidal ideation *N* (weighted %)	**Suicide attempt *N* (weighted %)**	**Suicidal ideation *N* (weighted %)**	**Suicide attempt *N* (weighted %)**	**Suicidal ideation *N* (weighted %)**	**Suicide attempt *N* (weighted %)**
No	53 (24.9)	10 (8.6)	100 (51.9)	19 (32.1)	74 (29.4)	22 (16.8)
Mood, anxiety, and substance use disorders in the past year						
Yes	36 (47.4)	14 (73.9)	52 (29.8)	26 (51.0)	117 (41.1)	64 (54.4)
No	83 (52.6)	25 (26.1)	139 (70.2)	30 (49.0)	146 (58.9)	53 (45.6)
Suicidal ideation in the past year						
Yes	22 (21.3)	7 (24.7)	33 (20.1)	10 (15.8)	54 (22.4)	28 (26.2)
No	97 (78.7)	32 (75.3)	158 (79.9)	46 (84.2)	209 (77.6)	89 (73.8)
Suicide attempt in the past year						
Yes	5 (1.56)	5 (3.72)	7 (3.25)	7 (11.4)	16 (5.92)	16 (13.8)
No	114 (98.4)	34 (96.3)	184 (96.8)	49 (88.6)	247 (94.1)	101 (86.2)

Table 2

Association between duration of US Residence and Lifetime Suicidal Ideation by Race/Ethnicity in the National Survey on American Life and the National Latino and Asian American Survey

Years in the US	Model 1[a] OR (95 % CI)	Model 2[b] OR (95 % CI)	Model 3[c] OR (95 % CI)	Model 4[d] OR (95 % CI)
Afro-Caribbean (*N* = 1,134)				
< 5	1.00	1.00	1.00	1.00
5–10	0.54 (0.10–2.97)	0.67 (0.15–3.08)	0.50 (0.10–2.60)	0.44 (0.10–2.02)
11–20	0.40 (0.08–2.11)	0.58 (0.19–1.80)	0.35 (0.07–1.62)	0.70 (0.22–2.22)
> 20	0.88 (0.37–2.08)	1.53 (0.81–2.88)	0.56 (0.21–1.49)	0.85 (0.28–2.57)
Asian (*N* = 1,636)				
< 5	1.00	1.00	1.00	1.00
5–10	1.09 (0.39–3.06)	1.15 (0.41–3.25)	1.05 (0.34–3.26)	0.88 (0.31–2.47)
11–20	1.23 (0.65–2.36)	1.32 (0.63–2.74)	1.02 (0.45–2.31)	1.02 (0.44–2.38)
> 20	1.40 (0.63–3.11)	1.82 (0.74–4.44)	1.37 (0.51–3.70)	1.30 (0.46–3.64)
Latino (*N* = 1,621)				
< 5	1.00	1.00	1.00	1.00
5–10	1.90 (0.73–4.95)	2.05 (0.80–5.26)	1.96 (0.77–4.96)	1.89 (0.72–4.97)
11–20	**2.92 (1.47–5.78)**	**3.19 (1.60–6.36)**	**2.64 (1.35–5.16)**	**2.34 (1.06–5.15)**
> 20	**4.30 (2.05–9.02)**	**4.41 (2.14–9.10)**	**3.33 (1.51–7.34)**	**2.66 (1.25–5.66)**

Bold text indicates statistical significance where the 95 % confidence intervals do not include the null value (1.00)

[a] Model 1: unadjusted

[b] Model 2: adjusted for gender, education, income-to-needs ratio, and marital status

[c] Model 3: adjusted for Model 2 and age at migration

[d] Model 4: adjusted for Model 3 plus lifetime mood, anxiety and substance use disorders

Table 3

Association between Duration of US Residence and Suicide Ideation in the past 12 months by race/ethnicity in the National Survey on American Life and the National Latino and Asian American Survey (*N* = 104)

Years in the US	Odds ratio (95 % CI)[a]	Odds ratio (95 % CI)[b]
Afro-Caribbean (*N* = 1,134)		
< 5	1.00	1.00
5–10	**0.05 (0.00–0.58)**	**0.07 (0.01–0.83)**
11–20	**0.10 (0.01–0.82)**	0.45 (0.16–1.23)
> 20	**0.03 (0.00–0.33)**	**0.07 (0.00–0.96)**
Asian (*N* = 1,636)		
< 5	1.00	1.00
5–10	2.69 (0.39–18.7)	1.76 (0.22–14.1)
11–20	0.68 (0.20–2.28)	0.52 (0.08–3.31)
> 20	0.31 (0.04–2.48)	0.33 (0.02–4.85)
Latino (*N* = 1,621)		
< 5	1.00	1.00
5–10	2.55 (0.28–23.2)	2.14 (0.23–19.9)
11–20	**6.24 (1.22–32.0)**	4.58 (0.71–29.7)
> 20	**20.4 (4.58–91.0)**	**11.0 (2.21–55.1)**

Bold text indicates statistical significance where the 95 % confidence intervals do not include the null value (1.00)

[a] Unadjusted

[b] Adjusted for gender, education, income-to-needs ratio, marital status, age at migration and lifetime mood, anxiety and substance psychopathology

Table 4

Association between Duration of US Residence and Lifetime Suicide Attempts by Race/Ethnicity in the National Survey on American Life and the National Latino and Asian American Survey

Years in the US	Model 1[a] OR (95 % CI)	Model 2[b] OR (95 % CI)	Model 3[c] OR (95 % CI)	Model 4[d] OR (95 % CI)
Afro-Caribbean (*N* = 1,134)				
< 5	1.00	1.00	1.00	1.00
5–10	2.33 (0.19–28.1)	4.20 (0.33–54.3)	4.03 (0.33–49.0)	3.49 (0.20–60.6)
11–20	2.67 (0.51–14.0)	3.63 (0.66–20.0)	3.28 (0.47–23.0)	4.65 (0.48–44.9)
> 20	1.86 (0.31–11.1)	4.59 (0.83–25.4)	3.38 (0.50–22.9)	6.04 (0.45–80.7)
Asian (*N* = 1,636)				
< 5	1.00	1.00	1.00	1.00
5–10	0.90 (0.27–2.96)	0.90 (0.26–3.16)	0.76 (0.23–2.53)	0.64 (0.16–2.62)
11–20	2.21 (0.64–7.70)	2.15 (0.56–8.31)	1.37 (0.34–5.62)	1.46 (0.32–6.71)
> 20	2.05 (0.51–8.23)	2.45 (0.51–11.7)	1.48 (0.31–7.12)	1.43 (0.29–7.10)
Latino (*N* = 1,621)				
< 5	1.00	1.00	1.00	1.00
5–10	1.72 (0.32–9.11)	1.99 (0.37–10.7)	1.96 (0.37–10.4)	1.59 (0.30–8.29)
11–20	**3.99 (1.14–13.9)**	**4.76 (1.38–16.5)**	**4.04 (1.24–13.2)**	3.70 (0.97–14.1)
> 20	**4.89 (1.61–14.8)**	**5.42 (1.68–17.5)**	**4.27 (1.32–13.8)**	3.26 (0.91–11.7)

Bold text indicates statistical significance where the 95 % confidence intervals do not include the null value (1.00)

[a] Model 1: unadjusted

[b] Model 2: adjusted for gender, education, income-to-needs ratio, and marital status

[c] Model 3: adjusted for Model 2 and age at migration

[d] Model 4: adjusted for Model 3 plus lifetime mood, anxiety and substance use disorders

Table 5

Association between Duration of US Residence and 12-month Mood, Anxiety and Substance Use Disorders in the National Survey on American Life and the National Latino and Asian American Survey

Years in the US	Model 1[a] OR (95 % CI)	Model 2[b] OR (95 % CI)	Model 3[c] OR (95 % CI)
Afro-Caribbean (*N* = 1,174)			
< 5	1.00	1.00	1.00
5–10	1.25 (0.24–6.56)	1.37 (0.38–4.98)	1.16 (0.38–3.50)
11–20	0.31 (0.06–1.61)	0.37 (0.11–1.31)	**0.29 (0.09–0.92)**
> 20	0.32 (0.06–1.72)	0.42 (0.14–1.30)	**0.31 (0.13–0.77)**
Asian (*N* = 1,638)			
< 5	1.00	1.00	1.00
5–10	1.58 (0.61–4.14)	1.64 (0.66–4.10)	1.56 (0.55–4.42)
11–20	1.27 (0.77–2.11)	1.36 (0.86–2.15)	1.14 (0.49–2.66)
> 20	0.93 (0.40–2.18)	1.24 (0.54–2.86)	1.01 (0.45–2.26)
Latino (*N* = 1,622)			
< 5	1.00	1.00	1.00
5–10	1.83 (0.73–4.58)	2.09 (0.81–5.39)	2.02 (0.78–5.23)
11–20	2.01 (0.92–4.39)	**2.28 (1.03–5.02)**	**2.13 (1.01–4.50)**
> 20	**2.77 (1.25–6.10)**	**3.09 (1.35–7.08)**	**2.83 (1.25–6.41)**

Bold text indicates statistical significance where the 95 % confidence intervals do not include the null value (1.00)

[a] Model 1: unadjusted

[b] Model 2: adjusted for gender, education, income-to-needs ratio, and marital status

[c] Model 3: adjusted for Model 2 and age at migration

Table 6

Association between Duration of US Residence and Lifetime Suicidal Ideation, Lifetime Suicide Attempt and 12-month Mood, Anxiety and Substance Psychopathology in the National Survey on American Life and the National Latino and Asian American Survey

Years in the US	Suicidal ideation[a] OR (95 % CI)	Suicide attempt[a] OR (95 % CI)	12-month MASP[a,b] OR (95 % CI)
Afro-Caribbean (*N* = 1,174)			
< 5	1.00	1.00	1.00
5–10	0.64 (0.13–3.12)	5.08 (0.39–66.9)	1.36 (0.38–4.94)
11–20	0.65 (0.20–2.12)	4.92 (0.85–28.4)	0.38 (0.11–1.33)
> 20	**2.55 (1.30–5.02)**	**10.7 (1.68–68.4)**	0.45 (0.15–1.37)
Asian (*N* = 1,638)			
< 5	1.00	1.00	1.00
5–10	1.19 (0.42–3.36)	0.97 (0.28–3.31)	1.67 (0.68–4.10)
11–20	1.37 (0.65–2.89)	2.36 (0.60–9.30)	1.39 (0.89–2.17)
> 20	2.18 (0.82–5.83)	4.08 (0.68–24.4)	1.37 (0.48–3.90)
Latino (*N* = 1,622)			
< 5	1.00	1.00	1.00
5–10	2.16 (0.84–5.57)	2.08 (0.38–11.3)	2.15 (0.83–5.54)
11–20	**3.44 (1.70–6.99)**	**5.08 (1.45–17.8)**	**2.37 (1.06–5.29)**
> 20	**6.05 (2.71–13.5)**	**7.14 (2.01–25.4)**	**3.63 (1.53–8.62)**

Bold text indicates statistical significance where the 95 % confidence intervals do not include the null value (1.00)

[a] Adjusted for gender, education, income-to-needs ratio, and marital status and age

[b] Mood, anxiety and substance psychopathology: depression, dysthymia, generalized anxiety disorder, alcohol abuse, alcohol dependence, drug abuse and dependence