



Psychological Distress Behavioral Patterns Among Latinos: We Don't See Ourselves as Worthless

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Abstract

A cross-sectional study of 4921 Latinos from the National Health Interview Survey was conducted to examine behavioral patterns of psychological distress among Latinos. Latent class analysis was used to ascertain psychological distress behavioral profiles among Latinos. Analysis revealed four latent classes of distress, which included moderate psychological distress (13.6%); mild sadness, nervousness, and restlessness (13.0%); high psychological distress (2.8%); and no psychological distress (70.7%). Worthlessness, a widely-accepted dimension of distress, was not a significant behavioral trait. Results from the present study suggest that underlying cultural elements affect the subjective interpretations of symptoms reported by Latinos. These findings highlight distress profiles among Latinos and the possibility of overlooking behaviors that are uniquely indicative of distress, potentially leading to the underreporting of serious psychological distress in this population. Furthermore, these findings shed light on other paradoxical issues impacting the mental health of Latinos.

Keywords Psychological distress · Latino mental health · Public health · Mental health assessment · Culture

Introduction

Features of psychological distress include emotional, cognitive, behavioral, and psychophysiological symptoms that are related to a mental disorder or illness (Dohrenwend et al. 1980; Kessler et al. 2002; Link and Dohrenwend 1980). Dohrenwend et al. (1980) identified psychological distress as inherent in human behavior, independent of sociocultural

background and present across all forms of illnesses. Using Dohrenwend et al.'s (1980) work to structure the development of a new measure of psychological distress for epidemiological research, Kessler et al. (2002) developed the K10 and K6 scales. These scales were also based on various established diagnostic scales, representing a comprehensive set of domains found in the revised third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association 1987). Kessler et al. (2002) thus determined that fundamental features of psychological distress are restlessness, sadness, worthlessness, nervousness, hopelessness, and helplessness.

Although Kessler et al.'s (2002) behavioral features of psychological distress have been validated across various sociocultural backgrounds, patterns in the manifestation of psychological distress may vary between sociocultural groups at the community level. A study funded by the World Health Organization (Draguns 1990) identified common symptoms of depression across various countries: anxiety, tension, sadness, and lack of energy. However, respondents from Western countries reported additional feelings of guilt whereas more respondents in non-Western countries reported somatic complaints. This is especially true among Latinos, who may experience *nervios*, a term for psychological distress with somatic features prominent among Latinos

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and an example of a syndrome whose manifestations have been shaped by culture over many generations (Castillo 1997; Guarnaccia 1997; Mirowsky and Ross 1980; Sam and Moreira 2012; San Miguel et al. 2006; USDHHS 2001).

In previous studies (e.g., Barragán et al. 2016; Bratter and Eschbach 2005; Dallo et al. 2013; Rivera et al. 2008), evaluation of Latino heterogeneity with regard to psychological distress has focused on identifying risk factors and describing the etiology of various mental health problems. However, research examining Latino psychological distress has not focused on exploring and identifying how psychological distress manifests among Latinos. Consequently, with limited knowledge regarding the expression of psychological distress that characterizes Latino groups from one another, mental health practitioners are at risk of overlooking behaviors that are indicative of distress in a given subgroup. This aim of this study was to examine patterns of psychological distress among Latino subgroups. Specifically, this study addressed the following questions: Do Latinos exhibit psychological distress behavioral profiles that vary among subgroups? If so, how are they characterized?

Methods

Data Source

The National Health Interview Survey (NHIS) is an annual cross-sectional survey designed to report nationally representative estimates on a variety of health issues, including health status and treatment use. Since 1960, the National Center for Health Statistics and CDC have used the NHIS to monitor trends in illnesses and treatment use and progress toward achieving national health objectives (CDC 2012). The NHIS excludes individuals in long-term care institutions, active-duty armed forces personnel, US nationals living in foreign countries, and individuals in correctional facilities.

To accomplish sampling efficiency for a nationwide survey, multistage sampling techniques were implemented to identify potential participants (CDC 2012). Since 2006, this method has been used to partition the target population into various strata and clusters. The target universe was individuals living in dwelling units that were either households or noninstitutional quarters (e.g., collegiate dormitories). The first stage involved partitioning the target universe into primary sampling units (PSUs), generating approximately 1900 geographically defined PSUs in every state and the District of Columbia. A PSU is composed of single counties, various adjacent counties, or a metropolitan area. Subsequently, a PSU may vary in population size. Smaller PSUs are identified as non-self-representing PSUs, which are stratified geographically (e.g., by state) using criteria

consistent with NHIS goals (CDC 2012). Once the strata were identified, a sample of PSUs was selected. Among several non-self-representing strata, two PSUs were chosen without replacement with probability proportional to sample size and self-representing PSUs were selected with certainty. In non-self-representing strata with smaller populations, one PSU was drawn (CDC 2012).

To sufficiently recruit racial and ethnic groups, such as African Americans, Latinos, and Asians, the NHIS also used clustering, stratification, and oversampling techniques. Based on methods implemented by the US Census Bureau, each non-self-representing and self-representing PSU was partitioned into substrata of census blocks or combined blocks depending on the density of African American, Latino, or Asian American individuals. The racial and ethnic group density substrata were defined according to concentration figures from the 2000 census. Recently developed housing in a PSU had its own substratum in an effort to produce the most updated sample of households (CDC 2012).

Participants

This study used 4921 Latinos, with a mean age of 40.2 years old ($SE = 0.26$) and an even distribution of men and women (50.9% male). Mexicans (38.4%) accounted for the largest majority of Latinos, followed by Mexican Americans (24.0%), Central or South Americans (16.1%), Puerto Ricans (10.0%), other Latinos (7.1%), and Cubans and Cuban Americans (4.4%). Due to small numbers, a separate “other Latinos” category was created that included Dominicans, other Latin Americans, mixed Hispanic individuals, and other Spanish individuals.

Informed consent was not obtained by the authors, since the data used in this study is made publically available by the National Center for Health Statistics and does not include identifying information.

Measures

Psychological Distress

The NHIS used Kessler’s K6 scale (Kessler et al. 2002) to measure psychological distress experienced during the previous 30 days. The scale evaluates nervousness, sadness, helplessness, restlessness, hopelessness, and worthlessness, with each item scored on a range from 0 (*none of the time*) to 4 (*all of the time*). Most studies have confirmed a single-factor structure of the K6 scale (Drapeau et al. 2010; Green et al. 2010; Kessler et al. 2002). The K6 scale has been demonstrated to reliably predict serious mental illness (Kessler et al. 2003).

The K6 was designed based on item response theory model to increase precision and sensitivity in assessing

distress, ensuring consistency across gender and age groups (Drapeau et al. 2010, 2012; Green et al. 2010; Kessler et al. 2002). Various studies have validated the K6 for use in Spanish, with an internal consistency satisfactory for Spanish-speaking participants ($\alpha = .87$; Kim et al. 2011; National Comorbidity Survey 2005). No cultural bias has been identified thus far (Drapeau et al. 2012).

Covariates

Demographic and socioeconomic covariates were included to identify patterns of psychological distress among Latino subgroups. Demographic factors included age, gender, and marital status. Measures of socioeconomic factors included level of education and employment. Education responses included never graduated high school, high school graduate or GED, some college or associate's degree, college graduate, and postgraduate. Due to the ordered categorical measurement of education, the variable was treated as a Likert scale, using interval-level measurement for analysis. Respondents were asked about their employment status and were considered unemployed if they were looking for work. Income was not included in the analysis because it prevented modeling of the latent classes. Additionally, proxy measures of acculturation, namely language used during the NHIS interview and number of years of residence in the United States, were not included in the analysis due to a significant number of missing responses.

Statistical Analysis

Latent class analysis (LCA) is well suited to identify psychological distress profiles among Latinos subgroups (McCutcheon 1987). Using Mplus 7.3, this study performed LCA of various responses to the K6 related to nervousness, hopelessness, restlessness, worthlessness, sadness, and helplessness. Two parameters characterize LCA (Agrawal et al. 2006): the prevalence of each class and the probability that an individual in a given class will endorse one of the six items measured by the K6. To identify classes that vary across Latino subgroups, each group was entered as a covariate. The relationship of covariates with class membership was ascertained by concurrently estimating multinomial logistic regression and odds ratios to assess the effect of a covariate on the probability of class membership relative to the reference class (Auerbach and Collins 2006; Connell et al. 2009; Lanza et al. 2007; Magidson and Vermunt 2002; Nylund et al. 2007).

A preliminary series of models was conducted to determine the adequate number of classes for psychological distress. First, a single-class model (without covariates) was developed, after which models with covariates and multiple classes (e.g., two classes, three classes), each representing

different patterns of psychological distress behavior, were developed. Model fit was compared among freely estimated models. The best model was selected based on suggested indexes, including low adjusted Bayesian Information Criterion (BIC) relative to other models, significant Lomendell-Rubin Likelihood Ratio Test (LMR LRT), and adequate quality of classification (Nylund et al. 2007). After completing these separate analyses, a final combined LCA model was estimated. Sample weights, clusters, and stratum variables were included in the analyses to account for the complex sampling design. Because Mplus 7.3 was unable to incorporate non-nested cluster and strata variables, PSUs representing more than one stratum were treated as distinct clustering units (Connell et al. 2009).

Since the data used in this study is made publically available by the National Center for Health Statistics and does not include identifying information, institutional review was not required. There are no known conflicts of interest. All authors certify responsibility.

Results

Table 1 presents the sample characteristics of respondents and their psychological distress responses. Most respondents were married or cohabitating (61.0%), with close to two-thirds (61.3%) of respondents reporting a high school education or less and being employed (64.7%). Most respondents reported few to no symptoms on the K6 (85.1% or higher), with most respondents indicating few to no symptoms of worthlessness (94.4%).

Successive LCA models were run to determine the most parsimonious model to characterize patterns of psychological distress (Table 2). The BIC was used to determine the best model, as it has been shown to be one of the best tools to accurately determine the correct number of classes (Jedidi et al. 1997; Nylund et al. 2007; Roeder and Wasserman 1997). A five-class model was determined to have the best overall fit for psychological distress. Using the five-class model, however, would not accurately describe patterns in psychological distress profiles that would be informative and practical because two of the five classes shared patterns of psychological distress that were difficult to distinguish. Consequently, a four-class model was accepted as the most parsimonious and practical model to characterize psychological distress patterns. The four classes were titled mild sadness, nervousness, and restlessness; moderate psychological distress; high psychological distress; and no psychological distress (Table 3).

Moderate psychological distress accounted for 13.6% of the sample. Respondents in this class reported few to no feelings of worthlessness (75.7%) and hopelessness (60.4%), yet approximately half of these respondents reported some

Table 1 Sample characteristics and psychological distress

Sample characteristics			Psychological distress		
Variable	%	<i>n</i>	Variable	%	<i>n</i>
Subgroup			Sadness		
Mexican	38.4	1880	None	74.0	3487
Mexican American	24.0	1130	A little	13.7	752
Central/South Am.	16.1	774	Some	9.0	462
Puerto Rican	10.0	491	Most	2.4	142
Other Latino	7.1	394	All	1.0	66
Cuban/Cuban Am.	4.4	252	Nervousness		
Gender			None	68.9	3316
Female	49.1	2648	A little	16.2	814
Male	50.9	2273	Some	10.1	522
Marital status			Most	3.5	178
Unmarried	39.0	2285	All	1.3	81
Married/cohab.	61.0	2633	Restlessness		
Education			None	75.2	3612
Less than H.S	34.4	1782	A little	11.7	594
High school	26.9	1286	Some	8.9	470
Some college/ assoc.	26.6	1243	Most	2.6	150
College grad or higher	12.1	590	All	1.6	85
Employment			Hopelessness		
Unemployed	35.3	1857	None	84.4	4069
Employed	64.7	3064	A little	7.4	390
Age (mean, SE)			Some	5.3	282
			Most	1.8	104
			All	1.1	61
			Helplessness		
			None	78.3	3781
			A little	8.8	447
			Some	6.9	359
			Most	3.0	170
			All	2.9	146
			Worthlessness		
			None	89.5	4352
			A little	4.9	257
			Some	3.7	187
			Most	1.2	62
			All	0.7	48

Percentages are weighted, *n* values are unweighted

feelings of sadness, nervousness, restlessness, or helplessness. Mild sadness, nervousness, and restlessness affected 13.0% of the sample. Most of these same respondents, however, reported no feelings of worthlessness (80.2%), with few reporting helplessness (53.7%), and hopelessness (66.8%). Respondents indicating high psychological distress accounted for 2.8% of the sample. Generally, these respondents reported feelings of every type of distress most

if not all of the time. Of note, 20.4% reported no feelings of worthlessness, representing the least prevalent symptom in the high psychological distress class. Last, participants indicating no psychological distress accounted for 70.7% of the sample. Close to if not more than 90% of these respondents reported no feelings of any type of distress, with a scarce number of responses indicating few to some symptoms.

Multinomial logistic regression analyses demonstrated that Latino group association and demographic and socioeconomic factors influenced class membership (Table 4). Compared to Mexican respondents, Puerto Rican respondents were more likely to report moderate psychological distress (OR 1.88, 95% CI 1.21–2.93) and more than twice as likely to report high psychological distress (OR 2.36, 95% CI 1.21–4.57). Mild sadness, nervousness, and restlessness were less likely to be endorsed by Puerto Rican respondents (OR 0.40, 95% CI 0.22–0.72), Cubans and Cuban Americans (OR 0.49, 95% CI 0.27–0.87), and other Latinos (OR 0.55, 95% CI 0.31–0.96). No statistically significant associations were observed for Mexican Americans and Central and South Americans.

In terms of demographic and socioeconomic factors, married or cohabitating respondents were less likely to fall in any of the psychological distress classes (i.e., moderate psychological distress; mild sadness, nervousness, and restlessness; or high psychological distress) compared to the no psychological distress class. Increased education was associated with being less likely to report high psychological distress compared to the no psychological distress class (OR 0.61, 95% CI 0.48–0.78). Compared to women, men were less likely to report moderate psychological distress (OR 0.57, 95% CI 0.44–0.75) or mild sadness, nervousness, and restlessness (OR 0.62, 95% CI 0.48–0.80). Finally, employed respondents were less likely than unemployed respondents to report moderate (OR 0.64, 95% CI 0.49–0.84) or high psychological distress (OR 0.38, 95% CI 0.23–0.64).

Discussion

Results indicated variation in the behavioral patterns of psychological distress among Latinos. Analyses indicated that Latinos who reported mild or moderate levels of distress did not report similar severity levels across all domains of the psychological distress profile outlined in the K6 (Kessler et al. 2002), suggesting that these behavioral domains are not characteristic of Latinos. Respondents with mild psychological distress characterized their experience as having mild symptoms of sadness, nervousness, and restlessness but not feelings of hopelessness, helplessness, or worthlessness. With the exception of helplessness, moderate cases of psychological distress maintained a similar symptom profile, in which worthlessness and hopelessness were not descriptive

Table 2 Fit statistic comparisons of latent class analysis models of psychological distress

Model	Description	AIC	BIC	Adjusted BIC	LMR LRT <i>p</i>	Entropy
1	One-class	44339.683	44495.669	44419.406	–	–
2	Two-class	36563.160	36881.632	36725.928	.0000	0.905
3	Three-class	35241.372	35722.331	35487.185	.0000	0.860
4	Four-class	34660.707	35304.152	34989.565	.7739	0.886
5	Five-class	34295.771	35101.701	34707.673	.7712	0.863
6	Six-class	34148.167	35116.583	34643.114	.7670	0.877

AIC Akaike Information Criterion, BIC Bayesian Information Criterion, LMR LRT Lo-Mendell-Rubin Likelihood Ratio Test *p*-value for (K-1) classes

Table 3 Conditional probabilities of psychological distress (n = 4912)

Class prevalence	No psychological distress (70.7%)	Mild sadness, nervousness, restlessness (13.0%)	Moderate psychological distress (13.6%)	High psychological distress (2.8%)
Sadness				
None	0.934	0.454	0.181	0.048
A little	0.050	0.504	0.227	0.082
Some	0.015	0.039	0.500	0.148
Most	0.000	0.003	0.079	0.439
All	0.001	0.000	0.013	0.283
Nervousness				
None	0.899	0.248	0.197	0.035
A little	0.068	0.682	0.145	0.072
Some	0.030	0.031	0.510	0.179
Most	0.002	0.034	0.108	0.494
All	0.001	0.005	0.040	0.221
Restlessness				
None	0.946	0.390	0.272	0.062
A little	0.028	0.557	0.147	0.059
Some	0.022	0.037	0.454	0.190
Most	0.001	0.010	0.087	0.437
All	0.003	0.006	0.040	0.252
Hopelessness				
None	0.997	0.668	0.409	0.014
A little	0.003	0.321	0.195	0.073
Some	0.000	0.009	0.344	0.148
Most	0.000	0.000	0.030	0.488
All	0.000	0.002	0.023	0.276
Helplessness				
None	0.961	0.537	0.275	0.049
A little	0.018	0.366	0.171	0.082
Some	0.012	0.050	0.373	0.081
Most	0.002	0.014	0.108	0.414
All	0.006	0.032	0.073	0.373
Worthlessness				
None	0.998	0.802	0.602	0.204
A little	0.001	0.181	0.155	0.082
Some	0.000	0.013	0.219	0.157
Most	0.000	0.003	0.015	0.348
All	0.000	0.000	0.009	0.208

Table 4 Multinomial logistic regression results of psychological distress (n=4912)

Covariates	Mild sadness/nervousness/restlessness versus no psychological distress OR (95% CI)	Moderate psychological distress versus no psychological distress OR (95% CI)	High psychological distress versus no psychological distress OR (95% CI)
Mexican (ref.)	1.00	1.00	1.00
Mexican-Am.	0.90 (0.66–1.22)	1.16 (0.83–1.62)	1.39 (0.79–2.43)
Central/South-Am.	0.92 (0.67–1.25)	1.07 (0.73–1.55)	1.32 (0.59–2.94)
Puerto Ricans	0.40 (0.22–0.72)**	1.88 (1.21–2.93)**	2.36 (1.21–4.57)*
Other Latinos	0.55 (0.31–0.96)*	1.27 (0.79–2.05)	2.07 (0.96–4.46)
Cuban/Cuban-Am.	0.49 (0.27–0.87)*	0.71 (0.37–1.36)	0.87 (0.27–2.85)
Age	1.00 (1.00–1.01)	1.01 (1.00–1.02)*	1.01 (1.00–1.02)
Female (ref.)	1.00	1.00	1.00
Male	0.62 (0.48–0.80)**	0.57 (0.44–0.75)**	0.65 (0.40–1.04)
Unmarried (ref.)	1.00	1.00	1.00
Married/cohabitating	0.73 (0.57–0.94)*	0.75 (0.58–0.96)*	0.53 (0.34–0.82)**
Education	1.03 (0.91–1.16)	0.87 (0.76–1.00)	0.61 (0.48–0.78)**
Unemployed (ref.)	1.00	1.00	1.00
Employed	0.95 (0.70–1.30)	0.64 (0.49–0.84)**	0.38 (0.23–0.64)**

OR odds ratio, CI confidence interval, ref. reference category

*p < .05; **p < .01

of general psychological distress. Only in the high psychological distress class did individuals report increased hopelessness and worthlessness most or all of the time. In this class, 55.6% of respondents reported feelings of worthlessness most of the time, a low rate compared to other domains, which ranged from 68.9% for restlessness to 78.7% for helplessness. Furthermore, 28.6% reported few or no feelings of worthlessness despite reporting high psychological distress.

Although the K6 has been validated across ethnic groups and adapted internationally for use in research (Drapeau et al. 2012; Kim et al. 2011; Kessler et al. 2002), results from the present study suggest that underlying cultural elements affect the subjective interpretations of symptoms reported by Latinos (Bratter and Eschbach 2005). Despite these limitations, the measure was able to indicate which symptoms were more or less relevant for Latinos, and findings from the present study can advance understanding of Latino health issues currently being debated. According to the CDC (2014), 4.1% of Latinos report serious psychological distress,¹ higher than rates seen among Anglo Americans (3.6%) and African Americans (3.0%). Consequently, Latinos may be at increased risk of serious mental disorders, depression, and suicide, among other negative outcomes (Hendricks et al. 2015; Kessler et al. 2003; McKelvey et al. 1998). However, the etiology of Latino mental health

morbidity is more varied and complex. Rates of depression vary among Latinos, from rates as low as 2.5% for Cuban Americans to as high as 6.9% for Puerto Ricans, compared to 3.6% among Anglo Americans (Oquendo et al. 2001). However, suicide rates among Latinos are more than two times lower than the rates among Anglo Americans (CDC 2009; Oquendo et al. 2001). Among several risk factors associated with suicide and depression, feelings of hopelessness and a low sense of worth have been consistently validated throughout the literature (McLean et al. 2008). Findings from the current study indicated that these risk factors are not as prevalent as among Anglo Americans, which may help explain lower rates of suicidal behavior despite increased prevalence of high psychological distress among Latinos.

The reduced prevalence of worthlessness and hopelessness may be rooted in cultural values that protect against increased morbidity despite the presence of high psychological distress among Latinos. Traditional values such as strong family cohesion, religiosity, and connectedness are common in many Latino families and may have a buffering effect that reduces mental health morbidity (Alegría et al. 2006; CDC 2009; Grant et al. 2004; Jimenez et al. 2014; Rivera et al. 2008). The buffering effects of cultural values vary in impact among Latinos; some subgroups benefit more than others, as illustrated by previous studies (Alegría et al. 2006; Canino and Alegría 2009; Gil et al. 2002; Vega and Gil 2005). The sociocultural mechanism that underlies the variation in Latino subgroup morbidity is thus complex and research is needed to continue to unravel its processes.

¹ The current study used the same data as the CDC (2014) but found 2.8% of respondents reported high psychological distress due to differences in the metrics and analyses used.

The current study determined that Puerto Ricans and Cubans and Cuban Americans were less likely than Mexicans to report mild sadness, nervousness, and restlessness. With regard to moderate or high psychological distress profiles, Puerto Ricans were more likely than Mexicans, including twice as likely regarding high psychological distress, to fall within these classes. These patterns of increased risk of moderate or high psychological distress among Puerto Ricans are congruent with previous research reporting high rates of mental health morbidity among Puerto Ricans (Canino and Alegría 2009). The mechanisms involved in this higher risk of morbidity are not well understood (Canino and Alegría 2009), but there are some possible explanations. Results from the current study suggest that the underlying sociocultural processes inherent in Puerto Rican groups differ from other Latino groups and thus play a more central role in increased or decreased mental health morbidity. Alegría et al. (2006) used the example of discrimination, whereby Puerto Ricans may be more subject to continuous discrimination than Mexicans or Cubans by not acculturating into the dominant US culture. The first Puerto Rican migrants were stigmatized in the United States due to the public perception that their migration was related to a period of immense unemployment in Puerto Rico and their perceived efforts to obtain government support (Maldonado-Denis 1980). Due to this historical context, Puerto Ricans may have adopted a unique heightened ethnic identity that buffers the risk of some mental health problems (e.g., substance use, suicide) and not others (e.g., psychological distress, mood and anxiety disorders).

Because unique psychological distress profiles do indeed characterize and distinguish Latino groups, how are these distinct profiles associated with mental health treatment use? Previous studies assessing treatment use have focused on identifying correlates of service use (e.g., Dallo et al. 2013; Lo et al. 2014), providing mental health professionals with a greater understanding of risk and protective factors associated with treatment use. However, few of these studies modeled treatment use among Latino subgroups and thus were limited in terms of providing a contextually accurate assessment of service use. Assessing treatment use in specific contexts, with regard to both psychological distress and Latino subgroups, can provide mental health professionals with a more comprehensive understanding of behavioral patterns associated with treatment use among Latinos. Further research is needed to examine the association between psychological distress profiles and mental health treatment use during the previous year.

Some limitations of this study should be noted. Nativity was not accounted for due to limitations in the data. Much of the research on Latino mental health has accounted for nativity, due to its association with mental health outcomes and significance to the understanding of Latino group needs

and the debate on various public health issues. Similarly, the NHIS aggregation of Cubans and Cuban Americans and US- and foreign-born Puerto Ricans diminished the ability to make inferences regarding Latino groups that encompass both US- and foreign-born populations. Second, income was not included in the analysis, as it prevented the modeling of latent classes. Consequently, analysis could not account for its effects on the outcomes of the study. Finally, the current study assessed classes of psychological distress behavior patterns among Latinos but did not make comparisons using similar statistical methods to Anglo American respondents to confirm differences in psychological distress behaviors between the two major ethnic groups. Future investigations should expand on the present study to confirm that psychological distress behaviors are indeed unique between these two major groups.

In sum, the current study suggested that worthlessness (and hopelessness to a smaller degree) is not an inherent manifestation of psychological distress among all Latinos and may help explain why Latinos are at less risk of certain mental illnesses and overall psychiatric morbidity despite reporting rates of psychological distress higher than any other ethnic group. Although Latinos face many challenges as ethnic minorities due to issues of language proficiency, socioeconomic disadvantages, and discrimination, cultural factors are equally as influential in buffering these effects on their mental health.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was not obtained by the authors, since the data used in this study is made publically available by the National Center for Health Statistics and does not include identifying information.

References

- Agrawal, A., Lynskey, M. T., Madden, P. A. F., Bucholz, K. K., & Heath, A. C. (2006). A latent class analysis of illicit drug abuse/dependence: Results from the National Epidemiological Survey on Alcohol and Related Conditions. *Addiction, 102*(1), 94–104. <https://doi.org/10.1111/j.1360-0443.2006.01630.x>.
- Alegría, M., Canino, G., Stinson, F. S., & Grant, B. F. (2006). Nativity and DSM-IV psychiatric disorders among Puerto Ricans, Cuban Americans, and non-Latino Whites in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry, 67*(1), 56–65. <https://doi.org/10.4088/jcp.v67n0109>.

- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd edn., revised). Washington, DC: American Psychiatric Association.
- Auerbach, K. J., & Collins, L. M. (2006). A multidimensional developmental model of alcohol use during emerging adulthood. *Journal of Studies on Alcohol and Drugs*, *67*(6), 917–925. <https://doi.org/10.15288/jsa.2006.67.917>.
- Barragán, A., Yamada, A. M., Lee, K. K., & Barrio, C. (2016). Correlates in the endorsement of psychotic symptoms and services use: Findings from the Collaborative Psychiatric Epidemiology Surveys. *Community Mental Health Journal*, *52*(6), 631–642. <https://doi.org/10.1007/s10597-015-9850-z>.
- Bratter, J. L., & Eschbach, K. (2005). Race/ethnic differences in non-specific psychological distress: Evidence from the National Health Interview Survey. *Social Science Quarterly*, *86*(3), 620–644. <https://doi.org/10.1111/j.0038-4941.2005.00321.x>.
- Canino, G., & Alegria, M. (2009). Understanding psychopathology among the adult and child Latino population from the United States and Puerto Rico: An epidemiologic perspective. In F. A. Villarruel, G. Carlo, J. M. Grau, M. Azmitia, N. J. Cabrera & T. J. Chahin (Eds.), *Handbook of U.S. Latino psychology: Developmental and community-based perspectives* (pp. 31–44). Thousand Oaks, CA: Sage. <https://doi.org/10.5860/choice.47-2875>.
- Castillo, R. J. (1997). *Culture and mental illness: A client-centered approach*. Pacific Grove, CA: Cengage Learning.
- Centers for Disease Control and Prevention. (2009). Web-based Injury Statistics Query and Reporting System (WISQARS): Fatal injury reports. Retrieved February 12, 2015, from <http://www.cdc.gov/violenceprevention/suicide/statistics/rates01.html>.
- Centers for Disease Control and Prevention. (2012). About the National Health Interview Survey. Retrieved February 2, 2015, from http://www.cdc.gov/nchs/nhis/about_nhis.htm.
- Centers for Disease Control and Prevention. (2014). Early release of selected estimates based on data from the January–September 2013 National Health Interview Survey. Retrieved February 9, 2015, from http://www.cdc.gov/nchs/data/nhis/earlyrelease/earlyrelease201403_13.pdf.
- Connell, C. M., Gilreath, T. D., & Hansen, N. B. (2009). A multi-process latent class analysis of the co-occurrence of substance use and sexual risk behavior among adolescents. *Journal of Studies on Alcohol and Drugs*, *70*(6), 943–951. <https://doi.org/10.15288/jsad.2009.70.943>.
- Dallo, F. J., Kindratt, T. B., & Snell, T. (2013). Serious psychological distress among non-Hispanic whites in the United States: The importance of nativity status and region of birth. *Social Psychiatry and Psychiatric Epidemiology*, *48*(12), 1923–1930. <https://doi.org/10.1007/s00127-013-0703-1>.
- Dohrenwend, B. P., Shrout, P. E., Ergi, G. E., & Mendelsohn, F. S. (1980). Nonspecific psychological distress and other dimensions of psychopathology: Measures for use in the general population. *Archives of General Psychiatry*, *37*(11), 1229–1236. <https://doi.org/10.1001/archpsyc.1980.01780240027003>.
- Draguns, J. G. (1990). Applications of cross-cultural psychology in the field of mental health. In R. W. Brislin (Ed.), *Applied cross-cultural psychology* (pp. 302–324). Newbury Park, CA: Sage. <https://doi.org/10.4135/9781483325392>.
- Drapeau, A., Beaulieu-Prévost, D., Marchand, A., Boyer, R., Préville, M., & Kairouz, S. (2010). A life-course and time perspective on the construct validity of psychological distress in women and men: Measurement invariance of the K6 across gender. *BMC Medical Research Methodology*, *10*(68), 1–16. <https://doi.org/10.1186/1471-2288-10-68>.
- Drapeau, A., Marchand, A., & Beaulieu-Prévost, D. (2012). Epidemiology of psychological distress. In L. L'Abate (Ed.), *Mental illnesses: Understanding, prediction and control* (pp. 105–134). Rijeka: InTech. <https://doi.org/10.5772/30872>.
- Gil, A. G., Vega, W. A., & Turner, R. J. (2002). Early and mid-adolescence risk factors for later substance abuse by African Americans and European Americans. *Public Health Reports*, *117*(Supplement 1), S15–S29.
- Grant, B. F., Stinson, F. S., Hasin, D. S., Dawson, D. A., Chou, S. P., & Anderson, K. (2004). Immigration and lifetime prevalence of DSM-IV psychiatric disorders among Mexican Americans and non-Hispanic Whites in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry*, *61*(12), 1226–1233. <https://doi.org/10.1001/archpsyc.61.12.1226>.
- Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Improving the K6 short scale to predict serious emotional disturbance in adolescents in the USA. *International Journal Methods in Psychiatric Research*, *19*(Suppl. 1), 23–35. <https://doi.org/10.1002/mpr.314>.
- Guarnaccia, P. J. (1997). Social stress and psychological distress among Latinos in the United States. In I. Al-Isaa & M. Tousignant (Eds.), *Ethnicity, immigration, and psychopathology* (pp. 71–94). New York, NY: Plenum Press.
- Hendricks, P. S., Thorne, C. B., Clark, C. B., Coombs, D. W., & Johnson, M. W. (2015). Classic psychedelic use is associated with reduced psychological distress and suicidality in the United States adult population. *Journal of Psychopharmacology*, *29*(3), 280–288. <https://doi.org/10.1177/0269881114565653>.
- Jedidi, K., Jagpal, H. S., & DeSarbo, W. S. (1997). Finite-mixture structural equation models for response-based segmentation and unobserved heterogeneity. *Marketing Science*, *16*(1), 39–59. <https://doi.org/10.1287/mksc.16.1.39>.
- Jimenez, A. L., Alegria, M., Camino-Gaztambide, R. F., & Zayas, L. V. (2014). Cultural sensitivity: What should we understand about Latinos? In R. Parekh (Ed.), *The Massachusetts General Hospital textbook on diversity and cultural sensitivity in mental health* (pp. 61–88). New York, NY: Springer. <https://doi.org/10.1007/978-1-4614-8918-4>.
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, *32*(6), 959–976. <https://doi.org/10.1017/s0033291702006074>.
- Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry*, *60*(2), 184–189. <https://doi.org/10.1001/archpsyc.60.2.184>.
- Kim, G., Worley, C. B., Allen, R. S., Vinson, L., Crowther, M. R., Parmelee, P., & Chiriboga, D. A. (2011). Vulnerability of older Latino and Asian immigrants with limited English proficiency. *Journal of the American Geriatrics Society*, *59*(7), 1246–1252. <https://doi.org/10.1111/j.1532-5415.2011.03483.x>.
- Lanza, S. T., Collins, L. M., Lemmon, D. R., & Schafer, J. L. (2007). PROC LCA: A SAS procedure for latent class analysis. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(4), 671–694. <https://doi.org/10.1080/10705510701575602>.
- Link, B. G., & Dohrenwend, B. P. (1980). Formation of hypotheses about the true relevance of demoralization in the United States. In B. P. Dohrenwend, B. S. Dohrenwend, M. S. Gould, B. Link, R. Neugebauer & R. Wunsch-Hitzig (Eds.), *Mental illness in the United States: Epidemiological estimates* (pp. 114–132). New York, NY: Praeger.
- Lo, C. C., Cheng, T. C., & Howell, R. J. (2014). Access to and utilization of health services as pathway to racial disparities in serious mental illness. *Community Mental Health Journal*, *50*(3), 251–257. <https://doi.org/10.1007/s10597-013-9593-7>.
- Magidson, J., & Vermunt, J. K. (2002). Latent class models for clustering: A comparison with K-means. *Canadian Journal of Marketing Research*, *20*, 37–44.

- Maldonado-Denis, M. (1980). *The emigration dialectic: Puerto Rico and the USA*. New York, NY: International Publishers.
- McCutcheon, A. L. (1987). *Latent class analysis*. Beverly Hills, CA: Sage. <https://doi.org/10.4135/9781412984713>.
- McKelvey, R. S., Davies, L. C., Pfaff, J. J., Acres, J., & Edwards, S. (1998). Psychological distress and suicidal ideation among 15–24-year-olds presenting to general practice: A pilot study. *Australian and New Zealand Journal of Psychiatry*, 32(3), 344–348. <https://doi.org/10.3109/00048679809065526>.
- McLean, J., Maxwell, M., Platt, S., Harris, F. M., & Jepson, R. (2008). *Risk and protective factors for suicide and suicidal behaviour: A literature review*. Retrieved from <http://storre.stir.ac.uk/bitstream/1893/2206/1/Suicide%20review%5B1%5D.pdf>.
- Mirowsky, J., & Ross, C. E. (1980). Minority status, ethnic culture, and distress: A comparison of Blacks, Whites, Mexicans, and Mexican Americans. *American Journal of Sociology*, 86(3), 479–495. <https://doi.org/10.1086/227277>.
- National Comorbidity Survey. (2005). *K10 and K6 scales*. Retrieved September 11, 2014, from http://www.hcp.med.harvard.edu/ncs/k6_scales.php.
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling: A Multidisciplinary Journal*, 14(4), 535–569. <https://doi.org/10.1080/10705510701575396>.
- Oquendo, M. A., Ellis, S. P., Greenwald, S., Malone, K. M., Weissman, M. M., & Mann, J. J. (2001). Ethnic and sex differences in suicide rates relative to major depression in the United States. *American Journal of Psychiatry*, 158(10), 1652–1658. <https://doi.org/10.1176/appi.ajp.158.10.1652>.
- Rivera, F. I., Guarnaccia, P. J., Mulvaney-Day, N., Lin, J. Y., Torres, M., & Alegría, M. (2008). Family cohesion and its relationship to psychological distress among Latino groups. *Hispanic Journal of Behavioral Sciences*, 30(3), 357–378. <https://doi.org/10.1177/0739986308318713>.
- Roeder, K., & Wasserman, L. (1997). Practical Bayesian density estimation using mixtures of normals. *Journal of the American Statistical Association*, 92(439), 894–902. <https://doi.org/10.1080/01621459.1997.10474044>.
- Sam, D. L., & Moreira, V. (2012). Revisiting the mutual embeddedness of culture and mental illness. *Online Readings in Psychology and Culture*, 10(2), 1. <https://doi.org/10.9707/2307-0919.1078>.
- San Miguel, V. E. F., Guarnaccia, P. J., Shrout, P. E., Lewis-Fernández, R., Canino, G. J., & Ramírez, R. R. (2006). A quantitative analysis of ataque de nervios in Puerto Rico: Further examination of a cultural syndrome. *Hispanic Journal of Behavioral Sciences*, 28(3), 313–330. <https://doi.org/10.1177/0739986306291441>.
- U.S. Department of Health and Human Services. (2001). *Mental health: Culture, race, and ethnicity: A supplement to mental health: A report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services. <https://doi.org/10.1037/e647822010-001>.
- Vega, W. A., & Gil, A. G. (2005). Revisiting drug progression: Long-range effects of early tobacco use. *Addiction*, 100(9), 1358–1369. <https://doi.org/10.1111/j.1360-0443.2005.01141.x>.