

Patterns of social isolation and loneliness among low-income older Latinos living with depression

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Abstract

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Older Latinos may be especially vulnerable to poor mental health due to structural inequities, yet few studies have described the patterns of social isolation and loneliness among this population. Latinos are the fastest growing population; further research is needed to better identify risk factors associated with poor mental health outcomes among low income older Latinos living with depression. This quantitative study explores the prevalence of social isolation, loneliness and depression in aims to better inform the development of culturally relevant services, which may be applicable to reduce health disparities among underserved older Latinos. The results suggest that older Latinos are more depressed than non-Latinos. Contrary to expectations, this study did not find an association for social connectedness according to participants' sociodemographic and health factors, however, it is critical to draw attention to successful aging among this population in order for public health to formulate holistic preventative interventions that may better address differential health levels.

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With Warm Regards,

Eva L. Torres

Background

Social isolation, loneliness and depression are public health issues that affect us across the lifespan, especially as we transition into older age. Approximately 15-27% of older adults experience depressive symptoms (Mulsant & Ganguli, 1999), 24% are socially isolated (National academies of sciences, 2020), and 35% are lonely (Thayer, 2018) among the U.S older population as a whole. Social isolation and loneliness are distinct constructs. Social isolation is defined as the lack of contact with society at a structural level and the number of people who an individual is interacting with (Perissinotto, 2019). Loneliness is a “functional indicator or the perceived quality of a person’s relationships” often defined as the discrepancy between the relationships one has and the relationships they desire (NASEM, 2020). Older adults are more susceptible to the effects of social isolation due to mobility issues, decreasing social networks, and changes in social and professional roles (Miyawaki, 2015). This can impact the way that older adults manage finances, cope with loss, and their ability to stay in close relationships with other people (Sideris & Hutchinson, 2006).

Depression, social isolation, and loneliness can work independently, however research suggests that these often coexist and influence each other. Studies show that significant risk factors for late-life depression include cognitive decline, caregiver strain, social isolation, disability from medical illness, low income, recent migration, poor subjective health and personal or family legal problems (Alexopoulos, Buckwalter, Olin, Martinez, Wainscott & Krishnan, 2002), which can lead to a host of health issues. Depression is also a risk factor for social isolation and loneliness (Cacioppo, Hughes & Waite, 2006). Therefore, depression, social isolation, and loneliness are significant issues that need to be addressed among older adults – particularly within the Latino population, which is the fastest growing ethnic minority group in the United States, and by mid-century they are expected to account for nearly 20% of the 65 and older population (U.S. Census Bureau, 2008).

A better understanding of the importance of social networks, social capital, and how these dimensions heavily impact older adults’ mental health is needed (Sideris & Hutchinson, 2006). While previous studies have demonstrated that social isolation can lead to adverse health outcomes, there is

limited evidence describing how the relationship differ by ethnicity (Miyawaki, 2015). According to Maslow's theory successful aging depends on agency accompanied with the availability to attaining structural opportunities. Although low income Hispanic individuals are able to survive in scarce environments it is critical to take into account the cultural markers associated with a history of exclusion and social marginality in which places this population in vulnerable situations particularly in regards with economic security, healthcare access, relatively high levels of functional impairment and greater morbidity and mortality associated with chronic diseases such as diabetes (Angel, 2009). Moreover, underserved older Latinos face additional challenges that heighten their social isolation due to lower levels of acculturation and assimilation, immigration experience, and lack of knowledge of how to access information and other resources (Kraus & Goldenhar, 1992).

Research indicates that social isolation and depression specifically among older Latinos can be influenced by the strength of their social networks, marital status, educational attainment, and income level (Miyawaki, 2015). There is also a need to increase our understanding of the diverse subgroups of "Latinos" or "Hispanic" since there is much heterogeneity in aspects such as national origin, genetics and race, acculturation and language (Bernal & Scharro'n-del-Rio, 2001; Sue, Zane, Nagayama Hall, & Berger, 2009). Lastly, research that engages low-income older Latinos is needed given their disproportionate burden and less access to resources: According to the U.S Census, the rate of poverty among Latino Americans who are 65 and older are 20% compared with 7% for non-Latino White Americans. This is critical information as poverty has shown to indicate higher rates of chronic diseases for Latinos compared with Caucasians (U.S Department of Health and Human Services, 2010), and chronic diseases are linked with higher levels of depression (Blazer, 2005).

Specific Aims

This study aims to describe the patterns of social isolation and loneliness among low-income older Latinos living with depression. By describing the magnitude of social isolation, loneliness and depression,

and the associated sociodemographic and health risk factors, we can better design and deliver policies and programs to reduce disparities in access to care and health outcomes.

Aim # 1: To describe the burden of social isolation and loneliness among low income older Latinos living with depression

Aim #2: To describe the sociodemographic and health factors that are associated with social isolation, loneliness and depression among low income older Latinos living with depression

Aim #3: To compare the prevalence and the associated socio demographic and health factors of social isolation and loneliness among older Latino and non-Latino

Methods

Intervention Setting

Data for this study were collected as a part of The Program to Encourage Active, Rewarding Lives (PEARLS) program. PEARLS is a home-based evidence-based program (EBP) developed in close partnership with community-based organizations (CBOS) that work alongside depressed and socially isolated older adults who often have physical limitations and multiple chronic conditions. This late-life depression program is designed to reduce mental health disparities among low income older adults as trusted counselors help build their problem-solving skills and encourage social interactions and activities. The data analyzed for this quantitative study is from the parent study PEARLS and will primarily focus on describing older Latino participants.

Design and Participant Eligibility

This cross sectional and descriptive study used post-PEARLS follow-up survey data for the PEARLS Connect study, an AARP-Foundation funded evaluation of PEARLS on improving social connectedness. PEARLS Connect purposively sampled (Palinkas, 2015) social service agencies across five states (Maryland, Texas, Florida, Washington, and New York) for various organization and provider characteristics (organization type, profession, years doing PEARLS). All PEARLS participants were

invited to participate in PEARLS Connect. Eligible participants were 50 years of age and above, identified low income using the Federal Poverty Level (FPL) guidelines, referred by an agency or health provider and must be clinically diagnosed with low to mild depression as measured by the Patient Health Questionnaire (PHQ-9 ≥ 6) (Kroenke, Spitzer, & Williams, 2001). This PEARLS Connect study included an informed consent, confidentiality form, and was voluntary. Participants received a \$20 incentive after completing each follow-up survey. The study had IRB approval.

Data Collection Procedures

The research team (ET, PB, MM, KZ) collected 30-60-minute survey data by phone in English and in Spanish. Spanish-language data was collected by bilingual and Latino researchers. The PEARLS team translated all of the PEARLS Connect Study material (e.g. informed consent form, validated scales, questionnaires) into Spanish to improve understanding of depression and social isolation intervention. Additionally, the trained PEARLS counselors who assessed Latino participants in their homes also shared Spanish language and cultural norms. All data surveys were located on a cloud-based online tool called RedCAP (Harris et al., 2009). The surveys included brief, validated measures of social isolation, loneliness, depression, and demographics that were pilot tested with PEARLS participants before the PEARLS Connect Study began.

Demographic Characteristics

Participants were asked about their age, gender, race, ethnicity, marital status, number of people in household, retirement/job loss, educational attainment, caregiver history, medical insurance history, income level and self-reported physical and mental health conditions.

Social Isolation and Loneliness Measures

Social isolation was measured using three validated scales including the 10 item Duke Social Support Index (DSSI-10), the 6 item PROMIS Social Isolation (PROMIS_SI) and the UCLA 3 item

Loneliness scale. The DSSI-10 has a range of score of 6-30 and contains two subscales- the DSSI-SI assesses social network size and social interactions, and the DSSI_SS measures perceived social support and emotional satisfaction with support (Wardinan, 2013). The PROMIS includes a range of score of 6-18 and it measures perceived social isolation (PROMIS, 2018). While the UCLA_Loneliness_3 item has a range of score of 3-9 and it evaluates how often a person feels disconnected from others (Hughes. 2004). In all the validated social isolation and loneliness measures higher scores denote more social connectedness. Furthermore, the scales identified levels of social connectedness by measuring participants perceived isolation, social participation and

Depression Measures

Depression was measured using the PHQ-9 (Kroenke K, Spitzer RL, Williams JB: The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med 2001; 16:606-13.), a validated nine-item screening questionnaire with scores ranging from 0 to 27 that contain clinically significant depressive symptoms such as depressed mood, poor appetite, poor sleep, fatigue, feelings of worthlessness/guilt, indecisiveness/trouble concentrating and recurrent thought of death/suicide.

Data Analysis

Mean and standard deviation were calculated to describe sociodemographic factors, self-reported health conditions, social isolation, loneliness and depression outcomes. We used one-sample tests of proportions and chi-square tests to describe associations between levels of social isolation, loneliness, depression, and demographic and health variables. Secondly, we ran adjusted regression models with the outcome being depression, one of the three social connectedness scales as predictors, and demographic and health variables as covariates for Latinos only. Our adjusted regression model investigated ten covariates including age, gender, live alone, marital status, financial basic needs, chronic conditions, PHQ-9, and social connectedness based on the literature on risk factors of depression and social connectedness (National Academies of Science, 2020). Lastly, we ran a one-way ANOVA analysis looking at whether

or not there are significant differences of social connectedness and depression levels/scores, according to sociodemographic and health factors. A significance level of 0.05 was used.

Results

Demographic Characteristics of Study Sample

A total of 358 participants are included in this analysis (Table 1). 17.9% (N=64) identified as Latino (over one-third identified as Puerto Rican, less than 20% as Dominican, and the remaining were from other Latino countries in North, Central, and South America). The non-Latino participants identify as either American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian/Pacific Islander and White/Caucasian. Among Latinos, a large majority identified as female (N=50, 78.1%). Participants ranged in age from 50 to 96 years, Latino participants had a mean of XX (SD) years. Most of participants were not married/partnered (85.9%) and XX% lived alone.

Levels of Depression, Social Isolation and Loneliness by Participant Ethnicity

Latinos had a mean (SD) PHQ-9 score of 8.98(5.52) compared to non-Latinos PHQ-9. (Table 2) There was a statistically significant difference between the two groups ($p < 0.035$) suggesting Latinos had more depressive severity than non-Latinos. Consistent with the literature, this finding confirms that prevalence of depression is slightly higher for Latinos than for the general population of older adults (Arean et al., 2005; Falco n & Tucker, 2000; Gonzalez, Haan, & Hinton, 2001). Latinos were less socially connected than non-Latinos when looking at social interactions and satisfaction with social support (DSSI) and loneliness (UCLA), but this difference was not statistically significant. Latinos had lower perceived isolation than non-Latinos and this difference was not statistically significant (PROMIS)

Mean UCLA scored were higher for the participants who had income level <250% FPL compared to those who had income level >250 FPL (6.67 vs 6.54, $p=0.02$). Results indicate that social connectedness and depression in that population are not statistically associated with their age, education, basic need, marital status (Table 3).

The Relationship Between Social Isolation and Depression, and Associated Factors

Adjusted regression models found that among individuals with the same characteristics, each one unit increase in their PHQ-9 score (indicative of greater depression severity), their social connectedness decreased significantly (DSSI B -0.767, PROMIS B -0.471, UCLA B -1.050; all $p = 0.000$). The same relationship was shown when looking at social connectedness as the outcome, keeping age, educational attainment, gender, relationship status, and living alone constant. (Appendix B). One-way ANOVA revealed that as depression increased, social connection decreased for all three measures for older Latinos. Looking at age, Latinos were more socially connected as they age (according to the DSSI); however, the difference between age groups was not statistically significant.

Discussion

Consistent with the literature, this study summary findings indicate that overall older Latinos have higher depression scores than non-Latinos. Contrary to expectations (NASEM, 2020; Gerst-Emerson, K., Shovali, & Markides, 2014), this study did not find a significant difference between ethnicities in terms of social isolation and loneliness. In addition, this study suggests that as people get older, they are more connected (according to their DSSI score).

Another unanticipated finding was that older Latinos who had higher levels of depression exhibited lower levels of social connectedness. A possible explanation for this result was demonstrated during the open-ended PEARLS participant interviews. For instance, a Latina participant who lives in her daughter's home and shares her space with her grandchildren still suggested that she felt less socially active. Given that she does not live independently in her own home, she describes the inability to freely invite her friends over, ultimately leading to her feeling more socially isolated. This loss of independence was not measured in the PEARLS Connect Study and should be assessed in future studies given it is an important preventable risk factor for both older adults' social connectedness and depression (Fakoya, 2020; SAMHSA, 2011).

This study has been unable to demonstrate how ethnicity and covariates such as income level and educational attainment can influence the level of social connectedness and depression. This discrepancy

could be attributed to the fact that older adults' population in general face a more complex and vaster social determinant of health that heavily impact this vulnerable population. It seems possible that these results are due to the intersecting structural and interpersonal characteristics that were not measured in the study which can be a challenge when trying to show a statistically significant finding when looking at just the ethnicity variable. "Given the pervasiveness of the structural disadvantages that minority Americans face in the labor force and elsewhere and the entrenched poverty and social disorganization characteristic of poor neighborhoods and communities, public health efforts focused solely on individual behaviors are unlikely to be successful in improving population health levels." (Angel, 2009) In addition, there was little to no variation in the covariates, for instance, most people were living in poverty, making it difficult to show any differences in social connectedness. Furthermore, it is suggested that in future research scientists incorporate the conceptual model ecological framework, as it thoroughly explains examples of risk factors for social isolation at each level (e.g. societal, individual, community and relationship).

Further research should be undertaken to investigate other sociodemographic factors that can either serve as a barrier or facilitator for social connectedness among older Latinos. As the Latino population continues to grow there is abundant room for further progress in informing health and social service professionals to better tailor the mental health needs of the older Latino population through a multifaceted and culturally relevant approach. In reviewing the literature, access to mental health services among older Latinos discusses the importance of attending to the lack of availability and culturally sensitive support within health and service systems. Mental health providers that consider socio-cultural practices and speak to the cultural beliefs that impact Latinos expression of symptomology, treatment preferences and prevention of pathologizing the culture can improve the well-being of this population (National Institute of Mental Health, 1999; Santiago-Rivera, Arredondo, & Gallardo-Cooper, 2002; Zayas, Torres, Malcolm, & DesRosiers, 1996). With this in mind, more funding and training should be available to hire bicultural and bilingual mental health providers that can tend to increasing our understanding of cultural values such as *familismo* (close relationships with family), *personalismo* (recognition of the individual within a larger social and familial context), *respeto* (respect), *dignidad* (worthiness), and *espiritualidad* (strong sense of

spirituality and/or religiosity) (Santiago-Rivera et al., 2002). The effectiveness of cultural considerations has been exemplified in a culturally adaptive treatment team by Larson and Malcolm (2012) as their intervention attempted to honor the differences among diverse Latino cultures, while also recognizing the strengths of culturally sharing a language, customs and relatable experiences of living as a Latino within the United States (Santiago-Rivera et al., 2002). To develop a full picture of older Latinos experience with depression and social connectedness, additional studies will be needed that focus on socio-cultural factors such as language, immigration experience, acculturation level and cultural beliefs.

This distinction is further exemplified in studies that take into account the differences in expression of symptomology. For example, a Latino may be less likely to admit feeling sad or depressed, instead is more likely to express somatic symptoms, such as feeling tired, having neck pain or stomach aches (Aguilar, Gullotta & Ramos, 2008). Given that depression symptomology can be seen differently among older Latinos, according to Beer and Korell (2012) elders may not seek traditional outlets to attend to their mental health needs, particularly as depression at times is perceived as a sign of weakness, or that they do not see a separation between mental and physical health. This is valuable cultural insight as it can help formulate interventions that can holistically address the needs of older Latinos. As mentioned in the literature review, economic strain and depression are strongly linked, therefore, when mental health providers work with older Latinos it is imperative to involve the family and be in close partnership with senior community services in addition to offering therapy and medication (Hilton & Child, 2014).

As researchers, public health practitioners and social workers continue to serve this population it is imperative to recognize the diverse relationship participants have with both collectivist and individualistic values and attempting to be more patient centered regardless of what literature shows. Despite this suggestion, older Hispanics are found to have more prevalence of depression due to a greater exposure to social and economic inequalities (DHHS, 2001; Miranda, 1991). Therefore, it is critical to invest research and money into not only individual level work with older Latinos living with depression but as well as addressing potential structural mental health service gaps. An example of this is the mental health service referral process which is underdeveloped and can disrupt access to mental health services,

particularly when translation and interpretation services aren't readily available. According to Klap, Unroe, and Unutzer (2003) who followed depressed older adults from 60 U.S communities and interviewed their history of seeking mental health professional found that only 8% of those depressed older adults reported seeing a professional in the year prior to the study, while less than 50% reported following through with a referral for mental health care (Klap et al., 2003). Furthermore, if an individual experiences depression, social isolation, and loneliness, the person may face an increasing number of barriers that can affect their health and well-being. These barriers are exasperated if the person identifies as a minority and is low-income (Jimenez, 2015). With this in mind, it is important to incorporate more holistic conceptual framework models that identify major threats to healthy aging by understanding how certain social structures affect both individual level health related behaviors as well as patterns of social interactions, perceived discrimination, communities sense of collective security, and other factors that are associated with poverty and powerlessness that fundamentally influence mental health (Angel, 29).

Limitations

This study has limitations to consider when interpreting the findings. For instance, the cross-sectional study design can make no causal inferences and can only report associations. The small sample size does not allow for comparisons between intersecting identities which was shown among Social Support associations. The variability shown among comparisons of Latino and non-Latinos also presented limitations in terms of the generalizability of the study findings. In addition, this study did not measure for immigration experience, discrimination, acculturation levels and minority stress model which have shown to demonstrate significant differences among older Latinos mental health (Meyers, 2003). Additionally, as immigration experience and acculturation levels were not measured in this study this may have shown a greater impact on Latinos mental health, either demonstrating greater or lower levels of self-and/or collective efficacy.

Strengths

Little is known about depression and social connectedness among older low-income Latinos. Hence, this study is critical as it aims to better understand the patterns among a fast-growing underserved population. Although there were statistical limitations in this study this can help inform future public health researchers to explore other ways to measure social connectedness among older Latinos. Interventions to reduce poor mental health outcomes among older Latinos should consider undergoing community based participatory research as a way to firsthand identify the needs of this community. Furthermore, incorporating qualitative analysis on participants overall social isolation experience can be used as an additional method to better address the statistical gaps found in this quantitative study.

Conclusion

As the global COVID-19 pandemic continues undergoing quarantine and social distancing guidelines we are collectively experiencing the impact it holds to our mental health. This pandemic is highlighting the invaluable need to dedicate more research and funds towards services that help reduce adverse mental health outcomes in relation to social connectedness. As a society we are beginning to experience a diminishing of our social network size and having to adapt/change to different social and professional roles regardless of our age. As a result, older adults who have lived with a combination of chronic conditions, disability/mobility issues and mental health issues (i.e. depression, social isolation, loneliness, anxiety) prior to COVID-19 are now the experts on how to manage social isolation and depression.

As we are all members of the aging population, it is vital to find preventative ways to minimize the negative social isolation impact that younger generations may face as they age. Take for instance, changing the physical and social infrastructure by incorporating more intergenerational components. All while combating dominant discourse surrounding ageist and ableist cultural norms. The pandemic

emphasizes the fact that we are all part of the aging population; therefore, it is critical to reintegrate aging adults into our conception of healthy aging across the lifespan. In addition, reducing our structural siloed service systems that address healthy aging and to openly confront the problematic cultural norms and ableist norms that view aging as only deterioration of one's mental and physical health. Although, research shows the greater challenges that older adults experience, it is valuable to better describe these patterns in aims to create social dynamics that help reduce these disparities. Moreover, in order to have a deeper understanding on the health risks that occur over the life course, particularly in regard to ethnic health disparities, further analysis is needed to consider the impact that institutionalized racism, organizational structures and public policies hold to underserved populations.

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Figure 1: Conceptual Model Ecological framework: examples of risk factors for social isolation at each level.

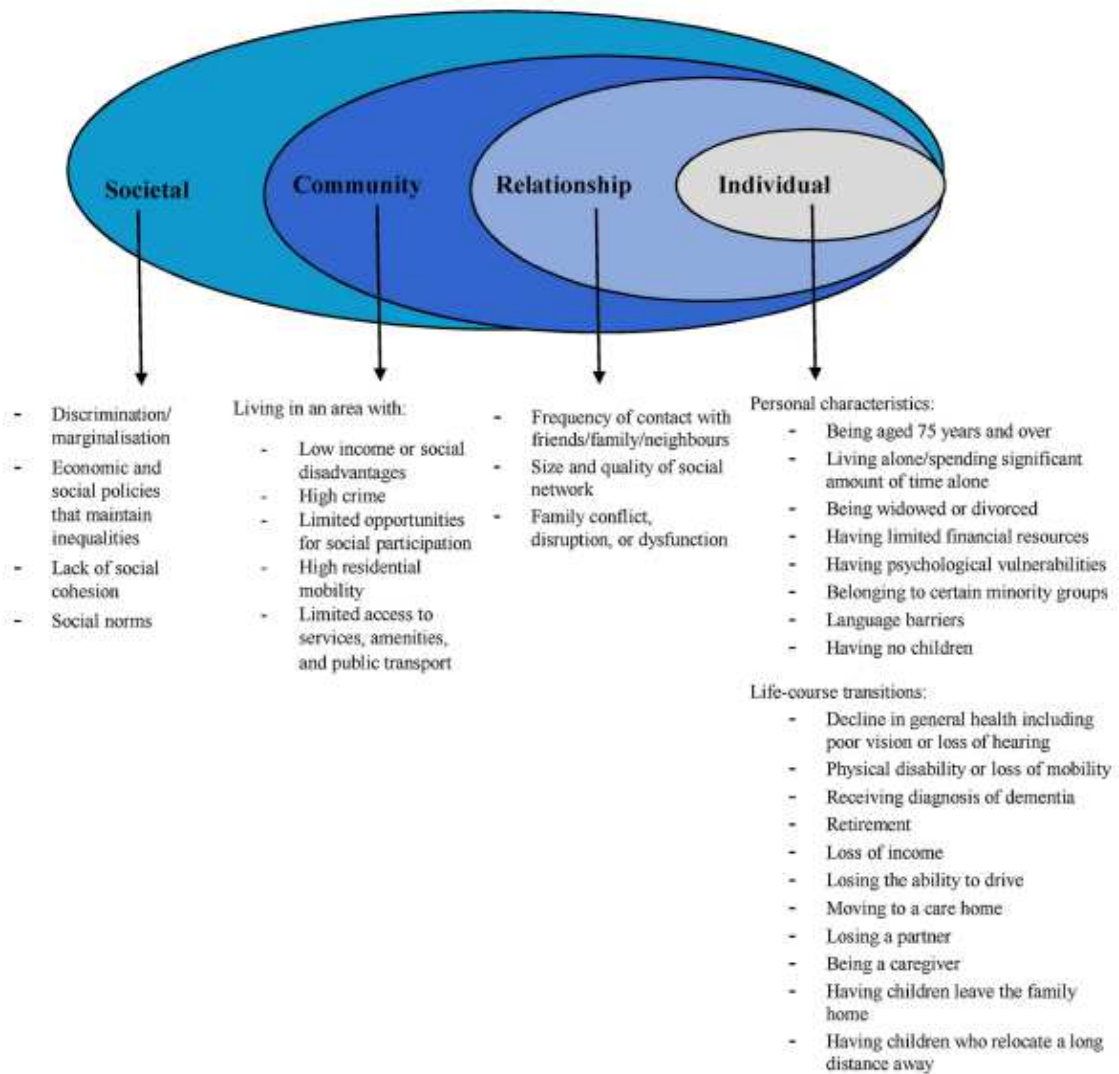


Fig. 1. The ecological framework: examples of risk factors for social isolation at each level.

Table 1: Demographic characteristics of Latinos Vs. non-Latinos

	Latino (N=64)		Not Latino (N=288)		P-value
	N	%	N	%	
Age mean (SD)	x(mean)		x (SD)		.038?
50-64	6	9.4	67	23.3	
65-79	39	60.9	156	54.4	
80-96	19	29.7	64	22.3	
Gender					.864
Female (2)	50	78.1	227	79.1	
Male (1)	14	21.9	60	20.9	
Educational Attainment					<.001
G.E.D/H. S (0)	45	70.3	99	34.4	
Some College or higher (1)	19	29.7	189	65.6	
Marital Status					.217
Not Married/Partnered (0)	55	85.9	228	79.2	
Married/partnered (1)	9	14.1	60	20.8	
Income Level					.092
<250% FPL (0)	6	10.7	52	20.4	
>250% FPL (1)	50	89.3	203	79.6	
Basic Needs					.328
Not hard (0)	22	34.4	81	28.2	
Somewhat/Very Hard (1)	42	65.6	206	71.8	
Physical Chronic Conditions Mean (SD)	4.09(1.85)		3.22(1.80)		
Lives alone					
Lives with others (0)					
Lives alone (1)					

Note: HS=High school; GED= General Education Diploma; PHQ-9= Patient Health Questionnaire; DSSI-10= Duke Social Support Index; PROMIS=Patient-Reported Outcomes Measurement Information System; UCLA = Loneliness scale. *For P-value look at Chi-Square 2-sided and if value is <.05 then it is statistically significant

Table 2: Depression and social connectedness among Latino Vs non-Latinos

	Latino	Non-Latino		
	Mean (SD)	Mean (SD)	Paired T-Test	P-Value
Depression (PHQ-9)	8.98 (5.52)	7.17(5.22)	t (329) =2.12, M= 1.64(0.77)	.035
Social interactions and satisfaction with social support (DSSI Total)	21.48(4.21)	22.52(4.24)	t (350) = -.927, M= -.542(.584)	.35
Perceived isolation (PROMIS SI)	23.14(5.94)	22.35(6.33)	t (350) =1.24, M= 1.08(.870)	.22
Loneliness (UCLA-Lonely)	6.45(1.95)	6.61(2.14)	t (350) =-.310, M= -.090(.29)	.76

Note: For paired T-test T(df) = t, M= Md (Std error difference)

*For P-Value use Significant 2-tailed value

Table 3: Social connectedness and depression by demographics factors among Latinos

	DSSI		PROMIS		UCLA		PHQ-9	
	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value	Mean (SD)	p-value
Age mean (SD) (N)		0.289		0.06		0.75		0.39
50-64 (6)	19.33 (3.7)		19.83(7.97)		6(1.67)		11.17(6.21)	
65-79 (39)	21.97(4.5)		22.64(6.19)		6.44(2.01)		9.06(5.91)	
80-96 (19)	22.26(3.1)		25.79(4.22)		6.68(1.89)		7.67(4.67)	
Gender		0.920		0.61		0.16		0.60
Female (50)	21.84(4.3)		23.52(6.12)		6.52(1.91)		9.04(5.05)	N= 45
Male (14)	21.71(3.1)		22.57(5.93)		6.29(2.05)		8.08(7.44)	N=12
Educational Attainment		0.576		0.23		0.58		0.85
G.E.D/H. S (45)	22(3.9)		23.91(5.56)		6.56(1.97)		8.75(5.66)	
Some College or higher (19)	21.37(4.6)		21.89(7.02)		6.26(1.85)		9.06(5.54)	
Marital Status		0.71		0.15		1.17		0.73
Not Married/Partnered (55)	21.89(4.2)		22.87(6.03)		6.36(1.86)		8.94(5.67)	
Married/partnered (9)	21.33(3.4)		26(5.72)		7.11(2.32)		8.14(5.21)	
Income Level		0.27		0.16		0.02		0.16
<250% FPL (6)	23.67(4.5)		26.67(5.05)		6.67(1.63)		5.2(5.26)	
>250% FPL (50)	21.6(4.3)		22.88(6.32)		6.54(1.98)		9.13(5.84)	
Basic Needs		0.94		0.54		0.60		0.56
Not hard (22)	21.86(4.10)		23.95(6.24)		6.73(1.93)		8.25(5.45)	
Somewhat/Very Hard (42)	21.79(4.11)		22.98(5.99)		6.33(1.93)		9.16(5.69)	
Lives alone		0.99		0.28		1.42		0.18
Lives with others (22)	21.82(4.33)		24.45(5.23)		6.86(2.27)		7.5(5.08)	
Lives alone (42)	21.81(4.08)		22.71(6.41)		6.47(1.93)		9.57(5.76)	

Appendix A: Survey Questions from PEARLS Connect Study: Social Isolation and Loneliness

These next questions are about social support. (DSSI Questions 1-10)

1. Other than members of your family, how many people within an hour’s travel do you feel you can depend on, or feel very close to? [*This does NOT include people who live with you.*]

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2. In the last week, about how often did you volunteer or go to meetings of clubs, religious gatherings, or other groups that you belong to?

None <input type="checkbox"/>	1 time <input type="checkbox"/>	2 times <input type="checkbox"/>	3 times <input type="checkbox"/>	4 times <input type="checkbox"/>	5 times <input type="checkbox"/>	6 times <input type="checkbox"/>	7 times or more <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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3. In the last week, how many times did you spend time face-to-face with someone who does not live with you? For example, you went to see them or they came to visit you, or you went out together?

None <input type="checkbox"/>	1 time <input type="checkbox"/>	2 times <input type="checkbox"/>	3 times <input type="checkbox"/>	4 times <input type="checkbox"/>	5 times <input type="checkbox"/>	6 times <input type="checkbox"/>	7 times or more <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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4. In the last week, how many times did you talk to someone by phone, text message, Facebook or other social media? [*Either they called you or you called them.*]

None <input type="checkbox"/>	1 time <input type="checkbox"/>	2 times <input type="checkbox"/>	3 times <input type="checkbox"/>	4 times <input type="checkbox"/>	5 times <input type="checkbox"/>	6 times <input type="checkbox"/>	7 times or more <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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[*For the next section, if you think of family and friends very differently, think of whomever you can rely on.*]

5. Does it seem that your family or friends understand you most of the time, some of the time, or hardly ever?

Most of the time <input type="checkbox"/>	Some of the time <input type="checkbox"/>	Hardly ever <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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6. Do you feel useful to your family or friends most of the time, some of the time, or hardly ever?

Most of the time <input type="checkbox"/>	Some of the time <input type="checkbox"/>	Hardly ever <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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7. Do you know what is going on with your family or friends most of the time, some of the time, or hardly ever?

Most of the time <input type="checkbox"/>	Some of the time <input type="checkbox"/>	Hardly ever <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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8. When you are talking with your family or friends, do you feel you are being listened to most of the time, some of the time, or hardly ever?

Most of the time <input type="checkbox"/>	Some of the time <input type="checkbox"/>	Hardly ever <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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9. Do you feel you have a definite role/place in your family (or among your friends) most of the time, some of the time, or hardly ever?

Most of the time <input type="checkbox"/>	Some of the time <input type="checkbox"/>	Hardly ever <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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10. Can you talk about your deepest problems with at least some of your family or friends most of the time, some of the time, or hardly ever?

Most of the time <input type="checkbox"/>	Some of the time <input type="checkbox"/>	Hardly ever <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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In the next set of questions, I will read a statement that describes how some people can feel. Please let me know how true this statement is for you. (PROMIS Questions 11-16 UCLA Questions 11, 13, 17)

11. I feel left out.

Not at all <input type="checkbox"/>	A little bit <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Quite a bit <input type="checkbox"/>	Very much <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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12. I feel that people barely know me.

Not at all <input type="checkbox"/>	A little bit <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Quite a bit <input type="checkbox"/>	Very much <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
--	--	--------------------------------------	---	---------------------------------------	--

13. I feel isolated from others.

Not at all <input type="checkbox"/>	A little bit <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Quite a bit <input type="checkbox"/>	Very much <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
--	--	--------------------------------------	---	---------------------------------------	--

14. I feel that people are around me, but not with me.

Not at all <input type="checkbox"/>	A little bit <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Quite a bit <input type="checkbox"/>	Very much <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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15. I feel isolated, even when I am not alone.

Not at all <input type="checkbox"/>	A little bit <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Quite a bit <input type="checkbox"/>	Very much <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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16. I feel that people avoid talking to me.

Not at all <input type="checkbox"/>	A little bit <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Quite a bit <input type="checkbox"/>	Very much <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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17. I feel that I lack companionship.

Not at all <input type="checkbox"/>	A little bit <input type="checkbox"/>	Somewhat <input type="checkbox"/>	Quite a bit <input type="checkbox"/>	Very much <input type="checkbox"/>	<i>Refused</i> <input type="checkbox"/>
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Counselor Notes: [optional]

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Appendix B. Adjusted Regression Models

Model 1:

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.889	6.679		3.876	.000
	age	-.042	.074	-.067	-.566	.574
	Educational Attainment	-.475	1.503	-.039	-.316	.753
	demo_gender	1.303	1.566	.096	.832	.409
	demo_livealone	2.216	1.349	.191	1.642	.107
	demo_relationship	-.341	.464	-.086	-.734	.466
	DSSI_Total_t2	-.767	.150	-.574	-5.111	.000

a. Dependent Variable: Depression score

b. Selecting only cases for which Latino Y/N = Yes

Model 2

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.945	6.830		2.920	.005
	age	-.020	.080	-.032	-.246	.807
	Educational Attainment	-.297	1.610	-.025	-.184	.855
	demo_gender	.995	1.679	.073	.593	.556
	demo_livealone	1.900	1.450	.164	1.310	.196
	demo_relationship	-.510	.500	-.129	-1.022	.312
	PROMIS_SJ_t2	-.471	.117	-.498	-4.035	.000

a. Dependent Variable: Depression score

b. Selecting only cases for which Latino Y/N = Yes

Model 3

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.687	7.373		2.534	.014
	age	-.073	.084	-.117	-.867	.390
	Educational Attainment	-.095	1.721	-.008	-.055	.956
	demo_gender	1.256	1.793	.093	.700	.487
	demo_livealone	1.756	1.560	.152	1.126	.265
	demo_relationship	-.315	.531	-.080	-.593	.556
	UCLA_Lonely_3_t2	-1.050	.371	-.365	-2.833	.007

a. Dependent Variable: Depression score

b. Selecting only cases for which Latino Y/N = Yes

Model 4

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.396	4.788		4.887	.000
	age	.015	.057	.031	.260	.796
	Educational Attainment	-.483	1.148	-.053	-.421	.676
	demo_gender	.622	1.202	.061	.518	.607
	demo_livealone	.870	1.051	.100	.828	.412
	demo_relationship	-.180	.355	-.061	-.506	.615
	Depression score	-.448	.088	-.598	-5.111	.000

a. Dependent Variable: DSSL_Total_t2

b. Selecting only cases for which Latino Y/N = Yes

Model 5

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.950	7.065		3.248	.002
	Educational Attainment	-.373	1.694	-.029	-.220	.827
	age	.088	.084	.132	1.048	.299
	demo_gender	.099	1.773	.007	.056	.956
	demo_livealone	.257	1.551	.021	.166	.869
	demo_relationship	-.590	.525	-.141	-1.124	.266
	Depression score	-.521	.129	-.493	-4.035	.000

a. Dependent Variable: PROMIS_SI_t2

b. Selecting only cases for which Latino Y/N = Yes

Model 6

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.858	2.541		3.092	.003
	Educational Attainment	.041	.609	.010	.067	.947
	age	-.003	.030	-.015	-.107	.915
	demo_gender	.164	.638	.035	.258	.798
	demo_livealone	-.262	.558	-.065	-.469	.641
	demo_relationship	-.047	.189	-.034	-.248	.805
	Depression score	-.132	.046	-.379	-2.833	.007

a. Dependent Variable: UCLA_Lonely_3_t2

b. Selecting only cases for which Latino Y/N = Yes