Mental Health Care Utilization in Latinx Young Adults Who Grew Up in Rural or Small-Town U.S. Communities by Racial/Ethnic Immigrant Generational Status

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Abstract

Mental Health Care Utilization in Latinx Young Adults Who Grew Up in Rural or Small-Town U.S. Communities by Racial/Ethnic Immigrant Generational Status

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Purpose: To evaluate (1) differences in mental health care utilization across young adulthood by racial/ethnic immigrant generational status for young adults who grew up in a rural setting, (2) whether these differences are explained by language barriers and health insurance coverage, and (3) whether these differences vary longitudinally over the young adulthood period.

Methods: Four years of longitudinal data from 1530 young adults that participated in the Community Youth Development Survey (CYDS) were analyzed. Self-reported mental health care utilization was assessed from age 19 to age 26 along with racial/ethnic immigrant generational status based on the individual's and their parents' country of birth. Multilevel modeling was used to evaluate differences in mental health care utilization among Latinx children of immigrants (COI), Latinx children of non-immigrants (CONI), and non-Latinx White CONI.

Results: Latinx CONI (OR = 2.51, 95% CI: 1.18, 5.34) and White CONI (OR = 2.50, 95% CI: 1.36, 4.61) both had higher odds of utilizing mental health care compared to Latinx COI. When bilingual status was included in the model, these differences were reduced and the findings were no longer statistically significant (Latinx CONI: [OR=1.56, 95% CI: 0.63, 3.87] and for White CONI [OR=1.30, 95% CI: 0.52, 3.26]). Health insurance coverage did not account for differences in mental health care utilization. There were no differences in these associations over time by racial/ethnic immigrant generational status.

Conclusion: Mental health care utilization differs by racial/ethnic immigrant generational status, and this is partially accounted for by language barriers. This points to the importance of culturally competent and bilingual mental health care providers in rural settings to improve immigrant health. It further highlights the heterogeneity present within the Latinx population and the need for further research into understanding how health care utilization varies across the population.

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Background

The Hispanic/Latino population accounts for 52% of the United States' (U.S.) growth from 2010 to 2021, after reaching 62.5 million in 2021.[1] Hispanic/Latino is defined by the U.S. Census Bureau as individuals from Cuban, Mexican, Puerto Rican, South or Central American or another Spanish culture independent of race.[2] The use of the term *Latinx* is used for the remainder of the paper instead of *Latino* (which favors the patriarchy as the masculine version of the term) for simplicity and to address gender inclusivity which is of importance, especially in mental health.[3]

Latinx individuals have been found to have the second-highest lifetime prevalence of anxiety disorders, mood disorders, and substance use disorders compared to other racial and ethnic groups in the U.S.[4] Additionally, Latinx individuals experiencing mental health disorders tend to have greater persistence in their disorder which is thought to relate to a lack of access to quality mental health care.[5] Disparities in receipt of mental health care have been extensively studied showing that Latinx individuals have lower mental health care utilization in comparison to non-Latinx White individuals.[6–8] These disparities may suggest a gap in access to mental health services among Latinx individuals, which may be due to language barriers, concern for costs, lack of health insurance, and availability of appointments.[9–11]

Understanding these disparities in mental health care utilization is crucial during young adulthood, a key developmental period when 75% of all lifetime cases of mental health disorders present by the age of 24.[12] Young adults (YAs), defined as those ages 18 to 29, have been found to underutilize mental health services with only 22.7% of any YA reporting that they received services in the past year and 26.1% reporting a perceived unmet need for services in the past 12 months.[13]

According to the 2020 U.S. Census, just over 12 million YAs (ages 18-29) identify as Latinx in the U.S.[14] The Latinx YA population is diverse and as it continues to grow it is important to assess variations in mental health outcomes and needs across subgroups. This is especially relevant in rural settings where there are further systemic barriers to education and availability of mental health care. Yet not much is known about the service utilization of Latinx YAs in rural settings with much of the research focusing mainly on college students, particularly those at research universities.[15] Focusing on rural and small-town settings, which have experienced the largest increases from Latinx populations,[16–18] is important as immigrants living in rural settings may be less likely to have knowledge of available mental health services in their community compared to those living in urban settings. [19] This could be in part due to the limited availability of bilingual and bicultural mental health providers in rural settings. The rural built environment has been found to affect health outcomes, and even more for Latinx individuals who have limited internet access and health insurance coverage, poor transportation infrastructure, and limited clinic hours.[20–22]

To reduce these barriers to service utilization among Latinx communities, it will be important to understand other factors that play a role, such as generation status. Latinx immigrants have been found to have a lower prevalence of mental health conditions including major depressive disorder compared to U.S.-born Latinx individuals[23–25]. However, this could be affected by perceived need which is strongly associated with mental health care utilization in Latinx individuals.[26] Some research has shown that Latinx first-generation adolescents are less likely to utilize mental health care, but less is known whether this trend continues into the YA years.[27] Additionally, children in immigrant families who are experiencing a mental and/or behavioral health problem are also less likely to utilize mental health care and receive medication

compared to children in non-immigrant families.[28] The longitudinal comparison of these barriers will contribute to guiding interventions that reduce the impact of these barriers of underutilization of mental health care in Latinx YAs.

Conceptual framework

This study specifically focuses on the frameworks related to immigration as a social determinant of health[29,30] and the Behavioral Model of Health Service Use (BMHSU) as modified to explain immigrant health care utilization.[31] The BMHSU centers around how perceived need, predisposing factors, and enabling factors (those that facilitate or hinder utilization) affect immigrant health service use. Low perceived need for mental health care utilization among Latinx individuals[32] is associated with not utilizing mental health services until symptoms are severe.[33] This is potentially in part due to the predisposing factor of mental health literacy, which includes knowledge of mental health conditions and the ability to identify symptoms of depression, for example.[34,35] There is speculation as well about the protective role that biculturalism could play in upholding Latinx cultural practices.[30] For example, *familismo* within the Latinx culture may serve as a predisposing factor by emphasizing the role that family plays in one's life for support. *Familismo* has been associated with reduced mental health care utilization possibly because individuals will be more likely to seek support from family.[36,37] However, stigma around mental health[11,38] in the Latinx culture is a predisposing factor that may lead some to seek support for mental health concerns from community members such as religious leaders rather than mental health care providers.[9] Lastly, parental education is thought to serve as an indicator of childhood socioeconomic status (SES) which is a predictor for mental health and mental health care utilization when needed into adolescence and later in life.[39–41]

There may be important structural factors that play a role in potential differences in mental health care utilization by racial/ethnic immigrant generational status. Although language has been studied as a measure of acculturation and similarly allowing for communication with extended Spanish-speaking family for support,[37] it may act as an enabling factor for mental health care utilization due to structural barriers where health systems often do not provide services and/or assistance with identifying appropriate resources in one's native language.[9,11,36,42–44] Similarly, lack of health insurance and/or concern for cost are noted as enabling factors for mental health care utilization by Latinx[9,11,42,44] with Latinx immigrants being 49% less likely to have health insurance compared to U.S.-born Latinx.[45]

It will be important to evaluate whether the impacts of these factors on mental health care utilization change over time by racial/ethnic immigrant generational status. Prior research has found that differences in mental health care utilization over time have widened between Latinx and White adults.[46] However, with improved access to health insurance and mental health literacy thereby ameliorating the effects of stigma over time as YAs age, it is possible that differences in mental health care utilization over time will be more pronounced in U.S.-born Latinx individuals than non-Latinx White individuals, relative to Latinx immigrants.

Current Study

This current study used longitudinal data from Latinx and non-Latinx White YAs who grew up in a rural setting. The primary aim was to assess whether there were differences in mental health care utilization among first- and second-generation Latinx YAs, third-generation or later Latinx YAs, and third-generation or later non-Latinx White YAs. We hypothesized that third-generation or later Latinx YAs would have higher utilization compared to first- and second-generation Latinx YAs. The secondary aim was to explore whether the differences were

explained by language barriers and lack of health insurance as structural barriers to mental health care. Finally, the last aim was to explore whether the difference in utilization between Latinx and non-Latinx White YAs would vary over time and consequentially developmental age.

Methods

Participants

Data were from the Community Youth Development Study (CYDS), a community randomized trial designed to test the efficacy of the Communities That Care (CTC) prevention system. The original study enrolled 24 small towns across seven states (Colorado, Illinois, Kansas, Maine, Oregon, Utah, and Washington). Within the states, the towns were matched in pairs according to total population, poverty, racial/ethnic diversity, and unemployment and crime indices. In Fall 2002, one community in each pair was randomly assigned to either the CTC prevention system as the intervention or a control condition. A cohort of 5th graders was enrolled in each community during the 2003-2004 school year and followed over time. To minimize potential differences in mental health care utilization due to the CTC intervention, this project only used data from the 12 control communities.

Of the 2,611 eligible children, 2,002 agreed to participate (76.6%) (**Figure 1**). Of those who enrolled, 532 (26.6%) identified as Latinx and 1,152 (57.5%) identified as non-Latinx White. While children of other races/ethnic groups were enrolled in the study (n=318), these numbers were small and were therefore excluded and the analyses were limited to only Latinx of any race and non-Latinx White YA. Of those who self-identified as Latinx, 98 (18.4%) were first-generation (foreign-born YA with at least one foreign-born parent), 219 (41.2%) were second-generation (U.S.-born YA with at least one foreign-born parent), and 166 (31.2%) were third generation or later (U.S.-born YA with U.S.-born parents). Of those who identified as non-

Latinx White, less than 1% identified were first-generation and 2.6% were second-generation. Thus, these YAs were excluded from the analyses due to the small numbers. This project excluded participants who were missing immigrant general status (n=121) as it was the exposure of interest in this project.

Data collection

Survey data collection began in 2005 when the students were in 6th grade and continued in nine waves of annual or biennial surveys. Four waves of data were used for this project from the YA years of 2012, 2014, 2016, and 2019, when participants were approximately ages 19, 21, 23, and 26 years of age, respectively. For those unable to complete the survey online, a self-administered paper survey was used. Most of the YAs completed the surveys using a web-based instrument. The retention rate from these survey waves was high and ranged between 86.9% to 90.9%.

Measures

Racial/ethnic immigrant generational status was assessed based on self-report of the participant and parents' country of birth and participants' race and ethnicity. Latinx ethnicity was assessed based on self-report to the question "Are you Spanish/Hispanic/Latino?", with those answering "yes" classified as Latinx. Respondents were categorized into immigrant generational groups based on self-report of both the respondent's and their parents' country of birth during the age 21 wave or age 23 wave if not answered the previous wave. This was categorized as follows: Latinx children of immigrants (COI; first- and second-generation immigrants); Latinx children of non-immigrants (CONI; third generation or higher), and Non-Latinx White CONI. Due to the nature of the study design, all participants had to have been in the U.S. by 5th grade (~age 11),

and therefore some literature would more precisely classify the 1st generation group as 1.5th generation for having immigrated during middle childhood.[47]

Mental health care utilization was based on the respondent's answer to the question "In the past year, how many sessions/visits did you attend for counseling or outpatient mental health services?". Those who reported one or more visits were categorized as having utilized mental health care in the past year for that wave.

Covariates

As a potential confounder, parental education was a time-fixed variable as reported in 10th grade that was asked individually for the father and mother with the highest of the two used. This was then recategorized into three levels for analyses (0=less than high school, 1=high school, 2=more than high school). Participants' current education status was assessed at each wave and categorized into three levels (0=not in school, 1=other school [e.g., "Attending a community or 2-year college", "Involved in other vocational or technical program", "Involved in other academic or educational program"], 2=4-year college or grad school).

Additional covariates were included to understand their contribution to associations between racial/ethnic immigrant generational status and mental health care utilization. Likely major depressive disorder (MDD) was assessed at each wave using the Patient Health Questionnaire-9 (PHQ-9) (0=no, 1=yes). To be classified as meeting likely criteria for MDD, one needed to endorse at least 5 of 9 symptoms for at least "More than half the days". Further, either "Little interest or pleasure in doing things" or "Feeling down, depressed, or hopeless" needed to be endorsed "More than half the days" as well. For simplicity, we will refer to this as MDD for the rest of the paper.

Health insurance status was assessed at each YA wave. In 2012, participants were asked, "Do you currently have health insurance?". Responses options were "Yes" and "No". For analyses, we categorized responses into a dichotomous variable (0=no, 1=yes). In 2014, health insurance status was assessed with the question, "What kind of health insurance or health care coverage do you currently have? Check all that apply." Options included "Health insurance provided by my employer", "Health insurance provided by my spouse or partner's employer", "Health insurance provided by my parent's employer", "I purchased private health insurance (including through a health care exchange such as HealthCare.gov)", "My spouse or partner's private health insurance", "My parents' private health insurance", "Medicaid", "Military Health Care/Tricare (Active duty)", "Tricare/Champus/ChampVA (Dependents, veterans)", and "Indian Health Insurance". Those reporting any type of health insurance classified as having health insurance (1) and those checking "No health insurance" were coded as 0. For both the 2016 and 2019 waves, participants were first asked "Over the past 12 months, how many months did you have health insurance?" and those who reported 0 were categorized as not having health insurance. Those who reported having had health insurance for at least part of the past 12 months were then asked, "What is the primary source of health insurance or health care coverage you currently have?". Respondents who reported "No health insurance", meaning they had health insurance for part of the past 12 months but did not currently have any, were categorized as not having health insurance to keep it consistent with the past two years of data. Those who reported any type of health insurance currently were then categorized as having health insurance.

Bilingual status was assessed at age 21, or age 23 if not answered at age 21, by asking respondents, "What is the language you use most often at home?". The response options were "English only", "Mostly English", "English and another language", "Mostly another language",

and “Another language only”. This was recategorized into two levels (0 = English only; 1 = “Mostly English”, “English and another language”, “Mostly another language”, or “Another language only”).[37,44,48] Study wave was included as a numerical variable (0=age 19, 1=age 21, 2=age 23, 3=age 26). Additional demographics that were used to describe the sample were age and sex.

Analysis

To account for the repeated assessments, multilevel models with a random intercept for each individual were used to assess whether racial/ethnic immigrant generational status was associated with mental health care utilization across four study waves during young adulthood. Racial/ethnic immigrant generational group was included as indicator variables with Latinx COI as the reference group.

Covariates were included in the statistical models at multiple stages. All models adjusted for the community at enrollment as indicator variables. The first model adjusted for the antecedent demographic factor of parental education. The second model further adjusted for individuals’ education status as a time-varying covariate. The third model further adjusted for MDD as a time-varying covariate. The final models further adjusted for bilingual status and health insurance status as structural factors, individually at first and then including both together.

Finally, to assess whether differences among groups vary across age, models were run that included interactions between racial/ethnic immigrant generational group and survey wave.

All statistical analyses were conducted in R version 4.0.3 and the *lme4* package was used for the multilevel model analysis.[49]

Results

There were 1530 individuals included in the final sample with 317 Latinx COI, 166 Latinx CONI, and 1047 non-Latinx CONI. Time-fixed participant characteristics are shown in **Table 1**. The groups had a similar age of approximately 19 years at wave 1 and similar distributions of sex across each group. Regarding parental education, approximately 30% of parents in the Latinx COI group had more than a high school education while 60% of parents in the Latinx CONI had more than a high school education. The largest proportion was seen in the White CONI group which had approximately 78% of parents with more than a high school education.

Time-varying characteristics are shown in **Table 2**. Among both Latinx COI and CONI, approximately 15% reported attending college at age 19. However, 30% of White CONI participants reported attending college at age 19. Regarding bilingual status, Latinx COI reported the highest proportion (91%) compared to Latinx CONI (21%) and White CONI (1%).

Latinx COI reported the lowest proportion of having health insurance (63%) at age 19 compared to Latinx CONI (73%) and White CONI with the highest proportion (79%). A similar distribution of MDD was seen across the three groups across the four waves; however, Latinx CONI reported the highest prevalence in three out of the four waves with a peak prevalence of 15% at age 26.

Mental health care utilization

At age 19, approximately 4% of Latinx COI utilized mental health care services, compared to 8% of Latinx CONI and 7% of White CONI. Across all groups, mental health care utilization increased with each wave except for a slight decrease from age 19 to age 21 among Latinx CONI. Mental health care utilization was consistently the lowest across all waves in the

Latinx COI group. At ages 21 (9%) and 23 (11%), White CONI had the highest mental health care utilization and Latinx CONI had the highest mental health care utilization at the last wave of age 26 (14%).

Mental health care utilization across racial/ethnic immigrant generational status

As shown in **Table 3**, Latinx CONI had statistically significant higher odds of utilizing mental health care compared to Latinx COI (OR = 2.51, 95% CI: 1.18, 5.34). White CONI also had statistically significant higher odds of utilizing mental health care compared to Latinx COI (OR = 2.50, 95% CI: 1.36, 4.61). Adjusting for parental education (Model 1) accounted for some of the differences. Although not statistically significant at $p<0.05$, Latinx CONI (OR = 2.01, 95% CI: 0.92, 4.38) and White CONI (OR = 1.75, 95% CI: 0.90, 3.41) had higher odds of mental health care utilization compared to Latinx COI. Results were similar after further adjusting for the participant's current educational status (Model 2). Inclusion of participants' depression status in the model (Model 3) led to further attenuations in the differences in mental health care utilization in Latinx CONI (OR = 1.88, 95% CI: 0.91, 3.92) and White CONI (OR = 1.64, 95% CI: 0.88, 3.08) relative to Latinx COI.

Finally, when including bilingual status, we did not see a statistically significant association between bilingual status and utilization (Model 4). However, this did lead to further attenuation of the difference in Latinx CONI (OR = 1.56, 95% CI: 0.63, 3.87) and for White CONI (OR = 1.30, 95% CI: 0.52, 3.26) relative to Latinx COI. When health insurance status alone was included in the model (Model 5), there were minimal changes in the odds ratios for both Latinx CONI and White CONI. With the addition of both bilingual status and health insurance together (Model 6), the differences in mental health care utilization did not change much from Model 4 and remained statistically non-significant.

Changes in mental health care utilization over time

We then evaluated whether mental health care utilization differed over time by immigrant generational status. We did not find any statistically significant interactions between immigrant generational status and study wave when adjusting for parental education, current education status, MDD, and study wave as shown in **Table 4**. All interaction estimates were small with p-values >0.868.

Discussion

In this longitudinal study of YAs from small towns, we compared mental health care utilization among different racial/ethnic immigrant generational groups. We found that Latinx CONI and White CONI were significantly more likely to utilize mental health care services compared to Latinx COI. We also found that these differences in associations were, at least, partially explained by parental education status, major depressive disorder, and bilingual status. However, we did not find evidence that these differences in associations were explained by current education status or health insurance. Additionally, there was no evidence to support our third hypothesis that the difference in mental health care utilization varied over developmental age between Latinx and White YAs. Recognizing these differences in access to mental health care is important as Latinx individuals who have untreated mental illness are more vulnerable to poverty, especially undocumented individuals who lack access to public assistance programs, when their mental health impacts their job productivity.[50] Furthermore, some research has suggested that improving immigrants' access to health care would reduce mental health disparities by 14-29%.[51]

Our finding that Latinx CONI and White CONI reported higher mental health care utilization than Latinx COI is consistent with some of the previous literature. In studies of Latinx individuals, those of 1st and 2nd immigrant generations have been found to have lower mental health care utilization compared to 3rd generation Latinx individuals.[52–54] While we found that Latinx CONI had a higher prevalence of MDD, other studies found that Latinx COI had higher odds of depressive symptoms[23,48,55]. Additionally, there are other mental health conditions that Latinx individuals could be facing that require health care as well. This heterogeneity across immigrant generational status among Latinx individuals is consistent with growing research that challenges frameworks like the Hispanic and Immigrant Health Paradoxes.[30,56–59] These frameworks predict that immigrants have better health outcomes than their U.S.-born counterparts despite often experiencing worse socioeconomic conditions and more stressors such as those related to migration. Other influences on Latinx individuals' health and well-being are being considered in immigrant research such as contextual approaches that consider influences related to mixed family legal status, neighborhood or community context, and forces related to segmented assimilation.[30,58–60] For example, our study's higher prevalence of MDD within Latinx CONI in our sample could point to increased stressors from a potential lack of ethnic enclaves in rural U.S. settings.[60]

Our findings that parental education[61,62] and bilingual status[9,43,44] partially explained the associations reflect the structural barriers that Latinx YA face in mental health care utilization and are consistent with existing literature. Parental education as a proxy for SES could indirectly affect mental health literacy through increasing knowledge to recognize symptoms of mental health disorders, encouraging health-seeking behaviors, and reducing the barrier of stigma. Additionally, parental SES has been found to be strongly correlated with adulthood SES as it

affects the capital and the resources that are available to obtain higher education.[41] This correlation could explain why the YAs' current educational status did not further account for differences in mental health care utilization.

In our study, bilingual status was associated with lower odds of mental health care utilization. This does not indicate that speaking both languages increases the risk for poor mental health care utilization, but rather highlights a structural barrier of a potentially unmet need for more bilingual/bicultural mental health care providers and culturally relevant services. Prior studies showed the need for culturally competent and bilingual care from mental health care providers that are aware of Latinx YAs' intersecting identities to increase patients' trust in mental health care providers.[11,63,64] As of 2021, approximately 8% of psychologists identify as Latinx across the U.S. demonstrating the gap in diverse providers.[65]

It is important to consider the political context in which this study was conducted. During the course of the four waves that are included in this study, the enactment of the Affordable Care Act (ACA) in 2014 decreased the uninsured rate for Latinx individuals by 15% as of 2018.[66] Additionally, it has been found that the ACA reduced the odds of being uninsured specifically for Mexican, Central American or Caribbean immigrants[67], but it is unknown how this varies by documentation status and, thus, how this would impact the 1st generation Latinx COI in our study. With Donald Trump's presidential campaign and eventual election in 2016, there was an increase in restrictive immigration policies and anti-Latinx rhetoric that was associated with poorer mental health and discrimination.[68–72] These societal policies and climate would have likely impacted Latinx COI's mental health more compared to Latinx CONI within our study due to their more vulnerable immigration status.

This study had limitations that are important to consider. A large proportion (80%) of the respondents were of Mexican background which limited our ability to generalize findings to other Latinx YAs and prevented us from assessing differences by other Latinx ethnic subgroups. Prior literature has found that there are differences in the prevalence of mental health conditions[25] and utilization[52] by Latinx ethnic subgroups. Additionally, we were unable to assess differences in mental health care utilization solely in those diagnosed with a mental health condition or experiencing symptoms for other conditions beyond MDD.

Another limitation was that we were unable to explore other potential mechanisms for mental health utilization in the sample. Although we captured an indicator of structural factors related to the immigrant experience through bilingual status, other factors were unmeasured such as stigma surrounding mental health, knowledge of the health care system and local mental health resources, and community support.[52,73] Acculturation has previously been thought of as a unidimensional construct where adoption of the Western culture may imply loss of connection to one's native culture and includes linear or simplistic assessment of nativity or length of stay in the U.S.[74] Such constrained assessment and conceptualization does not take into account structural and cultural influences that may play role in adapting to a new culture.[30,60,74–77] Moreover, most current conceptualizations of acculturation, even if multi-dimensional, have not fully considered the challenge of maintaining a connection to a culture that is discriminated against while adapting to the dominant culture, and thus have been limited in their measurement.[59] One way to approach this challenge is to take into consideration the perspectives of immigrants as opposed to focusing on the view of individuals who identify with White/Anglo culture. Similarly, we did not have information on structural barriers within each community that impacted the participants' utilization including immigration-related fears related to concerns

about deportation when seeking mental health care and thus exacerbating the need for it.[11,38] The availability of mental health clinicians with interpreters, use of culturally competent care, and cost of care are other barriers that prevent other Latinx populations from seeking mental health care.[9,10,78]

Lastly, due to the relatively small size of the first-generation Latinx group in our study sample (n=98), it had to be combined with the second-generation Latinx group as part of the Latinx COI classification. While this categorization is substantively and methodologically justified, this prevented us from evaluating variability between these two groups because of different immigration experiences.[47,59]

Contribution to the Literature

To our knowledge, this is the first study to evaluate mental health care utilization during the developmental period of young adulthood by racial/ethnic immigrant generational group, with a focus on Latinx YAs from rural communities and small towns in the U.S. The use of the longitudinal design allowed us to assess mental health care utilization across multiple years during young adulthood. The findings of this study highlight lower mental health care utilization among Latinx COI as compared to Latinx CONI and White CONI. Our study adds to the growing need for culturally competent mental health interventions and policies to improve health care access for immigrants to address mental health disparities.

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Tables

Table 1: Time-Fixed Participant Characteristics by Racial/Ethnic Immigrant Generational Group

	Latinx COI	**Latinx CONI**	**White CONI**
N	317	166	1047
Mean age at wave 2012	19.25	19.25	19.17
Female (%)	164 (51.7%)	85 (51.2%)	517 (49.4%)
Parental education at 10th grade wave (%)			
Less than High School	113 (41.4%)	24 (15.9%)	39 (3.9%)
High School	78 (28.6%)	36 (23.8%)	181 (18.4%)
More than High School	82 (30.0%)	91 (60.3%)	762 (77.6%)
Missing	44 (13.9%)	15 (9.0%)	65 (6.2%)
Bilingual (%)	287 (90.5%)	35 (21.1%)	15 (1.4%)
Missing	0	0	1 (0.1%)

*Validated percentages in this table are presented, except for Missing which uses raw percentages

Table 2: Participant Characteristics by Racial/Ethnic Immigrant Generational Group at Each Wave

	Wave 2012 (Age 19)			Wave 2014 (Age 21)			Wave 2016 (Age 23)			Wave 2019 (Age 26)		
	Latinx COI	**Latinx CONI**	**White CONI**	**Latinx COI**	**Latinx CONI**	**White CONI**	**Latinx COI**	**Latinx CONI**	**White CONI**	**Latinx COI**	**Latinx CONI**	**White CONI**
N	307	153	968	304	160	1012	293	150	963	286	149	934
Mental health care utilization (%)	12 (3.9)	12 (7.8)	69 (7.2)	14 (4.6)	12 (7.6)	92 (9.1)	16 (5.5)	13 (8.7)	109 (11.4)	20 (7.0)	21 (14.1)	122 (13.1)
Missing	3 (1.0)	0	4 (0.4)	2 (0.7)	3 (1.9)	6 (0.6)	0	1 (0.7)	3 (0.3)	0	0	1 (0.1)
Current education status (%)												
Not in school	133 (43.3)	76 (49.7)	377 (39.0)	195 (64.1)	106 (66.3)	560 (55.4)	200 (68.5)	116 (77.9)	651 (67.6)	225 (78.7)	125 (83.9)	745 (79.8)
Other school	127 (41.4)	52 (34.0)	296 (30.6)	57 (18.8)	30 (18.8)	147 (14.5)	48 (16.4)	16 (10.7)	93 (9.7)	31 (10.8)	10 (6.7)	73 (7.8)
College/Graduate school	46 (15.0)	25 (16.3)	293 (30.3)	52 (17.1)	24 (15.0)	304 (30.1)	44 (15.1)	17 (11.4)	219 (22.7)	30 (10.5)	14 (9.4)	115 (12.3)
Missing	1 (0.3)	0	2 (0.2)	0	0	1 (0.1)	1 (0.3)	1 (0.7)	0	0	0	1 (0.1)
Likely Major Depressive Disorder (%)	12 (3.9)	12 (7.9)	62 (6.4)	18 (6.0)	14 (8.9)	82 (8.2)	22 (7.5)	15 (10.1)	99 (10.3)	23 (8.1)	23 (15.4)	116 (12.5)
Missing	3 (1.0)	2 (1.3)	6 (0.6)	2 (0.7)	2 (1.3)	8 (0.8)	1 (0.3)	1 (0.7)	6 (0.6)	1 (0.3)	0	3 (0.3)
Health insurance (%)	192 (63.0)	112 (73.2)	755 (78.6)	217 (74.1)	125 (80.6)	841 (84.4)	215 (74.4)	121 (81.8)	852 (89.3)	221 (77.8)	114 (76.5)	805 (86.9)
Missing	2 (0.7)	0	8 (0.8)	11 (3.6)	5 (3.1)	15 (1.5)	4 (1.4)	2 (1.3)	9 (0.9)	2 (0.7)	0	8 (0.9)

*Validated percentages in this table are presented, except for Missing which uses raw percentages

Table 3: Odds Ratio Estimates for Association of Racial/Ethnic Immigrant Generational Group with Mental Health Care Utilization

	Unadjusted (95%CI)	**Model 1 (95%CI)**	**Model 2 (95%CI)**	**Model 3 (95%CI)**	**Model 4 (95%CI)**	**Model 5 (95%CI)**	**Model 6 (95%CI)**
Latinx COI	ref	ref	ref	ref	ref	ref	ref
Latinx CONI	2.51	2.01	2.07	1.88	1.56	1.85	1.55
	(1.18, 5.34)	(0.92, 4.38)	(0.95, 4.53)	(0.91, 3.92)	(0.63, 3.87)	(0.88, 3.88)	(0.62, 3.89)
p-value	0.017	0.078	0.067	0.090	0.336	0.104	0.346
White CONI	2.50	1.75	1.75	1.64	1.30	1.56	1.26
	(1.36, 4.61)	(0.90, 3.41)	(0.90, 3.40)	(0.88, 3.08)	(0.52, 3.26)	(0.83, 2.95)	(0.50, 3.18)
p-value	0.003	0.099	0.101	0.122	0.570	0.170	0.623
Parental education		1.37	1.32	1.32	1.30	1.31	1.29
		(1.01, 1.88)	(0.97, 1.81)	(0.98, 1.77)	(0.97, 1.75)	(0.97, 1.76)	(0.95, 1.74)
p-value		0.044	0.079	0.063	0.085	0.078	0.100
Current education			1.26	1.29	1.29	1.27	1.27
status			(1.06, 1.50)	(1.09, 1.53)	(1.09, 1.53)	(1.07, 1.51)	(1.07, 1.51)
p-value			0.008	0.003	0.003	0.005	0.005
Major Depressive				4.64	4.65	4.68	4.70
Disorder				(3.19, 6.75)	(3.20, 6.77)	(3.20, 6.84)	(3.21, 6.87)
p-value				<0.001	<0.001	<0.001	<0.001
Bilingual					0.74		0.76
					(0.32, 1.74)		(0.32, 1.79)
p-value					0.490		0.527
Health insurance						1.35	1.35
						(0.92, 1.98)	(0.92, 1.98)
p-value						0.121	0.123
Study wave	1.41	1.39	1.46	1.38	1.38	1.37	1.37
	(1.27, 1.57)	(1.25, 1.55)	(1.30, 1.64)	(1.23, 1.55)	(1.23, 1.55)	1.22, 1.54)	(1.22, 1.54)
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 4: Adjusted Odds Ratio Estimates for Association of Racial/Ethnic Immigrant Generational Group with Mental Health Care Utilization by Study Wave

	Model 3[a] (95% CI)
Latinx COI	ref
Latinx CONI	1.76 (0.45, 6.92)
p-value	0.416
White CONI	1.53 (0.53, 4.43)
p-value	0.436
Latinx CONI*Study wave	1.02 (0.67, 1.56)
p-value	0.910
White CONI*Study wave	1.03 (0.75, 1.41)
p-value	0.868

[a]Model adjusted by parental education, current education status, major depressive disorder, and study wave

Figures

Figure 1: Study Enrollment and Cohort Flow Chart