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The Prevalence, Comorbidity, and Age of Onset of Social Anxiety Disorder among U.S. Latinos

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Abstract

Objective—Social Anxiety Disorder (SAD) is increasingly being recognized as a prevalent, unremitting, and highly comorbid disorder[1] yet studies focusing on this disorder among U.S. Latinos and immigrant populations are not available. This article evaluates ethnic differences in the prevalence, comorbidity, and age of onset of SAD. Cultural and contextual factors associated with risk of SAD are also examined within the Latino population.

Method—Data are analyzed using the National Latino and Asian American Study (NLAAS) and the National Comorbidity Survey-Replication (NCS-R). Both studies utilized the World Mental Health – Composite International Diagnostic Interview, which estimates the prevalence of lifetime and 12-month psychiatric disorders according to DSM-IV criteria.

Results—Latinos (LAT) reported lower lifetime and 12-month SAD prevalence and a later age of onset than U.S.-born non-Latino Whites (NLW). On the other hand, LAT diagnosed with 12-month SAD reported higher impairment across home, work, and relationship domains than their NLW counterparts. Overall, high SAD comorbidity was found with depressive, anxiety, and substance-related disorders among both ethnic groups. However, relative to NLW, LAT who entered the U.S. after the age of 21 were *less* likely to have lifetime SAD comorbidity with drug abuse and dependence and *more* likely to report lifetime SAD comorbidity with agoraphobia.

Conclusion—Varied trajectories of SAD risk are present across ethnicity and nativity groups. Clinicians must consider how culture and ethnicity shape these different presentations and determine treatment options accordingly. Outreach efforts are needed to reach immigrant Latinos, and those with comorbid SAD and Agoraphobia in particular.

Keywords

Social Anxiety Disorder; Latinos; Immigrants; Comorbidity; Age of Onset; Impairment

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Introduction

Social anxiety disorder (SAD), or social phobia, is characterized by a marked and persistent fear of social or performance situations and an avoidance or fear of humiliation and embarrassment associated with these situations[2]. It is estimated that SAD is present at some point in the lives of as many as 13% of the adult population in several Western countries[3]. Lifetime prevalence of SAD among the English speaking population of the United States were recently estimated at 12.1%[4]. SAD is the third most common lifetime disorder among United States adults, behind only alcohol dependence and major depressive disorder[5]. Women, those of lower socio-economic status, and those who are young and unmarried are generally considered to be at higher risk for the diagnosis[3].

Cross-cultural variability in the prevalence of SAD has also been found. Surveys conducted in urban and rural areas of Korea and Taiwan, for example, documented lifetime prevalence of less than 1%[6–7]. Epidemiological surveys in Latin America have reported lifetime prevalence of 2.4% (Mexico City, Mexico)[8], 3.5% (Sao Paulo, Brazil)[9], and 1.6% (Puerto Rico)[10] using DSM-IV, ICD-10, and DSM-III criteria, respectively. Most recently, Medina-Mora and her colleagues[11] reported a lifetime prevalence of 4.7% among a national sample carried out in Mexico using ICD-10 criteria. Thus, in general, international research studies suggest that the prevalence of SAD in the U.S. is higher than in Latin American and Asian countries. However, the complex role that culture may play in the emergence of this disorder remains unclear and at least some of the differences in prevalence reported are the result of differences in the instruments and diagnostic criteria used across the studies.

Within the U.S., ethnic and nativity group comparisons in prevalence have yielded mixed results. For example, Karno and his colleagues[12], using the Los Angeles site data from the Epidemiologic Catchment Area (ECA) study, reported no significant differences across U.S.-born Non-Latino Whites, U.S.-born Mexican Americans, and Mexico-born Mexican Americans. In the Mexican American Prevalence and Service Study (MAPSS), conducted in Fresno, California, a lifetime prevalence of 7.4% was reported[13], and U.S.-born Mexican Americans reported prevalence that was more than twice as high (10.9%) as their counterparts born in Mexico (5.3%). Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) corroborate this pattern of results. Mexican Americans born in Mexico had lower lifetime SAD prevalence (2.1%) than Mexican Americans (4.1%) and Non-Latino Whites (5.5%) born in the U.S[14]. Thus, it appears that, when differences emerge, foreign-born Latinos are at lower risk for SAD.

More research is needed to disentangle the prevalence among U.S. Latinos, however. All three studies cited earlier focused on Mexican American samples. Comparable reports for other U.S. Latino groups are needed, since these groups combined represent one-third of the Latino population living in the U.S.[15]. The lifetime prevalence of SAD among U.S. Latinos surveyed in the NCS was reported as 19.0%[13]. However, the NCS was conducted entirely in English and, as a result, excluded a significant number of monolingual Spanish speaking foreign-born Latino participants. The NESARC study, which used a different diagnostic instrument available in both Spanish and English, found that lifetime SAD was 1.6% for Cubans and 5.1% for Puerto Ricans[16]. This indicates that more attention is needed to further clarify whether or not there are subgroups of Latinos who are at a relatively higher risk for this disorder.

SAD is strongly associated with other psychiatric disorders. In the NCS, 81% of those with SAD also reported at least one additional lifetime disorder, and about one half (48%) reported as many as three additional lifetime disorders[17]. Comorbidity was present with other anxiety disorders (56.9%), affective disorders (41.4%), and substance-related disorders

(39.5%). High comorbidity has similarly been documented among samples with relatively lower base rates of SAD prevalence[18] and among children and adolescents[19–20]. To date, however, little is known about SAD comorbidity patterns among ethnic minority groups in the U.S., including among Latinos.

In addition to being highly comorbid, SAD typically emerges by early to mid adolescence. Wittchen and Fehm[1] have noted that the age of onset of SAD in epidemiological studies ranges between 10 and 16.6 years. New cases of this disorder are thought to be rare after the second decade of life[21]. Because of this early onset, SAD often precedes the emergence of other psychiatric disorders[22,19]. Even disorders that require a childhood onset for diagnosis, such as conduct disorder, have been reported as having, on average, a later onset than SAD[23]. However, because virtually no information is available about the onset of SAD among representative samples of U.S. Latinos, it is difficult to ascertain the extent to which the onset and temporal sequence of SAD in relation to other disorders generalizes across cultural subgroups in the United States. The closest indicator regarding age of onset of SAD among Latin American populations comes from a national study conducted in Mexico[11] which found a median age of onset of 13 years.

Although there is increased interest in the role of cultural factors in the etiology and course of SAD[1,24], much less is known about whether the timing of immigration affects whether or not a person develops the disorder. SAD is often characterized by public speaking fears, which are among the most common feared social and performance situations[19,25], endorsed by as many as 77 percent of those with SAD[25]. As a result, immigrant groups arriving to the United States with comparatively lower educational levels and low levels of English fluency may be at risk[26–27].

The specific aims of this study, therefore, are to:

1. Compare the lifetime and 12-month prevalence of SAD across nationally representative samples of U.S. Latinos and Non-Latino whites. Ethnic differences associated with diagnostic characteristics of SAD are also evaluated. These include the age of onset of social anxiety and levels of functional impairment that are attributed to the disorder.
2. Examine patterns of risk of SAD across sociodemographic factors for both Latinos and non-Latino whites. Sex, age, income, education, and employment are among those evaluated. Among Latinos, additional cultural and contextual factors such as language proficiency, nativity, and age of immigration are also examined, in terms of their relationship to both the prevalence and age of onset of this disorder.
3. Determine the lifetime presence of comorbidity of SAD with selected disorders, including depressive disorders, other anxiety disorders, and substance use disorders, and examine differences in the reports of comorbidity across ethnicity and nativity groups.

Method

Participants

As described elsewhere[28], the Latino arm of the NLAAS is a nationally representative survey of English- and Spanish-speaking household residents ages 18 and older in the non-institutionalized population of the coterminous United States. Approximately half of the Latino sample in NLAAS was surveyed in Spanish and a 75.5% response rate was obtained. The Institute for Social Research (ISR) at the University of Michigan was responsible for data collection, which took place between May 2002 and November 2003. A multi-stage

clustered area probability sample of households was employed, and Latinos were stratified across four subgroups (Puerto Rican, Cuban, Mexican and Other Latinos). The NLAAS weighted sample is similar to the 2000 Census in sex, age, education, marital status, and geographical distribution (data not shown) but different in immigration status and household income of the respondent, with more immigrants to the U.S. and lower income respondents in the NLAAS sample. This discrepancy may be due to undercounting of immigrants[29] and non-inclusion of those who are undocumented[30].

The National Comorbidity Survey-Replication (NCS-R) Part II is a nationally representative survey of English-speaking household residents (n=9282) aged 18 years and older living in the conterminous United States[31]. Face to face interviews were conducted by professional interviewers from the Institute for Social Research at the University of Michigan, Ann Arbor. NCS-R interviews were conducted between February 2001 and April 2003. The overall response rate for the survey was 70.9%. Although the NCS-R surveyed Latinos, monolingual Spanish-speaking Latinos and other non-English speaking immigrant groups were excluded. Therefore, only the non-Latino US-born whites surveyed in the NCS-R were selected for the present study (n=4,047).

The NLAAS and NCS-R are collectively part of the National Institute of Mental Health (NIMH) Collaborative Psychiatric Epidemiology Surveys Initiative and were designed to allow for cross-linking of data in order to facilitate comparisons, particularly with regard to the various ethnic groups represented[32].

Procedure

The NLAAS survey data were collected by 275 trained multilingual interviewers, while the NCS-R surveys were conducted by 342 certified English interviewers. Interviews were administered using laptop computers with appropriate survey software. Recruitment into the initial NLAAS interview began with an introductory letter and study brochure mailed to the sample households. All study materials were translated into Spanish. Interviewers obtained written informed consent in the respondent's preferred language. The Institutional Review Board Committees of Cambridge Health Alliance, the University of Washington, and the University of Michigan approved all recruitment, consent, and interviewing procedures. Similarly, respondents of the NCS-R received a brochure in the mail followed by an informational household visit. Consent procedures for the NCS-R were approved by the Human Subjects Committees of Harvard Medical School and the University of Michigan.

Measures

Diagnostic instrument—Both lifetime and past-year prevalence of psychiatric disorders were obtained using the diagnostic interview of the World Mental Health Survey Initiative version of the World Health Organization Composite International Diagnostic Interview (WMH-CIDI). The WMH-CIDI is a fully structured diagnostic instrument administered by trained lay interviewers that is based on DSM-IV and ICD-10 symptom criteria. For this study, data regarding the diagnostic history of the NCS-R and NLAAS respondents were obtained for 13 psychiatric disorders. These included SAD and four other anxiety disorders (Generalized Anxiety Disorder, Agoraphobia, Panic Disorder, and Post Traumatic Stress Disorder); two depressive disorders (Major Depression and Dysthymic Disorder); four substance use disorders (Alcohol Abuse, Alcohol Dependence, Drug Abuse, and Drug Dependence); and two additional disorders (Bulimia Nervosa and Conduct Disorder). Conduct Disorder was only evaluated retrospectively and only among individuals who were 45 years of age or younger. Anorexia Nervosa was not included due to its low prevalence among NLAAS respondents[33]. All diagnoses were made with DSM-IV organic exclusion rules.

WMH-CIDI SAD screening and diagnostic module—The WMH-CIDI screening procedure for SAD involved two primary questions regarding the presence of social fears related to several social/performance situations (see items A and B in Table 1). Individuals who endorsed either of these initial two items were subsequently asked additional screener questions, in part to determine the severity or intensity of these fears and other related DSM-IV SAD diagnostic criteria (see items C-E in Table 1). These include whether or not they believe their social fears are unreasonable or excessive (DSM-IV Criterion C) or whether or not they avoid these situations or endure them with significant distress (DSM-IV Criterion D). Only those individuals endorsing the screener items were eligible to be subsequently administered the full SAD diagnostic module. This includes the assessment of fears associated with a total of 14 social/performance situations (e.g. meeting new people, going to parties or social gatherings, using public bathrooms, writing, eating, or drinking in public, and working while someone watches).

Age of onset evaluation—Retrospective age of onset reports were obtained using the methodology described by Breslau et al.[34]. Participants were asked "Can you remember your *exact age* the *very first time* you (HAD THE SYNDROME)?" Respondents who did not recall an exact age were probed for a bound of uncertainty by moving up the age range incrementally (e.g., "Was it before you first started school?" "Was it before you became a teenager?" and so forth). Age of onset was set at the upper end of the bound (e.g., age 5 for those reporting an onset before school started and age 12 for those whose onset was before they became teenagers). Among individuals diagnosed with SAD and at least one additional lifetime disorder, SAD was considered as *primary* if the age of onset for SAD occurred during the same year or a previous year as the onset of any additional diagnosed disorder(s). *Secondary* SAD, on the other hand, was coded if the age of onset of SAD reported was at least one year later than the earliest onset reported for any comorbid disorder.

Current distress and past-year functional impairment—As part of the WMH-CIDI SAD diagnostic module, respondents were asked to rate their present level of fear if they had to endure one or more of their endorsed social and performance situations. A 5-point scale (1-Not At All; 2-Mild; 3-Moderate; 4; Severe; and 5-Very Severe) was utilized. Those reporting at least moderate (3 or above) distress were subsequently asked to rate, on a scale from 0 (No Interference) to 10 (Very Severe Interference), the most severe interference levels in the past year associated with their social anxiety across four domains: home management (e.g. cleaning, shopping), work, close relationships, and social life. An average interference score was computed combining the responses from these four domains.

Sociodemographic characteristics—A number of individual and family demographic characteristics were collected. *Sex* was coded using dummy variables (1 = male; 0 = female). *Age* was grouped into four categories (18–34 years; 35–49 years; 50–64 years; and 65 years or more). *Income* was divided into four categories based on reported household income from the previous year ($0–14,999; $15,000–34,999; $35,000–74,999; and $75,000 or more). *Education* was coded into four categories based on the number of years of education completed by the respondent (11 years or less; 12 years; 13–16 years; and 17 years or more). *Employment* was coded as employed, unemployed, and out of the labor force. Finally, *marital status* was coded as married, (included living in marriage-like relationship), not married (single/never married), or widowed, divorced, or separated.

Ethnicity, nativity, and age of entry—NLAAS Latino respondents (LAT; n = 2554) were divided into a U.S.-born Latino group (USL; n = 924) and two foreign-born groups. Immigrants who reported arriving before the age of 21 formed the *Early Arrival Latino* group (EAL; n=838) while immigrants who reported arriving at age 21 or older formed the

Late Arrival Latino group (LAL; n = 784). Age 21 was selected to separate the age of entry groups for two reasons. First, as noted earlier, onset of SAD has been reported to be relatively infrequent after the second decade of life and thus the late arrival group was considered to represent a group that immigrated after the most vulnerable period for SAD onset[21]. Second, age 21 was also the approximate mean reported age of arrival to the United States among the NLAAS immigrants surveyed (M = 21.5). For the NCS-R sample, as previously noted, all Non-Latino white respondents were grouped together (NLW; n = 4,047).

Language—Language proficiency was evaluated by asking the NLAAS respondents to rank their ability to speak, read, and write in Spanish and English using a three-item scale that originated from the Cultural Identity Scales for Latino Adolescents[35]. Lower scores indicate a lower level of proficiency while higher scores indicate a higher level of proficiency (α's = .90 in English and 0.96 in Spanish). An additional language item asked individuals to report their primary language spoken (Spanish, English, or both languages) while growing up[36].

Results

SAD screening, prevalence, onset, and impairment

The overall lifetime prevalence of SAD found among LAT was 7.7%, which was significantly lower than the 13.2% prevalence found for NLW (see Table 1). The 12-month prevalence of SAD among LAT was also significantly lower (4.5%) than among NLW (7.3%). These differences in prevalence appear to be at least in part due to Latino respondents being significantly less likely to endorse either of the two social situation fears screener items. Differential endorsement to these screeners resulted in the full SAD diagnostic module being administered to a lower percentage of LAT respondents (16.3%) than their NLW counterparts (25.3%).

Among those who met criteria for past-year and lifetime SAD, no ethnic differences were found in terms of the number of social fears endorsed or their current levels of distress associated with their social fears (see Table 1). On average, NLW with lifetime and past-year SAD reported earlier ages of SAD onset than LAT. On the other hand, among those with past-year SAD, the levels of impairment were significantly higher among the LAT group than the NLW group across three of the four domains sampled. LAT reported higher social anxiety-related difficulties than NLW in managing their homes, in their ability to work, and in their close relationships with other people (see Table 1).

Sociodemographic and cultural correlates of SAD

Table 2 includes the sociodemographic correlates of SAD, which are presented separately for both LAT and NLW. Across both ethnic groups, females and males do not differ in their risk of lifetime or 12-month SAD. In general, lower risk of SAD diagnosis is present among NLW ages 50 and older, relative to NLW who are between 18–34 years old. Relative to those in the lowest socio-economic categories, individuals with higher incomes and higher educational attainment were at lower risk of SAD among the NLW group. Also among NLW, higher risk of SAD diagnosis was found among NLW who were never married or were unemployed. For LAT, however, many of the same demographic risk factors were not evident. For example, relative to those ages 18–34, individuals who were 50–64 years old were at *higher* risk of SAD (lifetime) among LAT. Higher income and higher education were not associated with a significantly lower lifetime or 12-month SAD diagnosis among LAT.

Several differences in SAD were additionally identified within LAT (see Table 2). Relative to those of Puerto Rican backgrounds, Mexicans were found to have a lower 12-month SAD risk. Immigrant Latinos were less likely to report a lifetime (but not 12-month) SAD diagnosis relative to those born in the United States. Higher reported English proficiency was a risk factor for SAD (12-month and lifetime), while higher Spanish proficiency was associated with reduced lifetime (but not 12-month) risk for this disorder. LAT who grew up speaking both Spanish and English were at significantly higher risk of SAD (12-month and lifetime), relative to those LAT who grew up speaking Spanish only.

Lifetime Comorbidity

Lifetime comorbidity patterns are presented in Table 3 across four ethnicity/nativity groups, including NLW, US-born Latinos (USL), early arrival immigrant Latinos (EAL) and late arrival immigrant Latinos (LAL). Overall, the lifetime comorbidity of social anxiety is high across these four ethnicity/nativity groups, ranging from 64.3% (EAL) to 80.9% (USL). Examination of comorbidity for pairs of disorders across these four groups revealed significant differences for 4 of the 12 disorders evaluated (agoraphobia, drug abuse, drug dependence, and conduct disorder). We computed logistic regression models controlling for age and sex to determine the odds ratios associated with each of these four comorbid diagnoses across the ethnic/nativity groups, using NLW as the reference group (data not shown). In every case, the LAL group was found to have significantly different risk compared to the NLW group. Relative to NLW with SAD, LAL with SAD were less likely to be additionally diagnosed with drug abuse (OR=0.05; 95% CI=0.011, 0.275), less likely to be additionally diagnosed with drug dependence (OR=0.04; 95% CI=0.005, 0.339), and less likely to be additionally diagnosed with conduct disorder (OR=0.09; 95% CI=0.011, 0.787). In contrast, LAL with SAD were almost seven times more likely to also be diagnosed with agoraphobia than NLW (OR=6.79; 95% CI=3.029, 15.235). Almost one half of all individuals in the LAL group diagnosed with SAD also reported a lifetime diagnosis of agoraphobia. In contrast, no other group reported a lifetime SAD and agoraphobia comorbidity higher than 16%. Post-hoc tests did not reveal any other ethnicity/nativity group differences for comorbidity across any of these four disorders.

Onset-related characteristics

Factors related to the onset of SAD among NLAAS Latinos were explored and are summarized in Table 4. Significant differences in sex- and age- adjusted mean age of onset were found across comorbid categories of SAD among LAT. LAT with primary SAD (onset during the same year or earlier than any other psychiatric disorder) reported the earliest age of onset, while those with secondary onset (occurring after the onset of another psychiatric disorder) reported the latest onset. Age and sex adjusted differences were also found in the nativity/age of entry categories. LAL reported the latest SAD onset, which was almost twice the age of onset reported by USL.

Language proficiency and language spoken while growing up were also related to the reported age of onset of USL. Higher Spanish (but not English) proficiency was associated with a later age of onset of SAD, relative to “Poor” to “Fair” self-reported proficiency. Additionally, those who grew up speaking Spanish had an onset several years later, on average, than those who grew up speaking both Spanish and English or English only.

Discussion

The aim of this study was to report on the prevalence, comorbidity, and age of onset of Social Anxiety Disorder (SAD) among a nationally representative sample of Latinos. We evaluated ethnic differences in SAD by contrasting Latinos (LAT) surveyed in the National

Latino and Asian American Study (NLAAS) with U.S.-born non-Latino white (NLW) participants from the National Comorbidity Survey-Replication (NCS-R). While lower lifetime and 12-month prevalence was evidenced among LAT, a complex picture emerged with regards to the levels of interference associated with the disorder and the correlates of SAD among these groups. On the one hand, NLW, relative to LAT, are likely to have an earlier onset of the disorder, which has been established as a marker for a worse prognosis[37–38]. Additionally, our comorbidity analyses suggest that, among NLW, SAD is much more likely to be associated with comorbid drug use disorders and conduct disorder. However, this difference occurs only in contrast to immigrant Latinos who arrived to the U.S. sometime after the age of 20 (LAL). In general, very similar SAD comorbidity patterns were reported by U.S.-born Latinos (USL), early arrival immigrants (EAL), and NLW across several disorders, and especially for major depression, dysthymia, and alcohol abuse.

On the other hand, our findings also indicate that LAT may be differentially impacted by SAD compared to NLW, and perhaps more severely. The social anxiety symptoms reported by LAT were associated higher levels of impairment. LAT who report a past-year diagnosis of SAD, relative to NLW, reported more difficulties as a result of the disorder at home, at work, and in their interpersonal relationships. A number of reasons could account for these past-year impairment differences. For example, LAT, relative to USW, may be less likely to recognize that the symptoms of social anxiety warrant services[39], particularly if they believe them to at least partially be a result of acculturation stressors or language difficulties. Or, it may be that NLW with SAD are more likely to attribute impairment to other comorbid conditions (e.g. substance use) to a larger extent than LAT.

Across cultural groups, this study confirmed that a lifetime diagnosis of SAD is strongly linked to other lifetime anxiety disorders. However, a particularly strong connection to agoraphobia was identified among Latinos who arrive in the U.S. after the age of 21 years. Approximately half of these individuals were diagnosed with lifetime diagnoses of agoraphobia and SAD, a figure that was several times higher than in the other ethnicity and nativity groups studied. It would be worthwhile to further investigate whether the differences in impairment found may be linked to the different forms of comorbidity identified across the two cultural groups. Together, the data on impairment and comorbidity suggest that among immigrant Latinos who arrive in the U.S. as adults, SAD combined with agoraphobia could result in moderate to severe isolation in the home, as well as limited employment and interpersonal connections. Latinos with this disorder who arrive as adults may be particularly compromised in terms of their social networks and social capital, which may result in fewer opportunities to become better integrated in their communities. Alternatively, it is possible that the social anxiety symptom presentation among LAT may have resulted in difficulties with differential diagnosis. For example, a misinterpretation of items in the instrument which were intended to capture fears associated with situations and places where escape might be difficult (e.g. being in a crowd or standing in a line) were attributed instead to a fear of embarrassment in social situations.

Being employed was associated with lower risk of SAD across both LAT and NLW. Given the correlational nature of the study, however, it is not possible to determine causality. Still, this suggests that resources to help individuals who are suffering from SAD should be directed to assisting them to find and sustain employment, and the characteristics of work environments which lead to retention of these individuals should be investigated (e.g. supportive settings with opportunities to practice social skills). Given the high levels of success of cognitive and exposure-based treatments for social anxiety disorder[40–41], interventions that additionally document favorable impact on employment and other functioning outcomes should be prioritized and disseminated.

Addressing the needs of U.S. Latinos with SAD may require services that reach out to this population more aggressively. For example, high SAD and agoraphobia comorbidity among selected U.S. Latino groups suggest that these individuals may have a particularly difficult time self-initiating a visit to providers. Hotlines, internet-based programs, and home visits may be helpful in educating individuals with this comorbid profile. Of course, given that the group at highest risk for these two conditions is the immigrant group that arrived to the U.S. as adults, proper training and recruitment of bilingual providers is essential for effective outreach, prevention, and treatment among this population. Our findings highlight the value of community-based surveys, since treatment settings are less likely to document the needs of monolingual Spanish speaking immigrants, given that they are more likely to be uninsured and underrepresented in outpatient mental health clinics[42].

The role that the process of immigration and adaptation to U.S. culture may play in the emergence of SAD is not well understood. Our within group analyses shed some light regarding the subgroups of U.S. Latinos at highest risk for this disorder. The higher lifetime prevalence found among Puerto Ricans, relative to the Mexicans, highlights the need to consider the specific risk factors that may place this group at higher risk for SAD. Puerto Ricans living in the island of Puerto Rico may be more exposed to U.S. culture than people in other places in Latin America. Indeed, it has been noted that Puerto Ricans do not consistently exhibit a protective effect of lifetime risk for psychiatric disorders associated with being born outside of the mainland U.S. that is frequently found among Mexican Americans, and particularly within anxiety disorders[43].

In contrast with the findings for NLW it does not appear that income level, education level, or marital status are uniformly associated with SAD among Latinos. However, this may be in part because the immigrant Latino group, which has a healthier profile, also has a lower socioeconomic status relative to the U.S.-born Latino group. This complicates the generally well established connection between income, education, and mental health status[18,5].

Similarly, the relationship between language skills and SAD was somewhat unexpected. Higher language proficiency, as measured by the self-report of Spanish and English skills in speaking, reading, and writing, would appear to be a critical protective factor against SAD, given the core features of this disorder which include fears of public speaking and writing. In fact, good to excellent Spanish proficiency was associated with a lower risk of lifetime SAD, and with an older age of onset of the disorder. However, despite the fact that English is by far the language predominately spoken in the United States, individuals with a higher English proficiency were at higher risk for a 12-month or a lifetime diagnosis of SAD. Again, context and background may help to understand these otherwise counterintuitive findings. Language exposure, which is highly linked to proficiency, is confounded by the environment where U.S. Latinos grew up. As noted earlier, individuals in the U.S. report much higher SAD than individuals in other countries, including those in Asia and Latin America. Therefore, the language abilities reported reflect the protective effect of living outside of the U.S. The apparent gradual increase in mental health risk associated with higher exposure to life in the U.S. has been documented for a number of mental health problems[13,43–44].

Further research is needed, however, to determine under which circumstances navigating between two languages, growing up in a household where a language other than English is spoken, or having to learn a second language, potentially places an individual at higher risk for SAD. Given the well documented early onset of SAD, it is possible that difficulties mastering English in the context of U.S. schooling may place certain individuals with a predisposition for SAD particularly at risk. Indeed, social anxiety symptoms and behavior problems, in general, have been strongly linked to acculturation stressors, which include

difficulties with the English language[26–27]. Similarly, individuals exposed to more than one language, because of their language competencies, may find themselves in more competitive educational and occupational environments than their monolingual counterparts.

Finally, it is important to note that there were differences in the endorsement of screener items across ethnic groups. The screening for SAD in the WMH-CIDI involved presenting a limited number of social/performance situations as examples. The degree to which these are representative or exemplary could be evaluated cross-culturally, to reduce the potential for bias. Future research should consider comparing SAD diagnostic measurement with and without the screening to assist in elucidating whether or not the screening is partly responsible for the prevalence, onset, and comorbidity findings in this report.

The findings of this study are limited due to its cross-sectional design and by the use of retrospective reports, which are subject to recall bias. Only adults were surveyed and therefore it is not known how applicable the results are to those under the age of 18. Future studies utilizing a prospective design may help clarify the relationships found and would be particularly valuable to understand the relationship between the onset of SAD, its clinical course, and the risk factors that affect those afflicted with this disorder. Ethnographic accounts and clinical descriptions of how SAD manifests across cultural and ethnic groups in the U.S. are particularly needed.

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Table 1

Ethnic differences across SAD screening, prevalence, onset, and impairment *

	Latinos (LAT)			Non-Latino Whites (NLW)†			Test of differences	
	N	% or M	SE	N	% or M	SE	F	p-value
SAD screening								
A. Afraid or shy of meeting new people, going to parties, going on a date, or using a public bathroom	2554	25.1%	1.07	4044	35.8%	1.31	40.53	<0.001
B. Afraid or uncomfortable in front of a group, like public speaking (asked only if A = No)	1909	24.6%	1.54	2290	39.3%	1.88	36.94	<0.001
C. Exposure to social situation invariably causes anxiety (asked only if A or B = Yes)	1095	65.0%	2.15	2764	63.2%	1.41	0.47	0.493
D. Recognition of fear as excessive or unreasonable (asked only if A or B = Yes)	1095	43.8%	1.95	2745	47.0%	1.16	1.91	0.170
E. Social or performance situations are avoided (asked only if A or B = Yes)	1095	46.1%	1.76	2765	41.9%	1.32	3.60	0.061
SAD prevalence								
Lifetime SAD	197	7.7%	0.79	806	13.2%	0.55	32.77	<0.001
Past-year SAD	146	4.5%	0.58	454	7.3%	0.36	16.49	<0.001
SAD age of onset								
Lifetime SAD	196	13.0	0.82	806	11.2	0.23	4.36	0.040
Past-year SAD	145	14.4	1.27	454	11.4	0.34	5.33	0.023
Number of social fears endorsed								
Lifetime SAD	197	8.9	0.27	806	8.3	0.12	3.45	0.067
Past-year SAD	146	9.3	0.43	454	8.6	0.20	2.01	0.160
Current fear if faced by social situation (scale range from 1 to 5)								
Lifetime SAD	196	2.8	0.11	804	2.7	0.03	0.92	0.340
Past-year SAD	146	3.2	0.09	453	3.1	0.05	0.54	0.463
Past-year impairment (scale range from 0 to 10)‡								
Home management	118	4.4	0.36	360	2.0	0.19	32.10	<0.001
Work	113	4.4	0.48	349	3.2	0.17	5.27	0.024
Relationships	118	5.1	0.35	360	4.1	0.21	5.40	0.023
Social life	117	5.5	0.32	357	5.0	0.18	1.87	0.175
Overall impairment (average of 4 items above)	112	4.9	0.34	347	3.6	0.15	12.41	<0.001

‡Past year impairment among individuals with past-year SAD and reporting moderate or stronger fear if faced by social situations

†Non-Latino Whites are all U.S.-born

* All rates are sex/age adjusted

Table 2

Sociodemographic correlates of social anxiety disorder[‡]

	Latinos (LAT)			Non-Latino Whites (NLW)[†]		
	Sample N	**12-month OR (95% CI)**	**Lifetime OR (95% CI)**	**Sample N**	**12-month OR (95% CI)**	**Lifetime OR (95% CI)**
Sex						
Males	1127	1.00	1.00	1752	1.00	1.00
Females	1427	1.02 (0.709,1.480)	1.13 (0.775,1.652)	2295	1.25 (0.963,1.618)	1.17 (0.962,1.423)
Age (years)						
18–34	1,068	1.00	1.00	1255	1.00	1.00
35–49	801	0.81 (0.491,1.320)	1.33 (0.874,2.035)	1294	1.05 (0.790,1.398)	1.16 (0.895,1.492)
50–64	454	1.43 (0.865,2.365)	1.77 (1.145,2.740)*	913	0.56 (0.413,0.762)***	0.77 (0.575,1.024)
65 or more	231	0.09 (0.030,0.286)***	0.60 (0.150,2.383)	585	0.20 (0.129,0.308)***	0.41 (0.289,0.570)***
Income						
$0–14,999	711	1.00	1.00	500	1.00	1.00
$15,000–34,999	691	0.82 (0.442,1.534)	1.00 (0.590,1.681)	821	0.57 (0.361,0.891)*	0.73 (0.515,1.041)
$35,000–74,999	695	0.86 (0.454,1.619)	1.27 (0.700,2.299)	1472	0.56 (0.366,0.842)**	0.75 (0.530,1.063)
$75,000 or more	457	0.73 (0.387,1.375)	1.25 (0.714,2.178)	1254	0.38 (0.250,0.578)***	0.61 (0.421,0.898)*
Education (years)						
11 or less	994	1.00	1.00	499	1.00	1.00
12	633	1.22 (0.767,1.938)	1.28 (0.926,1.775)	1202	0.62 (0.463,0.824)**	0.65 (0.475,0.891)**
13–16	567	0.70 (0.419,1.166)	1.03 (0.663,1.598)	1234	0.61 (0.432,0.870)**	0.71 (0.530,0.956)*
17 or more	170	1.00 (0.370,2.715)	1.18 (0.588,2.377)	1112	0.46 (0.316,0.676)***	0.63 (0.496,0.808)***
Employment						
Employed	1566	1.00	1.00	2709	1.00	1.00
Unemployed	182	1.43 (0.717,2.863)	1.16 (0.615,2.188)	208	1.57 (1.024,2.413)*	1.19 (0.853,1.669)
Out of labor force	806	2.74 (1.904,3.936)***	1.74 (1.184,2.543)**	1123	1.77 (1.406,2.237)***	1.32 (1.090,1.597)**
Marital status						
Married	1288	1.00	1.00	2151	1.00	1.00

	Latinos (LAT)			Non-Latino Whites (NLW)†		
	Sample N	12-month OR (95% CI)	Lifetime OR (95% CI)	Sample N	12-month OR (95% CI)	Lifetime OR (95% CI)
Never married	669	1.55 (0.863,2.771)	1.09 (0.677,1.768)	884	1.52 (1.107,2.100) *	1.49 (1.250,1.776) ***
Widowed, divorced, or separated	596	1.58 (1.001,2.487) *	1.21 (0.798,1.848)	1009	2.02 (1.535,2.663) ***	1.49 (1.145,1.921) **
Latino subgroup						
Puerto Ricans	495	1.00	1.00			
Cubans	577	0.79 (0.443,1.407)	0.64 (0.364,1.111)			
Mexicans	868	0.47 (0.252,0.858) *	0.73 (0.454,1.165)			
Other Latinos	614	0.48 (0.217,1.059)	0.66 (0.344,1.247)			
Nativity						
US born	924	1.00	1.00			
Immigrant/Non-US born	1630	0.75 (0.494,1.139)	0.61 (0.444,0.848) **			
US Entry (if not US-born)						
< 21 years (Early Arrival Latinos)	784	1.00	1.00			
≥ 21 years (Late Arrival Latinos)	838	0.74 (0.376,1.452)	0.64 (0.406,1.011)			
English proficiency						
Poor/Fair	1254	1.00	1.00			
Good/Excellent	1291	1.64 (1.043,2.580) *	1.86 (1.197,2.877) **			
Spanish proficiency						
Poor/Fair	589	1.00	1.00			
Good/Excellent	1,754	0.79 (0.468,1.320)	0.64 (0.419,0.967) *			
Language spoken while growing up						
Spanish only	1,675	1.00	1.00			
Both languages	641	1.56 (1.001,2.418) *	1.81 (1.204,2.725) **			
English only	213	1.39 (0.503,3.848)	1.95 (1.026,3.720) *			

‡Each variable was evaluated in separate multiple regression equations controlling for sex and age

†Non-Latino Whites are all U.S.-born

*p < .05;

** p < .01; and

*** p < .001

Table 3

Lifetime comorbidity among individuals with social anxiety disorder across ethnicity and nativity categories*

	US-born Latinos (USL)	Immigrant Latino < 21 years at entry (EAL)	Immigrant Latino ? 21 years at entry (LAL)	U.S. born Non-Latino Whites (NLW)†	F	p-value
Comorbid depressive disorders						
Major Depression	48.7%	48.1%	39.1%	48.5%	0.41	0.749
Dysthymia	13.0%	15.5%	17.9%	13.9%	0.15	0.931
Comorbid anxiety disorders						
Generalized Anxiety Disorder	18.8%	14.7%	16.4%	24.6%	1.06	0.369
Agoraphobia	15.3%	13.3%	47.0%	11.6%	4.07	0.009
Panic Disorder	15.5%	8.7%	7.8%	14.4%	2.24	0.090
Post Traumatic Stress Disorder	13.0%	17.1%	22.7%	18.5%	0.44	0.722
Comorbid substance use disorders						
Alcohol Abuse	29.8%	30.1%	16.5%	26.1%	0.46	0.708
Alcohol Dependence	12.3%	22.4%	6.9%	14.6%	1.00	0.398
Drug Abuse	16.9%	27.5%	1.5%	19.6%	24.16	<0.001
Drug Dependence	11.3%	8.2%	0.4%	10.7%	18.16	<0.001
Other comorbid disorders						
Conduct Disorder‡	26.0%	7.0%	1.3%	18.0%	17.65	<0.001
Bulimia	8.0%	2.3%	3.0%	1.3%	1.41	0.245
Any lifetime comorbidity	80.9%	64.3%	70.9%	70.1%	0.60	0.615

‡Assessed only among respondents ages 45 and younger

†Non-Latino Whites are all U.S.-born

*Percentages are sex/age adjusted

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Table 4

Age of onset of SAD among NLAAS Latinos (LAT) across selected clinical and demographic characteristics*

	N	Mean	SE	F	p-value
Onset across comorbid categories					
Uncomplicated	42	11.9	0.86	13.72	<0.001
Primary	80	9.7	0.49		
Secondary	74	18.4	2.34		
Onset across nativity/entry categories					
Born in the US (USL)	84	10.2	0.50	13.03	<0.001
< 21 years at entry (Early Arrival Latinos)	57	12.3	1.08		
≥ 21 years at entry (Late Arrival Latinos)	56	20.1	2.11		
Onset across English proficiency categories					
Poor/Fair	86	13.6	1.49	0.23	0.636
Good/Excellent	110	12.7	1.12		
Onset across Spanish proficiency categories					
Poor/Fair	51	11.7	0.75	4.75	0.035
Good/Excellent	117	14.5	1.22		
Onset across language while growing up categories					
Spanish only	112	15.1	1.42	3.95	0.026
Both languages	58	10.8	0.72		
English only	24	10.8	0.91		

*Means are age/sex adjusted