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Suicide Attempts In Latinx: Findings From A Household Survey Among A Predominantly Mexica-American Sample Living In El Paso, TX

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SURVEY AMONG A PREDOMININTALY MEXICAN-AMERICAN

SAMPLE LIVING IN EL PASO, TX

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SAMPLE LIVING IN EL PASO, TX

by

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THESIS

Presented to the Faculty of the Graduate School of

The University of Texas at El Paso

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF ARTS

Department of Psychology

THE UNIVERSITY OF TEXAS AT EL PASO

August 2018

Abstract

Suicidality in the U.S. has increased dramatically in recent years (Stone et al., 2018). In 2016, 1.3 million U.S. adults attempted suicide (NIMH, 2018). The demographic breakdown showed that Latinx adults had a suicide attempt rate of 6%. In addition, among Latinx adolescents rates were highest among Latinx students (11.3%) compared to white students (6.8%) (CDC, 2016). Latinx are the largest minority in the United States and make up 17% of the U.S. population (United States Census Bureau, 2016). El Paso presents a unique demographic since over 80% of the city's population is Latinx (Pew 2016). To date, there has been limited research examining suicide attempt rates in a sample of predominantly Mexican-American individuals. The present study investigated the prevalence of suicide attempts, the predictors of suicide attempts, and predictors of mental health from a predominantly Mexican-American region. The current study is a secondary analysis from a large-scale health study collected between 2009-2010 in El Paso, Texas. A sample of 1000 participants were recruited for this study. Findings revealed that 2.1% of the sample made a suicide attempt. Individuals who made a suicide attempt had higher scores on depressive symptomatology, dysfunction and increased English language use, while also having lower scores on family cohesion and were younger in age. When entered into a logistic regression model, statistical predictors of a suicide attempt included increased dysfunction and reduced ethnic pride. In addition, predictors of depressive symptomatology included reduced family cohesion, reduced ethnic pride and female sex while predictors of dysfunction included English language use, family cohesion, reduced ethnic pride and female sex. A discussion of the results and implications are discussed.

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Chapter 1: Introduction

Suicidality in the U.S. has increased dramatically in recent years (Stone et al., 2018). In 2016, 1.3 million U.S. adults attempted suicide (NIMH, 2018). The demographic breakdown showed that Latinx adults had a suicide attempt rate of 6%. This percentage is greater when compared to White populations. Moreover, about 5.11% of Latinx adults report a lifetime prevalence of suicide attempt in the U.S. (Suicide Prevention Resource Center, 2013). In addition, among Latinx adolescents, the suicide rate is the highest. In the yearly nationally representative survey from the CDC, researchers assess risk behaviors among students in grades 9 thru 12 in the U.S. (CDC, 2016). For suicide attempts, rates were highest among Latinx students (11.3%) compared to white students (6.8%). In addition, higher rates were found for Latinx female students (15.1%) when compared to black female students (10.2%) and white female students (9.8%) (CDC, 2016). Latinx adolescents also have higher suicide attempts that result in medical attention from poison, overdose, and life-threatening injury (CDC, 2016). Latinx are the largest minority in the United States and make up 17% of the U.S. population (United States Census Bureau, 2016). Thus, the high rates of suicide attempts among Latinx adults and adolescents in comparison to non-Latinx Whites is cause for concern.

In order to investigate this disproportionate rate, researchers have examined sociocultural factors that may be contributing to the high rate of suicide attempts in the Latinx community. Specifically sociocultural factors such as acculturation and familismo have been examined in relation to suicide attempts. A study by Fortuna, Perez, Canino, Sribney, & Alegría (2007), showed that those individuals with increased English proficiency as a child were twice as likely to have a suicide attempt (OR: 2.1 95% CI: (1.1, 4.0), $p < 0.05$). Fortuna et al. (2007) also showed that increased family support was associated with lower odds of suicide attempts. These sociocultural factors are examples of variables that might provide some insight as potential mechanisms driving the increased rate of suicide attempts in Latinx. In another study, the socio-cultural factor, *familismo*, has been associated with a decreased risk of suicide attempts among Latinx populations

(Silva & Van Orden, 2018). Marin & Marin (1991) defined familismo as including 3 elements; 1) a sense of obligation to support family members emotionally and physically, 2) seeking support from family members, and 3) using family members as roles models for attitudes and behavior.

In addition to the high suicide attempt rates, Latinx experience similar rates of mental illnesses and similar mental illnesses as all other ethnic demographics. In a study by Coleman et al. (2016), researchers examined ethnic differences in psychiatric diagnoses. Of the people diagnosed with a psychiatric illness, 21% were Native Americans (highest), 20% were White, 14% were Latinx, 14% were Blacks, 14% were mixed race, 9% were Native Hawaiian/ Other Pacific Islander, and 8% were Asian. Even though differences were observed by race, mental illness was prevalent across all races and comparable rates were found among Latinx and other ethnic demographics. Furthermore, researchers have examined differences in prevalence of mental illness among the Latinx community and have found differences depending on whether the individual was U.S. born or migrated to the U.S. (Escobar, Nervi, Gara, 2000). Alegría et al. (2008) found differences in mental illness prevalence by U.S. born and foreign born Latinx. When comparing U.S. born Latinx, immigrant Latinx, and U.S. born Whites, researchers found that immigrant Latinx had a lower prevalence of mental illness. In addition, variation was observed among the different Latinx groups. Puerto Ricans showed higher prevalence rates of depressive, anxiety, and substance use disorders when compared to Mexican, Cuban, and other Latinx (Dominican Republic, Columbia, El Salvador, Guatemala, Ecuador, Honduras, Peru, and Nicaragua) participants.

The present study seeks to provide corroborating evidence and extend previous research to apply to a community sample of Mexican-Americans from El Paso, Texas. El Paso, Texas is in the top 20 U.S. cities with the highest Latinx population. El Paso presents a unique demographic since over 80% of the city's population is Latinx (Pew, 2016) and 95% of the Latinx population are of Mexican origin (Pew, 2016). To date, there has been limited research examining suicide attempt rates in a community sample of predominantly Mexican-American individuals. However, more specifically suicide attempts have not been examined in a border town where differences

may be found based on the location and accessibility of country of origin (Mexico). A literature review will follow that provides the basis for the hypotheses. First, general predictors of suicide attempts will be discussed. Researchers have found that there are various predictors of suicide attempts which, in turn, makes it difficult to predict suicide attempts (Franklin et al., 2017). Secondly, the sociocultural predictors of suicide attempts will be discussed. Specifically, literature will be reviewed on the relationships between suicide and acculturation, familismo, and ethnic identity in Latinx populations. Furthermore, theories on suicide attempts specific to Latinx will be reviewed. In addition, research on mental health in Latinx will be reviewed since mental illness is associated with suicide attempts and because similar sociocultural factors have been associated with Latino mental health.

Chapter 2: Literature Review

Predictors of suicide attempts

In the general population, several factors have been associated with suicide attempts. These predictors include gender, age, income, and psychological well-being, family history of suicide attempt, and past suicide attempt (Klonsky, May, & Saffer, 2016). Females have higher suicide attempt rates than men. In 2015, adolescent females had a suicide rate twice as high as the rate of adolescent males (CDC, 2016). In adults aged 18 years and older, suicide attempts are also higher among female (NIMH, 2018). However for completed suicide, males have the highest rates and this finding is consistent across age groups (NIMH, 2018). Therefore, some research has postulated that the discrepancy in rates may be due to method of suicide attempt (Denning, Conwell, King, & Cox, 2000). Males use more lethal means for suicide attempts which include using firearms, hanging, and jumping (Denning et al., 2000). Therefore, the high rates of suicide attempts in females and high rates of complete suicide in males could be due to method of suicide attempt.

In addition, age has been associated with suicide attempts. According to the National Institute of Mental Health (NIMH), the highest prevalence of suicide attempts was in the 18 to 25 year old age group (NIMH, 2018). However, other research has also shown that adolescence is a critical period where high suicide attempt rates have been reported (Nock et. al., 2013). For example, in 2015, 8.6% of adolescents reported one or more suicide attempts (CDC, 2016). Furthermore, socioeconomic status has been associated with suicide attempts (Roelands, Vanoverloop, Maron, & Bilsen, 2018). In an epidemiological study, they examined suicide clusters and found that individuals with lower socioeconomic status were also more likely to be a part of a suicide attempt cluster (Too, Pirkis, Milner, & Spittal, 2016).

Mental illnesses such as depression, anxiety, bipolar disorders, and substance use disorders have also been associated with suicide attempts (Beghi, Rosenbaum, Cerri, & Cornaggia, 2013; Shain & Committee on Adolescence , 2016). In addition, other risk factors include a previous suicide attempt and a family history of suicide attempt (Beghi et al., 2013; Rodante et al., 2016). For example, a study conducted by Rodante et al. (2016) assessed whether there were differences in suicide attempt rates in individuals with a family history of suicidal behavior and those with no family history. Researchers found that individuals with a family history had higher number of previous suicide attempts than those with no family history ($F(2,152)=5.06$, $p =.007$, $\eta^2=.062$) Apart from the risk factors described above, sociocultural factors in Latinx populations have the potential to add additional risk, placing Latinx populations at an even greater risk of suicide attempts. The sociocultural factors linked to suicide attempts in Latinx are discussed next.

Predictors of suicide attempts in Latinx

Among ethnically diverse populations, there are additional predictors of suicide attempts. As previously discussed, Latinx are a large minority in the U.S., and by the year 2060, the population of Latinx in the U.S. is expected to increase from 319 million to 417 million (Colby & Ortman, 2015). In addition, Latinx are an underserved population with increased risk for health disparities (Vega, Rodriguez, & Gruskin, 2009). An area of concern is the high rates of suicide attempts among Latinx (CDC, 2016). In general, females report higher rates of suicide attempts than men and this is especially true for Latinas (CDC, 2016). Latinas have twice the suicide rate when compared to Latino males (CDC, 2016) and have the highest suicide attempts when compared to other ethnic groups (Blacks and non-Latino Whites) except for Native Americans (Rothe & Pumariegas, 2018, p.70). The high rates of suicide attempts in Latinas were first observed

by Trautman in the 1960's when he reported high rates of suicide attempts among Puerto Rican females in New York hospitals (Trautman, 1961). Since then several sociocultural factors have been identified as potential protective and risk factors (Silva & Van Orden, 2018). Specifically, sociocultural factors such as acculturation, ethnic identity, and familismo are discussed in relation to suicide attempts.

One potential risk factor is acculturation. Acculturation is defined as a process by which an individual from one culture comes in repeated contact with another culture and by which the individual may begin to adopt aspects of that culture (Berry, 2003). In earlier research, researchers have examined acculturation with scales that include constructs related to increased English language use, English language proficiency, and English electronic media consumption (Marin, & Gamba, 1996). Other acculturation scales like the Acculturation Rating Scale for Mexican-Americans-II (ARMSA; Cuellar, Arnold, & Maldonado, 1995) includes questions about behavior such as engagement in customs, foods, and cultural expressions (choice of music and dancing). This scale also includes aspects of ethnic identity and importance of belonging to the ethnic group.

Recent research on the acculturation construct has suggested that solely focusing on changes in language might not be a reliable proxy for acculturation (Horevitz, & Organista, 2013). Acculturation is described as multidimensional construct that is formed by other factors such as a change in values, attitudes, and behaviors relating to cultural expression (Horevitz, & Organista, 2013). For this reason, present study uses the term "English language use," as available items from the household survey measure this construct and are measuring the use of the English language. Research on acculturation and suicide attempts discussed next will use appropriate label for describing what was assessed in the study.

High levels of acculturation has been linked to increased risk of suicide attempts in Latinx (Rothe, & Pumariega, 2018, p.69-82). This is especially true for Latina youth suggesting a potential gender effect. Several studies have examined acculturation and suicide attempts in Latinas because of the disproportionate rate of suicide attempts in Latinas. However, it is important to note that this relationship is not consistent across the literature. In a study by Zayas, Bright, Álvarez-Sánchez, & Cabassa (2009), researchers examined acculturation, as measure by the Bidimensional Acculturation Scale for Hispanics (BAS; Marin & Gamba, 1996), in a group of Latina adolescents who had attempted suicide and in a group of Latina adolescents who had never attempted suicide. When comparing acculturation, Latina adolescents who attempted suicide and Latina adolescents who had never attempted suicide did not differ on acculturation scores. A systematic review by Lai, Li, & Daoust (2017) contradicted these findings, as Latinx adults with low acculturation had an increased risk of suicide attempts.

Furthermore, ethnic identity, has also shown to play a role in suicide attempts (Rothe, & Pumariega, 2018, p.69-82). Ethnic identity is defined as perceived sense of belonging to an ethnic group and includes ethnic pride, as positive feelings toward group membership (Phinney & Ong, 2007; Phinney, 1992). A strong ethnic identity has been associated with a decreased risk in suicide attempts in Latinx (Rothe, & Pumariega, 2018, p.69-82). In a review by Lai et al. (2017), support was found for ethnic identity and suicide attempts in Latinx where lower levels of ethnic identity was associated with increased risk of suicide attempts. However, authors noted that this pattern was not always observed. Similar inconsistencies have been observed with ethnic identity as those found with acculturation. For instance, in a study by O'Donnell, O'Donnell, Wardlaw, & Stueve (2004), predictors of suicidal ideation and attempts were examined in a sample of African-American and Latinx youth. These authors found that ethnic identity was not a significant predictor of suicidal ideation and attempt. Similarly, in a study by Winterrowd, Canetto, & Chavez (2010) found that ethnic identity was not associated with suicidal behavior in a sample of Mexican-American youth.

Conversely, a socio-cultural factor that has been associated with a decreased risk of suicide attempt is familismo. As previously discussed, Marin & Marin (1991) define familismo as including 3 elements; 1) a sense of obligation to support family members emotionally and physically, 2) seeking support from family members, and 3) using family members as roles models for attitudes and behavior. Familismo, also known as familism, has been identified as a protective factor in suicide attempts among Latinx (Silva & Orden, 2018). In a study by Peña et al. (2011), familismo was examined in a sample of Latina suicide attempters and non-suicide attempters. Findings in this study suggested that familismo was a protective factor for suicide attempts in Latinas. In reference to family conflict, higher levels of family conflict has been associated with increased risk of suicide attempts in Latinx adolescents (Zayas et. al., 2009; Fortuna et. al., 2007). In a study by Fortuna et al. (2007), researchers found a positive association between suicide attempts and family conflict, where participants with high levels of family conflict were 6 times more likely to have a suicide attempt (OR: 6.4 95% CI: (3.1, 13), $p < 0.001$). In the study by Zayas et al. (2009), although differences were not observed in acculturation levels between suicide attempters and non-suicide attempters, differences were observed in family conflict between mothers and daughters. Specifically, higher levels of conflict between mother and daughter were observed in suicide attempters.

An additional factor that has been examined to predict suicide attempts includes place of residence and the size of the Latinx community in place of residence. Specifically, location suicide patterns have been observed where higher suicide attempts among Latinx were found in regions with lower representation of Latinx communities (Wadsworth & Kubrin, 2007). These authors found that rates of suicide depended on the size of the Latinx community of the area and was different for Latinx immigrants and native-born Latinx. Specifically, higher suicide rates were found in Latinx immigrants who lived in areas with smaller immigrant populations. For native-born Latinx, living in areas with larger populations of immigrants were associated with higher risk of suicide. This has special implications for the present study and suggests an ecological component to suicide attempts in Latinx. Since El Paso is comprised of both native born and Latinx

immigrants with higher rates of native-born Latinx, higher rates of suicide attempts could be observed among Mexican-Americans living in El Paso (Gonzalez, N., 2018).

For the present study, the sociocultural factors English language use, family cohesion, and ethnic identity will be assessed in a sample of 1000 predominantly Mexican-Americans living in an area with a high Latinx demographic namely Mexican-Americans. Thus, based on previous research, suicide attempts may depend on English language use, ethnic pride, and family cohesion. Specifically, I hypothesize that having greater English language use, having reduced pride, and lower levels of family cohesion will significantly predict suicide attempts. Theories on suicide have been modified for Latinx populations. These theories are discussed next.

Theories on suicidal behavior in Latinx

Traditional theories on suicide attempts have been modified to be culturally relevant for Latinx. A well-known theory on suicide is the Interpersonal Theory of Suicide (ITS). The theory was first proposed by Thomas Joiner in 2005. The theory states that perceived lack of belonging and feeling of being a burden are proximal factors leading to suicidal behavior (Van Orden, Witte, Cukrowicz, Braithwaite, Selby, & Joiner, 2010). In a paper by Silva & Orden (2017), they extended ITS to inform suicidal behavior in Latinx. Their conceptual model posits that acculturative stress is associated with lack of engagement in culturally important activities which in turn decreases perceived belonging. In the model, acculturative stress was measured with self-reported measures including questions relating to experiences in discrimination, lower ethnic identity, and family conflict. Their model posits that culturally important activities are activities important to Latinx culture and involve traditions and familismo. Thus, researchers suggest that an implementation of culturally important activities would decrease the risk of suicide in Latinx.

Specific to Latinas, Zayas, Lester, Cabassa, & Fortuna (2005) proposed a developmental framework to understand suicide attempts in Latina adolescents. This model was informed from previous literature and from cognitive-developmental and developmental-systems theories from Vygotsky (1978) and Brofenbrenner (1979). Zayas and colleagues (2005) propose a strong cultural

component to their developmental model. Central to the model is "familismo" which Zayas and colleagues (2005) describe as an emphasis on family unity and includes maintaining family cohesion as well as placing a strong value of family to the individual member. Part of familismo also includes respect for parents, helping with family needs, and interdependence. For Latinx women, family traditions tend to promote passive, modest behavior and a responsibility of family obligation. This central component (familismo) along with parental inflexibility and the daughter's feeling of disappointment to family is described as a precondition to a suicide attempt (Zayas et. al., 2005). In both theories, family is a strong component that is described central to the discourse. The emphasis on culture in these theories provide a foundation for why we might expect higher suicide rates in Latinx. In addition to suicide attempts, Latinx experience differences in mental health. This is discussed in the next section.

Mental health differences in Latinx

Latinx in the U.S. are susceptible to similar mental illnesses as the rest of population. This is important because mental illness has the potential to impair all aspects of life (McTeague, Goodkind, & Etkin, 2016). In 2016, 44.7 millions of U.S. adults were living with a mental illness. This amounts to about 1 in 6 adults living with a mental illness (National Institute of Mental Health; NIMH, 2016). Although mental illness affects Latinx in similar ways, Latinx are less likely to seek medical attention (Silva & Orden, 2017). In addition, mental health among Latinx varies with higher rates of mental illness reported among Puerto Rican, Cuban, and Mexican populations (Alegría, Mulvaney-Day, Woo, Torres, Gao, & Oddo, 2007). Similar socio-cultural factors associated with suicide attempts have been implicated in Latinx mental health. Relationships between mental health and acculturation, ethnic identity, and familismo have been assessed in Latinx. Specifically, higher levels of acculturation have been associated with increased risk of depression in samples of Mexican-American youth (Lorenzo-Blanco, Unger, Ritt-Olson, Soto, & Baezconde-Garbanati, 2011; Gonzales, Deardorff, Formoso, Barr, & Barrera, 2006). Furthermore,

family cohesion is associated with depression in Latinx youth when lower levels of family cohesion are present (Lorenzo-Blanco, Unger, Baezconde-Garbanati, Ritt-Olson, & Soto, 2012).

An additional factor affecting mental illness in Latinx is time in the U.S. and country of origin, meaning whether the individual was foreign born or born in the U.S. A study comparing depressive symptomology in foreign born and U.S. born mothers found higher depressive symptomology in U.S. born mothers in all ethnic groups except Asian mothers (Huang, Wong, Ronzio, & Stella, 2007). In general, Latinx immigrants report lower rates of mental illness when compared to U.S. born Latinx (Cook, Alegría, Lin, & Guo, 2009). However, number of years in the U.S. has been shown to have an effect on mental health. A study by Cook et al. (2009) examined psychiatric diagnoses and time in the U.S. among immigrant and U.S. born Latinx. Immigrants who had lived in the U.S. for less than 10 years reported lower rates of past year psychiatric diagnosis than U.S. born Latinx. Furthermore, this difference was no longer observed between immigrant Latinx who lived in the U.S. for more than 10 years and U.S. born Latinx. Acculturative stress has been posited as an influence between the increased mental illness in U.S. born and immigrants who have lived in the U.S. for more years (Cook, Alegría, Lin, & Guo, 2009). Acculturative stress is the stress resulting from conforming and/or adapting to the majority culture (Silva & Orden, 2017). Given the sample demographic of the present study and the influence of sociocultural factors, English language use, ethnic pride, and family cohesion will be used to assess mental health and emotional well-being.

Study aims

The purpose of this project is to assess the association between suicide attempts and sociocultural factors such as English language use, family cohesion, and ethnic pride. In addition, the proposed research will assess the relationship between mental and dysfunction (interference of emotional health on social and physical activities) and sociocultural factors such as English language use, family cohesion, and ethnic pride. As previously outlined, Latinx have high rates of suicide attempts which research has shown are influenced by these sociocultural factors.

Furthermore, these same factors have shown to play a role in Latinx mental health. The present research proposes the following hypotheses.

1) High levels of English language use, increased levels of depression and dysfunction, low levels of ethnic identity, and low levels of family cohesion will predict suicide attempts.

2) High levels of English language use, low levels of ethnic identity, and low levels of family cohesion will predict higher levels of depressive symptomology and greater level of dysfunction.

3) Individuals who report having made a previous suicide attempt will have higher levels of depressive symptomatology and greater levels of dysfunction.

Chapter 3: Method

Participants

      Current study is a secondary data analysis from the Hispanics Health Disparities

Research Center (HHRDC) survey conducted at the University of Texas at El Paso. The original

scope of the study was to assess the health and access to healthcare of Latinx residents' of El

Paso. The survey was administered between 2009-2010 to a community sample of El Paso

residents. The sample consisted of 1000 households. In order to get a diverse sample across the

El Paso County, the county was divided into 50 strata based on the 2000 census tract data. This

resulted in 50 strata with approximately 13,000 residents in each stratum. 20 homes from each

stratum were recruited and recruitment continued until 20 homes were recruited from each

stratum. Recruitment was done randomly with a two-stage probability sampling.

      First, based on population density of the 2000 census tract, the El Paso County was

divided into 50 strata. Second, from each stratum 10 neighborhoods (blocks) were randomly

selected using a random number generator. In order to ensure that 20 homes were recruited from

each stratum, 2 blocks were randomly selected first and then additional blocks were randomly

selected from the 8 remaining blocks until 20 homes were recruited. When discussing the study

with the study's Co-Principal Investigator, weighting of the data was not required because 20

homes from each strata were recruited. This helped ensure a representative sample across

socioeconomic status and across the El Paso County.

      One household member participated in the survey. The household member was randomly

chosen based on the household member who had the closest birthday to the interview data. The

sample consisted of El Paso residents (627 females, 343 males) with an age range of 18 to 90

(M=45.67, SD=16.96). In order to be eligible for participation, participants' had to self-identify

as Latinx and be over the age of 18. A breakdown of ethnic demographic is not available as it was not collected in the original study. However, 95% of El Paso's residents are of Mexican origin (Pew, 2016).

Procedure

Participants completed the survey in person. The survey was administered by paid trained surveyors from the University of Texas at El Paso. Surveyors were trained to administer the survey in both English and Spanish. During recruitment, surveyors went door to door in randomly chosen neighborhoods from each strata. Surveyors recruited Monday thru Friday from 3:00pm to 8:00pm. When an individual opened the door, the surveyor asked to speak to the participant with the closest birthday to the interview date. After identifying this person, the surveyor would ensure eligibility requirements were meet (over the age of 18 and self-identified as Latinx). The surveyor would then give the respondent the study information and asked if they would like to participate in the study. If they agreed to participate, they had the option to take the survey at that time or surveyor could schedule a time and day to return. In addition, participants could agree to begin the survey and stop and continue at another time. Informed consent was acquired and were told they had the option to discontinue participation at any time. The survey was administered via paper. The survey consisted of 143 questions and took approximately one hour to complete. Participants received monetary compensation of $30 for participating in study. Participants were asked an array of demographic, health, access to health care, education and occupation questions, and life experiences of living in the border.

In order to address the aims of the current study, a limited number of questions were included. Specifically, questions about previously attempting suicide, their English language use, their family cohesion, and ethnic identity were included in the study. Demographic questions such as

income, gender, and age were also included as controls. Appendix A provides a short description of previously published work that has resulted from this household survey.

 Measures

   English language Use. A measure of English language use was included in the study. Items were taken from the Short Acculturation Scale for Hispanics (Marin, Sabogal, Marin, Otero-Sabogal, Perez-Stable, 1987). Present scale has three factors (language, media, and ethnic social relations). Current study used 3 items from the language factor. The items measuring English language use were: 1) In general, what language (s) do you speak? 2) In general, what language (s) do you read? 3) What language (s) you used as a child to teenage years? Answer choices were on a Likert scale ranging from (1) Only Spanish (2) Spanish more than English (3) Spanish and English equally well (4) English more than Spanish (5) English only (n/a) Other. Answer choices were coded 1 through 5 only Spanish to English only, respectively. The three items were summed to create a composite score of English language use. Composite scores ranged from 3 to 15 with greater scores indicating more English language use.

   Prior research has shown that the language factor of this measure (with all items included) yields a coefficient alpha of 0.90 (Marin et al., 1987). In the current study, a confirmatory factor analysis was conducted in order to calculate an estimate of reliability and to assess goodness-of-fit of the English language use proposed construct. Models of goodness-of-fit were assessed with the following fit indices: chi-square, RMSEA (root mean square error approximation), and CFI (comparative fit index). In order to demonstrate good model fit an estimated model should have a non-significant chi-square, RMSEA less than .06, and CFI close to 1.00. As this confirmatory factor analysis consisted of estimating a one factor model to three items, the model was saturated and resulted in a perfectly fitting model. A perfect model fit may not necessarily signify that the

model is a perfect fit but rather that model fit cannot be determined. The coefficient omega was estimated. Coefficient omega (McDonald, 1999) is an estimate of reliability that can be derived from a factor analysis which uses the items' factor loadings and the items' unique variance in its derivation. An estimate of coefficient omega from this study for a one factor model with the MLR estimator accounting for both missing and non-normal data resulted in an estimate of coefficient omega of 0.91.

Ethnic pride. Ethnic pride was measured with one question, "How do you feel about having a Hispanic/Latino, or Mexican background?" Answer choices were coded, (5) very proud (4) proud, (3) somewhat proud, (2) little pride, and (1) no pride. The frequency distributions of the indicator coding revealed that over 90% of the sample identified as proud or very proud. For this reason, somewhat proud, little pride, and no pride were combined into one category. Proud and very proud remained as separate categories. Responses were indicator coded using very proud as the referent condition.

Family cohesion. Family cohesion was measured with 4 items from the FACES IV questionnaire (Olson, 2008). The scale contains six subscales identified as enmeshed, disengaged, balanced cohesion, chaotic, balanced flexibility, and rigid (Olson, 2011). The present study used items from the balance cohesion subscale. This subscale, with all items included, has a coefficient alpha of .89 (Olson, 2011). In the present study, only 4 items were included in order to reduce response burden. The four items included were 1) My family discusses problems and solutions 2) My family spends free time with each other 3) Family members feel close to each other 4) Family members go along with family decisions. Answer choices were on a Likert scale ranging from (1) never (2) rarely (3) sometimes (4) usually and (5) always. The four items were summed to form a

composite score of English language use. Composite scores ranged from 4 to 20 with greater scores indicating greater family cohesion.

A confirmatory factor analysis was conducted in order to calculate an estimate of reliability and to assess goodness-of-fit of the family cohesion proposed construct. Models of goodness-of-fit were assessed with the following fit indices: chi-square, RMSEA (root mean square error approximation) and CFI (comparative fit index). In order to demonstrate good model fit an estimated model should have a non-significant chi-square, RMSEA less than .06, and CFI close to 1.00. As the chi square statistic is influenced by sample size, I relied on fit indices to determine whether the model adequately described the data. In the family cohesion factor, chi-square was significant (χ^2 (2, N= 1000) = 15.14, p = .001), RMSEA was 0.081, and CFI was 0.985. Present model fit indices show that model fit is satisfactory as CFI is close to 1.00. Coefficient omega was calculated as an estimate of reliability. The four items had a coefficient omega of 0.79.

Suicide attempt. Suicide attempt was assessed with one question, "Have you ever experienced any of the following? (Read list; check items that apply)." The answer choices included, (a) feeling stressed (b) excess worry (c) attempted suicide (d) other mental health problems. Participants that indicated a suicide attempt were coded 1 and those that did not were coded as 0.

Depressive symptomology. Depressive symptomology was assessed using items from a modified version of the Mental Health Inventory18 (MHI-18). The MHI-18 is the mental health component of the Medical Outcomes Study 36-item Short Form (SF-36) (Ware, & Sherbourne, 1992). The scale assesses anxiety, depression, emotional control, general positive affect, and emotional control. Previous literature has shown that the full scale has coefficient alpha of .96 (Veit & Ware, 1983).

Initially, the present study included 6 items from the scale in order to reduce response burden. However, after conducting a confirmatory factor analyses using the MLR estimator, modification indexes indicated poor model fit. Examination of local fit information revealed that that the unique variance of item 5 (Did you feel tired?) was strongly correlated with unique variance of Item 4 (Did you have a lot of energy?). As the reverse scoring of Item 5 made it very similar to Item 4, Item 5 was excluded from the analysis and a confirmatory factor analysis on the remaining five items was conducted. After re-estimating the factor model to these 5 items while allowing one pair of items to have correlated unique variances (Have you been nervous? and Have you felt depressed?), the resulting model fit indices provided a significant chi-square χ^2 (4, N=1000) = 18.21, p = .001), RMSEA of .06, and a CFI of .98. The present model fit indices show a satisfactory model fit as both RMSEA and CFI are within the limits of good model fit.

The final 5 items included in the present study were, 1) "Have you been nervous?" 2) "Have you felt depressed?" 3) "Have you felt calm and peaceful?" 4) "Did you have a lot of energy?" 5) "Have you been happy?" Answer choices were on a Likert scale ranging from, (5) All of the time (4) Most of the time (3) Some of the time (2) A little of the time (1) None of the time. Questions 3), 4), and 6) were reverse coded. In the present study, coefficient omega was 0.79. The five items were summed in order to get a composite score for depression. Scores ranged from 5 to 25 with lower scores indicated lower levels of depressive symptomology and higher scores indicated higher levels of depressive symptomology.

Dysfunction. Two items from the Medical Outcomes Study 36-item Short Form (SF-36) (Ware & Sherbourne, 1992) were included to measure dysfunction as it related to mental health. The SF-36 has a reliability ranging from .50 to .70 (McHorney, Ware, Lu, & Sherbourne, 1994). This scale has a subscale termed social functioning which assesses the emotional and mental health

by asking how emotional health has interfered with activities. The subscale has a coefficient alpha ranging from .53 to .76 (Bunevicius, 2017; Von Steinbuechel et. al., 2016). Questions included were 1)"How much of the time has your emotional or mental health interfered with your social activities (like visiting with friends, relatives, etc.)?" and 2)"How much of the time has your emotional or mental health interfered with your daily living activities like, walking, driving, cooking, etc." The answer choices included, (5) All of the time (4) Most of the time (3) Some of the time (2) A little of the time (1) None of the time. The two items were summed to form a composite score of dysfunction. Scores ranged from 2 to 10 with higher score indicating greater dysfunction.

To obtain an estimate of reliability, we took these two items and combined them with the five depressive symptomatology items, as a one-factor model estimated to two items results in a model with negative degrees of freedom. Both a one-factor model to the seven items and a two-factor model to the seven items were tested. The fit of the two factor model was the best (χ^2 (12, N= 1000) = 66.52, p = .000), RMSEA=.067, and CFI= .967) and the resulting estimate of coefficient omega for the items that served as indicators of the dysfunction latent variable was 0.90. The present model fit indices show satisfactory model fit as RMSEA is within good model fit indices.

Demographic variables. Several demographic variables were included as control variables. Control variables included gender, age, and income. For gender, male participants were coded 1 and female participants were coded as 0. Age was calculated by subtracting date of interview to date of birth. For income, participants were asked, "What is your approximate household income?". Answer choices included a) less than $5,000, b) between $5,000 and $10,000, c) between $10,000 and $20,000, d) between $20,000 and $30,000, e) between $30,000

and $40,000, f) between $40,000 and $50,000, g) between $50,000 and $60,000, h) between $60,000 and $70,000, and i) more than $70,000. Income was divided into three categories 1) $20,000 or less ($N = 400$), 2) between $20,000 and $50,000 ($N = 332$), 3) $50,000 and more ($N = 173$). Variables were indicator coded and income of $50,000 or more was the referent condition.

Chapter 4: Analyses

Present study's data was analyzed using both SPSS-22 and M*plus* (Muthén & Muthén, 1998 – 2018). The initially proposed main analyses included conducting a structural equation model in order to simultaneously predict suicide attempts from latent variables depression, dysfunction, English language use, and family cohesion. In addition, the model included ethnic identity and gender, age, and income. Figure 1 below depicts the initial proposed path model. However, this model did not converge in M*plus* after requesting 2,000,000 iterations with the WLSMV estimator, which is the estimator to be used for categorical outcome variables (Muthén & Muthén, 1998 – 2018).

Instead, a review of preliminary analyses (to be discussed below) guided the rationale for an alternative model. It was decided to predict the depression and dysfunction composites from English language use, categorical variables of ethnic pride, family cohesion, age, male sex, and categorical variables of income. As previously stated, ethnic identity was divided into 3 categories with no pride, little pride, and somewhat pride as one category, pride as the second category, and very proud as third category. Since very proud was the referent condition 2 indicator variables were created. Ethnic identity 1 referred to those that identified as no pride, little pride, and somewhat pride. Ethnic identity 2 referred to those that identified as proud. For income, 50,000 and more was the referent condition and 'Income 1' referred to income of $20,000 or less, and 'Income 2' referred to income between $20,000 and $50,000. In addition, suicide attempts was also predicted from the depression composite, dysfunction composite, English language use, categorical variables of ethnic pride, family cohesion, age, male sex, and categorical variables of income. These analyses and the preliminary analyses were conducted across 20 multiply imputed data sets in SPSS, following the suggestions of Enders (2010).

Multiple imputation of data generates multiple copies of probable values that can replace missing data points. This creates multiple data sets which can be used to conduct analyses. Variables with missing data were age, depression items, dysfunction items, English language use items, family cohesion items, ethnic identity, and income. The percentage of missing data for age was 1.90%. The percentage of missing data for depression items ranged from .30% to 1.10%. The percentage of missing data for dysfunction was .40% for first item and .80% for the second item. The percentage of missing data for English language use items ranged from 1% to 1.60%. The percentage of missing data for ethnic identity was 1.60%. The percentage of missing data for income was 9.50%. The results provide averaged pooled estimates across the twenty imputed data sets.
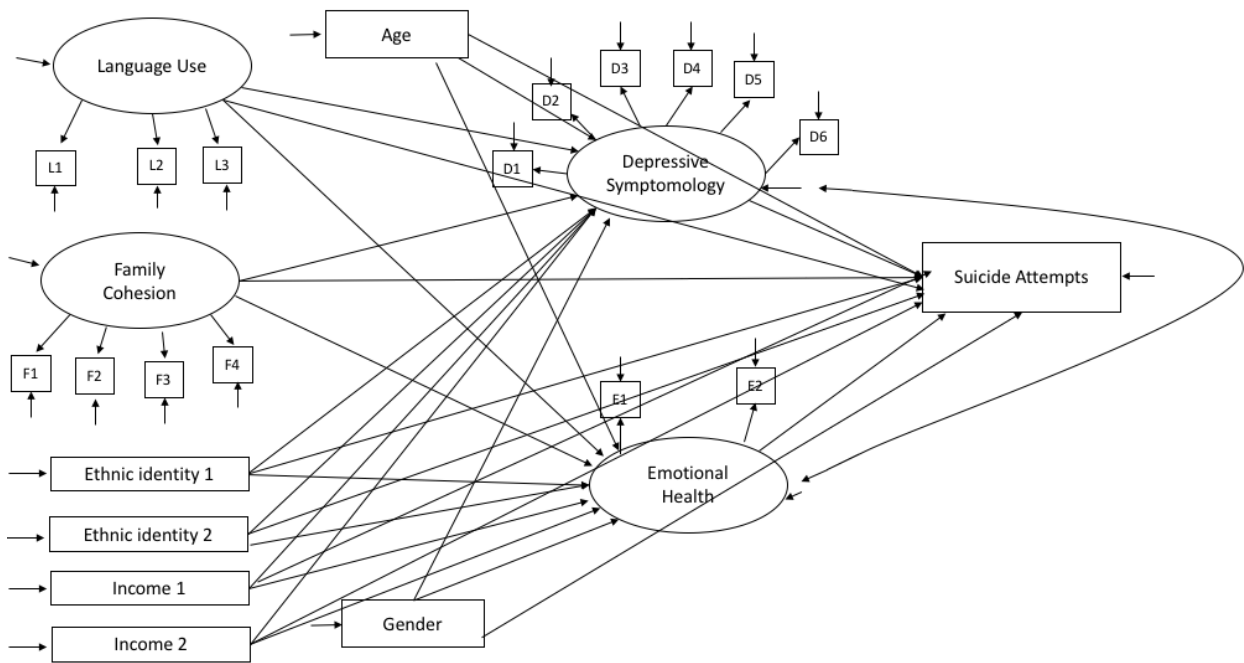

Figure 1 Initial proposed path model

As mentioned in the preceding paragraph, various preliminary analyses were conducted in order to further investigate the data. First, SPSS-22 was used to conduct descriptive analyses,

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Pearson product-moment correlations, and independent sample t-tests. Since missing data was present, the dataset was imputed using multiple imputation on SPSS before conducting analyses. Twenty data sets were imputed in order to get the most robust estimates. After imputing the data set, composite scores for depression, dysfunction, English language use, and family cohesion were created. Then, using the imputed data set, descriptive analyses were conducted and pooled across the multiply imputed data sets to obtain the range, mean, and standard deviations for depression, dysfunction, English language use, family cohesion, ethnic identity, age, and income variables.

Frequency descriptives were also conducted in order to determine the percentage of the sample that had attempted suicide. Independent samples t-tests were conducted in order to assess significant mean differences between suicide attempts and the depression composite, dysfunction composite, English language use composite, family cohesion composite, and age. Pearson product-moment correlations were conducted to assess the associations between suicide attempts, depression composite, dysfunction composite, English language use composite, family cohesion composite, age, and gender.

After the descriptive analyses were conducted, the main analyses were conducted. Ordinary least squares regression was used to predict depression from English language use, categorical variables of ethnic pride, family cohesion, age, male sex, and categorical variables of income. In addition, a second ordinary least squares regression was conducted in order to predict dysfunction from English language use, categorical variables of ethnic pride, family cohesion, age, male sex, and categorical variables of income. After conducting the ordinary least squares regressions, a logistic regression was conducted in order to predict suicide attempts from depression, dysfunction, English language use, categorical variables of ethnic pride, family cohesion, age, male sex, and categorical variables of income. The results from these analyses are discussed next.

Chapter 5: Results

Table 1 below shows the range, mean, and standard deviations for depression, dysfunction, English language use, family cohesion, ethnic identity, age, and income. In present study, 2.1% of the sample reported a past suicide attempt. This rate is below the national average which states that 6% of Latinx in the U.S. attempt suicide in a given year (NIMH, 2018). All Pearson product-moment correlations are presented in Table 2 below. Significant correlations were found between suicide attempt and depression (r (1000) = .144, p = <.01), suicide attempt and dysfunction (r (1000) = .151, p = <.01), suicide attempt and English language use (r (1000) = .069, p = .03), suicide attempt and family cohesion (r (1000) = -.084, p = .01), suicide attempt and age (r (1000) =-.069, p = .03), but not for suicide attempt and gender (r (1000) = - .032, p = .307). For the independent sample t-tests, significant mean differences were observed between suicide attempts and depression (t (998)= - 4.57, p= .000) with a Cohen's d of .855, dysfunction (t (998)= - 4.76, p= .000) with a Cohen's d of .910, English language use (t (998)= - 2.20, p= .028) with a Cohen's d of .464, family cohesions (t (998)= 2.65, p= .01) with a Cohen's d of .555, and age (t (998)= 2.07, p= .039).

Table 1 *Range, Mean, and Standard Deviations*

	Min	Max	*M*	*SD*
Depression	4.61	25	10.06	3.81
Dysfunction	1	10.04	2.92	1.70
English language use	2.04	15.66	8.16	3.61
Family cohesion	4	21.09	15.76	3.41
Ethnic identity	1	3	2.53	.588
Age	18	90.04	45.67	16.96
Income	1	3	1.75	.72

Note. Min, Max, and standard deviation are an average across imputed data sets. Mean is a pooled mean generated by SPSS

Table 2 *Pearson product-moment correlations*

Variable	2	3	4	5	6	7
	DEP	DYSF	LANG	FAM	AGE	GENDER
1 SA	.144**	.151*	.069*	- .084**	- .069*	- .032
2 DEP		.558**	- .078*	- .162**	.030	- .165**
3 DYSF			- .114**	- .077*	.085**	- .102**
4 LANG				- .047	- .307**	.135**
5 FAM					- .005	- .057
6 AGE						- .053
7 GENDER						

*Note. 1 SA= Suicide attempt; 2. DEP= Depression; 3. DYSF= Dysfunction; LANG = English language Use; FAM= Family Cohesion; AGE= Participant age; Gender= Gender (Male/Female) N=1,000 for each correlation *p<.05, **p<.01.*

For the primary analyses, ordinary least squares regression of depression on English language use, family cohesion, ethnic identity indicator variable 1, ethnic identity indicator variable 2, gender, age, income indicator variable 1, and income indicator variable 2 results showed that family cohesion, somewhat pride to no pride, and gender were significant predictors of depression. Specifically, for every one unit increase in family cohesion there was a decrease of .173 units in depression ($p <.01$), holding all else constant. In comparison to very proud on ethnic identity, those with somewhat pride to no pride score 1.62 units higher on depression ($p <.01$), holding all else constant. In comparison to females, males score 1.34 lower on depression ($p <.01$), holding all else constant. An average R^2 was calculated across imputed data sets. Average R^2 was .078 meaning 7.8% of the variance of depression was accounted for by the model.

Ordinary least squares regression of dysfunction on English language use, family cohesion, ethnic identity indicator variable 1, ethnic identity indicator variable 2, gender, age, income indicator variable 1, and income indicator variable 2 results showed that English language use, family cohesion, somewhat pride to no pride, and gender were significant predictors of dysfunction. For every one unit increase in English language use there was a decrease of .038 units in dysfunction ($p = .02$), holding all else constant. For every one unit increase in family cohesion there was a decrease of .033 units in dysfunction ($p = .04$), holding all else constant. In addition, in comparison to very proud on ethnic identity, those with somewhat to no pride, score .598 units greater in dysfunction, holding all else constant. Furthermore, in comparison to women, men score .326 units less on dysfunction ($p <.01$), holding all else constant. An average R^2 was calculated across imputed data sets. Average R^2 was .045 meaning 4.5% of the variance of dysfunction was accounted for by the model.

Finally, the results from the logistic regression revealed that dysfunction, and proud ethnic identity were significant predictors of suicide attempts at the 0.05 level ($\beta = .281$, $p = .02$, $\beta = 1.15$, $p = .03$). For dysfunction, a one unit increase in dysfunction increases the odds of having a suicide attempt by 1.34. For ethnic identity, being 'proud' on ethnic identity in comparison to 'very proud', increases the odds of having a suicide attempt by 3.17. In addition an average Cox & Snell R^2 was computed. The Cox & Snell R^2 index is a pseudo R square that provides an estimate of good model fit for logistic regression. In present study, Cox & Snell R^2 was .045. This index suggests that 4.5% of the variable is explained by the model. In addition, *Nagelkerke R^2* was computed. *Nagelkerke R^2* is another pseudo R square. In present study, the *Nagelkerke R^2* was .242. Sociocultural factors English language use and family cohesion were not significant predictors of suicide attempts. Table 3 and 4 below display the estimates for the regressions predicting depression and dysfunction and the logistic regression predicting suicide attempts. A discussion of the results and implications are discussed next.

Table 3 Regressions predicting depression and dysfunction

	β	t	*Sig.*	R^2
Depression				.078
English language use	- .065	- 1.778	.075	
Family cohesion	**- .173**	**- 4.888**	**.000**	
Ethnic identity 1	**1.624**	**3.364**	**.001**	
Ethnic identity 2	- .165	- .644	.520	
Male	**- 1.338**	**- 5.390**	**.000**	
Age	.001	.139	.890	
Income 1	.393	1.042	.299	
Income 2	.059	.152	.880	
Dysfunction				.0445
English language use	**- .038**	**- 2.281**	**.023**	
Family cohesion	**- .033**	**- 2.015**	**.044**	
Ethnic identity 1	**.598**	**2.745**	**.006**	
Ethnic identity 2	- .056	- .480	.631	
Male	**- .326**	**- 2.879**	**.004**	
Age	.006	1.667	.096	
Income 1	.221	1.229	.221	
Income 2	- .031	- .171	.864	

Note. $N = 1,000$; Regression coefficients are pooled estimates from imputed data.; R^2 is an averaged estimate from imputed data.

Table 4 Logistic regression predicting suicide attempts

	β	Sig.	Exp(B)	Cox & Snell R^2	Nagelkerke R^2
Suicide attempt				.0446	.242
Depression	.128	.052	1.136		
Dysfunction	**.281**	**.022**	**1.324**		
English Language use	.127	.077	1.135		
Family cohesion	- .086	.146	.917		
Ethnic identity 1	.425	.586	1.530		
Ethnic identity 2	**1.154**	**.028**	**3.170**		
Male	- .509	.375	.601		
Age	- .028	.107	.972		
Income 1	1.100	.227	3.006		
Income 2	1.439	.112	4.218		

Note. *N*=1000; Regression coefficients are pooled estimates from imputed data.; Cox & Snell R^2 & Nagelkerke are an averaged estimate from imputed data.

Chapter 6: Discussion

The findings from the present study found corroborating evidence for some previously established relationships. Consist with previous findings, increased depression and increased dysfunction was found in those with less family cohesion, those who identified less with Latinx ethnicity, and female participants (Zapata Roblyer et. al., 2017; Sanchez & Awad, 2016). The regression of dysfunction on English language use, family cohesion, ethnic identity, male sex, age, and income found significant effects of sociocultural factors English language use, family cohesion, and ethnic identity. In terms of dysfunction and English language use, an unexpected directionality was observed where a decrease in English language use was associated with an increase in dysfunction. In previous research supported for this relationship has been found. In one study by Ward et al. (2018), researchers found that a decrease in Spanish use and equal English and Spanish use was a protective factor against depressive symptomology in comparison to high Spanish use. Even though support for this has been observed in the literature, it is unclear why a decrease in Spanish language use would be associated with an increase in dysfunction. The hypothesis in present study postulated that an increase in English language use would increase dysfunction. Correlations between English language use and dysfunction showed a negative significant relationship while the correlation between English language and depression found a positive significant relationship.

In the logistic regression, only dysfunction and being 'proud' on ethnic identity (relative to being 'very proud') were significant predictors of suicide attempts at the 0.05 level of significance. Greater dysfunction and being 'proud' instead of being 'very proud' about your Latinx ethnic identity was associated with an increased likelihood of having a suicide attempt. English language use, family cohesion, and gender were not significant predictors of suicide attempt. Depression was marginally significant at $p = .052$. Although significance level was exceeded, depression has been associated with suicide risk (Aradilla-Herrero, Tomás-Sábado, & Gómez-Benito, 2014). Surprisingly gender was not a significant predictor of suicide attempts. In

previous research, females have been associated with increased risk of suicide attempt (CDC, 2016; NIMH, 2018). Similarly, family cohesion in previous research has shown to reduce likelihood of attempting suicide but this was not observed in the present study (Rothe, & Pumariega, 2018). Possible unexplored interactions may be observed involving some of these sociocultural variables. Independent sample t-tests found significant mean differences between those who attempted suicide and those that had never attempted suicide. Individuals who had a suicide attempt had greater means of depression, dysfunction, and English language use. They also had a lower mean on family cohesion and were younger. Thus, potential interaction effects could be found between family cohesion and depression as it relates to suicide attempts.

Furthermore, in the present study 2.1% of the sample had attempted suicide. The smaller rate in comparison to national averages could suggest potential protective properties of living in El Paso, TX with a predominantly Latinx community. Some research has suggested that higher suicide attempt rates in Latinx are found in locations where a smaller Latinx demographic is present (Wadsworth & Kubrin, 2007). However, further research is needed as previous research has also cited that increased suicide is observed among U.S. born Latinx living in a community with high percentage of Latinx immigrants (Wadsworth & Kubrin, 2007). However, other explanations are possible. For example, it is possible that the smaller percentage found is due to the question form and sampling strategies. Participants were asked to identify which of the following mental health conditions they had previously experienced. The answer choices included feelings stressed, excess worry, attempted suicide, and other mental health problems. The question format may have biased the answer as participants could have chosen not to report a suicide attempt. In addition, this question is self-report and does not include individuals who had a successful suicide attempt. Ideally passive and active suicide ideation would be included in the measures to get a more accurate account of individuals at risk for suicide.

In reference to the sociocultural variables measured and suicide attempts. Only ethnic identity was a significant predictor of depression, dysfunction, and suicide attempts. Table 5 breaks down number of suicide attempts by the three ethnic identity categories and includes the means

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for depression and dysfunction for each ethnic identity category. These findings suggest that identifying as having more pride is associated with decreased odds of having a suicide attempt, reduced depression symptomology and dysfunction. This suggests that ethnic identity may be important to mental health. Thus, building ethnic identity has the potential to improve mental health and may be an important aspect to include in prevention interventions for suicide. It is important to note that there was a lack of variability of ethnic identity and a small percentage of suicide attempts in sample. Therefore, these findings should be interpreted cautiously. A replication study would be beneficial in order to corroborate present findings.

The sociocultural factors English language use and family cohesion were not always significant predictors in the regression analyses. The lack of associations between English language use in depression and suicide attempts could indicate that English language use measures may not be related and perhaps other aspects of acculturation are better predictors. There are inconsistent findings documenting the association between acculturation and suicide attempts which could suggests a problem with measurement (Peña et al., 2008). When assessing acculturation and suicide attempts researchers may use English language use as the sole proxy of acculturation while others may include measures that include cultural values and attitudes (Lawton, Gerdes, & Kapke, 2018). Since researchers are measuring acculturation with different aspects of acculturation this could encumber the findings.

Limitations

Important limitations were present in this study. First, this study was a secondary data analyses and, as such, suicide attempts in Latinx populations was not the focus of the study. The primary focus was placed on health and access to health care. Suicide attempt information was gathered from one item in the survey. The inclusion of items asking about additional suicidal behavior could have provided additional information about the suicidality of Mexican-Americans from El Paso, TX. Furthermore, due to the length of the survey, entire scales were not included in the survey. Full scales of acculturation, familismo, and mental health were not included in the

survey. The inclusion of entire scales could have provided richer information about acculturation and familismo in residents of El Paso and additional information about their mental health.

Secondly, sampling in this study was female skewed, as is commonly found in survey research. In addition, the survey was conducted in person and could have inadvertently influenced the participant when answering sensitive questions. Stigma around mental health and health behaviors may have resulted in dishonest answers. Specifically, stigma around mental health could have resulted in fewer participants reporting a past suicide attempt and depressive symptomology. A third limitation is response burden. The survey was over 100 questions long and fatigue may have been a response burden that could have affected the quality of data. Another limitation involves generalizability of the study. Since the study was conducted from a homogenous location of individuals who are predominantly Mexican origin, findings may not generalize to other Latinx groups. A fourth limitation might include the question format as participants were asked to check all that apply. The suicide attempt answer choice was masked between the answer choices and could have been overlooked.

An important consideration for current study is that at the time of data collection there was a dramatic increase in violence in Ciudad Juarez. As previously mentioned, Ciudad Juarez is El Paso's neighboring city in Mexico. This increase in violence may have had an effect on current study as people were fleeing Ciudad Juarez for El Paso, TX. This emotional distress could have heightened mental health and may have influenced the responses for the sociocultural factors.

Conclusions and Future Directions

The present study did not fully corroborate previous research on suicide attempts in Latinx. However, a research study aimed at investigating suicidality in Latinx might further inform crucial mechanisms driving the high rates of suicide attempts in Latinx. This could help inform prevention and intervention treatments tailored for the Latinx community. Furthermore, a lower rate of suicide attempts was observed in El Paso and prior research has not examined suicide rates in cities located at the U.S.-Mexico border. Therefore, a study comparing suicide attempts in cities located at the

US-Mexico border to cities within the U.S. would be able to further investigate the ecological component of suicide attempts in Latinx.

Current political climate may have implications for future research. Social media posts have drawn attention to the continued verbal attacks against Latinx populations using the Spanish language. This could affect Latinx and their willingness to engage in Latinx culture. Specifically, research assessing the attitudes and beliefs relating to English language use might provide insight. If Latinx perceive unacceptance for using the Spanish language, this may deviate their use and affect their mental health. Furthermore, recent immigration enforcement has targeted Latinx communities. Specifically, there has been an increase in deportations affecting settled communities. Individuals with families who have lived in the U.S. for more than 10 years are being deported. This has the potential to affect family cohesion which has been associated with a decrease risk in suicide attempts. Future research should seek to investigate the repercussions of recent changes in political climate on mental health and suicidality. For example, a study could seek to understand indirect effects of dysfunction and family cohesion, ethnic pride, English language use, and suicide attempt.

As previously discussed, greater Spanish language use was associated with increased dysfunction. Family cohesion was associated with a decrease in dysfunction and dysfunction was associated with increased likelihood of attempting suicide. However, in order to examine indirect effects a cross-sectional design cannot be used. According to Maxwell & Cole (2007), mediation in cross-sectional designs provides results that would not be observed in longitudinal data. Therefore, a future study could be designing a longitudinal study to address the indirect effects of English language use. Given that research has shown that having pride in being Latinx and having strong family cohesion may decrease the risk of suicide attempts and promote better mental health, interventions promoting and building ethnic pride and family cohesion could prove beneficial to decreasing suicide attempts in Latinx and improving the mental health of Latinx in the U.S.

Table 5 Ethnic identity by suicide attempts, depression, and dysfunction

	Ethnic Identity 1 (*N* = 65)	Ethnic Identity 2 (*N* = 332)	Ethnic Identity 3 (*N* = 587)
Number of suicide attempts	3	12*	6*
Depression composite	11.65 (SD 4.614)*	9.87 (SD 3.616)	9.98 (SD 3.752)
Dysfunction composite	3.42 (SD 2.039)*	2.84 (SD 1.649)	2.90 (1.681)

Note. Ethnic Identity 1= no pride, little pride, somewhat pride. Ethnic Identity 2 = proud. Ethnic Identity 3 = very proud. Depression composite and Dysfunction composite are pooled means. SDs are averaged across imputed data. *p<.05

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Appendix A

Previously published articles from the HHRDC study

Studies published from the HHRDC data include studies on health in the border area of El Paso, TX. In 2012, Lapeyrouse et. al. (2012) published an article providing a demographic profile of Hispanics living in the El Paso-Juarez area. They provided information on trans-mobility (crossing the border to Juarez), and demographics like gender, age, and marital status. Another study examined barriers to health care and comorbidities (Dirk De Heer et al., 2013). In another study, researchers examined the associations between income, insurance status, acculturation, and preventative screening for health conditions (Salinas, de Heer, Lapeyrouse, Heyman, and Balcazar, 2015). A recent study was published that examined mammography screening in Latinas with and without health insurance (Lapeyrouse, Miranda, Morera, Heyman, & Balcazar, 2016). In 2016, Salinas, Heyman, and Brown (2016) published a paper examining the financial barriers in those with chronic conditions and mental health conditions depression and anxiety.

Vita

Giovanna Monique Perez received her Bachelor of Arts in Psychology with a minor in writing from Texas State University in San Marcos, Texas in 2014. During her undergraduate program she was a research assistant in Dr. Carmen Westerberg's Cognitive lab. This experience helped develop her interest in research. Her interest in research led her to pursue her Master of Arts in Experimental Psychology at the University of Texas at El Paso (UTEP). During her time in the program she focused on developing and refining her research skills. Specifically, learning advanced quantitative psychology skills and presenting research at national conferences. Giovanna held various positions at UTEP including a teaching assistantship and was a graduate research assistant with the A Smoke Free Paso del Norte grant. As a graduate research assistant she was responsible for the evaluation of the media campaign and helped in tobacco control community efforts. Next, Giovanna will pursue her Ph.D. in Counseling Psychology at New Mexico State University starting Fall 2018.

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