Published in final edited form as:

Women Health. 2010 May ; 50(3): 213–228. doi:10.1080/03630242.2010.482007.

Latina Self-Reported Mental Health and Delay in Health Care in a New Latino Destination

Janine M. Jurkowski, PhD, MPH [Assistant Professor],

Department of Health Policy, Management, & Behavior, University at Albany School of Public Health, 1 University Place, Rensselaer, NY 12144, Phone: 518-402-0420, Fax: 518-402-0414

Emily Leckman Westin, Ph.D. [Research Scientist], and

Bureau of Evidence Based Services & Implementation Science New York State Office of Mental Health, 44 Holland Avenue, 6th Floor, Albany, New York 12229, Phone: (518) 474-6827, Fax: (518) 474-7361

José Rossy-Millán, Psy.D.

St. Mary's Hospital, Behavioral Health, 427 Guy Park Avenue, Amsterdam, NY 12010, Phone: (518) 841-7423, Fax: (518) 841-7344

Janine M. Jurkowski: jjurkowski@albany.edu; Emily Leckman Westin: coevelw@omh.state.ny.us; José Rossy-Millán: jrossy@aol.com

Abstract

Understanding how depression and/or anxiety affect use of health care among Latinas in rapidly growing new Latino destinations, population where the growth rate of the Latino population exceeds the national average, may enhance community engagement efforts. Using community-based participatory research, a questionnaire assessing health care use was administered to 289 Latinas. Most (70%) reported delaying healthcare, and self-reported depression/anxiety was associated with a 3.1 fold (95% CI: 1.6 - 5.9) increase in delay, after adjusting for current health status, acculturation, age, education and place of birth. Mental health disparities exist among Latinas, which are related to delays in use of health care. A gap exists regarding health education interventions for Latinas. More research is needed to identify successful models, especially in new Latino destinations as they may be particularly vulnerable to delay care.

Introduction

As the Latino population continues to increase in the U.S., disparities in health care among Latinos is increasingly important. Observed disparities in Latino's use of health care can be compounded in new Latino destinations, defined by destinations which traditionally had a very small population and the new rapid growth of the Latino population exceeds the national average (Suro and Singer 2002). Such areas may not be prepared for a rapid expansion in this segment of the population. Mental health is a salient issue among Latinos and is related to multiple factors, including stress due to economic woes, migration and differential acculturation across generations of Latinos (Guarnaccia and Martinez 2002). Understanding how mental health may affect use of health care is important to prepare new Latino destinations to meet the needs of this population. More research is needed to improve researcher's understanding of issues that influence Latina health (Amaro and De la Torre 2002). Understanding factors that influence delay in care may improve appropriate interventions to enhance health care for this population. Using a Community-based Participatory Research

(CBPR) approach, this study examined the influence of self-reported depression and/or anxiety in Latino women, Latinas, on their health care use in a new Latino Destination, with consideration of acculturation and place of birth.

Major depressive disorder (MDD) occurs frequently among Latinos, just as in other populations, often co-occurring with other mental disorders and physical illnesses, including anxiety, diabetes, and physical disabilities (Guarnaccia, Martinez et al. 2002; Rios-Ellis, Aguilar-Gaxiola et al. 2005). MDD can lead to long-term functional impairment and loss of productivity. Cancer survivors, people with diabetes, and individuals with physical disabilities often experience mental health concerns (Egede 2004). In the area where this study was conducted, over 25% of Latinas between the ages of 21 and 64 years had a disability, compared to 11.1% of non-Latino white women (U. S. Census Bureau 2008). This was particularly significant in light of the fact that the median age of Latinas is 23 years, half that of the median age of their non-Hispanic white counterparts (U. S. Census Bureau 2008). Further, disabled Latinas were more likely to be unemployed than non-disabled Latinas (58%, as compared to 38%) (U. S. Census Bureau 2008), compounding their health difficulties and increasing their vulnerability to depression. Diabetes, which often co-occurs with depression, is considered an epidemic among Latinos (National Institute of Diabetes and Digestive and Kidney Diseases 2008). The prevalence rate in this population was 10% in 2008, and Latinos' morbidity and mortality rates from diabetes is reported to be higher than for other racial/ethnic groups (National Institute of Diabetes and Digestive and Kidney Diseases 2008). Likewise, the association between asthma and anxiety is well established (Ortega, McQuaid et al. 2004; Goodwin, Chuang et al. 2007; Koinis-Mitchell, McQuaid et al. 2007; Roy-Byrne, Davidson et al. 2008). Puerto Ricans, the largest of the Latino subgroups in New York State and in the study sample, have the highest rate of asthma of any racial/ethnic group in the United States (Fritz, Racer et al. 1999; Lara, Morgenstern et al. 1999; Ortega, McQuaid et al. 2004). Given the preventable nature of many of these conditions and the seriousness of the complications if not well managed, engagement with healthcare providers is essential.

Latinos are more likely to delay needed care for both acute and chronic conditions than other race/ethnic group (Facione 1993; Commonwealth Fund 2001; Henderson, Magana et al. 2002; Sala, Rohlf et al. 2005). Delaying needed care has many potential consequences, including increased morbidity and mortality as well as more difficult and costly treatment (Maynard, Althouse et al. 1989; Facione 1993; Sala, Rohlf et al. 2005). Cost and insurance coverage have been the main focus of studies examining barriers to health care that lead to delay in care among Latinos. Low education level, low acculturation, place of birth, cost, and poverty are also associated with not getting or delaying cardiovascular screenings, mammograms, and PAP tests among Latinas (Borrayo and Guarnaccia 2000; Jacobs, Karavolos et al. 2005; Jurkowski and Johnson 2005; Shah, Zhu et al. 2006; Tejeda, Thompson et al. 2009). Unfortunately, few studies have examined the influence of mental health status, as well as social factors, or cultural factors such as beliefs and language (Negy and Woods 1992).

Only one known study examined multiple social and cultural factors associated with delaying routine health care among Latinos (Larkey, Hecht et al. 2001). This study of predominantly male Mexican-American trade and labor workers in Arizona found that those who displayed symptoms for cancer, cardiovascular disease and diabetes delayed care, and their beliefs and attitudes were associated with this delay. Also, perceived seriousness of a symptom was most strongly associated with an earlier visit to the doctor. Faith, gender and race concordance with a provider were associated with trust in the doctor and an earlier doctor visit. Conversely, bad medical experiences and practical barriers were related to avoidance (Larkey, Hecht et al. 2001).

Given the comorbidity of depression and anxiety with common physical health concerns (diabetes, heart disease, asthma), this study sought to understand whether depression and/or anxiety was associated with delays in routine health care, independent of other important factors; acculturation, which is the process of adopting the mainstream culture as a result of contact with that culture (Negy and Woods 1992), and presence of a current chronic health condition, in a traditionally underserved population in a new Latino destination.

Methods

Setting

This study used a community-based participatory research approach, (CBPR), which involved the active participation of community members in the research process so that the data obtained more accurately reflected the truths of the populations being studied (Minkler and Wallerstein 2003). When trying to understand factors that affect the health of a specific cultural group (a group with similar beliefs, behaviors and language), a within culture understanding was important and it can occur only when members of that cultural group are involved in the research of their world view (Larkey, Hecht et al. 2001; Negy and Woods 1992).

This paper presents findings from a survey that was developed in partnership with Latinas living in a new Latino destination in Northeastern, NY, an area that encompasses three small cities, including the state capital (Minkler and Wallerstein 2003). The researchers collaborated with a community based organization serving Latinos and members of the community. Two community partners were trained in human subject's research, Institutional Review Board (IRB) certified and trained in some of the research methods employed in this study. IRB and methods trained community members implemented various components of this study. Latina staff and other community members were actively involved in decisions about survey design and testing as well as the interpretation of the preliminary findings, which were first presented at an open community meeting. Community members discussed bivariate associations and made suggestions for factors that may be associated with health behaviors. Mental health was identified as a Latino community health priority at the open meeting, which led the first author to pursue further analysis. The third author on this paper is a community partner. This study's protocol was approved by the University at Albany Institutional Review Board (IRB). The survey was conducted in the spring and summer of 2007.

Instrument

Study Participants—Latina women who were living in the Northeastern region of New York State and were aged 18 years and older were recruited to take a 70-item questionnaire, which was developed to assess cultural and social barriers that influenced health and health care use. Because the target population was not concentrated in one neighborhood area and therefore hard to reach, a snowball sampling design was used (Faugier and Sargeant 1997). The study participants were recruited through word of mouth at community based organizations and churches that were known to be frequented by Latinos. The researcher and IRB-trained community partners also approached women at the community organization and invited them to participate. Eligibility for participation in both the focus groups and the survey was confirmed through self-identification through a brief survey that the focus group members completed upon signing consent forms and through the age and national origin questions at the beginning of the survey that this study is based on. The survey questions were self-identified birth year and being Latina or of Hispanic origin. A total of 31 women participated in the focus groups. As a result of the approach we used for determining eligibility, we were unable to determine rate of eligibility. A total of 289, mostly Puerto-Rican, Latinas participated in the survey study. Two women were excluded due to incomplete responses, and the final sample

size was 286 women (98.9%). All participants signed an IRB approved informed consent and were given \$10 for completing the survey.

Development of Survey Questionnaire—The survey questions were derived from themes identified in four 90 minute focus groups conducted with a total of 30 Latina adults living in the Northeastern region of NY, the majority of whom were Puerto Rican and Dominican. These focus groups were co-facilitated by an IRB certified, trained community partner and the focus group guide was developed in collaboration with community members. Using grounded theory methodology, codes were created as the data was being analyzed. Two researchers separately coded the data line by line based on their main concepts using action codes to facilitate making comparisons between different Latinas in the four focus groups. These codes were used for sorting and developing additional coding for synthesizing the data (Charmaz 2003). The researchers reviewed their individual coding together to determine agreement, which was determined for the majority of codes and reconciled differences in code through reviewing data and discussion. Major themes were developed from categorizing the codes. Delaying health care was one major theme identified with several sub-themes that were related to social and cultural factors related to health and health care use. Most participants had some form of health insurance and did not report insurance as an access issue, rather cultural factors and competing responsibilities were described. These themes were translated into 70 close-ended survey questions in collaboration with trained community members. The survey was translated into Spanish by a professional translator and then back translated by a bilingual research assistant. The Spanish and English versions of the survey were then tested during two focus groups in the community during which participants verified the conceptual accuracy. They also critiqued the language translation and the cultural appropriateness of the survey questions and the question ordering.

Measures

Dependent variable—The outcome variable, delay in medical care, was derived from the National Health Interview Survey (NHIS) questionnaire (NCHS 2005) and was modified based on the focus group themes. Delay in medical care was measured by using a multipart question with yes/no responses for 15 attitudinal/behavioral items following the general prompt: “There are many reasons people delay getting medical care. In the past 12 months have you delayed getting care for any of the following reasons?” The responses listed common barriers identified by the focus group participants, such as language, transport and cost barriers. Participants were assigned as “delayed care” if they had one or more “yes” responses.

Independent Variables—During data collection, we submitted a modification to our IRB protocol to add symptom-based questions on anxiety and depression to the survey (the questions asked how often participant felt a loss of interest or pleasure in doing things, felt sad or depressed, felt nervous, or felt worried in the past week). Upon IRB approval, we continued data collection with the additional questions added to the end of the questionnaire so that the remaining 204 women who were recruited completed the survey with the additional questions, resulting in a smaller number of women answering these questions than the total sample. Anxiety and depression were based on self-report in which participants were separately asked if they currently experienced these conditions (Yes/No). Women who endorsed these items were more likely to endorse items reflecting depressive and anxiety symptomatology (e.g. loss of interest or pleasure in doing things). Women who endorsed a self-report of depression and/or anxiety were 2.4 times (95% CI: 1.03 - 5.58) more likely to respond that they had lost interest in previously enjoyable activities, 6.2 times (95% CI: 2.27 - 16.81) more likely to report that they felt sad and depressed always or almost always, 4.6 times (95% CI: 1.81 - 11.99) more likely to report feeling nervous always or almost always, and 2.9 times (95% CI: 1.52 - 5.66) more likely to report feeling worried always or almost always. All were statistically significant.

Given that the entire sample did not respond to these questions, the decision was to use the self-report of depression and/or anxiety so as to include the entire sample in the analysis.

Age was measured using the National Health Interview Survey (NHIS) question (National Center for Health Statistics 2005), which asked year of birth. Education was measured using the Behavioral Risk Factor Surveillance Survey (BRFSS) question, asking the highest grade or year of school ever completed (Centers for Disease Control and Prevention 2005). Health insurance coverage, a variable that has been associated with use of health care among Latinos, was not included in the analysis because less than 5% of woman in the sample had no health insurance coverage so there was little variation.

Acculturation is often used as a measure of the level to which Latinas adopted the U.S. mainstream culture (Negy and Woods 1992). Evidence suggests that language spoken is the best predictor of acculturation (Marin, Sabogal, Marin, Otero-Sabogal, Perez-Stable 1987). Acculturation was measured using the seven item National Health Interview Survey (NHIS) acculturation scale, which was also a modified version of the Delgado scale but it did not include the ethnic identity and birth place questions (Delgado, Johnson, Ila, and Trevino 1990). This language-based scale asked participants about the language they speak most often, the language spoken as a child, at home, with friends, when thinking and reading, when watching television and listening to the radio. The Cronbach's alpha for this scale was 0.95. For this study, the responses were summed and the scale was broken into a high level of acculturation, (scoring 20 or more on the scale) and low acculturation (scoring 19 or less). Place of birth, another measure of culture among Latinos (Jurkowski 2006), was measured by asking, "Where were you born?" Participants were able to select from a list of Latin American countries, Puerto Rico, mainland United States, and "other" with the ability to write in a country. The chronic disease variable was measured by asking participants if they had ever been told by a health professional that they had hypertension, high cholesterol, gestational diabetes, diabetes, stroke, heart disease, asthma, metabolic syndrome, breast/cervical cancer or any other chronic disease. A woman was categorized as having a chronic illness if she reported that she had been diagnosed with at least one of these conditions.

Analysis

Analyses were conducted in SAS and Stata 9.0. Bivariate analyses were conducted to determine the independent relationships. Confounding was addressed theoretically and empirically. Specifically, a series of bivariate analyses were conducted on theoretically important covariates (variables that were expected to be confounders, based on previous research) and empirically (variables that are significantly ($p < .05$) associated with both the outcome (delay in care) and self-report of depression and/or anxiety). When a variable was significantly associated (defined by $p < .05$) with the self-report of depression and/or anxiety, but not delays in care, we included any variables that had been consistently identified in the literature as potent predictors of delay (acculturation fell into this category) or were often controlled for in multivariate models (age). Logistic regression analyses were used to estimate the odds ratio (OR) and 95% Confidence interval (CI) for each variable and covariate. Potential interactions were assessed, and Homer-Lemeshow goodness-of-fit tests were conducted. Several two-way interactions were tested: depression/anxiety and chronic health condition, depression/anxiety and acculturation, depression/anxiety and age, depression/anxiety and education, depression/anxiety and place of birth, chronic health condition and acculturation, chronic health condition and age, chronic health condition and education, chronic health condition and place of birth, acculturation and age, acculturation and education, acculturation and place of birth, age and education, age and place of birth, and education and place of birth. Three-way interactions that were tested include: depression/anxiety and acculturation and age and depression/anxiety and acculturation and chronic.

Results

A total of 289 Latino women, mostly Puerto Rican (57%) participated in the survey. Three participants were excluded due to incomplete responses and the final sample size was 286 participants (98.9%) (table 1). Overall about 70% of women reported delaying health care. The majority of women were Puerto Rican, and over 40% were born in Puerto Rico. The mean age of the sample was 44.8 (+15.8) years. Nearly 43% reported having less than a high school education (table 1).

Self-reported depression and/or anxiety was significantly associated with delays in health care utilization, reporting a chronic physical health condition and a lower level of acculturation (table 2). Furthermore, those women 40 years and older were more likely to report depression and/or anxiety as were those with high school education or less. Finally, those individuals born in Puerto Rico were more likely to report depression and/or anxiety, but there were no significant differences in those born outside mainland US.

Reporting depression and/or anxiety was associated with an OR of 3.1 (95% CI: 1.6 – 5.9) for delaying healthcare, after controlling for a current chronic health condition, acculturation, age, education and place of birth (table 3). Reporting a current chronic health condition was also associated with delays in health care (OR: 2.3, 95% CI: 1.2 – 4.2), but acculturation was not. Women with less than high school education were also significantly more likely to delay care. Latinas who were older were less likely to delay needed care. Women with less than a high school education was associated with a greater odds delays in health care (OR: 2.3, 95% CI: 1.1, 4.7). In assessing potential interactions, a single three-way interaction among age, acculturation, and depression and/or anxiety was significant. Specifically, older women with low acculturation that reported depression and/or anxiety had 1.45 greater odds of healthcare delay (95% CI: 1.2 – 1.75) than older women with low acculturation who did not report depression and/or anxiety. Younger women with low acculturation who reported depression and/or anxiety did not have increased odds of healthcare delay (OR: 0.93, 95% CI: 0.73-1.17) when compared with younger women with low acculturation that did not report depression and/or anxiety. Interestingly, older and younger women with high acculturation who reported depression and/or anxiety had similar odds of healthcare delay when compared to older and younger women with high acculturation who did not report depression and/or anxiety (Older women OR: 1.22, 95% CI: 0.99 – 1.50 and Younger women OR: 1.22, 95% CI 0.96 – 1.56), but these odds are only marginally significant. Given the number of tests of interaction, the interaction findings may be due to chance and should be replicated in other samples to determine their validity.

Discussion

Our findings suggest that a large proportion of Latina women in this study may have experienced depression and/or anxiety (46%), which appeared to be substantially related to delaying health care even in the presence of a chronic physical health condition (and in a sense controlling for health care coverage since most of the sample had coverage). Overall, the results suggest that mental health concerns were prevalent at the time of this study, even after controlling for acculturation, education, and age in this sample. It is also noteworthy that having a chronic physical health condition was associated with delayed care after controlling for all other factors in the model. This finding has implications for adequate monitoring and management of chronic health conditions among Latinas. It is known that Latinos with chronic conditions report poorer management of chronic conditions, such as diabetes, and they are likely to delay care (Henderson 2002). These reported findings are tempered by the sampling method and the inclusion of one new Latino destination area. These limitations affect the generalizability of these findings. However, there is evidence of significant variation in

prevalence of psychiatric disorders across Latino sub-groups (Alegría, Mulvaney-Day, Torre, Polo, Cao, and Canino 2007). New Latino destinations are only recently being studied, and if these findings are replicated, depression and/or anxiety represent an important factor in delaying health care.

Latinas with a less than high school education were over 2 times more likely to report delaying care when compared to those with greater than a high school education, after controlling for other factors. This finding is consistent with the literature, which generally finds that Latinos with less education are more likely to delay screenings for chronic diseases and chronic disease risk factors (Borrayo and Guarnaccia 2000; Jacobs, Karavolos et al. 2005; Jurkowski and Johnson 2005; Shah, Zhu et al. 2006).

Acculturation in this study was defined as level of adoption of the U.S. mainstream culture based on language use (which has been shown to be the best predictor of acculturation). In this study, acculturation, measured by a standardized scale unexpectedly was not associated with delay in care. This study's findings on acculturation were not congruent with the current literature (Guarnaccia, Martinez et al. 2002), perhaps because the acculturation variable failed to measure relevant aspects of culture related to delay in care among women in this Latino population. Another explanation is that acculturation may be more relevant for a particular cohort. The three way interaction suggests that low acculturated women over the age of 40 who reported depression and anxiety are more likely to delay care. This was not found for younger women with low acculturation. It can be speculated that older women with low acculturation and depression and/or anxiety may have experienced specific factors such as more anxiety about language barriers, which may not be present in younger women. This finding warrants further exploration on the influence of age and acculturation.

This study did not find any association between place of birth and delay in care, which contradicts other research that found this association for delay in CVD-related screenings. That study was conducted among a predominantly Mexican population in an established Latino destination (Jurkowski 2006). The finding in this study suggests that place of birth may have been a less relevant measure of acculturation for delay in health care for this sample.

Language barriers, as well as lack of health care insurance, lack of knowledge about what mental health services entail and about where to get services have been identified in the literature to be associated with use of mental health care (Guarnaccia, Martinez et al. 2002). These aforementioned factors may be particularly salient for Latinos living in new Latino destinations. Considering the mental health care barriers in the literature that have been associated with delay and the results of this study, as rapidly growing Latino communities are increasing across the country, it is important to focus on new Latino destination populations. Therefore, this study's findings have implications that may reach beyond the Northeastern NY. Providers and other service professionals working in new Latino destinations need to understand and address the barriers to health care to serve the needs of this traditionally underserved population better. For example, in the study community, 41% of Latinas generally spoke mostly or only Spanish (Jurkowski and Ramos 2009) and anecdotally reported preferring to speak Spanish when accessing their emotions. Although evidence suggests that Latinos tend not to believe in or widely seek psychotherapy, if a Latina in this new Latino destination decided to do so, lack of knowledge about mental health services is a barrier (Guarnaccia, Martinez et al. 2002). Therefore, areas experiencing a large influx of new residents may want to consider researching resources and developing a resource guide that increases awareness of resources available for mental health and other related resources such as substance abuse and domestic violence hotlines.

Cultural competence among providers can also improve cost and patient satisfaction with quality of care (Zambrana, Molner et al. 2004). However, culturally and/or language competent providers may not be available in new Latino destinations. For that reason, active involvement of appropriate stakeholders (i.e. government agency officials and service providers) in a coalition to address this problem would increase the potential for resource linkages to identify or develop strategies for increasing the number of culturally and/or language competent providers.

In preventing and treating mental health disorders and helping ethnic minority communities thrive socially and economically, evidence suggests that empowerment through community-building efforts is essential, with a focus on supporting and strengthening the problem-solving capabilities of residents (Minkler and Wallerstein 2003; Santiago-Rivera, Arredondo et al. 2002; Smokowski and Bacallao 2009). In recent years, several community-based mental health projects have shown promise with Latinos in particular. A domestic violence prevention and intervention program for example, integrated clinical services with the involvement of lay Latino religious leaders (Smokowski and Bacallao 2009). Another study used grass-roots *tertulias*, support groups for Latinas with similar life stories and cultural backgrounds (Santiago-Rivera, Arredondo et al. 2002). Alegría et al. (2008) found that specific patient activation and empowerment interventions were effective in enhancing minority group patients' attendance and retention in treatment in community clinics (Alegría, Polo et al. 2008).

Active participation of community advocates/partners (e.g., church leaders, school counselors, local community based organizations) and community members in the research process, through the application of a Community-based Participatory Research approach (Minkler and Wallerstein 2003), may help identify the unique combination of barriers to healthcare utilization in new Latino destinations. Including the perspective and experiences of Latinas and people in the community who work with them in the research process and using the results of CBPR research for guiding development of mental health interventions will help ensure development of culturally-appropriate interventions.

Although this study had many strengths, including the unique population, the use of a CBPR approach, and the use of standardized variables, it had some limitations. We used a convenience sample based on snowball sampling, which limits generalizability of the findings, because it was the only feasible and affordable option to survey this hard to reach population (Faugier and Sargeant 1997). Furthermore, the study was a cross sectional design and therefore we were unable to determine causal temporal relationships. Also, the data for this study were based on self-reports. While the mental health status variable was not a standardized scale of reported symptoms, women endorsing depression and/or anxiety were more likely to endorse specific symptoms of depression and/or anxiety, affording a measure of confidence in the self reports. The language-based acculturation scale used in this study (Delgado, Johnson and Treviño 1990) and the use of place of birth as measures of cultural identity were limiting in that they were proxies for culture, not explicit measures of specific cultural beliefs related to use of health care. Finally, because our study population was predominantly Puerto-Rican, further research is needed to corroborate its relevance among other Latino sub-groups living in new Latino destinations.

Mental health and delay in health care are important health disparities issues among Latinos. Unfortunately, a research gap exists in understanding effective health interventions for Latinos, who have chronically low rates of mental health problem detection and low utilization rates for mental health care (Guarnaccia, Martinez et al. 2002), as well as a for interventions to promote screenings for chronic diseases (Correa-de-Araujo, McDermott et al. 2006; Edwards, Li et al. 2009). More research is needed to identify successful intervention models. The

literature also suggests that the mental health field has a dearth of CPBR research models for working with Latino populations, especially in new Latino destinations. Yet researchers and funding agencies, such as Agency for Healthcare Research and Quality and the Centers for Disease Control and Prevention, have promoted the use of CBPR to address health disparities (Viswanathan, Ammerman et al. 2004). At the research field level, using a CPBR approach will move the Latino mental health field forward by providing a participatory model that other researchers can use to successfully involve their communities in research.

Acknowledgments

The authors would like to thank Ladan Alomar and Ivonne Ramos of Centro Civico of Amsterdam, New York for their active participation and commitment to this research and Blanca Ramos for her help with recruiting Latinas and administering surveys. Support for this work was provided by a grant from NIH (NCMHD) (SRDMD001120), the Center for the Elimination of Minority Health Disparities at the University at Albany and the Center for Social and Demographic Analysis from NICHD (R24HD044943).

References

- Alegría M, Polo A, Gao S, Santana L, Rothstein D, Jimenez A, Hunter ML, Mendieta F, Oddo V, Normand SL. Evaluation of a patient activation and empowerment intervention in mental health care. *Medical Care* 2008;46(3):247–56. [PubMed: 18388839]
- Alegría MA, Mulvaney-Day N, Torre M, Polo A, Cao Z, Canino G. Prevalence of Psychiatric Disorders Across Latino Sub-Groups in the United States. *American Journal of Public Health* 2007;97:68–75. [PubMed: 17138910]
- Amaro H, De la Torre A. Public Health Needs and Scientific Opportunities in Research on Latinas. *American Journal of Public Health* 2002;92(4):525. [PubMed: 11919044]
- Borrayo E, Guarnaccia C. Differences in Mexican-born and US-born women of Mexican descent regarding factors related to breast cancer screening behaviors. *Health Care Women International* 2000;21:599–613.
- Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System: 2005 Survey Questions. Centers for Disease Control and Prevention; 2005.
- Commonwealth Fund. Health Care Quality Survey. New York, NY: The Commonwealth Fund; 2001. p. 1-31.
- Correa-de-Araujo R, McDermott K, Moy E. Gender differences across racial and ethnic groups in the quality of care for diabetes. *Women's Health Issues* 2006;16(2):56–65. [PubMed: 16638522]
- Delgado, Johnson CL, Roy I, Treviño FM. Hispanic Health and Nutrition Examination Survey: methodological considerations. *American Journal of Public Health* 1990;80(Suppl):6–10. [PubMed: 9187575]
- Edwards Q, Li AX, Pike MC, Kolonel LN, Ursin G, Henderson BE, McKean R. Ethnic differences in the use of regular mammography: The multiethnic cohort. *Breast Cancer Research and Treatment* 2009;115:163–170. [PubMed: 18493849]
- Egede LE. Diabetes, major depression, and functional disability among U.S. adults. *Diabetes Care* 2004;27(2):421–8. [PubMed: 14747223]
- Facione NC. Delay versus help seeking for breast cancer symptoms: a critical review of the literature on patient and provider delay. *Social Science and Medicine* 1993;36(12):1521–34. [PubMed: 8327915]
- Faugier J, Sargeant M. Sampling hard to reach populations. *Journal of Advanced Nursing* 1997;26(4):790–7. [PubMed: 9354993]
- Fritz P, Racer G, et al. Asthma Among Adult New Yorkers. *Behavioral Risk Factor Surveillance System* 1999;7
- Goodwin R, Chuang S, Simuro N, Davies M, Pine DS. Association between lung function and mental health problems among adults in the United States: Findings from the First National Health and Nutrition Examination Survey. *American Journal of Epidemiology* 2007;165(4):383–388. [PubMed: 17158187]

- Guarnaccia, P.; Martinez, I. Comprehensive In-Depth Literature Review and Analysis of Hispanic Mental Health Issues with Specific Focus on Members of the Following Ethnic Groups: Cubans, Dominicans, Mexicans and Puerto Ricans. New Jersey: Changing Minds, Advancing Mental Health for Hispanics project of the New Jersey Mental Health Institute, Inc.; 2002.
- Henderson SO, Magana RN, Korn CS, Genna T, Bretsky PM. Delayed presentation for care during acute myocardial infarction in a Hispanic population of Los Angeles County. *Ethnicity and Disease* 2002;12(1):38–44. [PubMed: 11913607]
- Jacobs EA, Karavolos K, et al. Limited English proficiency and breast and cervical cancer screening in a multiethnic population. *American Journal of Public Health* 2005;95(8):1410–6. [PubMed: 16043670]
- Jurkowski JM, Johnson T. Acculturation and cardiovascular disease screening practices among Mexican-Americans living in Chicago. *Ethnicity and Disease* 2005;15(3)
- Jurkowski JM. Nativity and cardiovascular disease screening practices. *Journal of Immigrant and Minority Health* 2006 Oct;8(4):339–46. [PubMed: 16732435]
- Jurkowski, J.; Ramos, B. NYLAR Net Policy Brief. Albany, NY: University at Albany; 2009. Experiences Using Health Care Among Latinas in the Capital Region of New York State; p. 1-5.
- Koinis-Mitchell DE, McQuaid EL, Seifer R, Kopel SJ, Esteban C, Canino G, Garcia-Coll C, Klein R, Fritz GK. Multiple Urban and Asthma-Related Risks and their Association with Asthma Morbidity in Children. *Journal of Pediatric Psychology* 2007;32(5):582–595. [PubMed: 17218338]
- Lara M, Morgenstern H, Duan N, Brooks RH. Elevated Asthma Morbidity in Puerto Rican Children: A Review of Possible Risk and Prognostic Factors. *Western Journal of Medicine* 1999;170(2):75–84. [PubMed: 10063393]
- Larkey L, Hecht M, Miller K, Alatore C. Hispanic cultural norms for health-seeking behaviors in the face of symptoms. *Health Education and Behavior* 2001;28(1):65–80. [PubMed: 11213143]
- Marin G, Sabogal F, Marin B, Otero-Sabogal R, Perez-Stable E. Development of a short acculturation scale for Hispanics. *Hispanic Journal of Behavioral Sciences* 1987;9:183–205.
- Maynard C, Althouse R, Olsufka M, Ritchie JL, Davis KB, Kennedy JW. Early versus late hospital arrival for acute myocardial infarction in the western Washington thrombolytic therapy trials. *American Journal of Cardiology* 1989;63(18):1296–300. [PubMed: 2499171]
- Minkler, M.; Wallerstein, N. Introduction to Community-Based Participatory Research. In: Minkler, M.; Wallerstein, N., editors. *Community-Based Participatory Research for Health*. San Francisco: Jossey-Bass; 2003.
- National Center for Health Statistics. National Health Interview Survey (NHIS). Hyattsville, MD: Centers for Disease Control and Prevention; 2005.
- National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. National Diabetes Statistics, 2007. Bethesda, MD: Department of Health and Human Services; 2008.
- National Center for Health Statistics. National Health Interview Survey (NHIS). Hyattsville, MD: Centers for Disease Control and Prevention; 2005.
- National Center for Health Statistics. The National Health Interview Survey (NHIS) Instrument. Hyattsville, MD: Centers for Disease Control and Prevention; 2000 [January 21, 2009]. ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2000/frmanu_c.pdf
- Ortega A, McQuaid EL, Canino G, Goodwin RD, Fritz GK. Comorbidity of Asthma and Anxiety and Depression in Puerto Rican Children. *Psychosomatics* 2004;45:93–99. [PubMed: 15016921]
- Rios-Ellis; Aguilar-Gaxiola, S.; Cabassa, L., et al. Critical Disparities in Latino Mental Health. Institute for Hispanic. Health, The National Council of La Raza; 2005.
- Roy-Byrne P, Davidson K, et al. Anxiety Disorders and Comorbid Medical Illness. *Focus* 2008;6(4):467–485.
- Sala J, Rohlfs I, García MM, Masiá R, Marrugat J. Effect of reactions to symptoms onset on early mortality from myocardial infarction. *Revista Espanola de Cardiology* 2005;58(12):1396–402.
- Santiago-Rivera; Arrendondo, P.; Gallardo-Cooper, M. Counseling Latinos and la familia: A practical guide. Thousand Oaks: Sage Publications; 2002.
- Shah M, Zhu K, Potter J. Hispanic acculturation and utilization of colorectal cancer screening in the United States. *Cancer Detection and Prevention* 2006;30(3):306–12. [PubMed: 16872756]

- Smokowski PR, Bacallao M. Entre Dos Mundos/Between Two Worlds: Youth violence prevention for acculturating Latino families. *Research on Social Work Practice* 2009;19:165–178.
- Suro, R.; Singer, A. The Brookings Institution Survey Series. 2002 Jul. Latino Growth in Metropolitan America: Changing Patterns, New Locations. Center on Urban and Metropolitan Policy and the Pew Hispanic Center.
- Tejeda S, Thompson B, Coronado GD, Martin DP, Heagerty PJ. Predisposing and enabling factors associated with mammography use among Hispanic and non-Hispanic white women living in a rural area. *Journal of Rural Health* 2009;25(1):85–92. [PubMed: 19166566]
- U. S. Census Bureau. New York Quick Facts from the US Census Bureau. 2008.
- Viswanathan M, Ammerman A, et al. Community-based participatory research: assessing the evidence. *Evid Rep Technol Assess (Summ)* 2004;99:1–8. [PubMed: 15460504]
- Zambrana RE, Molner C, Monz HB, Lopez DS. Cultural competency as it intersects with racial/ethnic, linguistic, and class disparities in managed healthcare organizations. *American Journal of Managed Care* 2004;10:SP37–SP44.a. [PubMed: 15481435]

TABLE 1

Characteristics of Latinas in the Study Sample, Northeastern New York State (2007) (N=286)

Sample Characteristics	Sample Distribution <i>n</i> (%)
<i>Delay medical care when needed it</i>	
No	86 (27.3)
Yes	198 (69.7)
<i>Chronic health condition</i>	
No	107 (37.5)
Yes	178 (62.5)
<i>Education level</i>	
Less than a high school education	121 (42.5)
High school diploma or more	164 (57.5)
<i>Place of birth</i>	
Not born in PR	164 (57.3)
Puerto Rico	122 (42.7)
	Mean (SD)
Age in years, mean (SD)	44.80 (15.8)
Acculturation*, mean (SD)	20.15 (7.9)

* Variable range from 8 to 40

TABLE 2

Sample Characteristics by Self-Reported Depression/Anxiety (N=284)

Variable	Self Reported Depression and/or Anxiety (n=130)	No Report of Depression and/or Anxiety (n=154)	Chi Square X ²
<i>Delay medical care when needed it</i>	82.3%	59.1%	X ² ₍₁₎ = 17.9***
<i>Chronic health condition</i>	78.8%	48.4%	X ² ₍₁₎ = 27.9***
<i>Acculturation (% High)</i>	38.8%	53.0%	X ² ₍₁₎ = 5.6**
<i>Age</i>			
40 years old or older	69.5%	48.7%	X ² ₍₁₎ = 12.4**
<i>Education level</i>			
Less than high school	49.2%	37.0%	X ² ₍₂₎ = 12.14**
High school diploma	28.0%	20.8%	
Greater than high school education	22.7%	42.2%	
Not Born in Puerto Rico	50.8%	63.0%	
Born in Puerto Rico	49.2%	37.0%	X ² ₍₁₎ = 4.3*

*
p<.05,**
p<.01,***
p<.001

TABLE 3

Adjusted Odds Ratios (OR) and 95% Confidence Intervals (CI) for Self Reports of Depression and/or Anxiety Associated with Delays in Healthcare (N=287)

Variable	Odds Ratio[†] (95% CI)
<i>Current mental health status</i>	
No self-report depression and/or anxiety	1.0
Self-Reported depression and/or anxiety	3.1 (1.5, 5.9) ***
<i>Chronic condition</i>	
No reported condition	1.0
Reported at least one condition	2.3 (1.2, 4.2) **
<i>Acculturation Level</i>	
Percent Low Acculturation	1.0
Percent High Acculturation	1.1 (0.6, 2.0)
<i>Age</i>	
18-39 years old	1.0
40 years old or older	0.5 (0.2, 0.9) *
<i>Education level</i>	
Greater than High School	1.0
High School	2.3 (1.1, 4.7) *
Less than High School	1.1 (0.5, 2.4)
Not Born in Puerto Rico	1.0
Born in Puerto Rico	0.5 (0.3, 1.1)

[†] Controlling for all other variables in the table

* p<.05,

** p<.01,

*** p<.00