Journal of Immigrant and Minority Health (2021) 23:904–916
https://doi.org/10.1007/s10903-021-01179-7

ORIGINAL PAPER

Social Support and Religiosity as Contributing Factors to Resilience and Mental Wellbeing in Latino Immigrants: A Community-Based Participatory Research Study

Keri E. Revens[1] · Daniel Gutierrez[2] · Rajib Paul[3] · Andrew D. Reynolds[4] · Rusty Price[1] · Mark J. DeHaven[3]

Accepted: 3 March 2021 / Published online: 14 March 2021
© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2021

Abstract
Latino immigrants are at increased risk for mental disorders due to social/economic disadvantages and stressful conditions associated with migration. Resilience-the ability to recover from stress-may provide protection given its association with lower rates of anxiety and depression. This study examines the relationship between protective factors, resilience, and psychological distress in Latino immigrants. A community-based participatory research study conducted with a Latino agency using in-person surveys to obtain the following data: Brief Resilience Scale, Brief Symptom Inventory, Duke University Religion Index, Multi-group Ethnic Identity measure, and the Interpersonal Support Evaluation List. Linear regression, and mediation analysis was performed using SPSS. There are 128 participants. Resilience was positively related to social support ($p=0.001$) and religiosity ($p=0.006$); inversely related to psychological distress ($p=0.001$); and mediated the relationship between the two ($p=0.006$). Promoting social support and religion in Latino communities can improve wellbeing by increasing resilience and reducing distress.

Keywords Latino immigrant · Resilience · Mental health · Social support · Connectivity · Religiosity

Background

Latino immigrants experience chronic and potentially toxic stress due to circumstances unique to migration and acculturation, including violence, political turmoil, separation from family, and social isolation, increasing the risk of mental health disorders [1–6]. They are also disproportionately exposed to poverty, low educational attainment, low English language proficiency, and discrimination [7, 8]. Social and economic disadvantages coupled with chronic stress make it difficult to cope with the challenges of daily living and have detrimental effects on physical and mental wellbeing [9–11]. Evidence shows time in the US can further increase the risk of mental health disorders [9, 12], a significant public health concern given that nearly two-thirds of Latino immigrants have lived in the US for more than 10 years and nearly half are parents to US-born children, increasing the likelihood they plan to stay in the US long term [8, 13].

Latino immigrants are also among the least likely group to seek mental health treatment and often receive low quality treatment due to cultural and linguistic barriers [14–18]. Evidence shows Latinos are more likely to seek help for a mental health issue from a primary care provider as opposed to a mental health specialist [19]. The biggest barriers to accessing mental health care include poor communication with providers due to a lack of bilingual mental health professionals; differences in evaluation procedures in Latinos compared to non- Latinos; and difficulty diagnosing symptoms as Latinos tend to focus on physical rather than psychiatric symptoms [19]. Moreover, immigrants residing in areas with relatively newer Latino populations are even more likely to lack culturally responsive services, further heightening the risk of mental health disorders [12].

On the other hand, evidence shows interventions that are culturally grounded are four times more effective than those focused on the general population and

✉ Keri E. Revens
keri@caminocommunitycenter.org

[1] Camino Community Center, 133 Stetson Dr., Charlotte 28262, USA

[2] College of William and Mary, Williamsburg, VA, USA

[3] University of North Carolina at Charlotte, Charlotte, NC, USA

[4] Common Good Data Consulting, LLC, Tucker, GA, USA

interventions offered in Spanish are twice as effective as those offered in English [20]. A recent study shows a mental health program, designed based on cultural knowledge of the local population and offered in Spanish, was effective in retaining clients, as well as improving symptoms of depression, anxiety, and stress in Latino immigrants who experienced severe trauma [21]. Other evidence shows the use of strength-based treatment approaches are effective in improving mental health outcomes in people with serious illness [22]. Strength based approaches focused on prevention, rather than treatment, may be especially helpful for those who are unable to access treatment services, offering a promising approach to addressing the mental health needs of Latino immigrants.

Resilience—the ability to "bounce back" or recover from stress [23]—may be a protective factor against mental health disorders, given its association with lower rates of anxiety and depression, and higher levels of life satisfaction and emotional stability across many populations [23–27]. Despite exposure to high risk situations at disproportionate rates, little research has examined the association between resilience and mental health outcomes and the factors that may contribute to resilience in Latino immigrants. Research shows resilience is associated with depression and anxiety in Latinos in Latin American countries, including Peru [27] and Mexico [28], and that resilience and other strength factors, including skill mastery and life satisfaction were more directly related to depressive symptoms than demographic factors, such as socioeconomic status and education levels, in Mexican immigrants [29].

Years of resilience research shows there are multiple external factors that influence resilience, including factors related to family, community, society, culture, and the environment [25, 30]. Protective factors like social and family support have been shown to predict resilience across many groups of individuals regardless of social class or ethnicity [25] but this assumption has not been empirically tested in Latino immigrants. A study on resilience in Mexican immigrants who recently fled to the US due to various stressful circumstances found no evidence of post-traumatic stress disorder in participants but did find participants had high levels of resilience; qualitative data showed cultural factors, including familism, personalism, and fatalism were important to adaptation and resilience [31]. Although this study shows that some Latino immigrants are resilient and that cultural factors aid with coping, the relationships between cultural factors and resilience were not empirically measured [31]. Similarly, several other qualitative studies have identified factors inferred to be important to resilience such as social support from spouses [1, 2]; emotional support from children [2]; religion or spirituality [2, 31, 32]; and cultural pride [31, 33]. Given that cultural values influence how individuals cope with stress, research on resilience in other populations may not be generalizable to Latinos [30, 34].

Although no studies have empirically examined the association between resilience and mental health in Latino immigrants, several have investigated associations between protective factors and mental health outcomes. The most prominent factors identified in the literature are familism, social support, ethnic identity, and religion. Research across multiple studies shows social support from friends, community members, and significant others, is an important protective factor in Latino populations [1, 2, 12]. Social support decreases the risk of anxiety and depression, [12] and mediates the relationship between acculturative stress and mental health outcomes [35].

Most research with Latino immigrants distinguishes between social support and family support due to the emphasis on family cohesion in Latino culture [36, 37]. Familism is a core value of Latino culture consistent across various subgroups of Latinos; familism instills the belief that problems can be solved together with family and that relatives can be relied on for support [38]. Familism is positively associated with self-reported health [39–43] and self-esteem [41] and inversely associated with depression [36, 40, 44, 45], anxiety disorders [36, 45] and substance abuse [36]. Ethnic identity is another important protective factor against psychological distress and negative mental health outcomes in Latino immigrants [36, 46, 47]. Ethnic identity is also positively associated with higher levels of self-esteem [46, 48] and inversely associated with psychological distress [46, 48], feelings of hopelessness [3], depression [3], and suicidal ideation [3, 49].

One of the most prominent protective factors in the literature is religion, which consists of psychological, social, and behavioral aspects that are closely related to mental health [50]. Evidence shows religion influences mental health through different mechanisms, such as providing resources to cope with stress, including prayer and scripture; fostering relationships and social connections through church services and social gatherings; and its emphasis on loving and serving others [31, 50]. Religious attendance is positively associated with social support [51] and self-reported mental health [34], and inversely associated with depression [51], anxiety [51], suicidal ideation [52], acculturative stress [53], and substance abuse [40, 51].

While some researchers have inferred ethnic identity, familism, social support, and religion may promote resilience [31–33, 54–56], no research has empirically investigated these associations. The purpose of this study is to address a gap in the literature- to identify factors associated with resilience in Latino immigrants and determine whether resilience is the mechanism through which protective factors influence psychological distress. The study investigates four questions: (1) What is the association between resilience

and ethnic identity, familism, social support, and religiosity, respectively? (2) What is the association between resilience and psychological distress? (3) What is the association between psychological distress and ethnic identity, familism, social support, and religiosity? (4) Does resilience mediate the relationship between the protective factors and psychological distress?

Conceptual Framework

The study is guided by the Metatheory of Resilience and Resiliency (MRR), which posits that protective factors increase resilience by providing the tools needed to cope with stress [24, 25, 57]. The MRR is uniquely suited for this study because it comprehensively addresses the dynamic and multifaceted nature of resilience, identifying that it can be both discovered and facilitated in individuals [57]. MRR is also unique to other resilience theories because it focuses on different outcomes that may result from the presence or absence of resilience, and the role of stress and protective factors in predicting those outcomes. There are two avenues for resilience highlighted in the MRR: the first is a discovery approach which focuses on identifying resilient qualities-factors that contribute to resilience in individuals; the second is an applied approach that focuses on the individual's experience of recovering from stress [57]. Since no other research has identified factors that contribute to resilience in Latino immigrants, the current study uses the discovery approach to understand resilience in Latino immigrants. Consequently, findings from this study can lead to applied research with Latino immigrants, informing interventions that promote resilient factors, increasing resilience levels of Latino immigrants in the future.

Since ethnic identity, familism, social support, and religiosity have been shown to protect against negative mental health disorders, it is hypothesized that they may also increase levels of resilience. Consequently, resilience is expected to be the mechanism through which protective factors identified in the literature influence mental health [3, 36, 58–62]. Religion is an especially salient factor that could potentially influence psychological distress for Latinos. Previous research has demonstrated a relationship between Latino mental health and religion, as well as documented the critical importance of religious values to the Latinos [41, 63]. Researchers demonstrated through cross-sectional analysis how attending religious services and practicing religious traditions can help improve the wellbeing of Latino individuals and their families [63]. Additionally, religion can influence stigma and ultimately help-seeking behaviors, representing an important avenue for intervention for mental health professionals [63–66]. In several studies, researchers have also identified religion as a chief method of coping for Latinos [65–68]. However, religion is a complex construct including behavioral, social, cognitive, and psychological aspects that all might have an influence on psychological distress, and it is still unknown *how* religion influences the mental health of Latinos and if it does so in relation to resilience.

Understanding factors that enhance resilience can contribute to designing preventative, culturally responsive approaches for improving mental health among Latino immigrants, by equipping them with the tools they need to cope with the stress of adapting to a new home and culture. Untreated mental health symptoms increase the risk of chronic disease, addiction, suicide, and homelessness [69, 70]. Culturally inclusive strategies that promote resilience can lessen the negative effects of stress on mental health, ultimately providing a first step towards reducing mental health disparities in Latinos.

Methods

This is a cross-sectional study using in-person survey interviews at Camino Community Center and Camino Church from July to September 2018. The study was approved by the University's Institutional Review Board.

Community-Based Participatory Research

The study uses community-based participatory research (CBPR) to ensure cultural and community relevance throughout all aspects of the project. CBPR involves an equitable partnership between communities and researchers to empower communities towards social change and has made significant contributions towards increasing health equity in vulnerable communities [71–77]. An equitable partnership was achieved through The CommUniversity, an existing partnership between the local University and a Latino-serving agency, Camino Community Center, located in an area where Latinos represent 35% of the population [78], and most are immigrants (68%) [79]. The goal of The CommUniversity is to improve the health and well-being of the Latino immigrant community through service learning and research. The partnership has existed for more than 8 years; during that time researchers and staff from Camino have collaborated on a number of projects including the development of a Behavioral Health Training Clinic [21], the first ever Latino Mental Health Summit in the area, various research projects on topics ranging from Diabetes to Behavioral Health, and the development of service learning courses for University students [80].

Camino Community Center is a non-profit organization focused on equipping all people to live healthy, hopeful, and productive lives. Since 2003, Camino has served

low- income families in the greater Charlotte area through a health clinic, mental health clinic, thrift store, food pantry, homeless outreach program, and a variety of other health and human services. The community center is bilingual and multicultural, bridging gaps between language and cultural barriers for families in need. Camino is a trusted, bilingual, multicultural health resource for the Latino community, allowing the project to leverage existing resources and relationships of trust. As an outsider to the population, the principal investigator (PI) spent several years volunteering at the agency through *The CommUniversity*, becoming familiar with Latino culture, and becoming a trusted resource for agency staff. Following the principles of CBPR and the CBPR conceptual framework [71], the research problem was identified by Camino, seeking to expand mental health services due to high levels of trauma experienced by clients [21]. The Behavioral Health program, recently established through *The CommUniversity*, is one of few options available for uninsured, low-income Latinos in area. Recent evidence shows patients were suffering from high levels of trauma, post-traumatic stress disorder, depression, and anxiety [21].

Although the behavioral health counseling program was effective in reducing client symptoms, it only serviced a limited number of clients, emphasizing the need for more behavioral health services. Staff wanted to provide more services that address behavioral health concerns using culturally appropriate, strength-based approaches in an effort to reduce stigma surrounding mental health in the Latino community. Consequently, the current study was designed to better understand what factors provide protection against negative mental health outcomes in Latino immigrants and how those factors could be used to develop mental health interventions.

The study was guided by a community advisory board (CAB) which advised on study design; assisted with recruitment, data collection, analysis, and dissemination; and acted as cultural brokers—this was especially important since the PI is a non-Latina [81–84]. The CAB was comprised of nine diverse, bilingual, multinational members with lived experience as Latino immigrants and experience working with Latino communities. The CAB was instrumental in the design, recruitment, implementation, analysis, and dissemination of results. CAB members also assisted with the interpretation and dissemination of findings, developing infographics and presentations to share with Camino staff, community members, Camino *Church*, and community partners, as well as at local, regional, and national conferences.

Participants

The target population is first-generation Latino immigrants, born in a country of Latin descent, including Puerto Rico [40]; aged 18 or over; and residing in the US. There are n = 128 participants (Table 1). The sample size was obtained with a calculation that has been used with other hard to reach populations using the proportion of Latinos who are immigrants and a standard error of 0.06, which has been

Table 1 Demographic and immigration data

Variable	N	%
Gender (n = 128)		
Males	29	22.7
Females	99	77.3
Age (n = 126)		
18–29	63	49.2
40–54	24	18.8
55 or older	39	30.5
Country of origin (n = 128)		
Mexico	51	39.8
Central America	34	26.6
South America	20	15.6
Caribbean	23	18.0
Migration patterns (n = 128)		
Family	85	66.4
Alone	43	33.6
Length of time in US (n = 128)		
5 years or less	32	25
6–10 years	18	14.1
11–15 years	36	28.1
More than 15 years	42	32.8
Marital status (n = 128)		
Married/domestic partnership	90	70.3
Not married	38	29.7
Education Level (n = 128)		
Grade 9 or less	75	58.6
High school, college prep, etc	24	18.8
College or more	29	22.7
Income (n = 128)		
Less than 20,000	37	29
20,000–34,999	24	19
35,000–49,999	12	9
Over 50,000	10	8
Don't know/no answer	45	35
Spanish language proficiency (n = 128)		
None	0	0
Speak a little	1	1
Speak some	5	4
Speak a lot	122	95
English language proficiency (n = 128)		
None	31	24
Speak a little	58	45
Speak some	19	15
Speak a lot	20	16

deemed appropriate for community-based studies with limited resources [85]. Following the principles of CBPR, the target sample is not intended to be nationally representative, rather it is intended to represent the local community. Unlike traditional research, this research is socially and geographically relevant, taking into consideration the setting in which people access services. Given the study was designed to address a specific problem at *Camino*, participants were recruited directly from the agency itself to ensure the sample was representative of the population who utilize services at *Camino*.

Data Collection

Purposive, site specific sampling was used to ensure participants felt safe and that the sample was representative of the local community [84, 86]. Participants were recruited in person as they attended church services or accessed agency services, including the health clinic, thrift store, food pantry, and fitness classes, and through flyers, social media, and word of mouth. Guidance from the CAB members, leadership at Camino, and the PI's own experience working with the community informed recruitment methods. CAB members were trained in data collection protocols adapted from previous CBPR work [74], increasing trust and reducing non-response rates [43, 87]. The survey was pilot tested with staff prior to administration.

Translation of Study Materials

Study materials were translated from English to Spanish by graduate students training to be certified translators; materials were checked for accuracy by certified university faculty translators. Documents were also shared with CAB members to check for comprehension across various forms of Spanish language. Other study materials were translated and cross-checked by two bilingual CAB members.

Survey Administration

Surveys were read aloud in person in a private room to ensure confidentiality and alleviate literacy concerns. Participants were asked a series of screening questions to ensure eligibility; verbal informed consent was obtained. The survey lasted approximately 20 minutes and participants received a grocery store gift card.

Measures

Seven instruments were selected and combined into an electronic survey. All instruments had been previously translated to Spanish and assessed for validity and reliability by other researchers. Demographic and immigration questions were adapted from the National Latino and Asian American study survey [40] and the Survey of Mexican Migrants [88]. Resilience has many definitions in the literature and is typically operationalized using proxies of resilience, such as social support. Most resilience instruments measure the ability of an individual to resist negative health outcomes through protective factors but fail to measure resilience itself [23, 27]. This study operationalizes resilience as the ability to recover from stress, seeking to understand which protective factors influence whether an individual actually recovers from stress [23]. Resilience was measured using the brief resilience scale (BRS), a one-factor instrument with six items that measures the ability to recover from stress [23]. Given the current study aims to determine whether social support is associated with resilience, the use of another measure may have caused multicollinearity. The BRS was selected because it is a short, straight-forward assessment of resilience and is one of the only instruments that measures resilience itself, rather than factors associated with resilience [23]. The BRS was also selected because it shows good criterion validity and internal consistency in Latinos [89].

Psychological distress was measured using the brief symptom inventory-18 (BSI-18), an 18-item measure with 3 subscales–depression, anxiety, and somatization [90, 91] that performs well as a one-factor model of psychological distress in Latino immigrants [92, 93]. Items are rated according to the frequency at which participants experienced symptoms over the past seven days from 0-never to 4-very often. The BSI-18 was selected in order to understand the effects of resilience on overall mental health, rather than specific disorders, such as depression and anxiety.

Ethnic identity was measured using The Multigroup Ethnic Identity Measure (MEIM), a one-factor, 15-item questionnaire [94], with good reliability and validity in Latino immigrants [95, 96]. The MEIM is comprised of 3 subscales- belonging, affirmation, and exploration and commitment. It was selected because it is a measure of ethnic identity that can be used across diverse ethnic groups [94]. Although there are other instruments that specifically measure Latino identity, such measures tend to include Latino cultural values, such as familism and spirituality, both of which are measured separately in this study.

Familism was assessed using the familism scale, a 15-item scale with three subscales- familial obligations, perceived support, and family as referents for decisions [38]. The scale measures the degree to which individuals value close and supportive family relationships and prioritize family commitments and obligations before the self [38]. It performs well as a one and three factor model [37, 38, 41] and was tested as both. The familism scale was chosen because it is one of the most widely used self-reported familism scales with Latino populations and was designed specifically to capture familism as it relates to Latino culture [37, 38, 41].

Social support was assessed using the Interpersonal Support Evaluation List-12 (ISEL), a 12-item scale with three subscales- appraisal, belonging, and tangible social support [97], showing good reliability and validity across a variety of Latino subgroups [98]. The ISEL-12 was selected because it is a brief measure of overall social support, as opposed to measuring support from specific people as many other scales are designed to do.

Religiosity was assessed using The Duke University Religion Index (DUREL), a five-item measure of religious involvement [50] that performs well with Latino immigrants [99]. The DUREL was selected because it is a short, practical measure of religiosity that captures the three dimensions of religion that are most often acknowledged as central components in religion literature [50]. The three dimensions of the DUREL are also most often linked to physical and mental health outcomes [50, 99]. Moreover, the DUREL was designed to measure religion in Western religions, such as Christianity or Catholic- the religions reported most often by Latinos in the US [99].

Data Analysis

SPSS software Version 25 was used for analysis [100]. Independent variables include familism, social support, ethnic identity, and religiosity. Dependent variables include resilience and psychological distress. Pearson's Correlation Coefficients [101] were computed to assess relationships between independent and dependent variables, and to detect multicollinearity among predictors. Mean and standard deviations of these measures were also computed (Table 2). Multiple linear regression was performed on both dependent variables using the independent variables. Mediation analysis (Fig. 1) was conducted [102] to assess whether the relationship between independent variables (separately) and psychological distress is mediated by resilience.

Four regression models were used to test the relationships between independent, mediating, and dependent variables, controlling for covariates. Regression models tested: (1) the association between each independent variable and the mediator (2) the association between the mediator and each dependent variable, controlling for independent variables

Table 2 Correlations, means, and standard deviations of all variables

Measure	Familism	Social support	Ethnic identity	Religiosity	Resilience	Psychological distress	Min	Max	M	SD
Familism	–	0.07	0.01	0.36	0.09	− 0.17*	15	75	55.62	7.08
Social support	0.07	–	0.18	0.22	0.47*	− 0.28*	0	36	25.28	7.39
Ethnic identity	0.22	0.11	–	0.18	0.07	0.08	12	48	37.85	5.62
Religiosity	0.36	0.17	0.18	–	0.24	− 0.15	5	27	20.84	4.26
Resilience	0.09	0.07	0.07	0.24*	–	− 0.36*	1	5	3.34	0.645
Psychological distress	− 0.17*	− 0.28*	0.08	− 0.15	− 0.36*	–	0	72	8.16	10.69

*$p \leq 0.05$

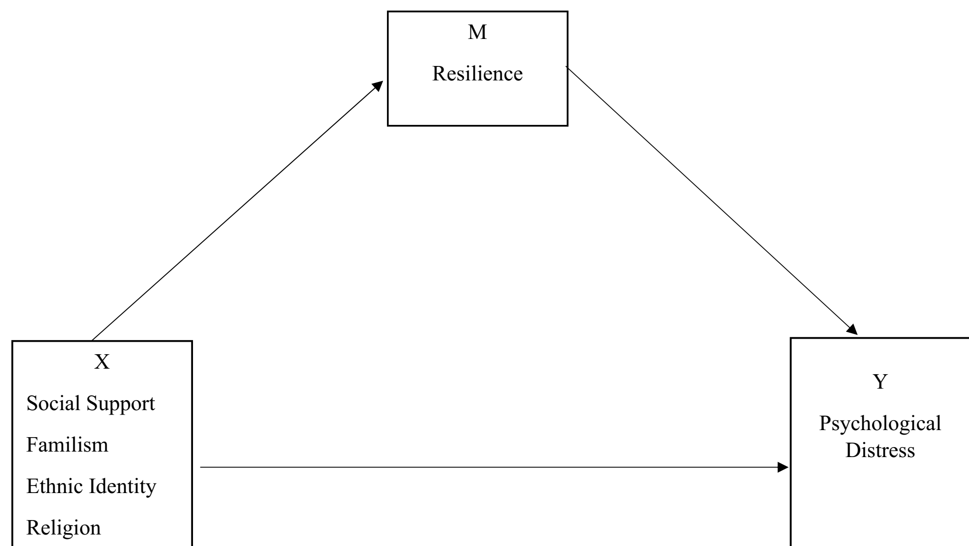

Fig. 1 Statistical analysis model: [102]

(3) the association between each independent and dependent variable (4) the effect of each independent variable on the dependent variable, controlling for resilience, to determine whether resilience mediates the relationship between each independent and dependent variable. Finally, a Sobel test [102] using unstandardized coefficients and standard errors from the fourth regression model was conducted to determine the size of the mediation effect.

Results

Participants

There are n = 128 participants (Table 1). Most participants are female (n = 99, 77%), aged 18–29, (n = 63, 49%), married/domestic partnership (n = 90, 70%), have less than a ninth-grade education (n = 75, 58.6%), and a household income lower than 35,000 (n = 61, 48%). Country of origin spanned 17 countries, categorized by region: Mexico (n = 51, 40%), Central America (n = 34, 27%), South America (n = 20, 15%), and the Caribbean (n = 23, 18%). Most participants speak Spanish (n = 122, 95%), have some ability to speak English (n = 58, 45%); and have lived in the US for more than 10 years (n = 78, 61%).

Correlation analyses (Table 2) showed a positive correlation between social support and resilience (r = 0.471, n = 128, p = 0.000) and between religiosity and resilience (r = 0.241, n = 128, p = 0.006). There was a small but significant inverse correlation between familism and psychological distress (r = − 0.17, p = 0.056). There were also significant inverse correlations between social support and psychological distress (r = − 0.28, p < 0.001) and between resilience and psychological distress (r = − 0.36 p < 0.001).

Mediation Analysis

In the regression models designed to test the independent effects of the four independent variables on resilience, controlling for covariates, only religiosity (p = 0.006) and social support (p = 0.000) were significant (Table 3). In the regression models designed to test the independent effects

Table 3 Linear regression analysis of predictors of resilience

Independent variables	Estimate of coefficients	Standard error	t-value	p-value
Familism	0.008	0.085	0.960	0.339
Social support	0.041	0.007	5.999	0.000*
Ethnic identity	0.008	0.010	0.797	0.421
Religiosity	0.036	0.013	2.778	0.006*

*p ≤ 0.05

Table 4 Linear regression analysis on predictors of psychological distress

Independent variables	Estimate of coefficients	Standard error	t-value	p-value
Familism	− 0.256	0.132	− 1.929	0.056*
Social support	− 4.06	0.124	− 3.289	0.001*
Ethnic identity	0.144	0.169	0.850	0.397
Religiosity	− 0.374	0.221	− 1.693	0.093
Resilience	− 0.022	0.005	− 4.289	0.000*

*p ≤ 0.05

of the four independent variables on psychological distress, controlling for covariates, only social support (p = 0.001) and familism (p = 0.056) were significant (Table 4). In the regression model designed to test the effect of resilience on psychological distress, controlling for covariates, a significant effect was found (p = 0.000) (Table 4).

Social support was the only variable associated with both resilience and psychological distress in the regression models. Once resilience was added to the regression model designed to test the association between social support and psychological distress, social support no longer influenced psychological distress (p = 0.124) (Fig. 2). The Sobel test was significant, validating the hypothesis that resilience mediates the relationship between social support and psychological distress (test statistic = − 2.73, SE = 0.072, p = 0.006).

Discussion

There are three main findings of this study: resilience is positively associated with social support and religiosity; resilience is inversely associated with psychological distress; and resilience mediates the relationship between social support and psychological distress. Consistent with these findings, other studies with Latinos in Mexico [28] and Peru [27] found resilience was inversely associated with psychological distress. Findings also show Latino immigrants have moderate-high levels of resilience and low levels of psychological distress. Only two other studies have empirically measured levels of resilience; these studies used a different resilience instrument and found that participants had high levels of resilience despite high levels of trauma [31, 32]. Similarly, another study found high levels of resilience in a sample of US and foreign-born Latino college students [103].

Social support was positively associated with resilience and inversely associated with psychological distress, consistent with other areas of research [1, 2, 12, 31, 33, 35, 54, 104]. This is the first study to demonstrate that resilience may be the mechanism through which social support influences

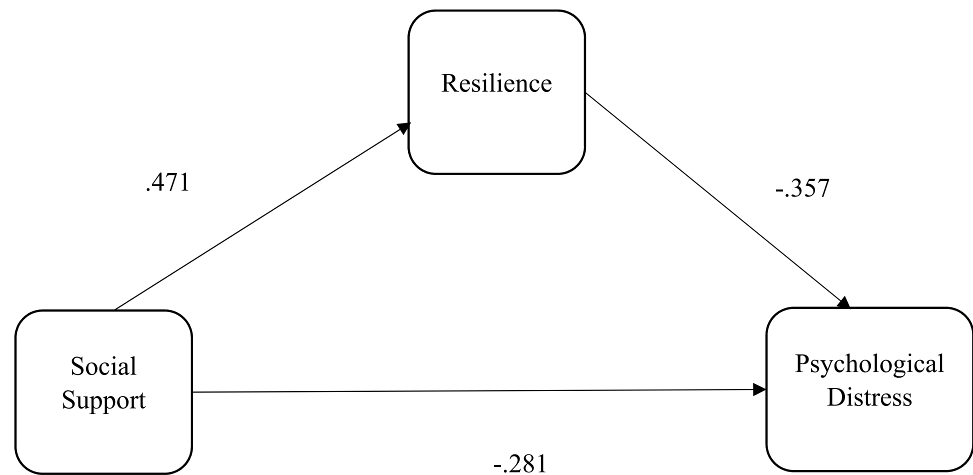

Fig. 2 Standardized regression coefficients for the relationship between social support and psychological distress as mediated by resilience; and the regression coefficients for the relationship between religiosity and resilience

psychological distress. Only one other study attempted to link social support, resilience, and mental health outcomes in Latino immigrants, finding an inverse association between social support and depression [12]. However, although researchers inferred resilience may attribute to the association between social support and depression, resilience was not measured [12].

Social support may help individuals feel connected to others, mitigating the negative effects associated with isolation and homesickness, a finding consistent with several other studies [26, 31, 33]. Emotional support from others provides someone to share experiences with and get advice from; similarly, "personal reference"- the ability to talk to others about their own experiences—was identified by another study as important to resilience [31]. Emotional support and social integration also help Latino immigrants feel as if they are part of a community, reducing feelings of stress [31]. Finally, other studies show Latino immigrants often cite spouses [1, 2, 54], friends, and relatives outside the immediate family [31, 104], as well as members of the church family as important sources of support [33, 51]. Taken together these findings suggest social support alone does not affect mental health, rather social support helps Latino immigrants cope with stress, ultimately increasing resilience, which in turn affects mental health. This finding supports the importance of developing interventions and services that enhance resilience through social support and networks in a known collectivist culture.

Evidence from this study suggests that religiosity may also be associated with resilience, consistent with findings from qualitative research [2, 31–33]. Although no other studies have empirically assessed religiosity and resilience, the relationship between resilience and spirituality has been previously assessed in a combination of US and foreign-born Latinos, finding no association between the two [103]. Findings likely differ due to variations in conceptualization of religiosity and spirituality- religiosity is only one component of spirituality [103]. There were also differences between study samples; the previous sample included US-born, relatively young, Latina college students who speak English [103]. These characteristics are not representative of Latino immigrants in the US [8], nor the current study where participants had lower levels of educational attainment and speak mostly Spanish. It is possible that older, first-generation immigrants hold more traditional values and are more religious than younger, US-born Latinos.

Religiosity was not associated with psychological distress in the current study, an unexpected finding given supporting evidence from other studies on the importance of religion in coping in Latinos [2, 31, 33, 105]. A possible explanation is that although religion helps individuals develop resilience, additional factors like social support may be needed to mitigate the effects of psychological distress. Additionally, the DUREL does not measure religious coping; the use of a different instrument may result in other findings, pointing to the need for additional research on the effects of religion on resilience and psychological distress in Latino immigrants.

There was no significant association between familism and resilience, consistent with other studies in combined samples of US and foreign-born Latinos [102, 105, 106]. However, other studies show Latino immigrants often cite family as an important source of coping [33, 54, 60]. Given this evidence and the emphasis on family in Latino culture, familism was expected to be a significant predictor of resilience. Although Latinos traditionally rely on relatives rather than external sources of support [101, 106, 107], immigrants are often separated from family and may turn to those who are distally closer during times of need [108]. Likewise, identification with traditional cultural values like familism may weaken with time spent in the US due to acculturation [38, 103, 109, 110]; most participants have resided in the US for more than 10 years. Traditional components of familism measured in the familism scale may have also changed since the scale was developed. Moreover, responses to questions

depend on the definition of family, which was not provided in this study. It is possible some participants conceptualize family as the nuclear family from childhood i.e. parents and siblings, as opposed to the nuclear family they have now i.e. spouses and children.

Although familism was not associated with resilience, it may play a role in the protection of mental health disorders. Familism was inversely associated with psychological distress in the current study, consistent with other research [28, 36, 44, 54]. Other evidence shows familism is inversely associated with depression [28, 44], anxiety, and substance abuse [36], and positively associated with self-reported mental health [57]. Other researchers have also assessed negative aspects of familism, including family conflict and family burden, showing these are associated with negative mental health outcomes [49, 54].

Consistent with other research [103] ethnic identity was not associated with resilience or psychological distress in the present study. There are several possible explanations for this, including the conceptualization of ethnic identity, the instrument used, the study sample, and the influence of other cultural values. Latinos with a high sense of ethnic identity may see themselves as part of a larger group but may conceptualize that as social support rather than ethnic identity. In addition, the MEIM measures a sense of belonging to Latino ethnicity broadly; it is possible participants more strongly identify with their specific country of origin than with being Latino. Anecdotal data from Camino supports this theory, with participants often reporting a stronger identification to their country of origin, than the broad term "Latino".

Ethnic identity may also be a source of stress, rather than a protective factor [59]. NC is estimated to have one of the highest proportions (59%) of undocumented immigrants in the US [111] and has been home to numerous recent Immigration and Custom Enforcement (ICE) raids that may have heightened fear in participants [111]. Although immigration status was not assessed, some participants shared their status with CAB members, and may have subdued feelings of ethnic pride due to fear of discrimination or deportation. However, collaboration with Camino and the use of CBPR approaches helped mitigate these concerns as much as possible.

New Contribution to the Literature

This study builds upon existing literature on the factors associated with resilience in Latinos and other populations. Other studies infer (from qualitative data) that Latinos have high levels of resilience and that certain factors contribute to it, but this is the first study to empirically measure those associations. Understanding what influences resilience is particularly important in the context of immigration due to the unique and stressful circumstances not experienced by non-immigrants. This study included Latinos from 17 different countries, expanding literature on immigrants beyond just Mexican immigrants, as many studies have done [29, 31, 33, 55]. As Latinos from countries in Central and South America and the Caribbean continue to migrate to the US, future research should recruit specific subgroups to better understand how cultural differences between groups influence mental wellbeing.

Findings also support and expand upon the Metatheory of Resilience and Resiliency (MRR); one of the tenets of MRR is that protective factors help build resilience [24, 57], a finding confirmed by the current study. MRR describes the process of resilience through five waves: identification of resilient qualities; the process of resilience experienced by the individual; understanding motivation of the individual; learning skills that foster resilience; and self-mastery-the ability to use skills to deal with a problem [57]. This is the first study to identify resilient qualities in Latino immigrants, providing the opportunity for future research to move into wave two of MRR and eventually develop interventions that enhance the wellbeing of Latino communities [57]. This study uncovered new information about resilience in an understudied group, filling a gap in the literature on resilience in Latinos, as well as new information related to MRR.

Implications for Practice

Findings from this study confirm the importance of social support and religion to the mental wellbeing of Latino immigrants, providing a unique opportunity to develop bicultural peer or community support groups that mitigate the risks associated with migration and acculturation. Although social support increases resilience across many populations, it may be especially important for immigrants who lose support systems in the process of migration and often cannot communicate with the majority population. Peer support groups and services offered in Spanish may provide more social support contacts which in turn help immigrants cope with the stress of daily living and being away from home, increasing resilience. These findings point to a need for more bilingual services, consistent with other research [16, 80, 83]. Moreover, researchers contend that if individuals do not feel connected to the local community, they will not have the capacity to access external resources for social or economic help [112, 113]. Connecting Latinos with others in the local community through bilingual/bicultural services may provide a first step towards helping Latino immigrants thrive after settlement in the US.

Declarations

Conflict of interest The authors have no conflict of interest.

References

1. Perreira KM, Ornelas I. Painful passages: traumatic experiences and post-traumatic stress among immigrant latino adolescents and their primary caregivers. Int Migr Rev. 2013. https://doi.org/10.1111/imre.12050.
2. Goodman RD, Vesely CK, Letiecq B, Cleaveland CL. Trauma and resilience among refugee and undocumented women. J Couns Dev. 2017;95:309–21.
3. Polanco-Roman L, Miranda R. Culturally related stress, hopelessness, and vulnerability to depressive symptoms and suicidal ideation in emerging adulthood. Behav Ther. 2013;44:75–87.
4. Lijtmaer RM. Splitting and nostalgia in recent immigrants: psychodynamic considerations. J Am Acad Psychoanal. 2001;29(3):427–38. https://doi.org/10.1521/jaap.29.3.427.17301.
5. Hovey J. Acculturative stress, depression, and suicidal ideation among Central American immigrants. Cult Divers Ethn Minor Psychol. 2000;6(2):134–51. https://doi.org/10.1037/1099-9809.6.2.134.
6. Revollo HW, Qureshi A, Collazos F, Valero S, Casas M. Acculturative stress as a risk factor of depression and anxiety in the Latin American immigrant population. Int Rev Psychiatry. 2011;23(1):84–92.
7. Cardemil E, Adams S, Calista J, Connell J. The Latino mental health project: a local mental health needs assessment. Admin Policy Ment Health. 2007;3(4):331–41. https://doi.org/10.1007/s10488-007-0113-3.
8. Camarota SA, Zeigler K. Immigration in the United States. A profile of the foreign-born using 2014 and 2015 Census Bureau data. Washington, DC: Center for Immigration Studies; 2016.
9. Cook B, Alegria M, Lin J, Guo J. Pathways and correlates connecting latinos' mental health with exposure to the United States. Am J Public Health. 2009;99(12):2247–54.
10. Alarcon RD, Parekh A, Wainberg ML, Duarte CS, Araya R, Oquendo MA. Hispanic Immigrants in the USA: social and mental health perspectives. Lancet Psychiatry. 2016;3:860–70.
11. American Psychological Association. Stress effects on the body. Washington, DC: American Psychological Association; 2019.
12. Kiang L, Grzywacz J, Martin AJ, Arcury TA, Quandt SA. Mental health in immigrants from nontraditional receiving sites. Cult Divers Ethn Minor Psychol. 2010;16(3):386–94. https://doi.org/10.1037/a0019907.
13. Taylor P, Lopez HM, Passel JS, Motel S. Unauthorized immigrants: length of residency, patterns of parenthood. Washington: Pew Research Center; 2011.
14. Aguilar-Gaxiola S, Loera G, Méndez L, Sala M, Nakamoto J. Community-defined solutions for latino mental health care disparities: California reducing disparities project, latino strategic planning workgroup population report. Sacramento, CA: University of California Davis: Latino Mental Health Concilio; 2012.
15. American Psychiatric Association. Mental health disparities: Latinos/Latinas. Washington, DC: American Psychiatric Association; 2017.
16. McGuire TG, Miranda J. New evidence regarding racial and ethnic disparities in mental health: policy implications. Health Aff. 2008;27(2):393–403. https://doi.org/10.1377/hlthaff.27.2.393.
17. Bridges AJ, Andrews AR, Deen T. Mental health needs and services utilization by Hispanic immigrants residing in mid-southern United States. J Transcul Nurs. 2012;23(4):359–68. https://doi.org/10.1177/1043659612451259.
18. Vega WA, Wassertheil-Smoller S, Arredondo EM, Cai J, Castaneda SF, Choca JP, et al. Health disparities in the Latino population. Epidemiol Rev. 2014;31:99–112. https://doi.org/10.1093/epirev.mxp008.
19. American Psychological Association. American Psychiatric Association. Mental Health Disparities: Hispanics and Latinos. 2017. https://www.psychiatry.org/File%20Library/Psychiatrists/Cultural-Competency/Mental-Health-Disparities/Mental-Health-Facts-for-Hispanic-Latino.pdf. Accessed 11 Feb 2018.
20. Griner D, Smith TB. Culturally adapted mental health intervention: a meta-analytic review. Psychotherapy. 2006;43(4):531–48. https://doi.org/10.1037/0033-3204.43.4.531.
21. Gutierrez D, Revens KE, DeHaven MJ. The development of a community counseling training clinic for latino immigrants. Collaborations. 2019;2(2):20. https://doi.org/10.33596/coll.26.
22. Tse S, Tsoi EWS, Hamilton B, O'Hagan M, Shepherd G, Slade M, et al. Uses of strength-based interventions for people with serious mental illness: a critical review. Int J Psychiatr Med. 2016;62(3):281–91. https://doi.org/10.1177/0020764015623970.
23. Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: assessing the ability to bounce back. Int J Behav Med. 2008;15:194–200. https://doi.org/10.1080/10705500802222972.
24. Richardson GE. The metatheory of resilience and resiliency. J Clin Psychol. 2002;58(3):307–21. https://doi.org/10.1002/jclp.10020.
25. Luthar SS. Resilience in development: a synthesis of research across five decades. In: Cicchetti D, Cohen DJ, editors. Developmental psychopathology: volume three: risk, disorder, and adaptation. 2nd ed. Hoboken, NJ: Wiley; 2006. p. 739–95.
26. Smith BW, Tooley EM, Christopher PJ, Kay VS. Resilience as the ability to bounce back from stress: a neglected personal resource? J Posit Psychol. 2010;5(3):166–76. https://doi.org/10.1080/17439760.2010.482186.
27. Morote R, Hjemdal O, Martinez UP, Corveleyn J. Psychometric properties of the Resilience Scale for Adults (RSA) and its relationship with life-stress, anxiety and depression in a Hispanic Latin-American community sample. PLoS ONE. 2017. https://doi.org/10.1371/journal.pone.0187954.
28. Sutter M, Perrin PB, Victoria S, et al. Beyond strain: personal strengths and mental health of Mexican and Argentinean Dementia Caregivers. J Transcul Nurs. 2016;27(4):376–84. https://doi.org/10.1177/1043659615573081.
29. Heilemann MV, Lee KA, Salvador Kury F. Strengths and vulnerabilities of women of Mexican descent in relation to depressive symptoms. Nurs Res. 2002;51(3):175–82.
30. Fleming J, Ledogar RJ. Resilience, an evolving concept: a review of literature relevant to aboriginal research. Pimatisiwin. 2008;6(2):7–23.
31. Lusk MW, Chavez-Baray S. Mental health and the role of culture and resilience in refugees feeling violence. Environ Soc Psychol. 2017;2(1):1–13.
32. Lusk M, Terrazas S, Caro J, Chaparro P, Puga D. Resilience, faith, and social supports among migrants and refugees from Central America and Mexico. J Spirit Mental Health. 2019. https://doi.org/10.1080/19349637.2019.1620668.
33. Sajquim de Torres M, Lusk M. Factors promoting resilience among Mexican migrant women in the United States: applying a positive deviance approach. Estud Front. 2017;19:1–20. https://doi.org/10.21670/ref.1805005.
34. Ungar M. Resilience across cultures. Br J Soc Work. 2008;38:218–35.

35. Panchang S, Dowdy H, Kimbro R, Gorman B. Self-rated health, gender, and acculturative stress among immigrants in the US: New roles for social support. Int J Intercul Relat. 2016;55:120–32. https://doi.org/10.1016/j.ijintrel.2016.10.001.
36. Leong F, Park YS, Kalibatseva Z. Disentangling immigrant status in mental health: psychological protective and risk factors among Latino and Asian American immigrants. Am J Orthopsychiatry. 2013;83(2):361–71.
37. Campos B, Ullman JB, Aguilera A, Schetter CD. Familism and psychological health: the intervening role of closeness and social support. Cult Divers Ethn Minor Psychol. 2014;20(2):191–201. https://doi.org/10.1037/a0034094.
38. Sabogal F, Marin G, Otero-Sabogal R, Marin BV, Perez-Stable EJ. Hispanic familism and acculturation: what changes and what doesn't? Hisp J Behav Sci. 1987;9(4):397–412.
39. Mulvaney-Day NE, Alegria M, Sribney W. Social cohesion, social support, and health among Latinos in the US. Soc Sci Med. 2007;64:477–95. https://doi.org/10.1016/j.socscimed.2006.08.030.
40. Alegria M, Takeuchi D, Canino G, et al. Considering context, place, and culture: the National Latino and Asian American Study. Int J Methods Psychol Res. 2004;13(4):208–20. https://doi.org/10.1002/mpr.178.
41. Corona K, Campos B, Chen C. Familsm is associated with psychological well-being and physical health: main effects and stress-buffering effects. Hisp J Behav Sci. 2017;39(1):46–65. https://doi.org/10.1177/0739986316671297.
42. Bailey AM, Brazil AM, Conrad-Hiebner A, Counts J. Protective factors among Latino families involved with child welfare: a review of Spanish protective factor research on child maltreatment prevention in seven countries. Child Youth Serv Rev. 2015;55:93–102. https://doi.org/10.1016/j.childyouth.2015.05.013.
43. Stacciarini JR, Smith R, Wilson C, et al. Rural Latinos' mental wellbeing: a mixed-methods pilot study of family, environmental and social isolation factors. Community Ment Health J. 2015;51(4):404–13.
44. Almeida J, Subramanian SV, Kawachi I, Molnar BE. Is blood thicker than water? Social support, depression and the modifying role of ethnicity/nativity status. J Epidemiol Community Health. 2011;65(1):51–6.
45. Ai AL, Weiss SI, Fincham FD. Family factors contribute to general anxiety disorder and suicidal ideation among Latina Americans. Womens Health Issues. 2014;24(3):e345–52. https://doi.org/10.1016/j.whi.2014.02.008.
46. Edwards LM, Romero A. Coping with discrimination among Mexican descent adolescents. Hisp J Behav Sci. 2008;30(1):24–39. https://doi.org/10.1177/0739986307311431.
47. Ai LA, Pappas C, Simonsen E. Risk and protective factors for three major mental health problems among Latino-American men nationwide. Am J Mens Health. 2014;9(1):64–75. https://doi.org/10.1177/1557988314528533.
48. Burnett-Zeigler I, Bohnert KM, Ilgen MA. Ethnic identity, acculturation and the prevalence of lifetime psychiatric disorders among Black, Hispanic, and Asian adults in the US. J Psychiatr Res. 2013;47:56–63.
49. Fortuna LR, Alvarez K, Ramos Ortiz Z, et al. Mental health, migration stressors and suicidal ideation among Latino immigrants in Spain and the US. Eur Psychiatry. 2016;36:15–22. https://doi.org/10.1016/j.eurpsy.2016.03.001.
50. Koenig H, Parkerson GR Jr, Meador KG. Religion index for psychiatric research. Am J Psychiatry. 1997;154(6):885–6. https://doi.org/10.1176/ajp.154.6.885b.
51. Aranda M. Relationship between religious involvement and psychological well-being: a social justice perspective. Health Soc Work. 2008;33(1):9–21. https://doi.org/10.1093/hsw/33.1.9.
52. Ai AL, Pappas C, Simonsen E. Risk and Protective Factors for three major mental health problems among Latino American men nationwide. Am J Mens Health. 2015;9(1):64–75.
53. Sanchez M, Dillon F, Ruffin B, De La Rosa M. The influence of religious coping on the acculturative stress of recent Latino Immigrants. J Ethn Cult Divers Soc Work. 2012;21(3):171–94. https://doi.org/10.1080/15313204.2012.700443.52.
54. Ornelas IJ, Perreira KM. The role of migration in the development of depressive symptoms among Latino immigrant parents in the USA. Soc Sci Med. 2011;73:1169–77. https://doi.org/10.1016/j.socscimed.2011.07.002.
55. Lusk M, McCallister J. Capitulo 4: Trauma and Resilience Among Mexican Refugees in Salud Género, Y Empoderamiento. Cirudad Juárez: Diagramación, disceño de cubierta y cuidado editorial: Subdireccion de Publicaciones; 2014.
56. Ornleas I. Stressors and Mental Health Needs of Latina Immigrant Women: Findings from Focus Groups to Develop the ALMA Intervention. In Oral presentation at the Society of Behavioral Medicine Annual Meeting. Washington, DC; 2019
57. Richardson GE. The applied metatheory of resilience and resiliency. In: Kumar U, editor. The Routledge International Handbook of Psychosocial Resilience. Abingdon: Taylor & Francis Group; 2017.
58. Clauss-Ehlers CS. Sociocultural factors, resilience, and coping: support for a culturally sensitive measure of resilience. J Appl Dev Psychol. 2008;29:197–212. https://doi.org/10.1016/j.appdev.2008.02.004.
59. Bermudez JM, Mancini JA. Familias fuertes: family resilience among Latinos. In: Becvar D, editor. Handbook of Family Resilience. New York: Springer; 2013. p. 215–27. https://doi.org/10.1007/978-1-4614-3917-2_13.
60. Berger Cardoso J, Thompson SJ. Common themes of resilience among Latino immigrant families: a systematic review of the literature. Fam Soc. 2010. https://doi.org/10.1606/1044-3894.4003.
61. Abraido-Lanza AF, Dohrenwend BP, Turner JB. The Latino mortality paradox: a test of the "Salmon Bias" and healthy migrant hypotheses. Am J Public Health. 1999;29(10):1543–8.
62. Franzini L, Ribble J, Keddie A. Understanding the Hispanic paradox. Ethn Dis. 2001;11(3):496–518.
63. Nguyen AW. Religion and mental health in racial and ethnic minority populations: a review of the literature. Innov Aging. 2020. https://doi.org/10.1093/geroni/igaa035.
64. Caplan S. Intersection of cultural and religious beliefs about mental health: Latinos in the faith-based setting. Hisp Health Care Int. 2019;17(1):4–10.
65. Barden SM, Gutierrez D, Gonzalez J, Ali S. Healing faith: A qualitative exploration of Latina breast cancer survivors. Couns Values. 2016;61:142–158. https://doi.org/10.1002/cvj.1204.
66. Barden SM, Gutierrez D, Gonzalez J, Ali S. Calidad de vida: An exploratory investigation of Latina breast cancer survivors and intimate partners. J Health Dispar Res Pract. 2018;10:1–13.
67. Gutierrez D, Barden, SM, Tobey, M. Mejorando matrimonios: Relationship education as a vehicle to overcome barriers for Hispanic couples. Fam. J. 2014;22:148–155.
68. Moreno O, Nelson T, Cardmil E. Religiosity and attitudes towards professional mental health services: analysing religious coping as a mediator among Mexican origin Latinas/os in the southwest United States. Ment Health Relig Cult. 2017;20(7):626–37. https://doi.org/10.1080/13674676.2017.1372735.
69. Insel T. Mental health awareness month: by the numbers. Director's blog. Bethesda: National Institute of Mental Health; 2005.
70. Office of the Surgeon General. Mental health: culture, race, and ethnicity: a supplement to mental health: a report of the surgeon general. Washington, DC: Office of the Surgeon General; 2001.

71. Wallerstein N, Duran B, Oetzel J, Minkler M. Community-based participatory research for health: advancing social and health equity. San Francisco: Josey-Bass; 2018.
72. Kretzmann J, Mcknight J. Building communities from the inside out: a path toward finding and mobilizing community assets. Chicago, IL: ACTA Publications; 1993.
73. Hammond W. Principles of strength-based practice. Resiliency Initiat. 2010;12:1–7.
74. DeHaven MJ, Ramos-Roman MA, Gimpel N, Carson J, DeLemos J, Pickens S. The GoodNEWS (Genese, Nutrition, Exercise, Wellness, and Spiritual Growth) trial: a community-based participatory research (CBPR) trial with African-American church congregations for reducing cardiovascular disease risk factors-recruitment, measurement, and randomization. Contemp Clin Trials. 2011;32:630–40. https://doi.org/10.1016/j.cct.2011.05.017.
75. Wallerstein N, Duran B. Community-based participatory research contributions to intervention research: the intersection of science and practice to improve health equity. Am J Public Health. 2010;100(S1):S40–6.
76. De Las Nueces D, Hacker K, DiGirolamo A, Hicks LS. A systematic review of community- based participatory research to enhance clinical trials in racial and ethnic minority groups. Health Ser Res. 2012;47(3):1363–86. https://doi.org/10.1111/j.1475-6773.2012.01386.
77. Minkler M. Community-based research partnerships: challenges and opportunities. J Urban Health. 2005;82(2):ii3–12. https://doi.org/10.1093/jurban/jti034.
78. Mecklenburg County Public Health. 2017–2018 Mecklenburg County Community Health Assessment. 2018. https://www.mecknc.gov/HealthDepartment/HealthStatistics/Documents/2017%20Mecklenburg%20CHA%20with%20Appendix%20March%208.pdf. Accessed 26 Sept 2019.
79. UNC Charlotte Urban Institute. Mecklenburg County Latino Community Needs Assessment. 2010. https://ui.uncc.edu/story/mecklenburg-county-latino-community-needs-assessment. Accessed 26 Sept 2019.
80. Revens KE, Reynolds A, Sucuple RF, Rifkin C, Pierce T. “You can never understand a culture until you experience it”: how an experiential learning course prepared students for practice with Latino communities through learning for advocacy. J Teach Soc Work. 2018;38(3):277–91. https://doi.org/10.1080/08841233.2018.1460289.
81. Krieger J, Allen C, Cheadle A, Ciske S, Schier JK, Senturia K. Using community-based participatory research to address social determinants of health: lessons learned from seattle partners for healthy communities. Health Edu Behav. 2002;29(3):361–82.
82. Israel BA, Parker EA, Rowe Z, Salvatore A, Minkler M, Lopez J, et al. Community-based participatory research: lessons learned from the centers for children’s environmental health and disease prevention research. Environ Health Perspect. 2005;133(10):1463–5.
83. Newman SD, Andres JO, Magwood GS, Jenkins C, Cox MJ, Williamson DC. Community advisory boards in community-based participatory research: a synthesis of best processes. Public Health Res Pract Policy. 2011;8(3):A70.
84. Baumann A, Domenech Rodriguez M, Parra-Cardona JR. Community-based applied research with latino immigrant families: informing practice and research according to ethnical and social justice principles. Fam Process. 2011;50:132–48.
85. Wejnert C, Pham H, Krishna N, Le B, DiNenno E. Estimating design effect and calculating sample size for respondent-driven sampling studies of injection drug users in the United States. AIDS Behav. 2012;16:797–806.
86. Jennings B, Kahn J, Mastroianni A, Parker LS. Ethics and public health: model curriculum. Washington, DC: Health Resources and Services Administration, Association of Schools of Public Health and Hastings Centre; 2003.
87. Michael YL, Farquhar SA, Wiggins N, Green MK. Findings from a community-based participatory prevention research intervention designed to increase social capital in Latino and African American Communities. J Immigr Minor Health. 2008;10:281–9. https://doi.org/10.1007/s10903-007-9078-2.
88. Pew Research Center. Survey of Mexican migrants, part one. Washington: Pew Research Center; 2005.
89. Karaman MA, Cavazos Vela J, Aguilar AA, et al. Psychometric properties of US Spanish versions of the grit and resilience scales with a Latinx population. Int J Adv Couns. 2018. https://doi.org/10.1007/s10447-018-9350-2.
90. Derogatis LR, Melisaratos N. The brief symptom inventory: an introductory report. Psychol Med. 1983;13(3):595–605.
91. Derogatis LR, Fitzpatrick M. The SCL-90-R, the Brief Symptom Inventory (BSI), and the BSI-18. In: Maruish ME, editor. The use of psychological testing for treatment planning and outcomes assessment: instruments for adults. Mahwah, NJ: Lawrence Erlbaum Associates Publishers; 2004. p. 1–41.
92. Asner-Self KK, Schreiber JB, Marotta SA. A cross-cultural analysis of the brief symptom inventory-18. Cult Divers Ethn Min Psychol. 2006;12(2):367–75. https://doi.org/10.1037/1099-9809.12.2.367.
93. Negi NJ, Iwamoto DK. Validation of the revised BSI-18 with Latino Migrant Day Laborers. Res Soc Work Pract. 2013;24(3):364–71.
94. Phinney J. The multigroup ethnic identity measure: a new scale for use with adolescents and young adults from diverse groups. J Adolesc Res. 1992;7:156–76.
95. Schwartz SJ, Unger JB, Des Rosiers SE. Domains of acculturation and their effects on substance use and sexual behavior in recent hispanic immigrant adolescents. Prev Sci. 2014;15(3):385–96.
96. Umana-Taylor AJ, Fine MA. Methodological implications of grouping Latino adolescents into one collective ethnic group. Hisp J Behav Sci. 2001;23(4):347–62.
97. Cohen S, Mermelstein R, Kamarck T, Hoberman H. Measuring the functional components of social support. In: Sarason IG, Sarason BR, editors. Social support: theory, research and application. The Hague: Martinus Nijhoff; 1985. p. 73–94.
98. Merz EL, Roesch SC, Malcarne VL. Validation of Interpersonal Support Evaluation List-12 (ISEL-12) scores among English- and Spanish-Speaking Hispanics/Latinos from the HCHS/SOL sociocultural ancillary study. Psychol Assess. 2014;26(2):384–94. https://doi.org/10.1037/a0035248.
99. Taylor PW. Psychometric properties of the Duke University Religion Index, English and Spanish Versions, for Hispanic-American Women. A Master’s thesis submitted to San Diego State University. 2013.
100. Nunnaly J. Psychometric theory. New York: McGraw-Hill; 1978.
101. Cohen J. Statistical power analysis for behavioral sciences. 2nd ed. London: Routledge; 1988.
102. Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. J Pers Soc Psychol. 1986;51:173–1182.
103. Morgan Consoli ML, Delucio K, Noriega E, Llamas J. Predictors of resilience and thriving among Latina/o Undergraduate Students. Hisp J Behav Sci. 2015;37(3):304–18. https://doi.org/10.1177/0739986315589141.
104. Ornelas IJ, Perreira KM, Beeber L, Maxwell L. Challenges and strategies to maintaining emotional health: qualitative perspectives of Mexican immigrant mothers. J Fam Issues. 2009;30(11):1556–75.
105. Da Silva N, Dillon FR, Rose Verdejo T, Sanchez M, De La Rosa M. Acculturative stress, psychological distress, and religious coping among Latina young adult immigrants. Couns Psychol. 2017;45(2):213–36.

106. Valdivieso-Mora E, Peet CL, Garnier-Villarreal M, Salazar-Villanea S, Johnson DK. A systematic review of the relationship between familism and mental health outcomes in Latino population. Front Psychol. 2016;7(OCT):1632. https://doi.org/10.3389/fpsyg.2016.01632.
107. Cobb S. Social support as a moderator of life stress. Psychosom Med. 1976;38:300–14.
108. Ruiz JM, Hamann HA, Mehl MR, Oonnor M. The Hispanic health paradox: from epidemiological phenomenon to contribution opportunities for psychological science. Group Process Intergr Relat. 2016. https://doi.org/10.1177/1368430216638540.
109. Ramos-Sanchez L, Atkinson D. The relationships between Mexican American acculturation, cultural values, gender, and help-seeking intentions. J Couns Dev. 2011;81(1):62–71. https://doi.org/10.1002/j.1556-6678.2009.tb00550.x.
110. Caplan S. Latinos, acculturation, and acculturative stress: a dimensional concept analysis. Policy Polit Nurs Pract. 2007. https://doi.org/10.1177/1527154407301751.
111. Baker B. Immigration Enforcement Actions. Washington, DC: Office of Immigration Statistics; 2017.
112. Putnam RD. Bowling alone: the collapse and revival of american community. New York: Simon & Schuster; 2000.
113. Almedom AM. Social capital and mental health: an interdisciplinary review of primary evidence. Soc Sci Med. 2005;61(5):943–64. https://doi.org/10.1016/j.socscimed.2004.12.025.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.