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Psychometric Developments of the ACE-IQ: Understanding the Trauma History of Latine Immigrants

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

By

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Dedication

For everyone who has reminded
me along the way that I have
“the strength, the patience, and the passion to reach for the stars.”
-Harriet Tubman

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When I was ten years old, I declared that I was going to get my Ph.D. It has taken a village to help me achieve this goal and there is no way I can thank everyone.

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Abstract

Psychometric Developments of the ACE-IQ: Understanding the Trauma History of Latine Immigrants

By Jorli Kristen Swingen, Ph.D.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2020.

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Adverse childhood experiences (ACEs) have a profound effect on an individual's physical and mental health. The World Health Organization has recently updated the ACE questionnaire so it could be used with international populations. The Adverse Childhood Experiences-International Questionnaire (ACE-IQ), has not been translated to Spanish or used with Latine immigrants.

This study translated the ACE-IQ into Spanish, evaluated the psychometric properties of the questionnaire, and collected data on 184 four adult English Language Learners in Chesterfield County, VA.

There is evidence of internal consistency for the ACE-IQ as a whole ($\alpha = .908$) and within subscales. Three factors were identified by a confirmatory factor analysis for the ACE-IQ (violence inside the home, violence outside the home, childhood maltreatment). Concurrent validity was demonstrated through the use of the BRFSS ($r^2 = .862$). Ninety-one percent of participants reported one or more adverse childhood experiences and 50.5% of participants reported experiencing four or more ACEs using the binary method of scoring. Higher ACE scores were associated with an increase in chronic health conditions and higher scores on mental health measures. The only

demographic factor to demonstrate statistical significance was population an individual immigrated from (rural versus urban). My findings suggest that the ACE-IQ is appropriate for use with Latine immigrants.

Keywords: Adverse Childhood Experiences, Childhood Trauma, Adverse Childhood Experiences-International Questionnaire, Mental Health, Reliability, Validity, Factorial Structure, Latine, Latino

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Chapter 1: Overview

Latines[1] are the second largest racial or ethnic group in the United States. Since 2000, they have been responsible for about half the nation's population growth (Flores, 2017). A quarter of the Latine population is under age 10. These Children are first- or second-generation immigrants (Marks, Ejesi & García, 2014). Adverse childhood experiences are understudied in the Latine population (Kaltman et al., 2011). This section briefly reviews mental health services for Latines, trauma theory, immigration data, and an introduction to the current study.

Background

Population Growth.

In 2016[2], there were nearly 58 million Latines in the United States, which accounted for 17.6% of the United States population (Flores, 2017). Of the 732,000 Latines living in Virginia in 2014, 46% of them were foreign born (Demographic and Economic Profiles of Latines by State and County, 2014; Pew Research Center, 2016). In the United States as a whole, 18.9% of immigrants have children enrolled in public schools, while 4.9% of immigrants to the United States are attending public schools (US Census Bureau, 2018). In the state of Virginia, 5.7% of public-school students are either immigrants or children of immigrants to the United States (VDOE, 2019).

According to the U.S. Census, in July of 2017, Latines made up 6.7% of the Richmond, Virginia population. The University of Virginia Demographic Research Group (2017) projects the Latine population in Richmond, VA, will increase to 12.7% by 2020.

[1] Please see Definition of Terms section for more information regarding the term Latines.
[2] Data from 2015 is the most current population data for this Latine immigrants

By 2040 the Latine population is expected to account for one third of Richmond's population. In 2016, 21.7% of public-school students in the Richmond metro area were immigrants to the United States (Camarota, Griffith, & Zeigler, 2017). In Chesterfield County, VA, a suburb of Richmond and the site of this study, the Latine population has increased by 234% since 2000. Latines now account for 8% of the county's population (Chesterfield County Planning Department, 2018).

Origin of Immigrants

The majority of Latine immigrants in the United States are of Mexican origin (Flores, 2017; Zong & Batalova, 2018; Zong, Batalova, & Burrows, 2019). In 2016, Mexican immigrants accounted for 26% of the immigrants to the United States, making them the largest foreign-born group in the country (Zong, Batalova, & Burrows, 2019). Since 2000, there has been an increase in immigration to the United States from Columbia (Zong et al., 2019) and from the Northern Triangle, which includes the countries of El Salvador, Guatemala, and Honduras (Cohn, Passel, Gonzalez-Barrera, 2017; Zong et al., 2019). This has created a more diverse Latine population with changing needs. Much of the research on Latine immigrants fails to recognize the significant intra-group variability that exists within the Latine population (Kouyoumdijan, 2003; Rogers, 2016).

In December of 2016, the Columbian government ended a 52-year civil war by signing a peace treaty with the paramilitary group "Fuerzas Armadas Revolucionarias de Colombia" (FARC). This war was the longest running conflict in the Western Hemisphere (Carvajal, 2017). During the civil war more than 220,000 people were killed, and 7.6 million people were displaced. This makes Columbia the country with the

most internally displaced persons in the world (Carvajal, 2017). In the United States, Columbian immigrants are the seventh largest population (1,100,000 individuals) of Latine origin (Lopez, 2015). Lopez goes on to state that Columbian immigrants tend to be older than the average Latine immigrant (34 years old versus 28 years old). In addition, he reported that the average Colombian immigrant tends to have a higher educational attainment level than both the average Latine immigrant and members of the general population in the United States, with 33% of Columbian immigrants over the age of 25 having achieved a bachelor's degree.

Between 2007-2015, immigration from the Northern Triangle rose 25% (Cohn, Passel, Gonzalez-Barrera, 2017). In 2014, 60,000 immigrants from the Northern Triangle entered the United States (Cohn et al., 2017). The three countries that make up the Northern Triangle all fall within the top five most violent countries in Central and South America (InSight Crime, 2017), with immigrants attributing murder, frequent kidnapping, armed robbery, gang violence, and political violence as reasons for leaving their home country (Kaltman et al., 2011).

Immigration to the United States

Many immigrants face dangerous immigration journeys and uncertainty about their immigration status when they arrive in the United States. An estimated 55% of immigrants from the Northern Triangle are undocumented. In contrast only 25% of immigrants from all other countries are estimated to be undocumented (Cohn et al., 2017). Undocumented immigrants tend to experience higher levels of trauma both pre-migration and during their trip to the United States (Garcini et al., 2017). This is especially true for those coming from Central American countries outside of Mexico.

These immigrants typically have prolonged journeys that can last weeks to months, and during their trip they are often exposed to and/or experience rape, murder, kidnappings, and other forms of violence (Kaltman et al., 2011).

According to the U.S. Customs and Border Protection Agency, almost as many unaccompanied minors have been detained as individuals traveling as a family unit (2017). Unaccompanied minors are children who are immigrating without a parent or guardian (Meyer, Margesson, Ribando Seelke, Taft-Morales, 2016). In 2014, 52,000 unaccompanied minors were detained at the United States border (U.S. Customs and Border Protection Agency, 2017). Once unaccompanied minors are released by the U.S. Customs and Boarder Protection Agency, these children are required to be enrolled in school.

Definition of Terms

Most individuals of Latine American decent prefer to identify themselves based on their country of origin (Gonzalez, 1992; Austin & Johnson, 2012; Taylor, Lopez, Martinez & Velasco, 2012). When immigrants enter the United States, they are forced to label themselves by race and ethnicity. Many terms have been used to define this population. A major complaint about the terms used to identify individuals of Latin American descent living in the United States is that it strives to create a homogenous group where one does not exist. This “strip[s] people of their historical identity and reduc[es] them to the imputed common traits” (Oboler, 2011, p. 9). Understanding the terms used and their connotations is important for understanding the immigration experience in the United States.

In this section, I am going to examine those terms and identify the terms that I will use in this study.

Immigrant

The terms “foreign born,” “alien,” and “immigrant” are used to describe individuals living in a country where they were not born with citizenship (Zong, Batalova, & Hallock, 2019). For this study I will use the term immigrant.

Latines

Prior to the 1970s most individuals of Latin American descent living in the United States identified themselves by their nationality and the region where they lived (Alcoff, 2005). Activist groups representing these individuals, such as La Raza, wanted a way to easily identify this group on the U.S. Census. The U.S. Census Bureau considered using the term “Spanish Speaking” or “Spanish Surname,” but felt this would exclude too many people (Gonzalez, 1992).

Hispanic

After consulting with the King of Spain, the term Hispanic was settled upon. Hispanic was derived from “hispanoamericanos” or persons from the former colonies of Spain in the “New World” (Oquendo, 2011). Hispanic is used to identify people “whose ancestry is predominantly from one or more Spanish-speaking country” (Oboler, 2011 p. 8). In this case, individuals of Spanish descent would qualify while Brazilians and Haitians would not.

Latino/a

Latino/a is often mistakenly used interchangeably with Hispanic. Latino refers to the geographic region a person is descended from, rather than the language (Pittman,

2015) and is short for “latinoamericano”. This term refers to anyone from a country in the Americas that was colonized by countries whose languages were derived from Latin (Portugal, Spain, and France). In this case, Brazilians and Haitians would be included while individuals from Spain would be excluded (Gonzalez, 1992).

Hispanic vs Latino

As Alcoff points out in his essay, the debate about Hispanic and Latino goes beyond the background definitions of these terms (2017). Both terms make implications about one’s socio economic status, political leanings, and acculturation. He states that Hispanic is more associated with the political right and is the term more accepted by Anglos. Sandra Cisneros in an interview with Daivd Gonzalez stated that “to say Hispanics means you’re so colonized you don’t even know yourself…someone who named you never bothered to ask what you call yourself” (1992). As Ángel Oquendo suggests in her essay for *The Latino Condition*, Hispanic is associated with Spanish colonial power (2011).

LatinX

In Spanish, most nouns are gendered and can be identified by their ending (Merodeadora, 2017). Words ending in “–o” or “–os” are considered masculine, while any word ending in “–a” or “–as” is considered feminine. If the group is of mixed gender, or a generalization is being made, the masculine ending is always used (Ramirez & Blay, 2016). For this reason, Spanish speakers have begun looking for ways to indicate a group that encompasses both males and females. Latino/a or Latin@ (pronounced Latino/Latina) has been used for this purpose. However, it excluded those who do not conform to the male-female gender binary (Padilla, 2016).

LatinX (lah-teen-ex) first began to emerge within chatrooms in 2004. In 2015, Google searches for the term began to increase as LatinX became a widely used identifier both on social media and in scholarly work (Ramirez & Blay, 2016). As María Scharró Del Rio observes, LatinX is used to "disrupt the traditional gender binary and acknowledge the vast spectrum of gender and sexual identities" (Scharro Del Rio & Aja, 2015, para. 2). However, LatinX is "not the perfect identifying term, so it shouldn't be treated as the answer in the ongoing quest to develop a cohesive postcolonial identity" (Padilla, 2016, Life after LatinX para. 4).

One of the drawbacks to LatinX is that inserting an "X" into gendered nouns is does not create a natural Spanish sound, in other words, LatinX "doesn't roll off the tongue when you're speaking Spanish" (Ramirez & Blay, 2016), Why not everyone is on board para. 5). The term can make a spoken sentence almost incomprehensible (Reichard, 2017). LatinX also illuminates a disconnect between young English speakers of Latin American descent and the rest of Latin America (Reichard, 2017). As one native Spanish speaker posted on the internet "they are putting a distinctively American… elite college institutions viewpoint into a language without appreciation or reverence for it" (Reichard, 2017, p. 2).

Latines

Another option for a genderless noun is Latines (Lah-ti-ness) (Reichard, 2017; Merodeadora, 2017). In Spanish, "-e" is already considered a gender-neutral ending. It has become popular in Spanish and is beginning to spread through some Latin American circles (Merodeadora, 2017). The term Latines returns to the Spanish

language for an identifier and “accentuates the bond between the … community and the Spanish language” (Oquendo 2011 p. 37).

Undocumented

The politically charged terms, “unauthorized,” “undocumented,” or “illegal” are used to describe a foreign-born non-citizen who is not legally within the country (Colford, 2013). These are individuals who entered the United States without passing through customs, or immigrants who stayed past their leave date (Hoefer, Rytina, & Baker, 2008).

In 2013, the Applied Research Center, now rebranded as Race Forward: The Center for Racial Justice Innovation, stated that calling someone an “illegal” dehumanizes the individual and creates an environment with racial tensions. A person cannot be illegal; only their actions can be illegal (Nowrasteh, 2017). On the other hand, the Federation for American Immigration Reform, the Heritage Foundation, and other anti-immigration organizations assert that while the term “undocumented immigrant” is politically correct, it does not present a strict enough stance against individuals who have “snuck into the country or chosen to violate their terms of legal entry” (Federation for American Immigration Reform, 2009, para. 2).

On April 2, 2013, the Associated Press (AP) changed their stylebook to support the use of “undocumented immigrant” rather than “illegal alien” or “illegal immigrant” (Colford, 2013). This change recognized that while “illegal” was the “more precise wording,” the AP was uncomfortable with using the term “illegal” to describe a person rather than their actions (Colford, 2013).

For this study, the terms undocumented and Latine will be used. When possible, a participant will be identified by country of origin rather than the homogeneous title Latine.

Theoretical Framework

Adverse Childhood Experiences

Trauma is defined as “any event, usually a non-ordinary one, that harms the body, self, or spirit” (Whitfield, 1998, p. 361). Early experiences of “physical, sexual, or psychological abuse, neglect, or living in a dysfunctional household prior to 18” (Llabre et al., 2017, p. 172) are referred to as adverse childhood experiences (ACEs). ACEs have a profound effect upon individuals later in life. They have been linked to an increased risk for chronic health conditions, low life potential, risky health behaviors, and early death (Jones, Merrick, & Houry, 2020). Abuse and other traumatic events associated with ACEs have been shown to impact how a child sees the world and forms interpersonal relationships (Allem, Soto, Baezconde-Garbanati, & Unger, 2015). ACEs have been linked to an immediate negative impact on the brain (Merz & Noble, 2017) and have been linked to developmental difficulties and functional changes in the developing brain.

Immigration Paradox

The “immigration paradox” is a body of research that has found that recent immigrants to the United States often outperform more established immigrants and non-immigrants specifically in the areas of mental and physical health (Teruya & Bazargen-Hejazi, 2013). Typically, individuals with lower socio-economic status, including minorities, are found to experience more adverse health outcomes (Urquia, O’Campo &

Heaman, 2012; Cristini, et al., 2015; Marks, Ejesi, & García, 2014). However, despite having lower socio-economic status, lower income, and greater barriers to accessing health care, immigrants to the United States exhibit better health outcomes than native born individuals (Urquia et al., 2012; Cristini, et al., 2015; Marks, Ejesi & García, 2014). This "immigration paradox" has also been observed in adverse childhood experiences (Salas-Wright, Vaughn, Schwartz & Córdova, 2016).

Alegria et al. (2006) used data from the National Epidemiologic Survey on Alcohol and Related Conditions to look at ethnic subgroups within the Latine grouping and found that differences existed in the rates of psychiatric disorders reported by ethnic groups that is hidden when the group is examined as a whole. Researchers have suggested that the intrinsic selection process of immigration results in the majority of immigrants being motivated and ambitious (Tapia, 2010). In addition, the theory of cultural armamentarium hypothesis that when individuals immigrate, they bring with them their cultural practices which provides the immigrate with a social network and creates a "herd immunity" from the hardships of immigration (Charles, 2006).

Validity Theory in Educational Measurement

Validity theories in education are primarily designed to "evaluate intended interpretations" (Moss, Girard & Haniford, 2006 p. 112). They have been grounded in the viewpoint that the social sciences should replicate the natural sciences (Moss et al., 2006). This view holds that validity should generate generalizable explanations or predictions of how well "a test does the job it is employed to do" (Cureton, 1950 p. 621). In 2006, Michael Kane, wrote that validity was "the extent to which the evidence supports or refutes the proposed interpretations and uses" (p. 23). In psychology,

validity has become linked to psychometrics and indicates correspondence between test results and external criteria (Kvale, 1995). An interpretive approach uses hermeneutics and sociocultural studies to understand “social phenomena differs from natural phenomena because they are meaningful to the actors involved” (Moss et al., 2006 p. 112). This conceptualization of validity looks to integrate multiple types of evidence, is dynamic in nature, and allows the researcher to look at the actual consequences of their interpretations (Moss et al., 2006).

Summary of Problem

There is a lack of culturally and linguistically appropriate mental health and health services available for Latines in the United States (Fuentes & Aranda, 2012; Alegria et al., 2007; Alegria et al., 2008; Ramos-Sanchez & Atkinson, 2009). Foreign-born Latines who report speaking mainly Spanish access significantly fewer mental health services than both Caucasian and African American individuals (Alegria et al., 2007; Hatzenbuelher, 2017). When Spanish-speaking individuals do access mental health services, they report negative treatment experiences due to communication barriers and cultural incompatibility (Fuentes & Aranda, 2012; Hatzenbuelher, 2017). Most Latine individuals who do seek counseling, stop attending sessions after two to three sessions (Rosner, 2018). The majority of Latines who access mental health care report they primarily receive mental health care from school support personal (Rosner, 2018), making public schools an important resource for Latine families.

The World Health Organization (WHO) has recently updated the Adverse Childhood Experiences (ACE) questionnaire to create a version that can be used with international populations. This new questionnaire is the Adverse Childhood

Experiences-International Questionnaire (ACE-IQ). Currently the ACE-IQ is in the development stage. The questionnaire's reliability and validity with Spanish-speaking populations has not been determined with respect to the psychometric properties of validity and reliability.

Statement of Problem

The United States has seen a recent increase in Latine immigrants who are coming from violent countries and have likely experienced adverse childhood experiences (ACEs). Individuals who experience ACEs need access to interventions that prevent physical, developmental, educational, and psychological harm. Most Latine immigrants do not have access to these mental health resources outside of public schools.

There is no way for mental health professionals to assess for ACEs in the Latine immigrant population. In addition, since mental health professionals are unable to asses for adverse childhood experiences, the affects is unknown. The lack of assessment tools and understanding of the specific traumas also prevents the identification and treatment of AEs. This lack of information limits the resources available to the Latine immigrant community.

The primary instrument to document trauma is the ACE Questionnaire. However, this instrument is not culturally or linguistically appropriate for the Latine population. A more appropriate version of the ACE Questionnaire has been developed but has not been validated with the Latine immigrant population.

Purpose

This study will have two goals. The first goals will be to gather information about the trauma history of the Latine population. The second goal is to develop a psychometrically appropriate version of the ACE-IQ.

Methodology

This study will take place in an adult English Language Learner (ELL) program in Chesterfield County, VA. This program serves about 600 individuals. The ACE-IQ was translated into Spanish and then back-translated to English with additional modifications for cultural adaptability. The translation was verified by a focus group of Spanish speaking mental health specialists. Finally, a pilot study was conducted with the translated version of the ACE-IQ.

Content validity was assessed through a review of the World Health Organization's content validity section for the ACE-IQ. Concurrent validity was checked by comparing the prevalence of health behaviors and chronic diseases with the ACE score the participant received. Construct validity was determined through a confirmatory factor analysis. The Cronbach's alpha was used to determine reliability.

Research Questions

The following questions will guide this study:

1. To what extent is there evidence supporting the concurrent validity of the ACE-IQ?
2. To what extent is there evidence supporting construct validity of the ACE-IQ?
3. To what extent is there evidence of internal consistency for the ACE-IQ?
4. What is the trauma history for Latine immigrants?

5. Is there a relationship between demographic factor and trauma history for Latine immigrants?
6. Is there a relationship between health factors and trauma history for Latine immigrants?
7. What is the impact of the five additional questions upon the ACE-IQ?

Chapter 2: Literature Review

Methodology of Literature Review

A systematic literature review was conducted across multiple databases related to three areas: trauma, the Adverse Childhood Experience (ACE) Questionnaire, and the Adverse Childhood Experience-International Questionnaire (ACE-IQ) was conducted. The following databases were used: Google Scholar, ERIC, PubMed, PsycInfo, the ProQuest Dissertations and Theses Database, and Embase. The following keywords and phrases were used: psychological trauma, Latino (LatinX, Hispanic, Latine) and trauma, immigrants and trauma, childhood maltreatment, neglect, abuse, Adverse Childhood Experiences, Adverse Childhood Experiences Questionnaire, Adverse Childhood Experiences & Measurement, Adverse Childhood Experiences-International Questionnaire, and ACE-IQ. In addition, the tables of contents for related articles were reviewed in the following journals: *Journal of Aggression, Maltreatment, & Trauma; Child Abuse & Neglect: The International Journal;* and the *Journal of Childhood Maltreatment.*

Trauma and Adverse Childhood Experiences

The life-course perspective in sociology suggests that certain life events can serve as important turning points that can modify a person's life trajectory (Elder, Johnson, & Crosnoe, 2003). The impact of a life event on an individual's expected life trajectory depends on the nature of the event, how the event is defined, and how the person adapts to the event (Elder et al., 2003). Trauma can be identified as one such event.

According to the International Society for Traumatic Stress Studies, trauma is a negative experience that is "emotionally painful and overwhelms a person's ability to cope" (2018). Dr. John P. Wilson, a psychology professor at Cleveland State University, expands this definition by adding that trauma is universal in nature and contains specific stressors that tax an individual's coping resources. Specifically, trauma challenges a person's personality dynamics (personal identity, resilience, ego strength, and self-concept) and interferes with the individual's capacity for normal developmental growth (Wilson, Friedman, & Lindy 2007). Wilson points out that trauma is also universal. Anyone can experience trauma, regardless of age, socio economic status, educational background, or country of origin. Wilson further states that trauma overwhelms a person's ability to cope, challenges self-identity, and changes a person's physical and/or mental development. He goes on to explain that the results of trauma can include both physical and psychological injuries. Psychological injuries, which he labels as posttraumatic adaptations, are also known as traumatic stress. Traumatic stress might be observed as posttraumatic stress disorder (PTSD), mood disorders, anxiety disorders, dissociative phenomena, and substance use disorders (2007).

Adverse childhood experiences (ACEs) are some of the most intense and/or commonly occurring traumatic events experienced by an individual prior to the age of 18 (Tran, Dunne, Vo, & Luu, 2015). They are "potentially traumatic events that can have negative, lasting effects on health and well-being" (Sacks, Murphy, & Moore, 2014, p. 1). The World Health Organization (WHO) defines adverse childhood experiences as a broad set of negative childhood experiences that include abuse (emotional, physical, or sexual); neglect (emotional or physical); serious household dysfunction (e.g. witnessing

domestic violence, household member drug use, and parental separation and incarceration); and peer, community, and collective violence (World Health Organization, 2016). The Centers for Disease Control and Prevention (CDC) states ACEs must be a situation where the child has no control over the situation but must simply endure it (2009).

Effects of Adverse Childhood Experiences

Childhood trauma can have long-term effects on an individual. ACEs have been shown to place an individual at higher risk for negative health outcomes in adulthood (Arias, 2004; Dube et al., 2005). The American Psychiatric Association (APA) states that "directly experiencing trauma, witnessing a traumatic stressor, learning about traumatic events, or exposure to adverse details can lead to enduring, debilitating conditions" (Brunzell, Waters, & Stokes, 2015 p. 3). The more adverse childhood experiences an individual had, the more likely that individual was to develop heart disease, cancer, chronic lung disease, liver disease, and obesity among other negative health conditions (Baglivio, Wolff, Epps, & Nelson, 2015). In addition, he noted an increase in health risk-taking behaviors such as problematic drinking, smoking, and multiple sexual partners.

ACEs have also been associated with an increased risk for depression (Chapman, Whitfield, Felitti, Dube, Edwards, & Anda, 2004), disruptive behavior disorders (Ford et al., 2002), and alcohol and drug use disorders (Dube et al., 2002). Neurodevelopmental research has shown a relationship between ACEs and changes in brain function and development (Perry, Pollard, Blakley, Baker, & Vigilante, 1995; Anda et al., 2006).

An analysis of the Fragile Families and Child Wellbeing Study, which consists of about 5000 children born between 1998 and 2000 across twenty large cities in the United States, looked at the 1007 children enrolled in Kindergarten (Jimenez, Wade, Lin, Morrow, & Reichman, 2016). Students who had more than three ACEs had poor emergent literacy skills, and displayed below-average language, literacy, and math skills, as well as attention problems, social problems, and aggression at statistically significant levels. While there were associations with an ACE score of two, these were not statistically significant. Another study found that individuals who had experienced three ACEs were 1.53 times as likely to not graduate high school ($p<.05$) and 2.4 times as likely to be unemployed ($p<.001$), while individuals with four ACEs were 2.34 times more likely to not graduate high school ($p<.001$) and 1.6 times more likely to live in a household reporting poverty ($p < .05$) (Metzler et al., 2017).

Generational Trauma

Generational trauma is a secondary form of trauma that occurs when traumatic experiences are transferred from parents to children. It is also known as intergenerational trauma, transgenerational trauma, and secondary trauma. Four pathways for transmission of generational trauma have been observed. Pathway one occurs when the child identifies with their parent's suffering at similar stages of development. The second pathway begins is when the child assumes responsibility for compensating for their parent's suffering. The third pathway involves a change in parenting patterns that is demonstrated by survivors. The fourth pathway includes communication styles regarding the traumatic experiences the parent has survived (Doucet & Rovers, 2010). Though the child has not "directly experienced the original

trauma, but has acquired a similar, though less intense, reaction in comparison to the primary victim" (Motta, Joseph, Rose, Suozzi, & Leiderman, 1997, p 896).

Adverse Childhood Experiences Among Latine Immigrants

There are limited empirical findings regarding trauma exposure in Latine immigrants, with the majority of the tools used lacking cultural sensitivity (Flores & Salazar, 2017). However, it is suggested that there is a high level of risk for this population (Flores & Salazar, 2017). A study of Latine immigrant adults living in Los Angeles, CA, reported 54% of the participants had been exposed to political violence in their countries of origin (Eisenman, Gelberg, Liu & Shapiro, 2003).

Childhood Maltreatment Study

A study published in 2012 looked at exposure to childhood maltreatment among Latine women (Warner, Alegria, & Canino, 2012). The study found that 28% of Latine immigrant women reported childhood maltreatment compared to 37.8% of Latines born in the United States. Physical abuse was the only category where Latine immigrant women reported higher exposure than women born in the United States (13% vs 6.7%). The study found that Latine immigrant women from Mexico were more likely to report childhood maltreatment. This study broke the foreign-born participants down into four categories, Mexican, Puerto Rican, Cuban, and Other Hispanic.

Experience of ACEs

A large study found that 26.3% of foreign-born Latines report having experienced four or more adverse childhood experiences, which was about ten percent fewer than Latines born in the United States (Llabre et al., 2017). This study found that the associations of adverse childhood experiences with disease were weaker than

expected, however strong associations were observed with depressive symptoms and alcohol use.

Epidemiological Studies

While studies about the country of origin are not representative of the immigrant population in the United States, it does give an idea as to what is occurring within the country. Epidemiological studies conducted in Mexico have estimated a lifetime prevalence of exposure to violence at 34%. This included physical assault, sexual assault, or being threatened with a weapon (Baker et al., 2005). Another study found that 20% of sexually experienced girls between the ages of 12 and 15 reported having been forced to have sexual intercourse while living in El Salvador (Speizer, Goodwin, Whittle, Clyde, & Rogers, 2006). Worldwide, between 1980 and 2008, it is estimated that 18% of girls and 7.6% of boys had been sexually abused (Stoltenborgh, Van Ijzendoorn, Euser, & Bakermans-Kraneburg, 2011).

Higher rates of childhood abuse and neglect are typically reported in less developed countries (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). Based upon a meta-analysis, the lower the Gross Domestic Product (GDP) per capita the higher the risk for childhood physical neglect (Viola et al., 2016). The study conducted by Krug did not include any countries Central America, South America, or the Caribbean. Viola did not include any countries from Central America or the Caribbean, however she did include South America through the use of data from Brazil.

Parental Separation

Children are frequently left behind in the care of another family member when parents immigrate to another country. A study in 2002, found that 96% of Central

American youth and 85% of Mexican youth had been separated from their families due to a parent's immigration to the United States (Suarez-Orozco, Todorca & Louie, 2002). The length of separation varied. Seventy-seven percent of Mexican children reported separations lasting less than two years however, 49% of Central American children reported separations lasting five years or longer. Youth separated from their parents reported feelings of ambivalence about reunification with parents after extended separations (Suarez-Orozco, Todorca, & Louis, 2002).

Measurement of Adverse Childhood Experiences

The Adverse Childhood Experience Questionnaire (ACE) and the Childhood Trauma Questionnaire (CTQ) are widely used to assess an adult's trauma history (Schmidt, Narayan, Atzl, Rivera, & Liebeman, 2018). In a study conducted with pregnant women, Schimidt compared the five-question version of the ACE Questionnaire with the 28-question CTQ. The comparison revealed that there was convergent validity between the two scales ($r=.73, p<.01$), however the ACE scale demonstrated less sensitivity for both emotional and physical neglect when compared to the CTQ.

Both questionnaires ask adults to engage in a retroactive recall about experiences related to emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Schmidt et al., 2018). Participants tend to take longer to respond to the CTQ due to the length of the questionnaire (Schimidt et al., 2018). The ACE Questionnaire asks about family dysfunction and collective violence (Felitti et al., 1998), which are not included in the CTQ. Both the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) include family dysfunctions

in their definition of childhood trauma and adverse childhood experiences (World Health Organization, 2016; Centers for Disease Control and Prevention, 2009). Due to the inclusion of family dysfunctions and collective violence I have chosen to focus on the Adverse Childhood Experience Questionnaire rather than the Childhood Trauma Questionnaire for this study.

Retroactive Recall

The Adverse Childhood Experience (ACE) Questionnaire depends upon the respondent retroactively recalling things that happened during their childhood. Retroactive recall is a widely used, especially in psychology (Hardt, Vellaisamy, Schoon, 2010). Retroactive recall studies have three advantages over longitudinal studies. The first advantage is the low cost of the study. The second advantage is the amount of time required unlike longitudinal studies, the researcher does not need to wait for participants to grow up (Hardt & Rutter, 2004). The third advantage is that children might be afraid to share information about ongoing abuse or neglect with a researcher (Hardt et al., 2010).

Concerns About Retroactive Recall

Several researchers have raised concerns about the use of retroactive recall. The first concern is that memory is faulty and subjective. How well an event is remembered can be impacted by subsequent events, such as when a memory is continually spoken about or shared (Brewin, Andrews, Gotlib, Steinberg, 1993; Hardt & Rutter, 2004). Also, memories are not exact copies of an event, but rather reconstructions based on the individual's experience and schemas, or the cognitive framework of the individual (Brewin, Andrews, Gotlib, Steinberg, 1993). However,

memories are not typically fabricated (Brewin et al., 1993). There is a fundamental integrity to retroactive recalls because reconstruction errors tend to be minor while the broad outline of the event is reasonably free from error (Brewin et al., 1993).

The second concern about retroactive recall is that what an individual remembers might be influenced by the person's current mood (Brewin et al., 1993; Hardt & Rutter, 2004). A study conducted with 284 individuals who were given both the ACE and a depression scale three months apart, found that the test-retest reliability was very high ($r=.91$, $p<.001$), and that changes in depression did not predict a change in reported ACEs (Frampton, Poole, Dobson, Push, 2018). While depressed people have been shown to take longer to recall positive memories, studies have shown that individuals who are depressed recall an equal number of positive and negative memories (Isen, Shalker, Cllark, & Carp, 1978). In other words, being depressed has no effect on the number of negative memories recalled (Isen et al., 1978). Brewin and his colleagues postulate that an individual with depression might give more accurate accounts of adverse childhood experiences than non-depressed individuals (1993).

Studies on Retroactive Recall

In studies looking at reports of sexual abuse in individuals with a confirmed history of sexual or physical abuse, about two-thirds of female respondents retroactively reported the abuse (Banyard & Williams, 1996; Hardt & Rutter, 20014; Widom & Morris, 1997; Williams, 1995). Males tended to report retroactive abuse at a much lower rate than females (Widom & Morris, 1997). Neglect appears to be retroactively reported at higher rates than abuse, with 80% of individuals with a confirmed history of neglect

retroactively reporting the neglect (Hardt & Rutter, 2004; Widom & Shepard, 1996; Widom & Morris, 1997).

About 30% of respondents who experienced abuse or neglect do not report the abuse or neglect on a retroactive report (Hardt & Rutter, 2004). Hardt and Ruttler propose that the bias to be concerned about is not false positives but rather "the denial of abuse by a substantial minority of the abused women and a majority of the abused men … mean[s] a false negative" (2004, p. 226).

The retroactive report of the adverse childhood experience is correlated with long-term health issues (Raphael, Widom and Lange, 2001; Widom & Morris, 1997). This could be due to a tendency for people with good functioning in their adult lives to forget early traumatic experiences (Maughan & Ruttler, 1997).

The fallibility of memory and effect of mood upon retroactive recall of childhood events are valid concerns, however the bias introduced by these issues appears to be much lower than believed by opponents of retroactive reports. Due to the ability to collect data about the childhood experiences of a large sample population at one time, I have chosen to use a retroactive recall measure, while acknowledging bias might be introduced due to the use of retroactive recall.

Original Adverse Childhood Experiences Questionnaire

In the early 1990s, Kaiser Permanente, a large health care provider in the United States, began seeing a pattern of childhood sexual abuse among patients enrolled in their obesity clinics (Boullier & Blair, 2018). Kaiser Permanente along with the Centers for Disease Control and Prevention (CDC) undertook an epidemiological study to "describe the long-term relationship of childhood experiences to important medical and

public health problems" (Felitti, 1998, p. 246). They were trying to determine if there was a common origin or "root" of wide-spread negative health behaviors to prevent individuals from developing these diseases in the future.

Development of the Questionnaire

In order to conduct this survey, the Kaiser Permanente research team had to develop the questionnaire they mailed to patients. To develop their questionnaire, they borrowed from previously constructed questionnaires (Felitti et al, 1998); see Table 1 for the scales that questions were pulled from. The researchers did not provide information about the reason these questions were selected, nor did they provide validity data upon completion of the study.

All questions were introduced with the phrase, "While you were growing up during your first 18 years of life…" in an effort to prompt respondents to only talk about instances that occurred during their first 18 years. The questionnaire used a cumulative stressor model to assess the relationship between the total number of ACEs and long-term health (Felitti et al., 1998).

The Kaiser-Permanente research team originally used seven categories of childhood abuse and household dysfunction for their analysis (Felitti et al., 1998). They had three categories under childhood abuse: psychological/ emotional abuse (2 questions), physical abuse (2 questions), and contact sexual abuse (4 questions). Household dysfunction during childhood was another category and was comprised of four subcategories. The four subcategories were: exposure to substance abuse (2 questions), mental illness (2 questions), violent treatment of mother or stepmother (4 questions), and criminal behavior (1 question).

Table 1

Creation of the ACE Survey

Construct	Scale Pulled From
Psychological Abuse during childhood	Conflicts Tactics Scale
Physical Abuse during childhood	Conflicts Tactics Scale
Violence against the respondent's mother	Conflicts Tactics Scale
Contact Sexual Abuse during childhood	Wyatt (adapted)
Exposure to Alcohol or Drug Abuse during childhood	1988 National Health Interview Survey (adapted)
Health-related behaviors/ health-related problems	Behavioral Risk Factor Surveys
Health-related behaviors/ health-related problems	Third National Health and Nutrition Examination Survey
Depression	Diagnostic Interview Schedule of the National Institute of Mental Health

The results of the first survey was used to modify the second survey. Neglect was added to the questionnaire (Boullier & Blair, 2018) and the four categories of trauma were specifically defined. In order to be defined as "exposed to a category" a respondent had to answer "yes" to one or more of the questions within the category (Felitti et al, 1998 p. 248).

Method of the Original Study

All 13,494 Kaiser Health Plan members who completed medical evaluations at the Health Appraisal Clinic in San Diego between August and November of 1995 (first group) and January through March of 1996 (second group) were mailed the Adverse Childhood Experience (ACE) Questionnaire within a week of visiting the health clinic. The study had an overall response rate of 70.5% or 9,508 individuals (Felitti et al, 1998). Eleven percent of the respondents were excluded for failing to answer one or more questions leaving 8,056 respondents. Of the patients surveyed, 52% of all respondents reported one or more ACE(s), while 6.2% reported 4 or more ACEs.

Results of the Original Study

Overall, the study found that the more ACEs an individual experienced, the higher the risk for (a) smoking, (b) severe obesity, (c) physical inactivity, (d) depressed mood, (e) alcoholism, (f) use of illicit drugs, (g) injection of illicit drugs, (h) greater than 50 sexual partners, (i) history of sexually transmitted diseases, and (j) suicide attempts (Felitti et al, 1998). Using regression models, the research team found a strong dose-response relationship between the number of childhood exposures and the risk factors for the leading causes of death ($p<.001$). They found a significant dose-response relationship between the number of childhood exposures and the following disease conditions ($p<.05$):

Issues with the ACE Questionnaire

There are two main issues with the original Adverse Childhood Experiences Questionnaire. The first issue is that the authors never provided information concerning the validity or reliability of the measure. Second, while the results of this study have

been used to draw conclusions for the entire population of the United States, the sample is not representative of the United States as a whole. In this study, 79.4% of the respondents were white (Felitti, 1998), yet in 1999, the US Census Bureau determined that white, non-Hispanics made up 72% of the general population (US Census Bureau, 1999). In addition, 43% of respondents had graduated from college (Felitti, 1998) however, in 1999, only 24% of the adult population had completed a bachelor's degree (US Census Bureau, 1999). Further demonstration of the sample's high academic achievement can be seen when looking at the completion of a high school degree. In this study, only 6% of respondents indicated they had not graduated from high school (Felitti, 1998), while nationally 20% of the population had not graduated from high school (US Census Bureau, 1999). As a result, the World Health Organization believes these findings cannot be generalized beyond middle-class or upper-class U.S. citizens (World Health Organization, 2009).

Behavioral Risk Factor Surveillance System

Starting in 2009, states began collecting data about adverse childhood experiences through the use of the Behavioral Risk Factor Surveillance System (BRFSS) (Ford et al., 2014). The BRFSS is an annual telephone-based survey sponsored by the Centers for Disease Control and Prevention (CDC), Division of Population Health (Wade, Beckr, Bevans, Ford, & Forrest, 2017). The BRFSS is the longest running and largest, state-based, random-digit dialed, health survey in the United States (Ford el al., 2014). Contained in the BRFSS is a shortened version of the original ACEs Questionnaire which measures an individual's exposure to eight types of childhood adversities including: abuse (sexual, physical, and emotional) and house hold

stressors (parental separation/divorce, incarceration of a family member, household substance abuse, domestic violence, and mental illness) as shown in Table 2. The 11-question BRFSS survey does not evaluate for physical neglect (Ford et al., 2014; Wade et al., 2017). The BRFSS reports that on average 38.5% of participants have not experienced an ACE, 23.5% have experienced 1 ACE, 13% have experienced 2 ACEs, 9% have experienced 3 ACEs and 16% have experienced four or more ACEs (Merrick, Ford, Pots, Guinn, 2018). Individuals who were Hispanic and had less than a high school education reported significantly higher exposures to ACEs.

In a study using the 2010 data for the BRFSS, the overall reliability was .78 (Ford e al., 2014). The individual subscales had a Cronbach's alpha of .61 for household dysfunction, .7 for emotional/ physical abuse, and .8 for sexual abuse. The BRFSS has adequate fit when using three factors (Ford et al., 2014). The three factors are household dysfunction, physical/ emotional abuse, and sexual abuse. These three domains also display moderate to high correlations with each other.

Table 2

ACE Categories Evaluated by the BRFSS Version of the ACE Questionnaire

Question	ACE	ACE Category
Did you live with anyone who was depressed, mentally ill, or suicidal	Household Dysfunction	Household mental illness
Did you live with anyone who was a problem drinker or alcoholic?	Household Dysfunction	Household alcohol abuse
Did you live with anyone who used illegal street drugs or who abused prescription medications?	Household Dysfunction	Household substance abuse

Question	ACE	ACE Category
Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?	Household Dysfunction	Incarcerated family member
Were your parents separated or divorced?	Household Dysfunction	Parental separation/divorce
How often did your parents or adults in your home ever slap, hit, kick, punch, or beat each other up?	Household Dysfunction	Household physical violence
How often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way?	Childhood Abuse	Physical abuse
How often did a parent or adult in your home ever swear at you, insult you, or put you down?	Childhood Abuse	Emotional abuse
How often did anyone at least 5 years older then you or an adult ever touch you sexually?	Childhood Abuse	Sexual abuse
How often did anyone at least 5 years older then you or an adult try to make you touch them sexually?	Childhood Abuse	Sexual abuse
How often did anyone at least 5 years older than you or an adult force you to have sex?	Childhood Abuse	Sexual abuse

A research team led by Dr. Derek Ford out of the CDC evaluated the psychometrics of the BRFSS Questionnaire using data collected in 2000 and 2010. An examination of fit showed adequate fit for the BRFSS version of the ACE Questionnaire (*RMSEA= 0.02, CFI= 0.99, TLI= 0.99).* There was a moderate to high correlation among

the three domains (Household Dysfunction, Physical/Emotional Abuse, and Sexual Abuse). The authors believed that this higher correlation might suggest an unaccounted for ACE factor (Ford et al., 2014). Model fit shows an adequate fit for the data (*RMSEA= 0.01; CFI = 0.997; TLI = 0.994)*. The BRFSS Questionnaire demonstrates internal reliability (*α=.78*). High reliability was observed in the domains of emotional abuse, physical abuse (*α=.70)* and sexual abuse (*α=.80)*. The authors felt the domain of household dysfunction showed an acceptable level of reliability *(α=.61)*. Equivalence across both age and gender was demonstrated (Ford et al., 2014).

Philadelphia Adverse Childhood Experience Questionnaire

Dr. Roy Wade, of the Children's Hospital of Philadelphia, led a study in the early 2000's to determine if the Adverse Childhood Experience (ACE) Questionnaire was adequately identifying trauma in an urban population (Wade, Shea, Rubin & Wood, 2014). His team conducted focus groups with young adults ages 18-26 who grew up in low-income neighborhoods located in Philadelphia, PA. Utilizing the Nominal Group Technique, they asked 17 focus groups to identify common adverse childhood experiences in their neighborhoods based on their own experiences and a list of childhood stressors. Once the focus group had a complete list, each participant was asked to write down the five experiences they considered to be the most stressful. The researchers then coded these responses and created domains. The top five domains reported by the 105 participants were 1) family relationships, 2) community stressors, 3) personal victimization (abuse and neglect), 4) economic hardship, and 5) peer relationships. Of these five domains, only two (family relationships and personal victimization) were included in the original ACE Questionnaire. In addition, the focus

groups cited single-parent homes as a stressor rather than divorce. The participants stated that “a large number of families began as single-parent homes… making divorce/separation irrelevant” (Wade et al., 2014 p. 17).

Results

Researchers then created an expanded ACE questionnaire, which included questions about racism, witnessing violence, living in an unsafe neighborhood, experiencing bullying, and having a history of living in foster care (Cronholm et al., 2015). The question about parental divorce was eliminated from the questionnaire. One thousand, seven hundred and eight-four respondents over the age of 18 completed the expanded ACE questionnaire. No conventional ACEs were reported by 31.7% of the respondents, 47.6% reported at least one ACE, and 20.7% reported four or more ACEs.

On the additional ACEs, 50% reported experiencing at least one expanded ACE, and 13.4% reported three or more ACEs. Overall, 49.3% of participants reported both a conventional ACE and an expanded ACE, 19.6% reported only conventional ACEs, and 13.9% of participants identified an expanded ACE but did not report a conventional ACE.

The Philadelphia ACE Questionnaire demonstrated a significant dose-response relationship with health risk behaviors and mental health concerns. However, the expanded ACEs were not as strongly associated with health risk behaviors and mental health concerns as the conventional ACEs (Wade et al., 2016).

Adverse Childhood Experience- International Questionnaire

The release of the original Adverse Childhood Experiences (ACEs) study has increased awareness both within the United States and internationally of the

consequences of child maltreatment and exposure to traumatic events (World Health Organization, 2009). The World Health Organization (WHO) and the United Nations have released reports examining the role childhood adversity and adverse childhood experiences play in long-term health risks.

The Global School-based Health Survey (GSHS) has been administered in about 50 countries worldwide and includes questions that ask about adversities experienced in the last year (World Health Organization, 2009), as opposed to during a respondent's entire childhood. In a study conducted in Africa, a significant dose-response relationship was observed between adversities and risk behaviors. Responses to the GSHS in China, Hong Kong SAR, Taiwan, Singapore, and Malaysia revealed significant health issues related to childhood adversities.

While these studies do not replicate the ACE study on an international scale, the results suggest the universality of adverse childhood experiences and their consequences (World Health Organization, 2009). The World Health Organization supports the conclusion that:

> ACEs are widely prevalent; highly interrelated; and intergenerational. They have a cumulative stressor (dose-response) effect; their effects are biologically plausible; they affect multiple domains of health and social function, and they are associated with comorbidity (trauma spectrum disorder) … consequently, ACEs themselves are the primary problem (World Health Organization, 2009 p. 5).

The WHO feels that the ACE Questionnaire should be adapted in order to capture data on the prevalence of ACEs on an international scale as well as the effects of ACEs on international populations. This adaptation would allow the ACE Questionnaire to reflect the range of adversities present in low-, middle-, and high-income countries. The WHO concluded that without this adaption, the results of the ACE Questionnaire would not be generalizable (World Health Organization, 2011).

Development of the ACE-IQ

In the early 2000s the World Health Organization (WHO) undertook the creation an international version of the ACE Questionnaire. They used the 11-question version of the ACE Questionnaire as the basis for the international questionnaire; while acknowledging that that these 11 questions might not be relevant in all international settings (World Health Organization, 2011; Anda, Butchart, Felitti & Brown, 2010). The research network also determined which additional categories of adversity needed to be included in the survey. To be included, a category had to meet five requirements:

- biologically relevant (i.e. produce a biological stress reaction),
- policy sensitive,
- prevalence in all societies, is neither too high nor too low,
- measurable quickly and easily,
- proximal with respect to causality.

After creating a list of 23 possible categories for inclusion, the research team determined that 13 categories fit their requirements. The research team then took these 13 categories back to their home institutions to critically reflect upon them and submitted feedback about the new categories. The Centers for Disease and Control

(CDC) along with the World Health Organization (WHO) began pulling questions from other questionnaires that addressed the new categories (World Health Organization, 2011).

Focus groups and field tests

Participants in the ACE research network conducted multiple focus groups with members of the general population. Participants were asked to explain what each question meant to them. Using the information from the focus groups, the CDC and WHO began compiling a core ACE Questionnaire that could be administered internationally.

Finally, the questionnaire was field-tested in China, the Former Yugoslav Republic of Macedonia, the Philippines, Thailand, Saudi Arabia, South Africa, and Vietnam. Most items were reported to be easily understood by respondents, but several questions were identified as having difficult phrasing/ content, and the draft questionnaire was determined to be too long (World Health Organization, 2011). Based upon the field test results, the questionnaire was modified and checked for internal validity, prior to making it available to the public (Almuneef, Qayad, Aleissa, Alburhairan, 2014). The final ACE-IQ is made up of 29 questions that evaluate for the three domains of childhood adversities: childhood maltreatment, family/ household dysfunction, and violence outside the home. All together these three domains account for 13 different categories of ACEs as shown in Table 3.

Table 3

ACE-IQ Domains and Categories

Domain	ACE Category	Number of Questions
Childhood Maltreatment	Emotional Neglect	2 items
	Physical Neglect	3 items
	Emotional Abuse	2 items
	Physical Abuse	2 items
	Sexual Abuse	4 items
Family/ Household Dysfunction	Living with Substance Abuser	1 item
	Living with household member who was mentally ill or suicidal	1 item
	Living with household member who was imprisoned	1 item
	Parental Separation	2 items
	Domestic Violence	3 items
Violence Outside the Home	Bullying	1 item
	Witnessed Community Violence	3 items
	Exposure to war/ collective violence	4 items

Current Studies Utilizing the ACE-IQ

I have conducted an in-depth examination of five studies. These studies, which were completed in Eastern Europe, China, Saudi Arabia, Vietnam, and Malawia, were

chosen because they had a large number of participants, a diverse population, or a specific focus on psychometric properties. Additional studies that have utilized the ACE-IQ can be seen in Table 4.

Table 4

Countries *Where the ACE-IQ Has Been Used in Research*

Country	Year Published	Population	Number of Participants
Albania	2014	Enrolled in secondary or higher education between the ages of 18-25	1437
Latvia	2014	Enrolled in secondary or higher education between the ages of 18-25	1223
Lithuania	2014	Enrolled in secondary or higher education between the ages of 18-25	1746
Montenegro	2014	Enrolled in secondary or higher education between the ages of 18-25	1565
Romania	2014	Enrolled in secondary or higher education between the ages of 18-25	2088
Russian Federation	2014	Enrolled in secondary or higher education between the ages of 18-25	1580
Former Yugoslav Republic of Macedonia	2014	Enrolled in secondary or higher education between the ages of 18-25	1277
Turkey	2014	Enrolled in secondary or higher education between the ages of 18-25	2257

Country	Year Published	Population	Number of Participants
Nigeria	2015	Prison inmates who were English literate	253
Vietnam	2015	Cross-sectional survey of students in years one, three, and five of a six-year medical curriculum	2099
Iraq	2015	Adults between the age of 18- 59 living in Baghdad City who visited select primary health care centers or attended select universities	1,000
Saudi Arabia	2016	Adults aged 18+	10,156
Korea	2017	College students who completed an on-line survey	939
Tunisia	2017	Young university adults	1200
South Africa	2018	Perinatal, HIV-infected female youth age 13-24	129
Lebanon	2018	18+ adults enrolled in outpatient substance use treatment program	144
Kenya	2018	18+ adults enrolled in inpatient treatment for substance use disorder	134
China	2019	Associate and Bachelor's degree students between 18-24	433
Malawi	2017	10-16-year-olds in Mchinji District	410

Eastern European Countries. The research team headed by Mark Bellis worked with health ministries in Albania, Latvia, Lithuania, Montenegro, Romania, the

Russian Federation, the Former Yugoslav Republic of Macedonia, and Turkey to administer the Adverse Childhood Experience-International Questionnaire (Bellis et al., 2014). The questionnaire was given to young adults between May 2010 and April 2013. Each country determined the study population, selected the ACE-IQ questions, and picked the study sites. The only two standardized requirements were enrollment in secondary or higher education and being between the ages of 18-25 years old. The total participants across all eight sites were 12,308 individuals.

In this study, 52.6% of participants reported one or more ACE(s) and 7.4% reported three or more ACEs. For this study, the individuals who reported at least four ACEs also reported an increase in health-harming behaviors, physical inactivity, or attempted suicide at statistically significant levels. Albania reported higher levels of ACEs than the other countries in the study. The higher level of ACEs in the Albanan study might be due to the demographic makeup of the Albanian population. In the Albanian study, 67.6% were female compared to the 59.7% average when all eight sites were combined. In addition, 41.9% of the participants of the total study were between the ages of 18-19 while only 21.8% of the Albanian participants fell in this age group (Bellis et al., 2014).

Saudi Arabia. In 2013, a cross-sectional study of adults aged 18 or older was conducted in Saudi Arabia (Almuneef et al., 2017). The study covered all Saudi administrative regions and surveyed 10,156 adults. Most individuals took a self-administered version of the ACE-IQ. Participants who were unable to read or write participated in face-to-face interviews. The population was determined to be a representative sample of the Saudi Arabian general population in terms of gender and

marital status. However, the sample population contained more individuals over the age of 40 and more individuals with a college education than the general population in Saudi Arabia.

This study found that the median number of ACEs reported was 2 (*M=2.6, SD=2.56*), with almost 80% of the sample experiencing at least one ACE and 39.4% reporting three or more ACEs (Almuneef et al., 2017). As the number of ACEs reported by participants increased, the risk of poor health also increased, confirming results obtained by other researchers about the dose-response relationship between ACEs and poor health (Almuneef et al., 2017).

China. This study was conducted with three goals in mind (Ho, Chan, Chien, Bressington, Karatzias, 2019). The first goal was to provide translation and content validation of the Chinese ACE-IQ. The second goal was to evaluate the psychometric properties of the Chinese ACE-IQ. The final goal was to investigate patterns of ACE exposure.

In order to conduct their study, the researchers had to translate and then back translate the ACE-IQ. The initial translation was conducted by a bilingual technical writer. The questionnaire was back translated by a bilingual study team member (Ho et al., 2019). Three other study team members who had relevant experience independently reviewed the translations and provided comments. To obtain content validity, an independent expert panel reviewed each question for the relevance to childhood adversities and appropriateness to Chinese culture and society. The research team determined that the questions about community violence were not pertinent to the population but should be left in to ensure the study could be compared with other similar

studies using different populations. After this process, the questionnaire was pilot tested to assess face validity, with a focus on clarity, understandability, and ease of answering the questions.

The target population for this study was college students working on their associate's and bachelor's degrees at two universities and affiliated community colleges (Ho et al., 2019). Participants were between the ages of 18 and 24. A total of 433 participants anonymously completed the questionnaire on-line. Thirty-two participants participated in a retest two to four weeks after they took the initial survey. Based on the retest, the instrument demonstrated overall test-retest reliability (*ICC*=0.90*)* with all three subscales showing test-retest reliability with an ICC range of .78 to .90. Nearly 75% of participants reported at least one ACE, while 31% reported three or more ACEs (Ho et al., 2019).

Vietnam. A cross-sectional survey of students in years one, three, and five of a six-year medical curriculum was conducted (Tran, Dunne, Vo, & Luu, 2015). Participants in the study were enrolled in one of three classes at eight different sites. Overall, the study had 2099 participants who completed the anonymous self-report ACE-IQ.

The researchers did not include questions about collective violence (exposure to war, collective violence, or maltreatment by the police or military) because these were "inappropriate for contemporary conditions for young people aged under 30 years in Vietnam" (Tran et al, 2015 p. 28). In addition, the researchers reported that they were advised not to include any questions about conflict with police or military due to the sensitive nature of these questions. The researchers also removed two questions about

emotional neglect because in-depth interviews revealed they did not have face validity in Vietnamese culture and language. They also eliminated the question asking if a participant had seriously considered attempting suicide in the last 12 months on the mental health companion scale (Tran et al, 2015).

Overall, 76.2% of participants reported one or more ACE(s), while 36% of participants reported three or more ACEs (Tran et al., 2015). The most commonly reported ACEs were emotional abuse, physical abuse, and witnessing a household member being treated violently. Statistical significance was found for all six health indicators, including mental health issues, subjective well-being, happiness, and physical health-related quality of life, demonstrating concurrent validity. (Tran et al., 2015).

Malawi. Malawi is a land-locked country in Southeast Africa and is a low-income country (Kidman, Smith, Piccolo & Kohler, 2019). In this study, 410 individuals and their primary caregiver were interviewed in their home using the ACE-IQ with an additional 21 questions about experiences related to HIV in the community and home and the Beck Depression Inventory (Kidman et al., 2019). This effort was part of the Malawi Longitudinal Study of Families and Health (MLSFH), which covers all three regions of Malawi and has been running for 20 years. In the Malawi study, 99% of respondents reported one or more ACE.

The participants all reported low access to basic household assets such as a metal roof or a bed with a mattress (Kidman et al., 2019). On average participants reported 6.2 ACEs, based upon the binary method of scoring, and 99% of participants reported experiencing at least one ACE. Thirty percent of participants reported

experiencing seven or more ACEs. There was a moderate correlation between the Beck Depression Inventory and the number of reported ACEs and a high agreement between siblings was observed (Kidman et al., 2019).

An exploratory factor analysis was run on the ACE-IQ that resulted in three identified factors (Kidman et al., 2019). The first factor was labeled “household dysfunction” and was comprised of a household member using drugs, a household member incarcerated, parental divorce or death, and collective violence. The second factor was “abuse” and was comprised of the questions asking about physical abuse, emotional abuse, and household violence. The final factor was “neglect” and contained the questions asking about physical neglect, emotional neglect, and bullying. Sexual abuse and a household member with a mental illness were not included in the factor analysis due to low reporting and inclusion causing factors to not clearly load (Kidman et al., 2019). Additionally, community violence was not included in the analysis due to a high rate of report.

The instrument used for this study was comprised of the ACE-IQ (36 questions), additional questions about experiences with HIV in the community and family (21 questions), and the Beck Depression Inventory (21 questions). In addition, all 78 questions were asked twice to assess for life-time prevalence and prevalence in the last 12 months. This means that each participant answered 156 questions.

This study was translated by a professional translator and then reviewed by the supervisor and interviewers during training (Kidman et al., 2019). The researcher did not report conducting a back translation or focus group, the two ideal methods for translating a measure to another language.

Critique of Studies Utilizing the ACE-IQ

There is a discrepancy between the rates of ACEs published by many of the current studies utilizing the ACE-IQ and the international norms published by the World Health Organization. The collective study conducted by the Eastern European health organizations, was used by the World Health Organization to set international norms for the prevalence of ACEs (World Health Organization, 2011). This study found that 52.6% of individuals reported one or more ACE(s) and 7.4% reported three or more ACEs (Bellis et al., 2014). These numbers closely match the original prevalence rate found by Kaiser Permanente and the Centers for Disease Control and Prevention in the original ACEs study (Felitti et al, 1998). However, the other four studies conducted using the ACE-IQ showed higher prevalence rates, with 75%-99% of participants reporting at least one ACE and 31%-39.4% of individuals reporting three or more ACEs. This could be due to issues in the sample population, differences across the countries, or changes to the questionnaire.

Three of the five studies reviewed used students enrolled in postsecondary education as their populations. Both the Saudi Arabian study and the Malawian study did not use college students. College students are a non-representative sample of the overall population of the countries where the questionnaire was administered, thereby limiting the generalizability of the studies.

Multiple studies eliminated questions from the ACE-IQ. The Vietnamese study removed questions about collective violence for sensitivity reasons. The ACE-IQ utilized in the Eastern European countries was not uniform across all study sites. This lack of uniformity makes it difficult to compare results.

Purpose

Trauma has a universal impact and effects an individual's mental and physical health and displays a significant dose-response relationship. In order to evaluate the trauma history of international populations, the World Health Organization created the Adverse Childhood Experiences-International Questionnaire (ACE-IQ). The ACE-IQ was published by the World Health Organization in 2011 and has limited use in countries in the eastern hemisphere. Table 4 provides an overview of the ACE-IQ studies that have been conducted.

The purpose of this study is to evaluate the reliability and validity of a Spanish version of the ACE-IQ when used with Latine immigrants to the United States. If the Spanish version of the ACE-IQ demonstrates reliability and validity, it will give individuals and organizations working with Spanish speaking immigrants a tool to evaluate trauma histories, which will provide insight into the types of traumas experienced by this population.

Research Questions

The following five questions will guide this study:

1. To what extent is there evidence supporting the concurrent validity of the ACE-IQ?
2. To what extent is there evidence supporting construct validity of the ACE-IQ?
3. To what extent is there evidence of internal consistency for the ACE-IQ?
4. What is the trauma history for Latine immigrants?

5. What differences are there by demographic factor for trauma history for Latine immigrants?
6. Is there a relationship between health factors and trauma history for Latine immigrants?
7. What is the impact of the five additional questions upon the ACE-IQ?

Chapter 3: Methodology

This study was designed to test the psychometric properties of the ACE-IQ and provide descriptive data on the trauma histories off the study population.

Research Questions

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1. To what extent is there evidence supporting the concurrent validity of the ACE-IQ?
2. To what extent is there evidence supporting construct validity of the ACE-IQ?
3. To what extent is there evidence of internal consistency for the ACE-IQ?
4. What is the trauma history for Latine immigrants?
5. Is there a relationship between demographic factor and trauma history for Latine immigrants?
6. Is there a relationship between health factors and trauma history for Latine immigrants?
7. What is the impact of the five additional questions upon the ACE-IQ?

Population and Sample

The target population is Latine immigrants 18 and older who live in Chesterfield County, VA. A convenience sample of students enrolled in an English Language Learner (ELL) program for adults located at two sites within Chesterfield County, VA was used. The first site has 150 enrolled students and operates during the day. The second site, which operates at night, has 350 students enrolled. Based on public school enrollment, the two sites are easily accessible to the immigrant community. Most of the students are of Latine origin; however, there are a few students from Africa, South

Korea and Asia. Students pay a small fee every semester to enroll in the program. They are sorted into classes based on their English-speaking ability. Classes range from pre-literate, indicating the inability to read or write in their native language, to Level Six, which indicates the ability to speak fluent English.

Due to the use of a non-probability sample, results of this study will not representative for the wider population (Cohen, Manion, Morrison, 2000 p. 94). According to the textbook, *Research Methods in Education*, the sample size for a population of 500, is 217 participants, which results in a 95% confidence level. For a functional analysis the recommendation is 5-20 cases per parameter (Schumacker & Lomax, 1996).

Recruitment of Participants

Historical Difficulty in Recruitment.

A study conducted in Miami with Latine immigrants reported that one of the main challenges they face when studying Latine immigrants was the translation of their survey into Spanish (De La Rosa, Babino, Rosario, Valiente Martinez, Aijaz, 2012). While the use of bilingual materials and interviewers encouraged participation (Napoles-Springer, Santoyo, & Stewart, 2005), the diversity of Spanish dialects and slang used by different Spanish-speaking groups can create complications. De La Rosa's study learned that "measures found in Spanish were not easily understood and would not have been appropriate for the population of Latinos that would make up our sample" (2012, p. 13), She went on to state that the surveys provided to them were clearly written for immigrants from Mexico. Another barrier experienced by De La Rosa's study was differing cultural norms among various Latine subgroups. This difference in cultural

norms can affect the rapport between the participant and researcher and the willingness of a participant to complete the questionnaire (2012).

Trust was a major barrier identified by the researchers (De La Rosa et al., 2012). It was noted that several participants were hesitant to speak with researchers. Due to concerns that the researchers were working for Immigration and Customs Enforcement (ICE), or that they were relinquishing their rights by participating in the study. There also appeared to be a suspicion that information gathered would be used to portray the community in a negative light (De La Rosa et al., 2012). In addition, participants often refused to work with a research coordinator they did not know.

Researchers found that increasing communication and openness with participants were essential for creating rapport (De La Rosa et al., 2012). Another study found that visiting the research site and engaging in extensive interaction with the population, prior to conducting the research, were crucial to establishing rapport and trust (Shedlin, Decena, Thenral, & Martinez, 2009).

For both the Shedlin and De La Rosa studies, a commonly reported concern by participants was fear of participation due to immigration status (Shedlin et al., 2009; De La Rosa et al., 2012). As one participant stated, “it is hard for them to trust people they do not know, because it was very hard and expensive for them to cross two borders and they do not want to have problems or be deported” (Shedlin et al., & Martinez 2009, p. 4). Eliminating questions asking about documents or immigration status increased participation for these studies (De La Rosa et al., 2012).

The Shedlin study, also found respondent-driven sampling to be highly effective within their population, participants felt more comfortable being referred by someone

they knew (Shedlin et al., 2009). Support by trusted community leaders or service providers also helped participants trust the researchers (Shedlin et al., 2009). When recruiting participants, the De La Rosa study noted that being affiliated with an academic institution was viewed as positive by potential participants (De La Rosa et al., 2012).

Recruiting Participants for the Current Study

For this study, I built upon the relationships I have already created with the Latine immigrant community in the area. My grandparents were Venezuelan, and I learned about the Venezuelan culture and language from them. For the past seven years, I worked in a middle school which serves a large portion of the county's immigrant population. As one of the few Spanish speakers in the school, and the only Spanish-speaking school counselor, I was often called upon to help the Spanish-speaking community. During my time in this school, I started and served on a Latine advisory committee and worked with English Language Learners (ELL) teachers to organize family events.

While earning my bachelor's degree, I ran soccer academies for the Hispanic Chamber of Commerce that served young Latine immigrant children. I have continued this involvement in the soccer community by playing in multiple soccer leagues made up of Latine immigrants. Through these soccer leagues, I was able to build relationships with individuals in the community who did not have children in the school system.

I met the director of the adult ELL program in the fall of 2018. Knowing that I wanted to use the site for my study, I made sure to communicate with her and attend the evening program five times. In October of 2018, I observed the program. In March of

2019, I interviewed the program director for a project about trauma in Latine immigrants. During May of 2019, I visited the Level-six classroom on multiple occasions to conduct a pilot study and discuss this research project with students. To thank this group for their assistance, I dropped off cookies and oranges. Finally, at the end of September of 2019, I visited the research site one last time.

On the days I conducted my study, the long-time program director stood with me and encouraged students to participate. In addition, the teachers encouraged their students to participate. Several teachers walked out to speak with me while their students went on break.

I found that potential participants often agreed to participate when they found out that I was attending Virginia Commonwealth University (VCU) and had an interest in increasing the resources for their community. I conducted my study at the evening site two times. The second time I was present, multiple individuals who had refused to participate during my first visit agreed to complete the questionnaire. In addition, many students who had completed a questionnaire during my first visit encouraged their friends to participate.

Response Rate Research

When minority groups are provided with awareness and opportunities to participate in research, they tend to participate at a rate comparable to mainstream participants (Wendler, et al., 2006). Latines are less likely to be familiar with research, but more likely to participate in research (Napoles-Springer et al., 2005) with response rates of 70% observed by some researchers (Sykes, Walker Ngwakongnwi, & Quan,

2010). Dr. Anna Napoles-Springer (2005) suggested that this is due to less frequent invitations to participate and cultural norms that seeks to avoid interpersonal conflict.

The length of the questionnaire can also affect the response rate for individuals. A study found that response rates for questionnaires under 1,000 words was 59% versus a response rate of 38% for questionnaires over 1,000 words (Jepson, Asch, Hershey, Ubel, 2005). In 2014, a study was conducted that compared response rates for a four-page, double-sided questionnaire with a two-page, double-sided questionnaire. The researchers found that the response rates were similar for both questionnaires (Bolt, Van der Heide, Onwuteaka-Philipsen, 2014).

Demographic question placement is another consideration for response rate (Teclaw, Price, & Osatuke, 2012). Researchers who believe demographic questions should be placed at the end of the questionnaire, cite four advantages: (1) to engage and build rapport with participants, (2) to prevent breakoff provided by personal questions, (3) to prevent primacy effects, and (4) to prevent respondents from becoming bored with the demographic questions.

If demographic questions are not sensitive in nature and are not likely to cause a participant to refuse to answer, they can be placed at the beginning of the questionnaire (Savino, 2009). A study conducted by the Veterans Administration found that placement of demographic questions at the beginning of the survey did not affect over-all response rate but did increase the response-rate for demographic questions (Teclaw et al., 2012).

Development of the Questionnaire

The questionnaire for this study is based on the Adverse Childhood Experience-International Questionnaire (ACE-IQ) as provided by the World Health Organization.

The study questionnaire has 48 questions (see Appendix A for the English version and Appendix B for the Spanish version). Questions 15 through 46, were taken verbatim from the ACE-IQ. The questionnaire also contains seven demographic questions and six questions related to the individual's current health.

Dr. Robert Fray at Virginia Polytechnic Institute suggests that personal or confidential questions be placed towards the end of a questionnaire (2003), because these questions could cause a participant to become "too disaffected to continue," (p. 9) prompting a nonreturn. He believes placing sensitive questions towards the end of the questionnaire could encourage participants to continue or simply return the questionnaire without the sensitive questions answered.

The questionnaire (for this study) was designed so that participants answered seven general demographic questions. The next set of questions were related to health and included the use of the Patient Health Questionnaire (PHQ) which assess for somatic symptoms, depression, anxiety, and alcohol abuse. The ACE-IQ questions were placed after the demographic and health-related questions.

The only questions on the ACE-IQ that were not pulled verbatim were the questions related to sexual abuse. The site director requested that the four sexual abuse questions be reduced to two questions. She also requested that the sexual abuse questions were modified to include fewer graphic terms. Phrases from the ACE-IQ containing the words oral, anal, or vaginal intercourse was replaced with sexual intercourse. In addition, the questions asking about attempted sexual abuse were combined with questions asking about the successful completion of sexual abuse.

Five questions were also added to the study's ACE-IQ that were not in the original version published by the World Health Organization. Two of these questions were pulled directly from the Philadelphia Expanded ACE study. The first question asked about discrimination due to race, ethnicity, skin color, language, accent, or country/culture of origin. The second question, was related to food availability and asked participants if their family had to "cut the size of meals or skip meals because food was not available." I also included three questions related to migration issues. The three questions were:

- "Did you live in a household where a household member had to leave the country either to live or work?"
- "Did you live in a household where you feared a household member would be forced to leave the country they were living or working in?"
- "Were you ever separated from your caregiver for a large amount of time due to migration."

Due to political connotations associated with immigration, the word immigration was not used in the survey.

Demographic Questions

This study contains seven demographic questions. These questions ask about the participant's age, gender, country of birth, length of time in the United States, native language, population of the place they migrated from, and years of formal education. Three questions--country of birth, age, and length of time in the United States--are fill in the blank questions.

Patient Health Questionnaire

The Patient Health Questionnaire (PHQ) is a self-administered questionnaire based on the PRIMSE-MD diagnostic instrument (Kroenke, Spitzer, & Williams, 2002), which is available in Spanish. It is a brief instrument written with short statements that can be understood by individuals with low literacy (Kroenke et al., 2002). It uses a Likert scale for responses. This instrument screens for depression, anxiety, somatoform (somatic symptoms), alcohol abuse, and eating disorders based on the diagnostic criteria in the American Psychological Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), which was released in 2000.

The PHQ has demonstrated a high overall accuracy rate of 85%, a sensitivity rate of 75%, and a specificity rate of 90% (Kroenke, Spitzer, & Williams, 2001), when compared to a physician's diagnosis of depression and anxiety. It has been translated and validated into over 15 languages, and the measures are available for free (Kroenke, Spitzer, & Williams, 2001). The Spanish version demonstrates accuracy, sensitivity, and specificity similar to that of the original PHQ when compared with physician diagnosis (k=.74, overall accuracy 88%, sensitivity 87%, specificity 88%) (Diez-Quevedo, Rangil, Sanchez-Planell, Kroenke, Spitzer, 2001). I eliminated the PHQ questions relating to eating disorders and panic attacks due to survey length.

"Somatiziation together with depression and anxiety constitute the three most common psychiatric problems seen in primary care (Kroenke et al., 2002 p 258). Due to cultural influences Latines experience more somatic symptoms than African Americans and White non-Hispanic individuals (Dunlop, 2019; Sullivan & Rehm, 2005). The PHQ is

comprised of three subscales: PHQ-9 (depression), GAD (general anxiety), PHQ-15 (somatic symptoms), and a section on alcohol abuse. The PHQ-9 measures depression. Any individual who indicates that five of the nine symptoms were present at least "more than half the days" in the past 2 weeks and selects "depressed mood" is considered to have depression. The PHQ-9 has a Cronbach's alpha ranging from .86-.89 and shows a high correlation with other depression scales (Kroenke et al., 2001). A Spanish version of the PHQ-9 has been used in Spain, Honduras, Chile, Costa Rica, and the United States with a Cronbach's alpha of .8 for Latines (Huang et al., 2006; Zhong, Gelaye, Fann, Sanchez, & Williams, 2014).

The PHQ-15 evaluates the respondent's somatic symptoms, which are defined as medically unexplained physical symptoms associated with psychological distress (Kroenke et al., 2002). It is believed that at least 10%-15% of primary care patients are seen due to somatic complaints. The PHQ-15 has a high correlation with other somatic symptom scales and a Cronbach's alpha of .8 (Gierk et al., 2015). Within the Latines population, the Cronbach alpha is .78 and the instrument has a high correlation (*r=.7)* with the Montogomery-Asberg Depression Rating Scale (MADRS) (Montalban, Comas Vices, Garcia-Campayo, 2010). The GAD-7, which evaluates the individual for generalized anxiety, has a Cronbach alpha of .9336, and a test-retest correlation of .844 (Montalban et al., 2010).

Instrument Translation

Translating material into another language is a critical aspect of a study because it is assumed that the translated version is equivalent in both meaning and difficulty to the original material (Auchter & Stansfield, 1997). A valid translation is more than

directly translating from one language to another; it must be adapted in a culturally relevant way, while still maintaining the original meaning and intent (Sperber, 2004). There are two accepted ways of translating an instrument. The first is translation by committee, where two or more individuals work together to translate an instrument by consensus (Sperber, 2004). The second process is back-translation (Sperber, 2004). In back translation, the instrument is first translated from the original language to the target language. The translated version is then translated by an independent translator from the target language back to the source language. The back-translated version and the original version are then compared for words and meaning. If an error in meaning is found, the process is repeated until both versions are equivalent (Phongphanngam & Lach, 2019).

For back translation, the primary translator should be an individual who is fluent in both the language and culture of the target population (Phongphanngam & Lach, 2019). In addition, the translator should ideally be familiar with the concept or construct being tested. At the very least, the construct should be explained to the primary translator, and the primary translator should know how the instrument will be used. The back translator should not have any prior knowledge of the original instrument, its intent, concept, or the context of the study (Phongphanngam & Lach, 2019).

The back-translation technique is preferred by researchers (Phongphanngam & Lach, 2019; Sperber, 2004). However, Sperber points out that a good translator can make the back translated version similar to the original version, even if the translated version is poor (2004).

Translation for Current Study

Two procedures were used to ensure translation validity of the questionnaire used in this study. The first procedure requires the questionnaire to be back-translated and tested with target language participants (Maneesriwongul & Dixon, 2004). Validation by the target language participants can be done in two ways. The first method is to have a group of bilingual individuals take both the original and translated version of an instrument. The second method is to have a focus group examine the translated version of the instrument. These focus groups can be comprised of either monolingual or bilingual individuals (Maneesriwongul & Dixon, 2004).

The questionnaire for this study was translated by a certified translator with knowledge of Central American culture and language. It was then back translated by a translation class at VCU, that was led by a certified translator. A focus group of bilingual professionals reviewed the back-translated version in October of 2019.

Focus Group

The focus group for this study, was made up of a bilingual social worker, a bilingual registered nurse (RN), a bilingual ELL teacher, and a certified interpreter who is a member of the local Latine community. This group went through each individual question on the survey. The group changed the pronoun used in the survey from “tú,” which is the informal “you” in Spanish, to the more formal “usted.” The focus group also added the word “machete” to questions asking about individuals being hit by objects. In addition, the term “paramilitary” was added to questions asking about community violence.

Pilot Test

A pilot test was conducted with the English version of the questionnaire during May 2019. This pilot test was conducted in the Level-six classroom of the Adult ELL program. These students graduated from the program at the end of May, so were not enrolled in the program when the questionnaire was administered in November 2019.

Students were asked to complete three tasks: fill out the questionnaire, identify issues in wording, and participate in a discussion group. During the discussion group, students raised concerns about idioms included in the questionnaire, such as “feeling blue,” and the placement of the questions regarding alcohol abuse. Students felt that the questions about alcohol abuse should be moved to the end of the health portion of the questionnaire due to their sensitive nature.

Procedures and Data Collection

Procedures.

Teachers at both sites used a script (Appendix C) provided by the researcher to announce the study and provide information about participation. At break time, teachers encouraged students to take the questionnaire and allowed them to have additional break time. When participants finished their questionnaire, they placed the questionnaire in a covered box. After submitting the questionnaire, they were given a snack, raffle ticket, and a list of bilingual mental health providers in the area.

First session

The first session took place during the day program on November 6, 2019. This session had 107 students in attendance, and 41 students participated in the survey (38.3%). Due to space constraints, I was set-up in the hallway between the classrooms

and the restrooms. As students came out of their classrooms for break, I introduced myself and asked them to take my survey. The director of the program stood with me at the table and stopped students to encourage them to take the survey.

Second Session

The second session occurred on the night of November 6, 2019. This session had 295 students in attendance and 63 students participated in the survey (21.3%). During this session, I was set up in the cafeteria rather than the library, which was the originally proposed location. This change occurred because the cafeteria is a more central location. The cafeteria was large enough for participants to spread out comfortably. During the break, I approached students who were not taking the questionnaire to encourage them to participate.

Two significant issues during the first session resulted in lower than expected participation. A major car accident shut down the main road leading to the site, causing many students to arrive late. A county-wide basketball playoff game had also been scheduled at the school that night. Due to this event, and the presence of the Chesterfield County Superintendent, I was unable to make an announcement reminding students to participate during their break. Due to low participation, I needed to conduct another session. In order to encourage student participation, I placed a note and a bag of chips in each teacher's mailbox letting them know I would return the following Monday.

Third Session

The third session took place on Monday, November 11, 2019. This session had 283 students in attendance and 88 students participated in the survey (31.1%). Overall, 43.1% of students enrolled in the night session took the questionnaire.

Prior to the start of the evening classes, I set up a table at the entrance to encourage students to either take my questionnaire prior to class or come see me during break. Several students who had participated during the prior week stopped to say “Hi” and to introduce their friends to me. After evening classes had started, I made an announcement over the intercom system reminding students that I would be in the cafeteria during break.

Response Rate

At the time of the study, the Chesterfield County, VA, ELL Adult program had about 500 students actively enrolled. On the days of the study, 107 students attended the day session, 295 students attended the first night session, and 283 students attended the second night session. During the day session, 41 questionnaires were collected, a 38.3% response rate. The two-night sessions had slightly lower participation rates, 63 participants the first night with a response rate of 21.3%. The second night had 88 participants, a response rate of 31.1%. Overall, the response rate for students enrolled in the night session was 43.1%. In total, 206 questionnaires were turned in accounting for 41.2% of all actively enrolled students.

Use of Implied Consent

Latine immigrants are a vulnerable population and some participants in this study might be undocumented. Due to this fact, the questionnaire was completed

anonymously, and no identifying information was collected. Since no identifying information was collected, I received approval from the IRB to use implied consent. Each questionnaire had a consent form attached to the sheet which did not require a signature, see Appendix D for the English version and Appendix E for the Spanish version. By turning in the questionnaire, the participant gave consent for their data to be used.

Special Circumstances

Languages other than Spanish or English

Due to cost constraints, the questionnaire was only provided in Spanish and English. Because immigrant communities are frequently marginalized, I did not feel it was appropriate to tell a participant they could not participate due to their native language. Participants who spoke a language other than Spanish were given the option of taking the survey in English.

According to VCU IRB requirements, if the population of non-English (and in this case Spanish) speakers makes up less than 5% of the participants, the individuals can be provided with a consent short form in their native language (published by VCU IRB) and have a qualified interpreter explain both the consent process and form to the individual. In order to be a qualified interpreter, the individual must be bilingual in English and the native language.

One student in the Level-six class from South Korea opted to participate, since he was a Level Six student, he was considered bilingual. In addition, nine students enrolled in the program from Yemen elected to participate. One of the program teachers is from Yemen and was able to act as the qualified translator for these nine participants.

Preliterate Participants

The sites have individuals enrolled who are considered preliterate. These students are unable to read or write in their native language. To encourage participation by preliterate students, I offered to orally administer the questionnaire using the World Health Organization's Interviewer's Guide (Appendix F). None of the students identified as preliterate participated in the study.

Participants

Demographic Factors

Of the 184 questionnaires completed, 91% were completed in Spanish, which is slightly lower than the 95.3% of participants who indicated Spanish as their native language. The top three countries of origin were Guatemala (30.4%), El Salvador (20.7%), and Columbia (18.5%). In total the northern triangle countries accounted for over half of all participants. Of note, two participants were born in the United States, immigrated to a Spanish speaking country at a young age, and then returned to the United States.

Description of Respondents

Of the 206 questionnaires collected, responses from 184 respondents were included in this study. Fourteen questionnaires were eliminated because the they were not completed, and eight questionnaires were eliminated because the participant was not a Latine immigrant. Appendix L shows the demographic descriptions of participants.

Almost all participants were Spanish-speaking with 80% originating from the countries of Guatemala, El Salvador, Columbia, and Honduras (Table 5).

Table 5

Country of Origin for Study Participants

Characteristic	*n*	%
Guatemala	56	30
El Salvador	38	21
Columbia	34	20
Mexico	15	8
Other South American	15	8
Honduras	13	7
Caribbean	7	4
Other Central American	4	2
United States	2	1

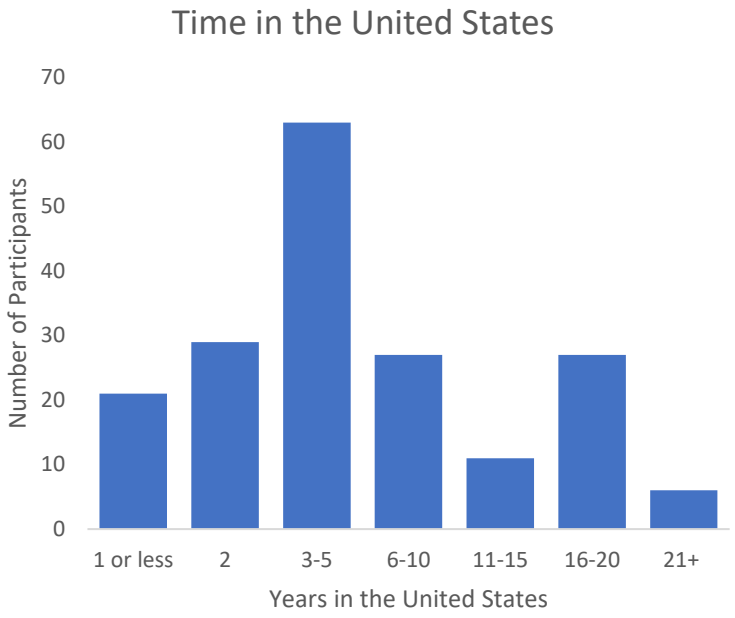
Most participants had been in the United States for fewer than five years with a mean age of 34.

When asked about the population of the location they immigrated from, 59% of participants indicated that they have immigrated from a city, 23% indicated they had immigrated from the country, and 19% indicated they had immigrated from the suburb. About 40% of participants had finished high school, and about 25% of participants had education that went beyond high school. Females accounted for 63% of the participants. One participant identified as other when asked about gender.

The mean amount of time a participant had been in the United States was 7.1 years (SD=6.45) with a range of less than a year to 25 years. Case 45 and 46 are outliers with 25 years in the United States. Sixty one percent of participants had been in the United States for five years or less. Figure 1 displays participant's time in the United States.

Figure 1

Histogram of Participant's Time in the United States (N=184)



Age had an artificial cutoff point imposed by the study site. In order to be enrolled in the adult ESL program, participants must be 18 years old or older. The mean age of the participants in the questionnaire was 34.13 years with a range of 18 to 60.

Self-Rated Health Question

Although the majority of participants (71.2%) did not report health concerns, when asked to rate their own health four fifths rated their health as good to excellent. The percentage of participants selecting each category can be seen in Table 6.

Table 6

Descriptive Characteristics of Self-Rated Health (N=184)

Item	*n*	%
Very Poor	2	1
Poor	19	10
Neither Good nor Bad	16	9
Good	105	57
Excellent	42	23

Note: Total of percentages is not 100 because of rounding.

Measure/Instruments

Scoring the ACE-IQ

There were two methods used to score the ACE-IQ. The first method if the binary method and the second is the frequency method of scoring. There were 184 questionnaires included in the analysis; not all participants answered all adverse childhood experience questions. A non-response was coded as no response (10). When totaling the ACE-IQ score, a non-response was given a score of zero.

The first four questions of the questionnaire used a five-point rating scale. The remaining questions asking the participants to rate their experience, used a four-point rating scale. In addition, the questions relating to emotional abuse are reverse scored, and are the only two questions in the ACE-IQ that are written this way. These questions were reverse coded in SPSS prior to analysis.

Physical Fights. The question about the frequency with which the participant was in physical fights was not included in any scoring methods for the ACE-IQ. In a

confirmatory factor analysis for the 13 categories the WHO identified on the ACE-IQ, the question related to physical fights was the only question that the WHO did not included in a factor.

On the confirmatory factor analysis, this question grouped with factor two. This factor was made up of the majority of the questions in the violence outside the home dimension. This dimension, identified by the WHO, included community violence and collective violence. Through a Spearman's rank correlation it was determined that this question asking was correlated with both a participant having seen/heard someone being beaten up (r_s *=.625, p<.001)* and having seen/ heard someone being threatened (r_s *=.587, p<.001)*, and had a medium correlation with having seen/heard someone stabbed, hit, or shot (r_s *=.426, p<.001)*. The Cronbach's alpha for the community violence category is .878., the inclusion of the question related to physical fights changes the Cronbach's alpha by .006 to .872. For this reason, the question about physical fights was included in the community violence category for the new ACE-IQ scoring.

ACE-IQ Categories. The ACE-IQ has 13 categories of abuse and neglect. Each question in the survey falls under one of the 13 categories. For many of the categories there are two or more questions, however four categories are made up of one question. The categories can be seen in Appendix G. According to the World Health Organization, the ACE-IQ can be scored using two different methods, the binary and the frequency method.

Binary Method of Scoring. In the binary method, a question is coded "yes" or "no." If the participant answered in the affirmative to an ACE question, the participant

would receive a point for that category. Both methods of scoring result in a score from 0 to 13, which is the individual's ACE-IQ score. Appendix H has more information about the binary method of scoring.

Frequency Method of Scoring. The frequency method has a cutoff point which determines if the response receives a point. The individual must indicate a frequency at the cut-off point or above to receive a score for that category. The cut-off score was set by the WHO and can be seen in Appendix I. The two questions about sexual abuse are scored differently. If a participant gives an affirmative response to these questions, the participant receives a point for this category, regardless of frequency.

Scoring the Patient Health Questionnaire and BRFSS

The PHQ was scored using the instruction manual for the PHQ (PHQ Screener, n.d.). The questions about somatic symptoms, depression, and anxiety all result in a range of total scores with cut-off points at 5, 10, and 15 representing mild, moderate, and severe levels of somatic, depressive, and anxiety symptoms. More information about scoring the PHQ can be seen in Appendix J.

PHQ-Somatic Symptoms

The somatic scale combines the thirteen somatic questions with two questions from the depression scale. The thirteen questions on the somatic scale are scored 0 for responses of "not at all," 1 for "bothered a little," and 2 for "bothered a lot." The two items pulled from the depression scale asked about quality of sleep and feeling tired. They were scored as 0 for responses of "not at all," 1 for "several days," and 2 for responses of "more than half the days" or "nearly every day." This resulted in a range of

scores from 0 to 30. Total scores of less than five are interpreted as having no somatic symptoms and coded as 0. Scores of 5 to 9 defined mild symptoms (1), 10 to 14 defined moderate symptoms (2), and 15+ defined severe symptoms (3).

PHQ Depression Severity

The PHQ-9 was used to asses an individual's depression severity. Scores of 0, 1, 2, and 3 were given to responses of "not at all," "several days," "more than half the days," and "nearly every day." The total score can range from 0 to 27. Cut off points are 5, 10, and 15 corresponding with mild (1), moderate (2), and severe (3) depression. The PHQ-9 can indicate a possible Major Depressive Disorder or Other Depressive Disorders, however since participants were not interviewed, other causes of depressive symptoms cannot be ruled out.

PHQ Anxiety Scale

The GAD-7 was used to assess individuals for anxiety symptoms. Scores of 0, 1, 2, or 3 were given to responses of "not at all," "several days," "more than half the days," and "nearly every day." The total score could range from 0 to 21. Cut off points at 5, 10, and 15 corresponding with mild (1), moderate (2), and severe (3) anxiety.

PHQ Alcohol Abuse

On the PHQ alcohol abuse is determined through five questions which participants answer either with a no (0) or yes (1). Responding positively to any of the five questions indicates the presence of alcohol abuse.

Behavioral Risk Factor Surveillance Survey

The BRFSS is made up of eleven questions that combine to give an ACE score of 0 to 11 (Wade, Becker, Bevens, Ford, & Forrest, 2017), scored using the binary method. The BRFSS questions were included in the ACE-IQ. Two changes were made to the original BRFSS questions. The questions asking about alcoholism and drug abuse in the household were combined in the ACE-IQ. The questions related to sexual touch and being forced to touch someone else were also combined in my questionnaire as requested by the study site. The combination of these questions resulted in a range for the BRFSS score of 0 to 9 for this questionnaire.

Reliability for the Patient Health Questionnaire and the BRFSS

BRFSS

The Cronbach's alpha for the BRFSS was .434, for this study. All questions had a low corrected item- total correlation with the exception of the two questions related to sexual abuse.

PHQ Somatic Scale

The Cronbach's alpha for the somatic scale was .847. Two items had low corrected item-total correlation, cramps (.164) and pain during sex (.111). Both items also had a higher Cronbach's alpha if the item was deleted. Upon deletion of these two items, the Cronbach's alpha for the scale increased to .862.

PHQ Depression and Anxiety Scale

The nine-question depression scale had a Cronbach's alpha of .848, for this study. Three items demonstrating low corrected item- total correlation. The three questions asked about eating, moving, and suicide. Removing these three questions

resulted in a Cronbach's alpha of .867. The Cronbach's alpha for anxiety was .863 with all items demonstrating a high corrected item-total correlation.

PHQ Alcohol Disorder

Alcohol disorder had a Cronbach's alpha of .819 for this study. One item, continuing to drink against medical recommendation had a low corrected item-total correlation and removing this item increased the Cronbach's alpha for the scale to .887. Upon the removal the question asking about work and alcohol use demonstrated a Cronbach's alpha that would be higher if deleted, however the corrected item-total correlation was above .5 so the decision was made to leave this item in the scale.

Data Coding and Preparation

Eliminated Questionnaires

Of the 206 questionnaires turned in, 184 were included in the data analysis. Fourteen of the questionnaires not included were eliminated due to failure to complete enough of the questionnaire to provide usable data. Three participants stopped responding during the demographic questions, nine participants stopped during the health questions, and two were eliminated because they only answered the first two questions on the ACE-IQ. The additional eight questionnaires eliminated were due to the participant immigrating from a country other than a Latine country.

Data Entry

Data was entered into Microsoft Excel and then exported to SPSS 26. SPSS 26 was used for all data analysis. All questionnaires were numbered to allow reference to the original questionnaire if needed. Once data was entered into SPSS, a random number generator was used to identify 50 questionnaires that were then checked for

errors in entry. All variables were named, if necessary given labels, values labeled, and missing data identified. Upon completion, frequency charts were run of all variables which included minimums and maximums to look for any data entry errors. For all data entry errors, the original questionnaire was pulled, and the error was corrected. All tests were run with missing data excluded pairwise.

Coding Demographic Questions

SPSS requires that responses be coded numerically in order to analyze the data. The full code book for the questionnaire can be found in Appendix K.

Participants had the option to take the questionnaire in either Spanish or English. The form language was coded 0 for English and 1 for Spanish. Gender was coded 0 for female, 1 for male, and 3 for other. Population was coded as 0 for city, 1 for country, and 2 for suburb.

Native languages were grouped together by Spanish Speaking and Other since nine questionnaires indicated that Spanish was not their native language. The code for native language was 1 for Spanish and 0 for Other. For country of origin six countries received their own code, Columbia (1), El Salvador (2), Guatemala (3), Honduras (4), Mexico (5), and The United States (10). Four categories were created to reflect individuals from countries outside of the six listed. Those categories were “Other South American” (6) and was made up of individuals from Venezuela, Peru, Ecuador, and Argentina. The Caribbean was one category coded as 7 and included individuals from Cuba, Dominican Republic, and Puerto Rico. “Other Central American” was coded as 8 and comprised of individuals from Panama and Nicaragua. Finally, “Not in the Western Hemisphere” was created for individuals from Egypt, China, South Korea, and Yemen

and coded as 9. This group was later eliminated. In addition, a category of “Northern Triangle” was created to identify all individuals from El Salvador, Guatemala, and Honduras.

The formal education category was modified, “Less than Elementary” and “No Formal Education” were collapsed to create one category coded as 0. This was done because two completed questionnaires had no formal education and four completed questionnaires had less than elementary school education. By combining the two groups, a group with six individuals was made. The other categories were high school education (2), some technical school (3), completion of technical school (4), some college/university (5), completion of college/university (6), and post graduate study (7). An additional category was created that combined all K-12 education (0) and post K-12 education (1).

Coding Health Questions

The first health question was a self-reported question asking individuals to rate their health. The responses for this question were coded as very poor (0), poor (1), neither good nor bad (2), good (3), and excellent (4). The second health question asked individuals to select all health conditions that applied to them. The health conditions were coded as 1 if the person indicated they had the condition and 0 if the person indicated they did not.

Violation of Assumptions

A Shapiro-Wilk test showed a significant departure from normality for the ACE-IQ using the binary scoring method ($W(184)=.931$, $p<.001$) and the ACE-IQ scored using the frequency method ($W(184)=.792$, $p<.001$). Due to this violation of the assumption of

normality, the Spearman's Rank Order Correlation was used rather than the Pearson's r for correlation. The Mann-Whitney U Test was the non-parametric test used as an alternative to the Independent Samples T-Test. The Kruskal-Wallis Test was the non-parametric alternative to One-way ANOVA.

Research Questions

The following tests were used to answer the seven research questions: confirmatory factor analysis, correlation, Cronbach's alpha, descriptive statistics, Mann-Whitney U tests, and Kruskal-Wallis tests. Table 7 provides more specific information about the analyses by aligning research questions with specific statistical tests.

Table 7

Data Analysis for Study

Research Question	Variables	Analysis
Does the Adverse Childhood Experiences-International Questionnaire have construct validity?	Childhood Maltreatment Family/ Household Dysfunction Violence Outside the Home	Confirmatory Factor Analysis
Does the Adverse Childhood Experiences-International Questionnaire have internal consistency?	ACE-IQ Questionnaire (total) ACE-IQ Subscales	Cronbach's Alpha
Does the Adverse Childhood Experiences-	BRFSS ACE-IQ Score	Spearman's correlation coefficient (r_s)

Research Question	Variables	Analysis
International Questionnaire have concurrent validity?		BRFSS (Kruskal-Wallis)
What is the trauma history for immigrants?	ACE-IQ Score Binary Method ACE-IQ Score Frequency Method	Mean and Standard Deviation for overall ACE-IQ scores
Is there a relationship between demographic factors and trauma history for immigrants?	Age Gender Native Language Country of Origin Time in United States Formal Education Population of place immigrated from	Gender (Mann-Whitney) Northern Triangle (Mann-Whitney) Age (Kruskal-Wallis) Country of origin (Kruskal-Wallis) Time in the US (Kruskal-Wallis) Education Level (Kruskal-Wallis) Population of place immigrated from (Kruskal-Wallis)
Is there a relationship between the health factors and trauma history for Latine immigrants?	Specific Health Concerns Self-Rated Health PHQ-9 PHQ-15 GAD Alcohol Abuse	Alcohol Disorder (Mann-Whitney) PHQ-9 (Kruskal-Wallis) PHQ-15 (Kruskal-Wallis) GAD (Kruskal-Wallis) Health Concerns (Kruskal-Wallis) Self-Rated Health (Kruskal-Wallis)

Chapter 4: Data Findings for Psychometric Research Questions

This chapter details participation rates, a description of the sample, followed by research question findings. To respond to the research questions, the AE-IQ's internal consistency both as a whole and as individual sub-scales are evaluated using Cronbach's Alpha. A confirmatory factor analysis is used to identify constructs and compare those with the domains proposed by the World Health Organization (WHO). The ACE-IQ's concurrent validity will be determined by comparing results on the Behavioral Risk Factor Surveillance System (BRFSS) with the results of the ACE-IQ.

Description of Respondents

Of the 206 questionnaires collected, responses from 184 respondents were included in this study. Fourteen questionnaires were eliminated because the they were not completed, and eight questionnaires were eliminated because the participant was not a Latine immigrant. Appendix L shows the demographic descriptions of participants.

Almost all participants were Spanish-speaking with 80% originating from the countries of Guatemala, El Salvador, Columbia, and Honduras (Table 8).

Table 8

Country of Origin for Study Participants

Characteristic	*n*	%
Guatemala	56	30
El Salvador	38	21
Columbia	34	20
Mexico	15	8
Other South American	15	8
Honduras	13	7
Caribbean	7	4
Other Central American	4	2
United States	2	1

Most participants had been in the United States for fewer than five years with a mean age of 34. Table 9 displays the breakdown of participant time in the United States and Table 10 documents participant age.

Table 9

Time in the United States

Characteristic	*n*	%
1 year and under	21	11
2 years	29	16
3-5 years	63	34
6-10 years	27	15
11-15 years	11	6
16-20 years	27	15
21+ years	6	3

Table 10

Ages of Study Participants

Characteristic	*n*	%
18-20 years old	10	5
21-25 years old	26	14
26-30 years old	27	15
31-35 years old	46	25
36-40 years old	35	19
41-50 years old	33	18
51+ years old	7	4

When asked about the population of the location they immigrated from, 59% of participants indicated that they have immigrated from a city, 23% indicated they had immigrated from the country, and 19% indicated they had immigrated from the suburb.

Overall Response Rate

Forty-one percent of actively enrolled students who were invited to respond to the survey participated in this study. At the time of the study the day program had 150 students actively enrolled in the day program and 38% of students participated. The night program had approximately 350 students actively enrolled and 43% students participated. In order to be considered actively enrolled the student must have attended classes at least once in the two weeks prior to the study.

Response Rate for Individual Questions

A non-response for an individual ACE-IQ question was coded as 10. Excluding the collective violence category, on average each ACE-IQ question had 12 non-responses with a range of three (bullying) to 19 (food insecurity). The standard deviation was four. The collective violence category, which included the last four questions on the ACE-IQ, had an average non-response rate of 24 with a range of 22 to 24.

The low response rate for this category could be due to response fatigue. This is when a participant either stops answering questions or does not provide true responses (Egleston, Miller & Meropol, 2011). The low response rate could also be affected by lack of relevance to participants, participants might have felt that this section was not applicable to them and so did not respond. Another issue that could cause lower responses to items in this category is fear. Collective violence is defined by the WHO as "the instrumental use of violence by people who identify themselves as a members of a group… against another group or set of individuals, in order to achieve political, economic or social objectives" (World Health Organization, 2002). In collective violence, groups of people use violence to gain power or control and the individual has no control

over the situation. Since these groups often control basic resources and safety, the fear of recounting what has happened might cause a participant not to respond to these questions.

Scoring Methods

The WHO has proposed two methods of scoring for the ACE-IQ. These two methods are known as the binary method of scoring and the frequency method of scoring. The binary method of scoring simply codes the response pattern as "yes" or "no." If a participant answers in the affirmative to any question in the category, the respondent receives a point for the entire category. Appendix H has the directions for scoring the ACE-IQ using the binary method of scoring. The frequency method of scoring relies upon a cutoff point that has been predetermined by the WHO. A response that falls above the cutoff point receives a point for that category. Appendix I contains the directions for scoring the ACE-IQ using the frequency method of scoring.

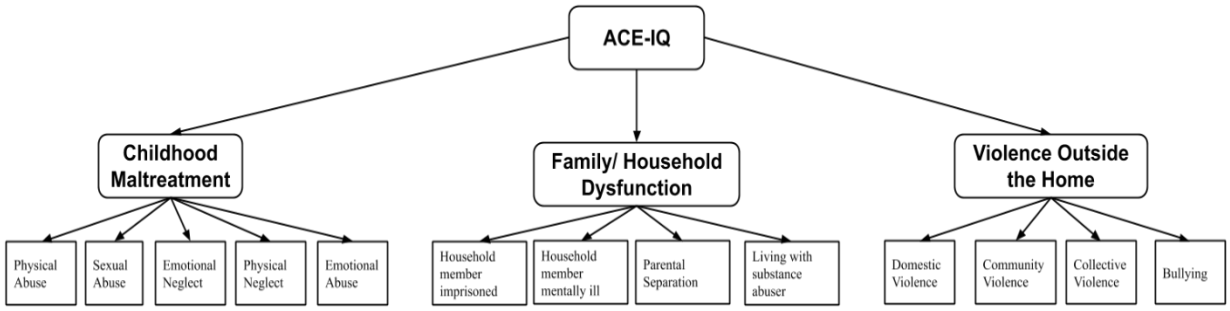
Upon competition of the ACE-IQ, each participant receives a score of 0-13. This score indicates how may categories on the ACE-IQ a participant has experienced. As an example, participant 182 had a binary score of seven and a frequency score of four. This indicates that using the binary scoring method, this participant had experienced seven categories of trauma (physical abuse, emotional abuse, violence inside the household, household separation, emotional neglect, physical neglect, and community violence). The participant's score of four using the frequency method of scoring indicates that participant experienced four adverse childhood experiences growing up (emotional abuse, violence in the household, household separation, and community violence).

Domains Within the ACE-IQ

The WHO has proposed that there are three domains that make up the ACE-IQ. These domains are violence outside the home, childhood maltreatment, and family/ household dysfunction. These three domains will be used to examine subscale internal consistency and construct validity. The three domains and the ACE-IQ trauma categories that fall under each domain can be seen in Figure 2.

Figure 2

ACE-IQ Domains and Trauma Categories



Research Question 1: What is the ACE-IQ's Internal Consistency?

Internal consistency is the extent to which all items measure the same concept (Travakol & Dennick, 2011). For this study, Cronbach's alpha was used to determine internal consistency. For this study an acceptable range of internal consistency has been identified as .7 to .9 (McMillian & Schumacher, 1997). Due to multiple scales being used in this measure (5-point, 4-point, binary), all data were converted to a z score and then analyzed.

ACE-IQ as a Whole. The Cronbach alpha for the ACE-IQ questionnaire for the current study was .908. A high Cronbach's alpha (> .9) can be an indication of redundancies and might indicate that the test length could be shortened (Travakol & Dennick, 2011).

There was one question with a high corrected item-total correlation, indicating a high correlation between the question and the scale score, was "did a… household member ever…beat you up." The corrected item-total correlation for this question was .706. Due to the Cronbach's alpha score for the entire ACE-IQ being .008 above the .9 cutoff score and the drop (.02) that would be observed in the subscale this item belongs to, I decided to leave the questions about being beaten up by a household member in the scale.

Within Subscales on the ACE-IQ. Internal consistency checks were run on the three domains in the ACE-IQ of violence outside of the household, household/ family dysfunction, and childhood maltreatment. Table 11 shows the three domains and the trauma categories for each domain.

Table 11

ACE-IQ Domains and Categories

Domain	ACE Category	Number of Questions
Childhood Maltreatment	Emotional Neglect	11
	Physical Neglect	
	Emotional Abuse	
	Physical Abuse	
	Sexual Abuse	
	Living with Substance Abuser	

Domain	ACE Category	Number of Questions
Family/ Household Dysfunction	Living with household member who was mentally ill or suicidal Living with household member who was imprisoned Household Separation Domestic Violence	8
Violence Outside the Home	Bullying Witnessed Community Violence Exposure to war/ collective violence Physical Fights	9

These three domains were evaluated for internal consistency to determine if they are dependable in their measurement. The domain of childhood maltreatment (α = .852) demonstrated adequate reliability. No questions had a negative corrected item-total correlation or would increase the Cronbach's alpha if deleted. The domain for violence outside the home (α = .866) demonstrated adequate internal consistency. The only item in this domain that would increase the Cronbach's alpha if deleted was bullying. Deleting this item would increase the Cronbach's alpha to .874.

The domain of family and household dysfunction (α = .687), did not display internal consistency. Removing the question asking about death of a parent or guardian would have increased the reliability (α = .732) above the cutoff threshold. Table 12 presents the Cronbach's alpha for each domain and the corrected item-total correlation and Cronbach's alpha if item deleted for individual items.

Table 12

Internal Consistency for the Three Domains

Item	Cronbach's Alpha	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Childhood Maltreatment	.852		
Did your parents/ guardians understand your problems and worries?		.441	.847
Did your parents/ guardians know what you were doing with your free time when you were not at school?		.432	.847
How often did your parents/ guardians not give you enough food even when they could have easily done so?		.389	.851
Were your parents/guardians too drunk or intoxicated by drugs to take care of you?		.520	.840
How often did your parents/guardians not send you to school, even when it was available?		.393	.850
Did a …household member yell, scream or swear at you, insult or humiliate you?		.663	.829
Did a … household member threaten to, or actually, abandon you or throw you out?		.604	.834
Did a …household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, machete etc?		.650	.830
Did a … household member spank, slap, kick, punch or beat you?		.639	.831
Did someone touch or fondle you or make you touch them in a sexual way when you did not want them to?		.580	.836
Did anyone have or attempt to have sexual intercourse with you, when you did not want them to?		.600	.834
Family/ Household Dysfunction	.687		
Did you see or hear a …household member in your home being slapped, kicked, punched or beaten up?		.517	.624

Item	Cronbach's Alpha	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Did you see or hear a … household member in your home being yelled at, screamed at, sworn at, insulted, or humiliated?		.703	.576
Did you see or hear a … household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip, machete, etc.?		.585	.607
Lived with a household member who abused substances		.357	.662
Lived with a household member who was mentally ill		.268	.682
Household member was imprisoned		.349	.664
Parents were separated or divorced		.277	.680
Parent or guardian died		.028	.732
Violence Outside the Home	.866		
How often were you bullied?		.352	.874
How often were you in a physical fight?		.621	.850
Did you see or hear someone being beaten up?		.658	.846
Did you see or hear someone being stabbed, hit with a machete, or shot?		.629	.849
Did you see or hear someone being threatened with a knife, machete, or gun?		.673	.845
Were you forced to go live in another place due to any of these above events?		.676	.845
Intentional destruction of home?		.639	.848
Were you beaten up due to collective violence?		.552	.856
Family member or friend beaten up due to collective violence?		.590	.853

Summary of Research Question: Internal Consistency

The ACE-IQ demonstrated good internal consistency with a Cronbach's alpha of .908. This is .008 above the recommended cutoff point, but the decision was made to not remove any of the questions at this time. The domain for violence outside the home (α = .866) and childhood maltreatment (α = .852) demonstrated adequate internal. The family/ household dysfunction domain did not demonstrate adequate internal consistency. With the exception of the family/household dysfunction subscale, the ACE-IQ demonstrates internal consistency.

Research Question 2: Does the ACE-IQ have Construct Validity?

To determine construct validity a confirmatory factor analysis was run on the ACE-IQ. The confirmatory factor analysis used the three domains identified by the World Health Organization: violence outside the household, childhood maltreatment, and family/ household disfunction. More information about each domain can be found in Table 13. Velicer and Fava (1998) suggest that items have a "high" goodness of fit if they demonstrate a factor loading of .8 or above. However, Anna Costello and Jason Osborne argue that factor loadings are rarely this high in real data and state social sciences often use a cut-off score ranging from .4 to .7 (2005). For this study I will be using a cut-off score of .6.

Table 13

ACE-IQ Domains and Categories

Domain	ACE Category	Number of Questions
Childhood Maltreatment	Emotional Neglect Physical Neglect Emotional Abuse Physical Abuse Sexual Abuse	11
Family/ Household Dysfunction	Living with Substance Abuser Living with household member who was mentally ill or suicidal Living with household member who was imprisoned Household Separation Domestic Violence	8
Violence Outside the Home	Bullying Witnessed Community Violence Exposure to war/ collective violence Physical Fights	9

Confirmatory Factor Analysis

A principal component analysis (PCA) was run on the original ACE-IQ using the WHO's 3 proposed domains: childhood maltreatment, family/ household dysfunction, and violence outside the home. The Kaiser-Merey-Olkin value was .821. This indicates that there might be an underlying factor at work in the data. The Bartlett's test reached

statistical significance ($p < .001$), indicating that the variables are related and thus suitable for a factor analysis.

A large drop in the screeplot was observed after the first factor and again after the third factor. The first three factors had eigenvalues great then two. The total variance explained by the three factors were 57.988%. The first factor accounted for 36.81% of the variance, factor two accounted for 11.542% and factor three accounted for 9.636%.

The first factor contained four questions related to childhood maltreatment and three questions related to family dysfunction. This was the only factor with questions related to family/ household dysfunction. Five questions in the family/household dysfunction domain did not load for any factor.

The second factor contained seven of the nine questions related to violence outside the home. The question asking about how often a participant was in a physical fight loaded at .599 so was included. The other two violence outside the home questions did not load above a .6 for any factor, however the question asking “were you beaten up by soldiers, police, militia, paramilitary, or gang” loaded at a .57 for the second factor.

The final factor contained four childhood maltreatment questions. Four questions related to childhood maltreatment had already loaded on factor one. Three childhood maltreatment questions did not load on any factor. See Table 14 for the factor loadings of all items.

Table 14

Factor Loadings for Confirmatory Factor Analysis with Varimax Rotation (N = 184)

Item	1	2	3	WHO Dimension
Did a parent, guardian or other household member spank, slap, kick, punch or beat you?	**0.768**	0.219	0.19	Childhood Maltreatment
Did a parent, guardian or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, machete etc.?	**0.758**	0.114	0.238	Childhood Maltreatment
Did a parent, guardian or other household member yell, scream or swear at you, insult or humiliate you?	**0.753**	0.184	0.228	Childhood Maltreatment
Did you see or hear a parent of household member in your home being slapped, kicked, punched or beaten up?	**0.742**	0.252	0.155	Family/ Household Dysfunction
Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted, or humiliated?	**0.724**	0.096	0.167	Family/ Household Dysfunction
Did you see or hear a parent or household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip, machete, etc.?	**0.712**	0.164	0.165	Family/ Household Dysfunction
Did a parent, guardian or other household member threaten to, or actually, abandon you or throw you out of the house?	**0.675**	0.066	0.309	Childhood Maltreatment
Did you see or hear someone being stabbed, hit with a machete, or shot?	0.201	**0.753**	-0.02	Violence Outside the Home
Did you see or hear someone being threatened with a knife, machete, or gun?	0.339	**0.75**	-0.11	Violence Outside the Home
Were you forced to go live in another place due to any of these above events?	0.075	**0.689**	0.388	Violence Outside the Home

Item	1	2	3	WHO Dimension
Was a family member or friend killed or beaten up by soldiers, police, militia, paramilitary, or gangs?	0	**0.687**	0.33	Violence Outside the Home
Did you see or hear someone being beaten up?	0.443	**0.665**	-0.131	Violence Outside the Home
Did you experience the deliberate destruction of your home due to any of the above events?	0.15	**0.644**	0.415	Violence Outside the Home
How often were you in a physical fight?	0.492	**0.599**	-0.054	Violence Outside the Home
Were your parents/guardians too drunk or intoxicated by drugs to take care of you?	0.068	0.181	**0.707**	Childhood Maltreatment
Did anyone have or attempt to have sexual intercourse with you, when you did not want them to?	0.347	0.088	**0.703**	Childhood Maltreatment
Did someone touch or fondle you or make you touch them in a sexual way when you did not want them to?	0.386	0.045	**0.621**	Childhood Maltreatment
How often did your parents/ guardians not give you enough food even when they could have easily done so?	0.196	-0.088	**0.609**	Childhood Maltreatment
How often did your parents/guardians not send you to school, even when it was available?	0.102	-0.003	0.544	Childhood Maltreatment
Were you beaten up by soldiers, police, militia, paramilitary, or gangs?	0.051	0.571	0.435	Violence Outside the Home
Did your parents/ guardians know what you were doing with your free time when you were not at school?	0.404	0.21	0.164	Childhood Maltreatment
Did your parents/ guardians understand your problems and worries?	0.482	0.055	0.118	Childhood Maltreatment
How often were you bullied?	0.454	0.203	0.074	Violence Outside the Home
Did you live with a household member who was depressed, mentally ill, or suicidal?	0.512	-0.014	0.026	Family/ Household Dysfunction

Item	1	2	3	WHO Dimension
Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs?	0.265	0.235	0.012	Family/ Household Dysfunction
Did you live with a household member who was ever sent to prison or jail?	0.364	0.283	0.003	Family/ Household Dysfunction
Were your parents ever separated or divorced?	0.271	0.336	-0.03	Family/ Household Dysfunction
Did your mother, father, or guardian die?	-0.024	0.282	-0.192	Family/ Household Dysfunction

Note: Factor loadings above the cut-score of .6 are bolded

Summary of Research Question: Construct Validity

Seven of the nine questions for the category violence outside the home loaded on the same factor, factor two. Three of the eight questions for family/household dysfunction loaded on factor one, while the remaining five did not load on a factor. The family/ household dysfunction factors that did not load on a factor were all the yes/no questions on the ACE-IQ. Childhood maltreatment had four questions load on the first factor, four questions load on the third factor, and three questions did not load on a factor.

Due to the lack of clear factors related to the dimensions proposed by the WHO of household/ family dysfunction, violence outside the home, and childhood maltreatment internal consistency was not found.

Research Question 3: Does the ACE-IQ have Concurrent Validity?

To determine concurrent validity the relationship between the Behavioral Risk Factor Surveillance System (BRFSS) and ACE-IQ scores was examined using Spearman Rho's correlations and an independent sample Kruskal-Wallis test. Cohen's

cut-off points for correlation strength were used as cut-off points with small r_s = .1-.29, medium r_s = .3 to .49 and large r_s = .5-1.0 (1988, p 79-81).

The BRFSS is an annual telephone-based survey that includes a brief childhood trauma questionnaire. The questionnaire asks about sexual abuse, physical abuse, emotional abuse, household separation, incarceration of a family member, household substance abuse, household mental illness, and domestic violence. From 2011 to 2014 the BRFSS surveyed 214,157 participants. Sixteen percent of the participants were Hispanic. The BRFSS displays both validity and reliability (Ford et al., 2014). It has a three-factor fit for household dysfunction, emotional/physical abuse, and sexual abuse (Ford et al., 2014). The overall Cronbach's alpha for the BRFFS in this study is .78.

The BRFSS score was compared to the total score using the binary scoring method or the frequency scoring method. The binary method of scoring simply codes the response pattern as "yes" or "no." If a participant answers in the affirmative to any question in the category, the respondent receives a point for the entire category. The frequency method of scoring relies upon a cutoff point that has been predetermined by the WHO. A response that falls above the cutoff point receives a point for that category.

Spearman Rho's Correlations with BRFSS.

The BRFSS was used to determine concurrent validity for the ACE-IQ. Both the binary and frequency method of scoring the ACE-IQ were statistically significant on the test of Kolmogrov-Smirnov (p < .001), meaning normality cannot be assumed. Due to normality not being assumed, a non-parametric test, the Spearman's correlation coefficient, was used to obtain the correlation coefficient. The binary method of scoring the ACE-IQ had a .86 correlation with the BRFSS (p < .001) and the frequency method

of scoring for the ACE-IQ had a .822 correlation with the BRFSS ($p < .001$). Table 15 displays the correlations for the binary method of scoring, the frequency method of scoring and the BRFSS.

Table 15

Spearman Rho's Intercorrelations for Tests Measuring ACEs

Scale		BRFSS	ACE-IQ Binary
BRFSS	r_s	-	
ACE-IQ Binary	r_s	.862**	-
ACE-IQ Frequency	r_s	.822**	.859**

Note: ** Statistically significant at $p < .001$ level

Summary of Research Question: Concurrent Validity

The BRFSS has been used with over 200,000 individuals and displays both construct validity and reliability (Ford et al., 2014). Due to the construct validity and reliability of the measure, the BRFSS was selected to determine concurrent validity. The correlation between the BRFSS and the binary method of scoring ($r^2 = .862$) and the frequency method of scoring ($r^2 = .859$) shows a strong relationship between the BRFSS and the two methods of scoring.

Chapter 5: Data Findings for Trauma History

This chapter answers the research questions asking about trauma history for this sample. The trauma history of the sample will be described using ACE-IQ responses, health factors, and analyzing demographic variables.

Research Question 4: What is the trauma history for this sample?

Participant's overall ACE score was obtained for both the binary and frequency method on the ACE-IQ with a range of 0 to 13. The binary method of scoring is a yes/no method of scoring while the frequency method of scoring uses a cutoff point. The significance of the Kolmogrov-Smirnov test was .00 for both the binary and frequency scoring methods, indicating a violation of normalcy. In addition, the frequency for both individual categories and individual questions were identified. By providing a break down by individual category and question it is possible to be more specific about the adverse childhood experiences the study population experienced.

ACE-IQ Score

The average score for the binary method of scoring was 4.04, with a range of 0 to 11. Ninety-one percent of participants reported one or more adverse childhood experiences and 50.5% of participants reported experiencing four or more ACEs using the binary method of scoring. The standard deviation was 3.09. Figure 3 shows the distribution of the ACE-IQ scores for both the binary and frequency method of scoring. The kurtosis score for the binary method of scoring is a negative number, indicating the distribution is relatively flat. This can result in the under-estimation of the variance. Due to this both mean and median are presented in Table 16 along with the other descriptive statistics.

Table 16

Descriptive Statistics ACE Scores

Scale	N	Min	Max	Mean	Std. Deviation	Median	Skewness	Kurtosis
ACE-IQ Binary	184	0	11	4.04	3.00	4.00	.586	-.52
ACE-IQ Frequency	184	0	10	1.96	2.03	1.00	1.7	2.73

The average score for the frequency method of scoring was 1. 96 with a range of 0 to 10 and a standard deviation of 2.03 (Q1 = 1, Q3 = 2, IQR = 1). Nineteen percent of participants reported no ACE score and 16% of participants reported four or more ACEs. The frequency scoring method produced 29 outliers which all fell at a score of four or above. Removing these outliers resulted in an average ACE-IQ score of 1.2 with a standard deviation of .89, using the frequency method of scoring. Figure 4 contains the boxplots for the binary and frequency scoring methods showing the quartile distribution and the outliers for the frequency method of scoring.

Figure 3

Frequency Distribution for ACE Scores by Scoring Method

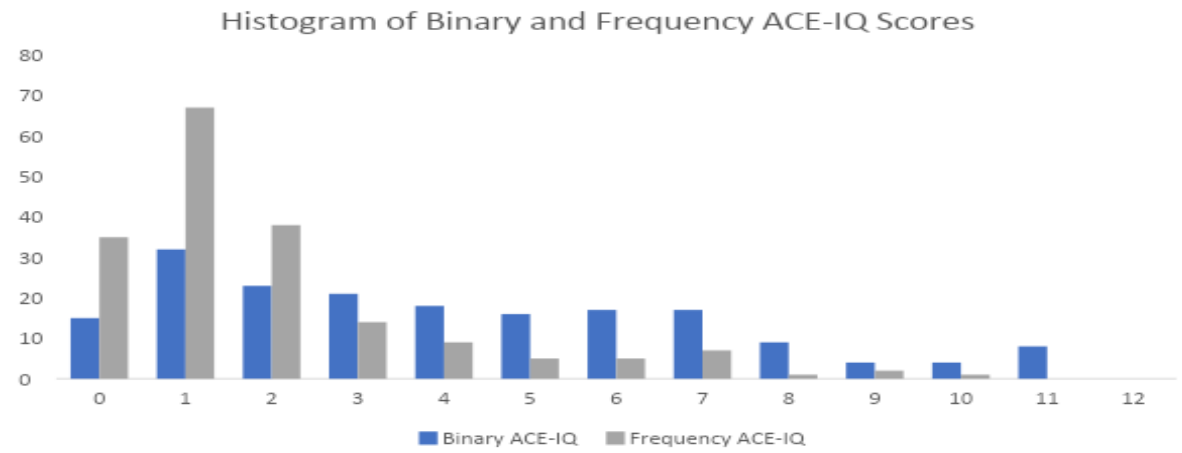
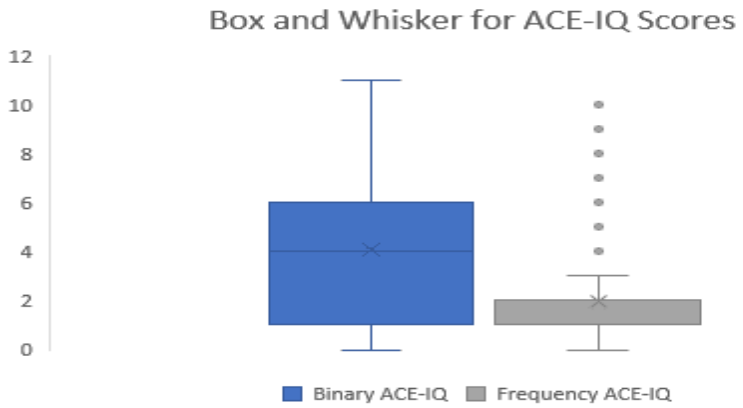


Figure 4

Boxplots for ACE Scores by Scoring Method

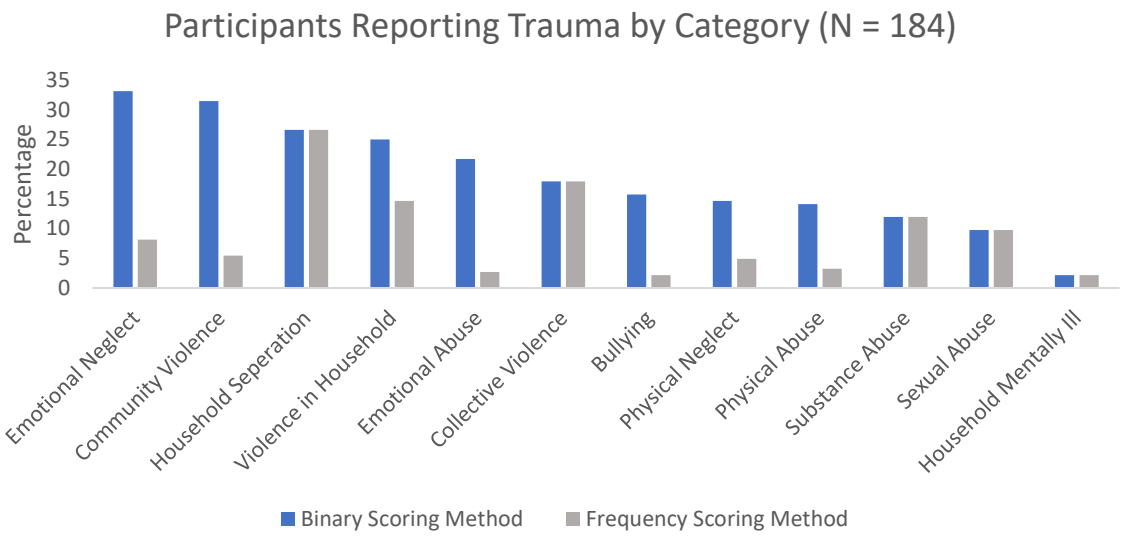


ACE Scores by Category

Using the binary method of scoring, the top three reported trauma categories were emotional neglect (33%), community violence (32%), and household separation (27%). For the frequency method of scoring the top three categories were household separation (27%), collective violence (18%), and violence in the household (15%). For the binary methods of scoring having an individual in the household dealing with mental illness was the least reported trauma category (2%). The frequency method of scoring had two categories tied for the least reported. Two percent of participants reported both bullying and having a household member dealing with a mental illness. Emotional abuse (2.7%) and physical abuse (3.2%) were respectively the third least and fourth least reported trauma category for frequency method of scoring. The percentage of participants reporting a trauma category by scoring method can be seen in Figure 5.

Figure 5

Percentage of Participants Reporting Trauma by Category



Summary of Research Question: Trauma History

Using the binary method of scoring, 91.3% of the participants reported one or more ACE(s) and 50.5% reported experiencing four or more ACEs. The average score on the binary method of scoring the ACE-IQ was 4.08. The frequency method of soring produced several outliers. Using the frequency method of scoring, 19% of participants reported no ACE score and 16% of participants reported four or more ACEs.

For the binary method of scoring the top three reported trauma categories were emotional neglect, community violence, and household separation respectively. For the frequency method of scoring the top three categories of trauma were household separation, collective violence, and violence in the household.

Research Question 5: How does trauma history relate to demographic factors?

Participants were asked seven demographic factors at the start of the survey. These questions asked about a participant's age, gender, country of birth, length of time

in the United States, native language, years of formal education, and population amounts of the location they immigrated from. Non-parametric tests were used to evaluate the relationship between demographic factors and a participant's score on the ACE-IQ. Effect sizes were calculated as *z*/ square root of *N.* The ACE-IQ can be scored using a binary method (yes/no) or a frequency method (cutoff point). Both versions of scoring result in a total score of 0-13. The ACE-IQ score represents the number of adverse childhood experiences (ACEs) the participant had growing up.

Gender and ACE Scores

A Mann-Whitney U Test revealed no statistically significant difference in the ACE-IQ with the binary method of scoring for females (*Md* = 4, *n* = 115) and males (*Md* = 3, *n* = 78), U = 3620.5, z = -.841, p = .400, r = -.06. A Mann-Whitney U Test revealed no statistically significant difference in the ACE-IQ using the frequency method of scoring for females (*Md* = 1, *n* = 115) and males (*Md* = 1, *n* = 68), *U* = 3713, z = -.589, *p* = .556, *r* = -.04

Northern Triangle and ACE Scores

A Mann-Whitney U Test revealed no statistically significant difference in the binary method of scoring for not from a Northern Triangle country (*Md* = 3, *n* = 77) and from a Northern Triangle country (*Md* = 4, *n* = 107), *U* = 4083.5, *z* = -.102, *p* = .919, *r* = -.001. A Mann-Whitney U Test revealed no statistically significant difference in the ACE-IQ using the frequency method of scoring for not from a Northern Triangle country (*Md* = 1, *n* = 77) and from a Northern Triangle country (*Md* = 1, *n* = 107) *U* = 4168, *z* = .141, *p* = .888, *r* = .01.

Time in the United* States *and ACE Score

ACE-IQ with Binary Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in the ACE-IQ with the binary method of scoring and time in the United States groups (Gp1, *n* = 21: 1 year and under, Gp2, *n* = 29: 2 years , Gp3, *n* = *63*: 3 to 5 years, Gp4, *n* = 27: 6-10 years, Gp5, *n* = 11: 11-15 years, Gp6, *n* = 27: 16-20 years, Gp7, *n* = *6, 21+ years*), χ^2 (6, *n* = 184) = 9.460, *p* = .149.

ACE-IQ with Frequency Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in ACE-IQ using the frequency method of scoring and time in the United States (Gp1, *n* = 21: 1 year and under, Gp2, *n* = 29: 2 years , Gp3, *n* = *63*: 3 to 5 years, Gp4, *n* = 27: 6-10 years, Gp5, *n* = 11: 11-15 years, Gp6, *n* = 27: 16-20 years, Gp7, *n* = *6, 21+ years*), χ^2 (6, *n* = 184) = 10.597, *p* = .102.

Age and ACE Score

ACE-IQ with Binary Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in the ACE-IQ with the binary method of scoring across age groups (Gp1, *n* = 10: 18-20 years, Gp1, *n* = 26: 21-25 years, Gp3, *n* = 27: 26-30 years, Gp4, *n* = 46: 31-35 years, Gp5, *n* = 35: 36-40 years, Gp6, *n* = 33: 41-50 years, Gp7, *n* = 7: 51+), χ^2 (6, *n* = 184) = 6.536, *p* = .366.

ACE-IQ with Frequency Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in ACE-IQ using the frequency method of scoring across age (Gp1, *n* = 36: 18-25 years, Gp2, *n* = 27: 26-30 years, Gp3, *n* = 46: 31-35 years, Gp4, *n* = 35: 36-40 years, Gp5, *n* = 33: 41-50 years, Gp6, *n* = 7: 51+), χ^2 (6, *n* = 184) = 7.723, *p* = .259.

Education Level

ACE-IQ with Binary Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in the ACE-IQ with the binary method of scoring across education (Gp1, *n* = 5: less than elementary school/ no formal education, Gp2, *n* = 23: elementary school, Gp3, *n* = 68: high school, Gp3, *n* = 34: Some college/ university/ technical school, Gp7, *n* = 46: completed college/ university/ technical school, Gp8, *n* = 8 postgraduate), $\chi^2(5, n = 184) = 2.238$, $p = .815$.

ACE-IQ with Frequency Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in ACE-IQ using the frequency method of scoring across education levels (Gp1, *n* = 5: less than elementary school/ no formal education, Gp2, *n* = 23: elementary school, Gp3, *n* = 68: high school, Gp3, *n* = 34: Some college/ university/ technical school, Gp7, *n* = 46: completed college/ university/ technical school, Gp8, *n* = 8 postgraduate), $\chi^2(5, n = 184) = .590$, $p = .988$.

Population Amounts and ACE Scores

ACE-IQ with Binary Scoring. A Kruskal-Wallis Test demonstrated a statistically significant difference in the ACE-IQ with the binary method of scoring across population of location immigrated from (Gp1, *n* = 108 city, Gp2, *n* = 42: country, Gp3, *n* = 34: suburb), $\chi^2(2, n = 184) = 9.346$, $p = .009$. Dunn's pairwise tests were carried out for the five pairs of groups and adjusted using the Bonferroni correction. There was evidence of statistically significant differences between city and country ($p = .003$, ES = -.223). Participants who immigrated from the country ($M = 5$) reported more adverse childhood experiences growing up then individuals who immigrated from a city ($M = 3$).

ACE-IQ with Frequency Scoring. A Kruskal-Wallis Test demonstrated a statistically significant difference in ACE-IQ using the frequency method of scoring across population of location immigrated from (Gp1, *n* =108: city, Gp2, *n* = 42: country, Gp3, *n* = 34: suburb), χ^2 (2, *n* = 184) = 7.719, *p* = .021. Dunn's pairwise tests were carried out for the five pairs of groups and adjusted using the Bonferroni correction. There was evidence of statistically significant differences between city (*M* = 1) and country (*M* = 2; *p* = .007, ES= -.201). Participants who immigrated from the county reported more adverse childhood experiences growing up then individuals who immigrated from a city.

Summary of Research Question: Trauma history and demographic factors

Non-parametric tests were used to evaluate the relationship between seven demographic factors and participant's score on the ACE-IQ. A statically significant relationship was observed between the ACE-IQ score for immigrants coming from a city versus the country. Both the binary (ES = .223) and frequency method (ES = .201) of scoring, effect size value suggests a low practical significance for using population amounts to predict scores on the ACE-IQ.

Research Question 6: Are There Differences by Health Factors and Trauma History for Latine Immigrants?

Adverse childhood experiences have been associated with an increased risk of negative health outcomes (Arias, 2004; Dube et al., 2005). Including an increased risk for depression (Chapman et al., 2004), alcohol and drug use disorders (Dube et al., 2002), and negative health conditions (Baglivio, Wolff, Epps, & Nelson, 2015).

The Patient Health Questionnaire (PHQ) is a self-administered questionnaire based on the PRIMSE-MD diagnostic instrument (Kroenke, Spitzer, & Williams, 2002), which is available in Spanish and uses a Likert scale for responses. This instrument screens for depression, anxiety, somatoform (somatic symptoms), and alcohol abuse based on the diagnostic criteria in the American Psychological Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), which was released in 2000.

Participants were asked to complete the Patient Health Questionnaire, a self-rated health question, and checkoff health conditions they had been diagnosed with. These health factors were then evaluated using non-parametric tests to determine their relationship to ACE-IQ scores. The ACE-IQ was scored using both the binary (yes/no) method of scoring and the frequency (cutoff point) method of scoring.

Patient Health Questionnaire

The PHQ evaluated participants for somatic symptoms, depression, anxiety, and an alcohol disorder. Somatic symptoms are complaints about one's physical body that could potentially be caused by emotional distress. Table 17 gives the prevalence rates for somatic scores, depression scores, and anxiety scores for the sample population. Overall, nearly a third of participants indicated having somatic symptoms. For those who endorsed symptomatic symptoms, half reported mild symptoms.

Table 17

Symptom Severity for Somatization, Depression, and Anxiety (N=184)

Item	Somatic Symptoms		Depression Symptoms		Anxiety Symptoms	
	n	%	*N*	%	*n*	%
None	125	68	137	75	147	80
Mild	31	17	25	14	29	16
Moderate	19	10	11	6	4	2
Severe	9	5	11	6	4	2

Note: Total of percentages are not 100 because of rounding.

Fewer respondents reported currently experiencing depression and anxiety then somatic symptoms. Overall, 15% of respondents reported mild to moderate somatic symptoms, 20% reported mild to moderate depression, and 18% reported mild to moderate anxiety. Alcohol disorders was the lowest reported disorder. Five percent of the participants reported having an alcohol disorder.

***Health Factor Correlations*.**

A non-parametric correlation test was conducted, the Spearman's Rank Order Correlation, between the four ways of scoring the ACE-IQ, the number of reported health conditions, and the PHQ continuous scores for the somatic disorders, depression, anxiety, and alcohol disorders. Effect sizes were calculated as *z*/ square root of *N.*

Small Correlations. The number of health conditions identified by a participant had a small correlation with the ACE-IQ using the frequency method of scoring (r_s = *.251, p < .001)* score and the ACE-IQ using the binary method of scoring (r_s = *.213, p <*

.001). Small correlations were also observed between Alcohol Disorder and the ACE-IQ with the binary method of scoring *(r_s = .131, p* = .075*) and* ACE-IQ using the frequency method of scoring *(r_s = .176, p = .047).*

Medium Correlations. A medium correlation was observed between a participant's somatic score and the ACE-IQ with the binary scoring *(r_s = .412, p < .001) and* ACE-IQ using the frequency method of scoring *(r_s = .314, p < .001).* Medium correlations were observed between the anxiety score and the ACE-IQ with the binary scoring *(r_s = .384, p < .001)* and ACE-IQ using the frequency method of scoring *(r_s = .314, p < .001).* A participant's depression score also had a medium correlation with the ACE-IQ with the binary scoring (r_s = .477, p < .001) and the ACE-IQ using the frequency method of scoring (r_s = .382, p < .001). The correlations can be seen in Table 18.

Table 18

Spearman Rho's Intercorrelations for Health Questions with Scoring Method

Item	ACE-IQ Binary	ACE-IQ Freq.	Health Summary	Self-Rated Health	Somatic Score	Depression Score	Anxiety Score	Alcohol Score
ACE-IQ Binary	--							
ACE-IQ Freq.	.859**	--						
Health Summary	.209**	.251**	--					
Self-Rated Health	.088	.054	.050	--				
Somatic Score	.412**	.314**	.331**	.103	--			

Item	ACE-IQ Binary	ACE-IQ Freq.	Health Summary	Self-Rated Health	Somatic Score	Depression Score	Anxiety Score	Alcohol Score
Depression Score	.477**	.382**	.350**	.075	.820**	--		
Anxiety Score	.384**	.325**	.399**	.088	.592**	.602**	--	
Alcohol Score	.132	.147*	.175	.124	.175*	.1416	.142	--

Note: ** Statistically significant at $p < .001$ level; * Statistically significant at $p < .001$ level

Non-Parametric Tests for Health Factors and ACE scores

Non-parametric tests were used to evaluate the relationship between demographic factors and a participant's score on the ACE-IQ.

Alcohol Disorder and ACE Scores. A Mann-Whitney test indicated that the Binary ACE score was not statistically significant for participants with an alcohol disorder (Md = 7, n = 9) versus participants without an alcohol disorder (Md = 3, n = 175), U = 1063.5, z = 1.782, p = .075, r = .131 A Mann-Whitney test indicated that the ACE-IQ using the frequency method of scoring was significantly greater for participants with an alcohol disorder (Md = 4, n = 9) then participants without an alcohol disorder (Md = 1, n = 175), U = 1087, z = 1.987, p = .047, r = .147.

Health Concerns and ACE Scores. The category of health concerns was combined into a "yes" or "no" group due to the size of the group. A Mann-Whitney test indicated that the ACE-IQ with the binary scoring was significantly greater for participants with health concerns (*Md* = 5, *n* = 53) then participants without health

concerns (*Md* = 3, *n* = 131), *U* = 4323.5, *z* = 2.621, *p* = .009, *r* = .194. A Mann-Whitney test indicated that the ACE-IQ using the frequency method of scoring was significantly greater for participants with health concerns (*Md* = 2, *n* = 53) then participants without health concerns (*Md* = 1,*n* = 131), *U* = 4467, *z* = 3.146, *p* = .002, *r* = .233.

Somatic Score.

ACE-IQ with Binary Method of Scoring. A Kruskal-Wallis Test revealed a statistically significant difference in the ACE-IQ with the binary scoring across somatic symptom groups (Gp1, *n* = 125: None, Gp2, *n* = 31: Mild, Gp3, *n* = 19: Moderate, Gp4, *n* = 9: Severe), χ^2 (3, *n* = 184) = 28.539, *p* < .001, η^2 = .142). Dunn's pairwise tests were carried out for the five pairs of groups and adjusted using the Bonferroni correction. There was evidence of less ACEs reported by the group with no symptoms (*M* = 3) and participants with moderate symptoms (*M* = 6; *p* < .001, ES = -.313) and severe symptoms (*M* = 8; p < .001, ES = -.268). Participants with mild symptoms (*M* = 4) reported fewer ACEs then those with moderate symptoms (*M* = 6; *p* = .001, ES = -.225) and mild (*M* = 6) and severe symptoms (*M* = 8; *p* = .003, ES = -.213)

ACE-IQ with Frequency Method of Scoring. A Kruskal-Wallis Test revealed a statistically significant difference in ACE-IQ using the frequency method of scoring across somatic symptom groups (Gp1, *n* = 125: None, Gp2, *n* = 31: Mild, Gp3, *n* = 19: Moderate, Gp4, *n* = 9: Severe), χ^2 (3, *n* = 184) = 26.153, *p* < .001, η^2 = .129. Dunn's pairwise tests were carried out for the five pairs of groups and adjusted using the Bonferroni correction. There was evidence of less ACEs reported by the group with no symptoms (*M* = 1) and participants with moderate symptoms (*M* = 2; *p* < .001, ES = -.305) and severe symptoms (*M* = 4; *p* < .001, *ES* = -.276). Participates with mild

symptoms (*M* = 2) reported fewer ACEs then participants with moderate symptoms (*M* = 2; *p* = .005, ES = -.208), and severe symptoms (*p* = .004, *ES* = -.213).

Depression Scores.

ACE-IQ with Binary Method of Scoring. A Kruskal-Wallis Test revealed a statistically significant difference in the ACE-IQ with the binary scoring across depression symptom groups (Gp1, *n* = 137: None, Gp2, *n* = 25: Mild, Gp3, *n* = 11: Moderate, Gp4, *n* = 11: Severe), χ^2 (3, *n* = 184) = 32.995, *p* < .001, η^2 = .167. Dunn's pairwise tests were carried out for the four pairs of groups and adjusted using the Bonferroni correction. Participants with no symptoms (*M* = 3) reported fewer ACEs at a statistically significant difference then participants with moderate symptoms (*M* = 6; *p* < .001, *ES* = -.259) and severe symptoms (*M* = 8; *p* < .001, *ES* = -.341). In addition, participants with mild symptoms (*M* = 4) reported less ACEs at statistically significant difference then participants with severe symptoms (*M* = 8; *p* = .006, ES = -.203).

ACE-IQ with Frequency Method of Scoring. A Kruskal-Wallis Test revealed a statistically significant difference in ACE-IQ using the frequency method of scoring scores across depression symptom groups (Gp1, *n* = 137: None, Gp2, *n* = 25: Mild, Gp3, *n* = 11: Moderate, Gp4, *n* = 11: Severe), χ^2 (3, *n* = 184) = 28.063, *p* < .001, η^2= .139. Dunn's pairwise tests were carried out for the five pairs of groups and adjusted using the Bonferroni correction. Participants with no symptoms (*M* = 1) reported fewer ACEs at a statistically significant difference then participants with moderate symptoms (*M* = 2; *p* = .031, *ES* = -.159) and participants with severe symptoms (*M* = 4; *p* < .001, *ES* = -.328). Participants with mild symptoms (*M* = 2) reported fewer ACEs then

participants with severe symptoms (*M* = 4; *p* = .002, *ES* = -.224) at a statistically significant level.

Anxiety Score.

ACE-IQ with Binary Method of Scoring. A Kruskal-Wallis Test revealed a statistically significant difference in the ACE-IQ with the binary scoring across anxiety symptom groups (Gp1, *n* = 147: none, Gp2, *n* = 29: mild, Gp3, *n* = *4*: moderate, Gp4, *n* = 4: severe), $\chi^2(3, n = 184) = 18.55$, $p < .001$, $\eta^2 = .74$. Dunn's pairwise tests were carried out for the four pairs of groups and adjusted using the Bonferroni correction. A statistically significant difference was noted between no symptoms (*M* = 3) and mild symptoms (*M* = 6; *p* = .003, *ES* = -.217) and no symptoms and severe symptoms (*M* = 10.50; *p* = .001, ES = -.239). In both cases participants with no symptoms reported fewer ACEs then participants with mild or severe symptoms.

ACE-IQ with Frequency Method of Scoring. A Kruskal-Wallis Test revealed a statistically significant difference in ACE-IQ using the frequency method of scoring across anxiety symptom groups (Gp1, *n* = 147: none, Gp2, *n* = 29: mild, Gp3, *n* = *4*: moderate, Gp4, *n* = 4: severe), $\chi^2(3, n = 184) = 18.885$, $p < .001$, $\eta^2 = .088$. Dunn's pairwise tests were carried out for the five pairs of groups and adjusted using the Bonferroni correction. Participants with no symptoms (*M* = 1) reported fewer ACEs at a statistically significant difference then participants with moderate symptoms (*M* = 3; *p* = .006, ES = -.203) and participants with severe symptoms (*M* = 7.5; *p* = .001, ES = -.251). Participants with mild symptoms (*M* = 2) reported fewer ACEs then participants with severe symptoms (*M* = 7.5; *p* = .029, ES = -.162).

Self-rated Health Question.

ACE-IQ with Binary Method of Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in the ACE-IQ with the binary scoring scores across the self-rated health groups (Gp1, *n* = 2: very poor, Gp2, *n* = 19: poor, Gp3, *n* = 16: neither good nor bad, Gp4, *n* = 105: good, Gp5, *n* = 42: excellent), $\chi^2(4, n = 184) = 4.335$, $p = .363$.

ACE-IQ with Frequency Method of Scoring. A Kruskal-Wallis Test did not demonstrate a statistically significant difference in ACE-IQ using the frequency method of scoring across the self-rated health (Gp1, *n* = 2: very poor, Gp2, *n* = 19: poor, Gp3, *n* = 16: neither good nor bad, Gp4, *n* = 105: good, Gp5, *n* = 42: excellent), $\chi^2(4, n = 184) = 2.717$, $p = .606$.

Summary of Research Question: Trauma history and Health Factors

Participants were asked to complete a self-rated health question, identify negative health conditions they had been diagnosed with, and take the Patient Health Questionnaire (PHQ) which evaluates for somatic symptoms, anxiety, depression, and alcohol abuse. These health factors were then evaluated for differences in ACE-IQ scores on both the binary and frequency method of scoring.

The self-rated health question did not display a correlation with the ACE-IQ scores for either the binary method of scoring or the frequency method of scoring. In addition, there was not a statistically significant relationship. The question asking participants to identify health conditions they had been diagnosed with had a small correlation with both the binary and frequency method of scoring the ACE-IQ. Diagnosed health conditions also had statistical significance with adverse childhood

experiences (ACEs). Participants who had been diagnosed with a health condition reported more adverse childhood experiences growing up. However, the effect size was small for all methods of scoring, indicating low practical significance.

The most commonly reported mental health concern on the PHQ was somatic symptoms. Overall, 15% of participants reported somatic symptoms at the moderate or severe levels. Twelve percent of participants reported depression symptoms at either the moderate or severe levels.

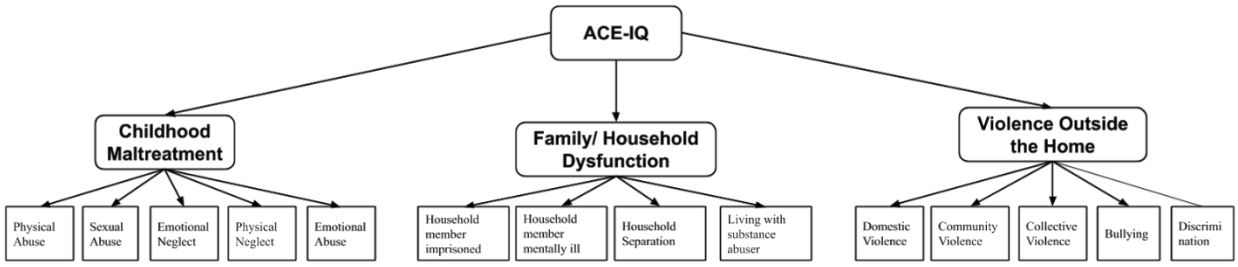
Both the binary and frequency method of scoring the ACE-IQ had a small correlation and statistical significance with somatic scores, depression, and anxiety. Participants who had higher ACE-IQ scores reported more symptoms of somatization, depression, and anxiety. The effect size for all three health factors were low, indicating low practical significance. Alcohol disorder was the only health factor that was significant for the frequency method of scoring but not for the binary method of scoring.

Research Question 7: What is the impact of the Five Additional Questions?

The ACE-IQ used in this study included additional questions to asses for additional adverse childhood experiences not already included in the ACE-IQ. The expanded version of the ACE-IQ assessed for racism and discrimination, household separation due to immigration, and physical neglect because of food insecurity. Figure 6 shows the proposed dimensions of the ACE-IQ with the added questions added.

Figure 6

Expanded ACE-IQ Domains and Trauma History



Expanded ACE-IQ Questions from the Philadelphia Questionnaire

Two questions were taken from the Philadelphia Adverse Childhood Experiences Questionnaire and included in the expanded ACE-IQ. One question added to the category of physical neglect (Wade et al., 2016) by asking about food insecurity. The second question created a new category of discrimination. The creation of the new category changed the range of possible scores from 0-13 to 0-14 for the expanded ACE-IQ.

Expanded ACE-IQ Added Migration Questions

Three questions related to migration were added to the questionnaire based upon the literature review and suggestion by the focus group. All three questions were "yes" or "no" questions and were included in the category of household separation. These three questions asked about a household member leaving due to immigration, fear a household member would have to leave, or separation from a parent due to immigration.

Expanded ACE-IQ Scoring.

Similar to the scoring for the ACE-IQ, there are two ways to score the expanded ACE-IQ. These two methods are known as the binary method of scoring and the frequency method of scoring. The binary method of scoring simply codes the response pattern as "yes" or "no." If a participant answers in the affirmative to any question in the category, they receive a point for the entire category. Appendix M has the directions for scoring the ACE-IQ using the binary method of scoring. The frequency method of scoring relies upon a cutoff point that has been predetermined by the WHO. A response that falls above the cutoff point receives a point for that category. Appendix N contains the directions for scoring the ACE-IQ using the frequency method of scoring. Upon competition of the ACE-IQ, each participant receives a score of 0-14.

Changes in Participants Scores with the Expanded ACE-IQ

Expanded Binary Method of Scoring. The inclusion of the new question in the physical neglect category changed 128 participant's physical neglect results from no to yes. Sixteen of the participants changed from having no ACE score to having one ACE score after the inclusion of this question. The inclusion of the discrimination category increased the ACE score for 115 participants. The addition of immigration to the household separation category increased the number of participants reporting this category by 64 individuals.

Expanded Frequency Method of Scoring. The frequency cut-off score for the new physical neglect question was "Always" and "Most of the time." This resulted in a change in the ACE score for twelve participants. One individual went from having an ACE score of zero to an ACE score of one. The cutoff point for the new category of

discrimination was “Always,” “Most of the time,” and “Sometimes” (Wade et al., 2016). The inclusion of this new category changed the ACE score for 65 participants. Six participants changed from an ACE score of zero to one. The addition of immigration to the household separation category increased the number of participants reporting this category by 64 individuals.

Expanded ACE-IQ Internal Consistency

For this study, Cronbach’s alpha was used to determine internal consistency. An acceptable range of internal consistency has been identified as .7 to .9 (McMillian & Schumacher, 1997). Due to multiple scales being used in this measure, all data was converted to a z score and then run to find the Cronbach’s alpha.

Expanded ACE-IQ as a Whole

The expanded ACE-IQ scale had a lower Cronbach’s alpha score of .907, a decrease by .001 in the Cronbach’s alpha for the traditional ACE-IQ. Similar to the traditional ACE-IQ, this Cronbach’s alpha was above our .9 cutoff score. A high Cronbach’s alpha (> .9) can be an indication of redundancies and might indicate that the test length could be shortened (Travakol & Dennick, 2011). Since the Cronbach’s alpha was only .007 above the cutoff score no changes were made to the questions included. The expanded version of the ACE-IQ displayed internal consistency.

Expanded ACE-IQ Subscales

Including the question about food insecurity in the childhood maltreatment domain decreased the score for the Cronbach’s alpha by .001 to .851. The three questions about immigration increased the household dysfunction domain from a Cronbach’s alpha of .687 to .705. Finally, the new trauma category of discrimination and

racism in the violence outside the home domain decreased the Cronbach's alpha from .866 to .835. All subdomains of the expanded ACE-IQ displayed internal consistency compared to the original ACE-IQ which only displayed internal consistency for the two subscales of violence outside the home and childhood maltreatment.

Expanded ACE-IQ Construct Validity

A confirmatory factor analysis was run with the five additional questions included. The factor analysis explained 16% less than the confirmatory factor analysis run on the traditional ACE-IQ. The five added questions did not load on any factor. Due to the lack of clear factors related to the dimensions proposed by the WHO of household/ family dysfunction, violence outside the home, and childhood maltreatment internal consistency was not found.

Expanded ACE-IQ Concurrent Validity

Due to the construct validity and reliability of the measure, the BRFSS was selected to determine concurrent validity. Both the binary and frequency method of scoring the ACE-IQ were statistically significant on the test of Kolmogrov-Smirnov (p<.001), meaning normality cannot be assumed. Due to normality not being assumed, a non-parametric test, the Spearman's correlation coefficient, was used to obtain the correlation coefficient. The expanded binary method of scoring the ACE-IQ had a .856 correlation with the BRFSS (p<.001) a decrease of .006. The frequency expanded method of scoring for the ACE-IQ had a .774 correlation with the BRFSS (p<.001), a decrease of .085. The decreases in correlations between the expanded versions of the test and the BRFSS were small and still displays a strong correlation.

Expanded ACE-IQ Trauma History for this Sample

Participant's overall ACE score was obtained for both the binary and frequency method on the ACE-IQ with a possible range of 0 to 14. The binary method of scoring is a yes/no method of scoring. The frequency method uses a cutoff point to determine a score. The descriptive statistics for the expanded binary and frequency method of scoring can be seen in Table 19.

Table 19

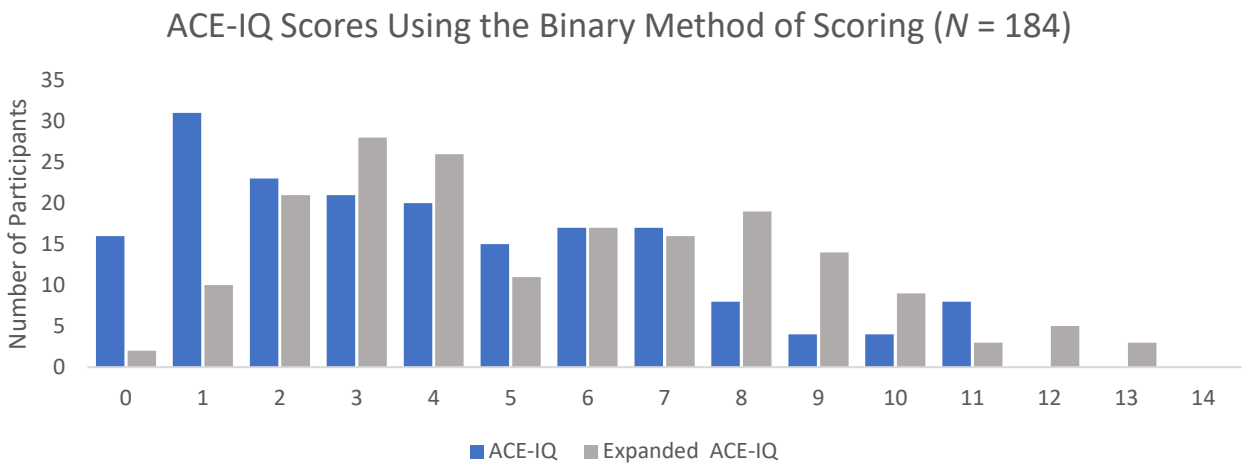
Descriptive Statistics for Expanded Version of ACE-IQ

Scale	N	Min	Max	Mean	Std. Deviation	Median	Skewness	Kurtosis
Binary Expanded	184	0	13	5.48	3.08	5	0.412	-0.68
Frequency Expanded	184	0	11	2.49	2.49	2	1.31	1.64

The average score for the expanded binary method of scoring was 5.48, with a range of 0 to 13. Ninety-nine percent of participants reported one or more adverse childhood experiences and 66.8% of participants reported four or more ACEs using the expanded binary method of scoring. The standard deviation was 3.08. Figure 7 shows the difference in distribution between the ACE-IQ and the expanded version of the ACE-IQ for the binary method of scoring.

Figure 7

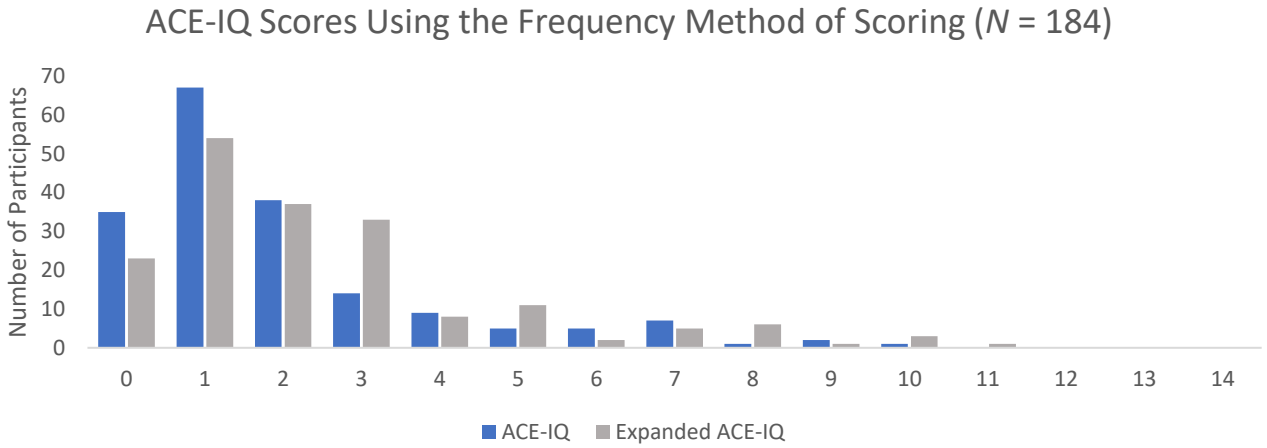
ACE-IQ Scores Using the Binary Method of Scoring



The average score for the expanded frequency method of scoring was 2.49 with a range of 0 to 11 and a standard deviation of 2.49. Thirteen percent of participants reported no ACE score and 20% of participants reported four or more ACEs. Figure 8 shows the difference in distribution of scores using frequency scoring method.

Figure 8

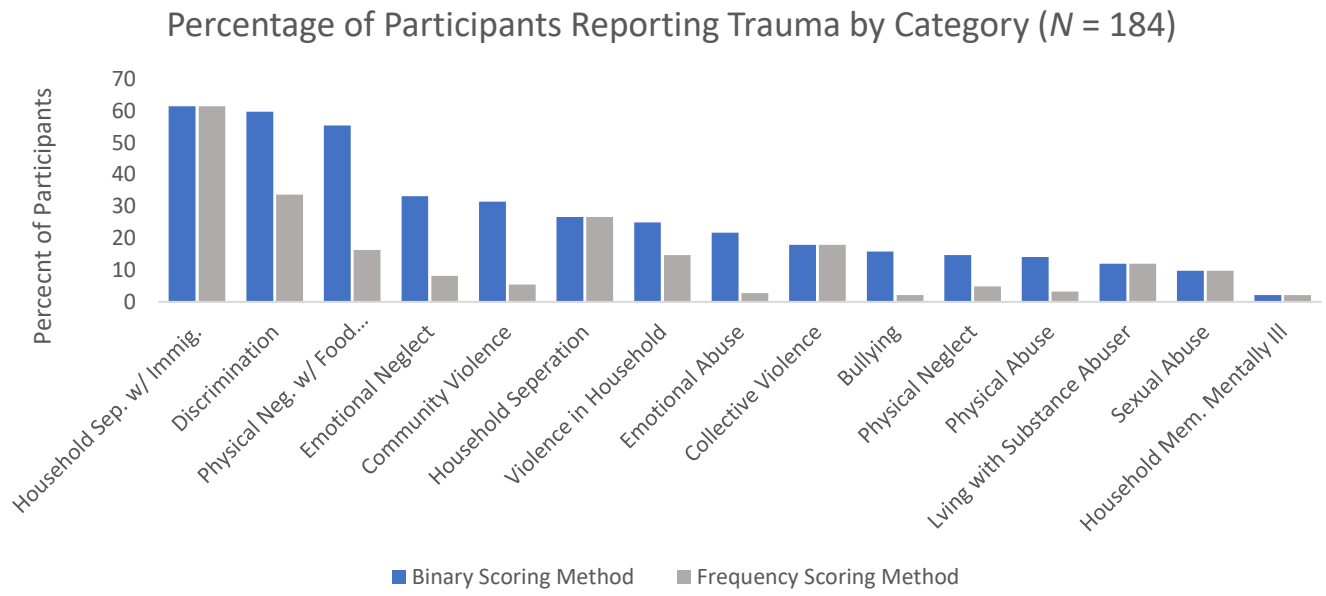
ACE-IQ Scores Using the Frequency Method of Scoring



For both the frequency scoring method and the binary scoring method, the most reported trauma categories were from the expanded version of the ACE-IQ. Figure 9 shows the percentage of participants reporting each trauma category.

Figure 9

Percentage of Participants Reporting Trauma by Category



The most reported trauma category was household separation with immigration questions added with 61% of participants reporting this category for both the binary and frequency method of scoring. The added category of discrimination was the second most reported category for binary (60%) and frequency (34%). For the binary method of scoring the category of physical neglect with food insecurity added was the third most reported category with 55% of participants reporting this category.

Expanded ACE-IQ and Demographic Factors

The only demographic factor that was statistically significant for the expanded ACE-IQ was population of location immigrated from using the frequency scoring method

(Gp1, *n* = 108 city, Gp2, *n* = 42: country, Gp3, *n* = 34: suburb), χ^2 (2, *n* = 184) = 11.037, *p* = .004. Dunn's pairwise tests were carried out for the five pairs of groups and adjusted using the Bonferroni correction. There was evidence of statistically significant differences between individuals who immigrated from the city versus the country (*p* = .002, ES = -.233). Participants who immigrated from the county reported more adverse childhood experiences growing up then individuals who immigrated from a city. The effect size value suggests low practical significance for using population amounts to predict scores on the ACE-IQ.

Expanded ACE-IQ and Health Factors

The expanded ACE-IQ scored using the binary method had multiple correlations that were slightly higher than the traditional ACE-IQ. The correlation between the depression score and the expanded ACE-IQ scored using the binary method displayed a large relationship (.508, *p* < .001). This was the only health factor that had a large correlation coefficient. Table 20 for the Spearman Rho correlations for the expanded ACE-IQ scored using the binary and frequency version of the ACE-IQ.

Table 20

Spearman Rho's Intercorrelations for Health Questions with Scoring Method

Item	Expanded ACE-IQ Binary	Expanded ACE-IQ Freq.	Health Summary	Self-Rated Health	Somatic Score	Depression Score	Anxiety Score	Alcohol Score
Expanded ACE-IQ Binary	--							
Expanded ACE-IQ Freq.	.808**	--						

Item	Expanded ACE-IQ Binary	Expanded ACE-IQ Freq.	Health Summary	Self-Rated Health	Somatic Score	Depression Score	Anxiety Score	Alcohol Score
Health Summary	**.251****	.215**	--					
Self-Rated Health	.133	.090	.050	--				
Somatic Score	**.442****	.295**	.340**	.103	--			
Depression Score	**.508****	.367**	.366**	.075	.820**	--		
Anxiety Score	**.437****	.363**	.387**	.088	.592**	.602**	--	
Alcohol Score	.104	**.167***	-.042	.124	.175*	.116	.142	--

Note: Bolded numbers are correlations that are higher for the expanded version of the ACE-IQ

Non-parametric tests were run on health factors and expanded ACE-IQ using binary method of scoring and the frequency method of scoring. The results for the expanded version of the ACE-IQ were very similar to the traditional ACE-IQ. Participants who had higher ACE-IQ scores reported more symptoms of somatization, depression, and anxiety. The effect size for all three health factors were low, indicating low practical significance.

Summary of Expanded ACE-IQ

Five questions were added to the ACE-IQ to create an expanded version. Three of the questions asked about immigration and were added to the household separation category. A question about food insecurity was added to the category asking about

physical neglect and a new category was created about racism and discrimination. The expanded version of the ACE-IQ demonstrated adequate internal consistency for the measure as a whole and for the individual domains. This is a change from the traditional ACE-IQ the category of family/household dysfunction did not demonstrate internal consistency. However, the traditional ACE-IQ did not display construct validity either. Similar to the traditional ACE-IQ, concurrent validity was found.

The average scores for the expanded version of the ACE-IQ were higher than for the traditional ACE-IQ for both methods of scoring. For the binary method of scoring the three categories which included the five added questions were the most reported trauma categories. The expanded ACE-IQ binary method of scoring had a large correlation with depression scores, the only health factor that displayed a large correlation in this study.

Chapter 6: Discussion

Trauma is “any event, usually a non-ordinary one, that harms the body, self, or spirit” (Whitfield, 1998, p. 361). Early experiences of “physical, sexual, or psychological abuse, neglect, or living in a dysfunctional household prior to 18” (Llabre et al., 2017, p. 172) are referred to as adverse childhood experiences (ACEs). These ACEs have a profound effect on individuals. They have been linked to higher risks for chronic health conditions, low life potential, risky health behaviors, and early death (Centers for Disease Control and Prevention, 2016). Abuse and other traumatic events associated with ACEs have been shown to ultimately impact how a child sees the world and forms interpersonal relationships (Allem, Soto, Baezconde-Garbanati, & Unger, 2015).

Latines are the second largest racial or ethnic group in the United States. They account for about one-half of the nation’s population growth since 2000 (Flores, 2017). A quarter of the Latine population is under age 10. Most of these children are first- or second-generation immigrants (Marks, Ejesi & García, 2014). In recent years, more Latines have immigrated to the United States from countries where there has been both community and collective violence.

There is a lack of culturally and linguistically appropriate mental health and health services available for Latines in the United States (Fuentes and Aranda, 2012; Alegria et al., 2007; Alegria et al., 2008, Ramos-Sanchez & Atkinson, 2009). Foreign-born Latines, who speak Spanish, access significantly fewer mental health services than both Caucasian and African American individuals (Alegria et al., 2007; Alegria et al., 2008; Hatzenbuelher, 2017). When Spanish-speaking individuals access mental health services, they report negative treatment experiences due to communication barriers and

cultural incompatibility (Hansen and Aranda, 2012; Hatzenbuelher, 2017). Fifty-six percent of Latines, who access mental health care report they primarily receive services from school support personnel (McGill, 2016), making public schools an important resource for Latine families.

The World Health Organization has recently updated the Adverse Childhood Experiences (ACE) questionnaire so it could be used with international populations. The Adverse Childhood Experiences-International Questionnaire (ACE-IQ), has not been translated to Spanish or used with Latine immigrants. This study translated the ACE-IQ into Spanish, evaluated the psychometric properties of the questionnaire, and collected data on the trauma histories of Latine immigrants to the United States.

Current Study

The ACE-IQ was translated into Spanish and then back-translated to English. A focus group of Spanish speaking health specialists reviewed the translation and the construct of the questionnaire.

Participants were enrolled in an adult English language learner program located in Chesterfield County, VA. Over three sessions, 206 questionnaires were collected and 184 Latine immigrants completed the ACE-IQ.

Research Questions

The following questions guided this study:

1. To what extent is there evidence supporting the concurrent validity of the ACE-IQ?
2. To what extent is there evidence supporting construct validity of the ACE-IQ?
3. To what extent is there evidence of internal consistency for the ACE-IQ?

4. What is the trauma history for Latine immigrants?
5. Is there a relationship between demographic factors and trauma history for Latine immigrants?
6. Is there a relationship between health factors and trauma history for Latine immigrants?
7. What is the impact of the five additional questions upon the ACE-IQ?

Results

The ACE-IQ demonstrated good internal consistency with a Cronbach's alpha of .908. This is .008 above the recommended cutoff point, but the decision was made to not remove any of the questions at this time. The domain for violence outside the home (α = .866) and childhood maltreatment (α = .852) demonstrated adequate internal. The family/ household dysfunction domain demonstrated adequate reliability (α = .705) when questions about immigration were included.

For this study, the three domains proposed by the World Health Organization were used for a confirmatory factor analysis. The WHO's three domains were violence outside the house, childhood maltreatment, and family/household dysfunction. While the WHO identifies these three domains, other studies have identified different factors. Canan Karatekin and Maria Hill state that "findings demonstrate that the factorial structure of an ACEs scale is a function of the items included, and that regardless of variations in items, the emerging factors are moderately correlated with each other" (2019, p. 290)

A study by the Institute for Child and Family Well-Being found two factors (childhood maltreatment and household dysfunction) for the original ACE (Mersky,

Janczewski, & Topitzes, 2017). A study done by the CDC in 2014 found three factors for the original ACE measure (Ford et al., 2014). Those three factors were household dysfunction, physical/ emotional abuse, and sexual abuse/victimization. Finally, Rachel Kidman and her colleagues conducted a factor analysis of the ACE-IQ (Kidman et al., 2019) and found three factors. The three factors they identified were abuse/ domestic violence, household dysfunction, and neglect.

While my study did not display clear factors related to the dimensions proposed by the WHO. Three factors did emerge. Those three factors were violence inside the home (physical/ emotional abuse and domestic violence), violence outside the home, and childhood maltreatment. The lack of clear factors could have also been impacted by having only 184 participants.

The Behavioral Risk Factor Surveillance System (BRFSS) was selected to determine concurrent validity. The correlation between the BRFSS and the binary method of scoring (r^2 = .862) and the frequency method of scoring (r^2 = .859) shows a strong relationship between the BRFSS and the two methods of scoring.

My study evaluated the use of the ACE-IQ with Latine immigrants enrolled in an English Language Learner program in Chesterfield County, VA. The ACE-IQ demonstrated adequate internal consistency for both the entire measure and for the subscales. Three factors were identified by a confirmatory factor analysis for the ACE-IQ; however these were not the same three factors identified by the World Health Organization. Finally, concurrent validity was shown through the use of the BRFSS.

Discussion

Measurement of Trauma

What is Abuse? There tends to be a lack of an agreed upon definition for adverse childhood experiences (Wade et al., 2014; Karatekin & Hill, 2019). The original ACEs study, conducted in the 1990s, only evaluated a participant for emotional, physical, and sexual abuse, emotional and physical neglect, domestic violence against one's mother, and selected household dysfunction measures (Kelly-Irving & Delpierre, 2019). Some researchers argue that "the specific questions [in the original ACE study] that measure ACEs… might not reflect all of the salient stressors encountered by children and families" living in diverse communities (Patcher, Lieberman, Loom, & Fein, 2017, p. 131). A perspective that is also reflected by the World Health Organization (World Health Organization, 2009).

Toni Morrison in her book *Beloved*, observes that "definitions belong to the definers rather than the defined" (Friedman, 2018), a salient statement in how the definitions of trauma have been created. Mental health professionals tend to define the realities of the people they are working with (Spandler, Anderson, & Sapey, 2015).

During the pilot study, a discussion broke out among pilot study participants about whether a parent or guardian hitting a child was abuse. Many participants argued that the idea of abuse was different in the United States than in their home country. They suggested that back home a "tapaboca" – literally translated as mouth tap- or a "cocotazo" -smack on the head- were fast, non-injurious ways to correct the behavior of a child. In fact, participants said, these things were perfectly acceptable to do while out in public. However, according to the ACE-IQ, those actions would fall under the

category of physical abuse. In this study, only 14% of respondents reported physical abuse. In a study of Latines utilizing the Hispanic Community Health Study/ Study of Latinos, 30% of respondents reported physical abuse (Llabre et al., 2017). The conversation during the pilot study combined with lower reports of physical abuse, prompts me to think about who defines abuse and whether one definition fits for all cultures.

Are All Traumas Created Equal? In a letter to the editor of the journal *JAM Pediatrics*, in February of 2019, Dr. Sarah Gebauer and two of her colleagues argue that not all trauma is created equal (Gebauer, Moore, & Salas, 2019). They point out that most research has treated the components of ACEs equally by using an additive index based upon the assumption that all ACE components are equally traumatic. They point out "certainly the effect of childhood sexual abuse is greater than exposure to a family member with mental illness" (p. 398).

This discussion is at the heart of the decision to use the binary method of scoring versus the frequency method of scoring. The binary method uses the traditional additive index employed by most research, where all trauma categories are considered equal and a participant receives a point for every category they have experienced. Most ACE measure exclusively use this method of scoring with the exception of the ACE-IQ and the Yale-Vermont Adversity in Childhood Scale (Bethll, Carle, Hudziak, Gornbojav, Powers, Wade, & Braveman, 2017), which relies on the frequency scoring method. The frequency method attempts to put a greater emphasis on different categories of abuse, requiring responses to meet a cut-off point in order to be identified as a traumatic event.

As seen in this study, these two methods of scoring can produce different results. For the binary method of scoring only 8% of participants did not report any ACEs and 50.5% reported four or more ACEs versus 19% of participants who had not experienced an ACE and only 16% who experienced four or more ACEs using the frequency method of scoring. The World Health Organization suggests that both methods of scoring are calculated for a study and then the researcher examines the relationship between the ACE scores and the health factor being studied (World Health Organization, 2009).

For this study, the two methods of scoring showed similar relationships with both demographic factors and health outcomes. This study presents both scoring methods. The binary scoring method is presented to allow comparison with other studies that have used the additive method to determine adverse childhood experiences. The frequency scoring method is presented to illustrate the difference when not all traumas are treated equally.

Number of Adverse Childhood Experiences on the ACE-IQ.

In this study, using the binary measure, 91.1% of participants reported at least one ACE, and 61.4% of participants reported three or more ACEs. These numbers are higher than those previously reported using the ACE-IQ. The range of scores for the studies highlighted in Chapter 2 is 53% to 80% of respondents reporting one or more ACE and 7% to 40% of respondents reporting three or more ACEs (Almuneef et al., 2017; Bellis et al., 2014; Ho, Chan, Chien, Bressington, Karatzias, 2019; Tran, Dunne, Vo, & Luu, 2015). The study conducted in Malawi has responses more closely related to my study. In Malawi, 99% of the participants reported at least one ACE and 30% reported seven or more ACEs (Kidman, Smith, Piccolo & Kohler, 2019).

There are several factors that could have contributed to the higher number of participants reporting ACEs in this study. The majority of the participants immigrated from lower-income countries as opposed to the WHO reference countries in the Eastern European study which are upper- income countries (The World Bank, 2019). Benjet suggested in his 2010 study that ACEs are more frequent in low- and middle- income countries.

The makeup of the sample population could have also affected the results of this study. The study's sample population was made up of immigrants, while the other studies looked at individuals still living in their home country. Immigrants often cite experiences with violence and corruption as their reason for immigration.

Adverse Childhood Experiences for Latine Populations

The Behavioral Risk Factor Surveillance System (BRFSS) is an automated annual phone survey that contains questions related to adverse childhood experiences. Researchers used data for surveys administered from January 1, 2011 to December 31, 2014 to determine the ACE scores for the Latine population and found that the average ACE score for the Latine population was 1.80, with a 95% confidence interval of 1.70 to 1.91 (Merrick, Ford, Ports & Guinn, 2018). A study conducted in South Carolina analyzing the BRFSS scores from 2014-2016, found that 67% of Latine participants reported at least one ACE and 23.5% reported 4 or more ACEs. The Hispanic Community Health Study/ Study of Latinos found that 77% of respondents reported at least one ACE and 28.7% reported four or more ACEs (Llabre et al., 2018). In my study, 91.1% of participants reported at least one ACE, and 50% of participants reported four

or more ACEs using the binary method of scoring. This is a higher rate of adverse childhood experiences then previously found in the Latine population.

My study found higher ACE-IQ scores for this sample than reported in the studies discussed above of the Latine population. This could be because the population from which I sampled is entirely a population of immigrants. Immigrants have made the choice to leave their home country and settle in another country.

An alternative or complimentary possible explanation for the differences in my study and in previous studies or Latines in the United States might life in the instrument used. Unlike the studies cited above, my study used the ACE-IQ instrument to assess adverse childhood experiences. The ACE-IQ is designed to ask about a wider variety of adverse childhood experiences then has previously been proposed.

Physical and Mental Health

According to the World Health Organization, “the real value of [the] ACE-IQ lies in demonstrating the associations between… exposures to ACEs and... health outcomes” (World Health Organization, 2018, p. 1). Adverse childhood experiences have been linked to an increase risk for chronic health conditions (Jones, Merrick, & Houry, 2020). For this reason, questions asking respondent’s physical and mental health were included in the measure.

Chronic Health Conditions. According to the CDC, 60% of the United States’ population has at least one chronic disease (2019). The majority of the health conditions assessed for in the questionnaire fall into the CDC’s chronic disease category. In this study, only 28% of participants reported having a chronic health condition. According to a two-way analysis the majority of the respondents reporting chronic health conditions

immigrated from a city, were female, and had an education level above high school graduate.

This difference could be due to the immigration paradox where immigrants to the United States report being healthier than more established immigrants and non-immigrants in the United States (Cristini, et al., 2015; Salas-Wright, Vaughn, Schwartz & Córdova, 2016). It could also be due to the lack of culturally and linguistically appropriate mental health and health care services for Latine immigrants (Fuentes and Aranda, 2012; Alegria et al., 2007). Without consistent health care, it is possible that many of the study's participants have an undiagnosed health condition.

Self-Reported Health Question. The first health question asked participants to "rate your overall health." Response were "very poor" (1%), "poor" (10%), "neither good nor poor" (9%), "good" (57%), and "very good" (23%). This is a subjective assessment which asks respondents to rate their health on a Likert scale and are widely used in research (Prinja, Jeet & Kumar, 2012). However, there is some question about how valid this question is (Prinja, Jeet & Kumar, 2012). For my study, this question showed little correlation with either methods of scoring or other health factors, including Somatic symptoms. This lack of correlation with other health measure and respondent's ACE scores makes me question if this is a valid question for this population.

Implications

This study was the first to translate the Adverse Childhood Experiences-International Questionnaire to Spanish. It was used with both a Latine population and recent immigrants, both understudied populations. Results from my study shed light on the amount of trauma history Latine immigrants have experienced. In addition, it shows

that trauma is truly universal. Finally, it shed some light on the amount of mental health issues being experienced by the Latine community.

Research.

The Spanish ACE-IQ should be administered to additional populations of Latine immigrants so that the validity and reliability can continue to be verified. This will also provide researchers with more information about the trauma histories of Latine immigrants.

Researchers should continue to include the two questions pulled from the Philadelphia ACE questionnaire about food insecurity and racisms and discrimination. Additional research needs to be done regarding the inclusion of questions about a family member leaving the participant due to immigration. In this study, the question correlated with the questions regarding parental separation; however, this grouping of questions had low reliability. In addition, three different questions were used to ask about immigration. One question asked about household separation due to immigration, one about parental separation due to household separation, and a third question asking about fearing a family member would leave due to immigration. Even with the lack of reliability, I feel that these are important items to include in the ACE-IQ since it expands the definition of parental separation to include immigration, a culturally relevant topic.

The ACE-IQ should be researched to see if a shorter questionnaire can be created. Currently, the World Health Organization's version of the ACE-IQ contains 30 questions. In my study, the last four questions of the ACE-IQ had more non-responses then the rest of the questions. While it is not possible to determine if this low response rate was due to response fatigue, a shorter version of the ACE-IQ would eliminate the

possibility of response fatigue impacting participant's responses. In addition, a shorter instrument would allow the ACE-IQ to be integrated into other questionnaires and surveys.

Mental Health Practitioners.

This study provides insight into the childhood trauma history specific to the Latine immigrant population living in Chesterfield County, VA. Ninety-one percent of participants reported experiencing one ACE and 61% reported experiencing three or more ACEs. While this is only one study, it highlights the large number of ACEs Latine immigrants to the United States experience prior to the age of 18. More linguistically and culturally sensitive mental health services are needed for this population. This includes placing services within the Latine communities. In addition, schools should look at how they can create trauma-informed English Language Learner programs since so many Latines access mental health services through the school system.

Limitations

Research Methods

A major limitation of this study is that the adverse childhood experience categories identified to be included in the ACE-IQ have been determined by the World Health Organization for use with the entire international population. I used my knowledge of the population, a literature review, and a focus group of health professionals to determine if there were additional adverse childhood experiences that needed to be added to this measure. However, it is possible that there are additional traumas that are unique to this population which were not identified.

The ACE-IQ is a retroactive recall survey. It asks individuals to recall situations that happened to them multiple years ago. Several researchers have raised concerns about the use of retroactive recall. The first concern is that memory is faulty and subjective. How well an event is remembered can be impacted by subsequent events, such as when a memory is continually spoken about or shared (Brewin, Andrews, Gotlib, Steinberg, 1993; Hardt & Rutter, 2004). The second concern about retroactive recall is that what an individual remembers might be influenced by the person's current mood (Brewin et al., 1993; Hardt & Rutter, 2004).

The collective violence category for the ACE-IQ received fewer responses than other categories. On average, 11 respondents did not respond to each ACE-IQ question excluding collective violence. Collective violence had an average non-response rate across the four collective violence questions of 21 participants. This could be due to response fatigue, since collective violence was the last section on the questionnaire. However, this could also be due to fear because of the power that the individuals perpetrating collective violence had/ have over participants lives. Collective violence is defined by the WHO as "the instrumental use of violence by people who identify themselves as a member of a group… against another group or set of individuals, in order to achieve political, economic or social objectives" (World Health Organization, 2002). In collective violence, groups of people use violence to gain power or control and the individual has no control over the situation. Since these groups often control basic resources and safety, the fear of recounting what has happened might cause a participant not to respond to these questions.

The Patient Health Questionnaire (PHQ) was one of the few tests of mental health available in Spanish that had been tested for validity and reliability with a Spanish-speaking population. There is an overall lack of valid and reliable measures available to researchers in languages other than English. This is partly due to the cost of translating measures into different languages. In order to study minority language populations, more instruments need to be available in languages other than English.

Sample Population Limitations

The response rate for my study was 41%, with 38% of the day session students patriating and 43% of the night session students participating. During the day session, the director of the program stood with me and encouraged students to participate. Several times she mentioned that a student would be a good participant for my study, due to knowledge of their trauma history. Many of the participants identified by the director either refused to participate or turned in an incomplete questionnaire. It is not known why the participants either chose to not complete the questionnaire, but it is possible that participants decided to not participate due to their trauma history. One way to determine this would have been conducting a follow-up interview with non-participants.

Since demographic factors for the entire population is not known, it is not possible to identify if my sample population is representative of the students actively enrolled in the program. One way to determine this would have been asking all actively enrolled students to complete a quick demographic survey. This would have allowed the researcher to identify if the sample population was representative. One group that was not represented in the study was pre-literate individuals.

While a process was put into place to allow pre-literate individuals to participate in this study, no pre-literate students elected to take the questionnaire orally. This important group was not represented in my study. Twenty-five participants reported elementary school or less for education growing up, leading the me to wonder how well they read Spanish. These 25 participants might have benefited from taking the questionnaire orally.

Birman (2006) says that undocumented participants bring "unique challenges" (p. 157) to ethical research. One challenge is the undocumented participants' need for anonymity (Lahman, Mendoza, Rodriguez, & Schwatz, 2011). In an effort to provide anonymity for participants, implied consent was utilized. Participants received an informed consent page which stated that turning in their questionnaire gave the researcher permission to use their data. Even with this protection in place, it is possible that some individuals might have been hesitant to participate due to their documentation status. However, without interviewing non-respondents, it is not possible for me to know this for sure.

Future studies could improve response rate in several ways. One way is to increase the number of sessions. When I returned for the second night session, many of the participants stopped to say hi and brought their friends up to take my questionnaire. Originally, I had requested to go into individual classrooms, however the study site was concerned that students would feel pressured to participate so requested that I set-up in a central location. If I had been able to go into the individual classrooms, I feel that I would have had a higher response rate. I could have also not only set-up in the cafeteria in a central location, but also in the hallways

where the classrooms were located. This would have allowed me to interact with students who did not go to the cafeteria during break.

Delimitations

This study is limited to demonstrating the psychometric properties of the ACE-IQ within adults enrolled in an adult English Language Learner (ELL) program in Chesterfield County, VA. Latine communities around the United States are not a heterogenous group. Prior to being used in other populations, the psychometric properties of this Spanish ACE-IQ should be evaluated for the new sample.

The questionnaire in this study was translated into Spanish specific to Central American countries. This decision was made because the majority of the Latine population in Chesterfield County, VA, have immigrated from Central America. However, this could present translation errors for Spanish-speaking individuals from countries outside of Central America.

Nonresponses on the questionnaire were coded as never having experienced that trauma category. It is impossible to determine if a nonresponse on an item indicates if the participant was uncomfortable, unwilling to divulge information, or accidently skipped the question. By eliminating the responses, there is a possibility of introducing false negatives. This could be corrected in the future by including a non-response option.

Conclusion

This study was designed to determine the psychometric properties of a Spanish translation of the ACE-IQ while also collecting data about the trauma history for Latine immigrants. My study found that the Spanish translation of the ACE-IQ has both internal

consistency and concurrent validity. Ninety-one percent of participants reported having experienced at least one ACE and 50% reported having experienced four or more ACEs. In addition, 32% of participants reported somatic symptoms, 25% reported depression symptoms, and 20% reported anxiety symptoms.

Practitioners and researchers need to work together to ensure this population has greater access to mental health resources. Further, providers of mental health resources need to be aware of the unique needs of this population and be prepared to meet those needs.

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Appendix A: ACE-IQ English Version

Health Questionnaire

1. What is your age (if unknown give your best guess): _____
2. Gender: What is your gender?
   a. Male b. Female c. Other

3. What is your native language?
   a. Spanish
   b. English
   c. Arabic
   d. Indigenous Language
   e. Other _____
4. What Country were you born in:_____

5. What was the population of the place where you immigrated from:
   a. Urban (City) b. Rural (Country) c. Suburban

6. How long have you been in the United States for: _____

7. How many years of formal education have you completed

   a. No formal education
   b. Less than primary/ elementary school
   c. Primary / elementary School completed
   d. Secondary/ High School completed
   e. Some Trade School
   f. Completed Trade School
   g. Some College or University
   h. Completed College or University
   i. Post graduate degree

8. How would you rate your overall health?
   a. Very Poor
   b. Poor
   c. Neither Good nor Poor
   d. Good
   e. Very Good

9. Do you suffer or have suffered from any of the following conditions? Check all that apply

___ Heart Disease	___ Obesity	___ Asthma
___ Stroke	___ Liver Disease	___ Depression/ Anxiety
___ Cancer	___ High blood pressure	___ Illegal drug use
___ Diabetes	___ Epilepsy	___ High Cholesterol

10. During last 4 weeks, how much have you been bothered by the following problems?

	Not Bothered	Bothered a Little	Bothered a lot
Stomach pain	1	2	3
Back Pain	1	2	3
Pain in your arms, legs or joints	1	2	3
Menstrual cramps of other problems with you periods	1	2	3
Pain or problems during sexual intercourse	1	2	3
Headaches	1	2	3
Chest Pain	1	2	3
Dizziness	1	2	3
Fainting Spells	1	2	3
Feeling your heart pound or race	1	2	3
Shortness of Breath	1	2	3
Constipation, loose bowels, or diarrhea	1	2	3
Nausea, gas, or indigestions	1	2	3

11. Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at All	Several Days	More than half the days	Nearly every day
Little interest or pleasure in doing things	1	2	3	4
Feeling, down, depressed, or hopeless	1	2	3	4
Trouble falling or staying asleep, or sleeping to much	1	2	3	4
Feeling tired or having little energy	1	2	3	4
Poor appetite or overeating	1	2	3	4

Feeling bad about yourself- or that you are a failure or have let yourself of your family down	1	2	3	4
Trouble concentrating on things such as reading or watching TV	1	2	3	4
Moving or speaking so slowly that others people have noticed, or the opposite- being so fidgety or restless that you have been moving around a lot more than usual	1	2	3	4
Thoughts that you would be better off dead or thoughts of hurting yourself in some way	1	2	3	4

12. Over the last 4 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days
Feeling nervous, anxious, on edge, or worrying a lot about different things	1	2	3
Feeling restless so that it is hard to sit still	1	2	3
Getting tired very easily	1	2	3
Muscle tension, aches or soreness	1	2	3
Trouble falling asleep or staying asleep	1	2	3
Trouble concentrating on things such as reading or watching tv	1	2	3

13. Do you ever drink alcohol (including beer or wine)? If you check “No” go straight to question 15.
    a. No b. Yes

14. Have any of the following happened to you more than once in the last 6 months?

	No	Yes
You drank alcohol even though a doctor suggested that you stop drinking because of a problem with your health?	1	2

You drank alcohol, were drunk, or hung over while you were working, going to school, or taking care of children or other responsibilities?	1	2
You missed or were late for work, school, or other activities because you were drinking or hung over.	1	2
You had a problem getting along with other people while you were drinking.	1	2
You drover a car after having several drinks or after drinking too much.	1	2

15. When you were growing up, during the first 18 years of your life:

	Always	Most of the Time	Sometimes	Rarely	Never
Did your parents/ guardians understand your problems and worries	1	2	3	4	5
Did your parents/ guardians know what you were doing with your free time when you were not at school or work?	1	2	3	4	5
How often did you feel that you were treated badly or unfairly because of your race, ethnicity, color of your skin, spoke a different language, had an accent, or because you came from a different country or culture?	1	2	3	4	5
Your family sometimes cut the size of meals or skipped meals because food was not available?	1	2	3	4	5

16. Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs?
    a. Yes b. No
17. Did you live with a household member who was depressed, mentally ill, or suicidal?
    a. Yes b. No
18. Did you live with a household member who was ever sent to prison or jail?
    a. Yes
    b. No

19. Did you live in a household where a household member had to leave the country either to live or work?
    a. Yes b. No
20. Did you live in a household where you feared a household member would be forced to leave the country they were living or working in?
    a. Yes b. No
21. Were your parents separated or divorced?
    a. Yes b. No
22. Did you mother, father, guardian die?
    a. Yes b. No
23. Were you ever separated from your caregiver for a large amount of time due to migration?
    a. Yes b. No
24. When you were growing up, during the first 18 years of your life:

	Many times	A few times	Once	Never
How often did your parents/ guardians not give you enough food even when they could have easily done so?	1	2	3	4
Were your parents/guardians too drunk or intoxicated by drugs to take care of you?	1	2	3	4
How often did your parents/ guardians not send you to school, even when it was available?	1	2	3	4

These next questions are about certain things you may have heard or seen in your home. These are things that may have been done to another household member but not to you.

	Many times	A few times	Once	Never
Did you see or hear a parent of household member in your home being yelled at, screamed at, sworn at, insulted or humiliated	1	2	3	4
Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up?	1	2	3	4

Did you see or hear a parent or household member in your home being hit or cut with an objects, such as a stick (or cane), bottle, club, knife, whip, machete, etc?	1	2	3	4

These next questions are about certain things you may have experienced.
When you were growing up, during the first 18 years of your life…

	Many times	A few times	Once	Never
Did a parent, guardian, or other household member yell, scream or swear at you, insult or humiliate you?	1	2	3	4
Did a parent, guardian, or other household member threaten to, or actually, abandon you or throw you out of the house?	1	2	3	4
Did a parent, guardian, or other household member spank, slap, kick, punch or beat you up?	1	2	3	4
Did a parent, guardian, or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, machete etc?	1	2	3	4
Did someone touch or fondle you or make you touch them in a sexual way when you did not want them to?	1	2	3	4
Did anyone have or attempt to have sexual intercourse with you, when you did not want them to?	1	2	3	4

These next questions are about being bullied when you were growing up. Bullying is when a young person or group of young people say or do bad and unpleasant things to another young person. It is also bullying when a young person is teased a lot in an unpleasant way or when a young person is left out of things on purpose. It is not bullying when two young people of about the same strength or power argue or fight or when teasing is done in a friendly and fun way.

When you were growing up, during the first 18 years of your life…

	Many times	A few times	Once	Never

How often were you bullied?	1	2	3	4

This next question is about Physical Fights. A physical fight occurs when two young people or about the same strength or power choose to fight each other.

When you were growing up, during the first 18 years of your life…

	Many times	A few times	Once	Never
How often were you in a physical fight?	1	2	3	4

These next questions are about how often, when you were a child, you may have seen or heard certain things in your neighborhood or community (Not in your home or on TV, movies, or the radio)

When you were growing up, during the first 18 years of your life…

	Many times	A few times	Once	Never
Did you see or hear someone being beaten up?	1	2	3	4
Did you see or hear someone being stabbed, hit with a machete, or shot?	1	2	3	4
Did you see or hear someone being threatened with a knife machete, or gun?	1	2	3	4

These questions are about whether you did or did not experience any of the following events when you were a child. The events are all to do with collective violence, including wars, terrorism, political or ethnic conflicts, genocide, repression, disappearances, torture and organized violent crime such as banditry and gang warfare.

When you were growing up, during the first 18 years of your life

	Many times	A few times	Once	Never
Where you forced to go and live in another place due to any of these above events?	1	2	3	4
Did you experience the deliberate destruction of your home due to any of these above events?	1	2	3	4
Were you beaten up by soldiers, police, militia, paramilitary, or gangs?	1	2	3	4
Was a family member or friend killed or beaten up by soldiers, police, militia, paramilitary, or gangs?	1	2	3	4

Appendix B: ACE-IQ Spanish Version

Cuestionario Sobre Salud

25. ¿Cuántos años tienes? (si se desconoce, mejor conjetura) _____

26. ¿Cuál es su sexo?
    a. Masculino b. Femenino c. Otro

27. ¿Cual es su idioma nativo?
    a. Español
    b. Ingles
    c. Arábica
    d. Lengua indígena
    e. Otro: _____

28. ¿En qué país naciste? _____

29. ¿Cuál era la población de la ciudad donde se nació?
    a. Cuidad b. Campo c. Aldea

30. ¿Cuántos tiempo ha vivido en los Estados Unidos? _____

7. ¿Cuántos años de educación formal ha completado?
    j. Sin educación formal
    k. Menos que la escuela primaria
    l. Escuela primaria terminada
    m. Escuela secundaria/ preparatoria terminada
    n. Algo de escuela comercial
    o. Escuela comercial terminada
    p. Algo de Instituto o Universidad
    q. Instituto o Universidad terminado
    r. Graduado de posgrado

8. ¿Cómo calificaría su salud general?
    a. Pobre c. Así así d. Buena
    b. Favorable e. Excelente

9. ¿Sufre o ha sufrido cualquiera de las siguientes enfermedades? Marque todas las que apliquen

___ Obesidad	___ Asma	___ Derrame
___ Enfermedad hepática	___ Depresión/ Ansiedad	___ Cáncer
___ Hipertensión arterial	___ Uso de drogas ilegales	___ Diabetes
___ Epilepsia	___ Colesterol alto	___ Enfermedad del corazón

10. Durante las <u>últimas 4 semanas</u>, ¿Cuánta molestia ha tenido por cualquier de los siguientes problemas?

	Sin Molestia	Un poco de Molestia	Mucha Molestia
Dolor de estómago	1	2	3
Dolor de espalda	1	2	3
Dolor en sus brazos, piernas o coyunturas (rodillas, caderas, etc.)	1	2	3
Calambres menstruales o otros problemas con sus periodos	1	2	3
Dolor o problemas durante la penetración sexual	1	2	3
Dolores de cabeza	1	2	3
Dolor en el pecho	1	2	3
Mareos	1	2	3
Episodios de desmayos	1	2	3
Ha sentido palpitaciones o aceleramiento del corazón	1	2	3
Corto(a) de respiración	1	2	3
Estreñimiento o diarrea	1	2	3
Nausea, gas o indigestión	1	2	3

11. Durante las 2 últimas semanas, ¿Ha tenido molestias debido a los siguientes problemas?

	Ningún Dia	Varios Días	Mas de la mitad de los días	Casi todos los días
Poco interés o placer en hacer cosas	0	1	2	3

Se ha sentido decaído(a), deprimido(a) o sin esperanzas	0	1	2	3
Ha tenido dificultad para dormirse o quedarse dormido(a), o dormido demasiado	0	1	2	3
Se ha sentido cansado(a) o con poca energía	0	1	2	3
Sin apetito o ha comido en exceso	0	1	2	3
Se ha sentido mal con usted mismo(a)- o que es un fracaso o que ha quedado mal	0	1	2	3
Ha tenido dificultad para concertarse en ciertas actividades, tales como leer o ver la televisión	0	1	2	3
Se ha movido o hablado tan lento que otras personas podrían haberlo notado o lo contrario- muy inquieto(a) o agitado(a) que ha estado moviéndose mucho más de lo normal	0	1	2	3
Pensamientos de que estaría mejor muerto(a) o de lastimarse de alguna manera	0	1	2	3

12. Durante las últimas 2 semanas, con qué frecuencia ha sentido molestias por los siguientes problemas

	Nunca	Varios días	Mas de la mitad de los días	Casi todos los días
Sentirse nervioso/a, intranquilo/a o con los nervios de punta	0	1	2	3
No poder dejar de preocuparse o no poder controlar la preocupación	0	1	2	3
Preocuparse demasiado por diferentes cosas	0	1	2	3
Dificultad para relajarse	0	1	2	3
Estar tan inquieto/a que es difícil permanecer sentado/a tranquilamente	0	1	2	3
Molestarse o ponerse irritable fácilmente	0	1	2	3
Sentir miedo como si algo terrible pudiera pasar	0	1	2	3

13. ¿Consume bebidas alcohólicas (incluidos la cerveza o el vino)? (Si marco “NO” pase a la pregunta 15).
    a. Si b. No

14. ¿Alguna de estas situaciones le ha ocurrido más de una vez en los últimos 6 meses?

	No	Si
Bebió alcohol, aunque el médico le sugirió que parara de hacerlo debido a un problema con su salud	1	2
Bebió alcohol, estaba bajo los efectos del alcohol, con Resaca (cruda) mientras trabajaba, asistía a la escuela, estaba cuidando niño(a)s o tenía otras responsabilidades	1	2
Perdido o llego tarde al trabajo, escuela y otras actividades porque estaba tomando o con Resaca (cruda)	1	2
Tuvo dificultad para llevarse bien con otras personas mientras tomaba	1	2
Manejo un automóvil luego de haber bebido varios tragos o haber bebido demasiado	1	2

15. Cuando era niño, durante los primeros 18 años de su vida:

	Siempre	La mayor parte del tiempo	Algunas veces	Casi nunca	Nunca
¿Sus padres o tutores entendían sus problemas y preocupaciones?	1	2	3	4	5
¿Sus padres o tutores sabían qué hacía en su tiempo libre cuando no establa en casa o en la escuela?	1	2	3	4	5
¿Con qué frecuencia sintió que lo trataron mal o injustamente debido a su raza, origen étnico, color, idioma, acento o país o cultura diferente?	1	2	3	4	5
¿Su familia a veces redujo el tamaño de las comidas o se saltó comidas porque no había comida disponible?	1	2	3	4	5

16. ¿Vivía con un familiar que tenía problemas con la bebida o era alcohólico, o que abusaba de las drogas ilícitas o de los medicamentos?
    a. Sí b. No
17. ¿Vivía con un familiar que sufría de depresión, alguna enfermedad mental o que era suicidio?
    a. Sí b. No
18. ¿Vivía con un familiar que alguna vez estuvo en la cárcel o prisión?
    a. Sí b. No
19. ¿Vivía con un familiar que tuvo que huir del país para vivir o trabajar?
    a. Yes b. No
20. ¿Vivía en un hogar donde temía que un pariente se viera obligado a abandonar el país en el que vivía o trabajaba?
    a. Yes b. No
21. ¿Alguna vez sus padres se separaron o divorciaron?
    a. Sí b. No
22. ¿Se murió su madre, padre o tutor?
    a. Sí b. No
23. ¿Fue separado de su madre o padre por un periodo largo de tiempo por motivos de migración?
    a. Sí
    b. No

24. Cuando era niño(a), durante los primeros 18 años de su vida:

	Muchas veces	Pocas veces	Una vez	Nunca
¿Con qué frecuencia sus padres/tutores no le ofrecieron suficiente comida aun cuando hubieran podido hacerlo con facilidad?	1	2	3	4
¿Sus padres/ tutores estaban demasiado ebrios o intoxicados por drogas para cuidar de usted?	1	2	3	4
¿Con qué frecuencia sus padres/ tutores no lo enviaron a la escuela, aun cuando había posibilidad?	1	2	3	4

Las siguientes preguntas son sobre ciertas cosas que puede haber escuchado o visto en su hogar. Estas son cosas que pudieron haberse hecho a otro familiar, pero no a usted.

	Muchas veces	Pocas veces	Una vez	Nunca
¿Alguna vez vio o escuchó gritar, maldecir, insultar o humillar a alguien en su hogar?	1	2	3	4
¿Alguna vez vio o escuchó a alguien en su casa siendo abofeteado, pateado, golpeado?	1	2	3	4
¿Alguna vez vio o escuchó alguien en su casa siendo golpeado o cortado con objetos como un palo (o bastón), botella, garrote, cuchillo, látigo, machete, etc.?	1	2	3	4

Las siguientes preguntas son acerca de ciertas cosas que puede haber experimentado. Cuando era niño, durante los primeros 18 años de su vida…

	Muchas veces	Pocas veces	Una vez	Nunca
¿Algún padre, tutor u otro familiar le gritó, lo insultó o lo humillo?	1	2	3	4
¿Algún padre, tutor u otro familiar lo amenazó con abandonarlo o echarlo de la casa, o en verdad lo hizo?	1	2	3	4
¿Algún padre, tutor u otro familiar lo azotó, abofeteó, pateó o golpeó?	1	2	3	4
¿Algún padre, tutor u otro familiar lo golpeó o cortó con un objeto como un palo (o bastón), botella, garrote, cuchillo, látigo, machete, etc.?	1	2	3	4
¿Con qué frecuencia alguna persona más mayor que usted o un adulto intentó o lo tocó de manera sexual?	1	2	3	4

¿Con qué frecuencia alguna persona más mayor que usted o un adulto lo forzó o intento forzarlo para tener relaciones sexuales?	1	2	3	4

Las siguientes preguntas son sobre haber sufrido intimidación cuando era niño. La intimidación es cuando una persona joven o un grupo de jóvenes dicen o hacen cosas malas y desagradables a otra persona joven. También es intimidación cuando una persona joven se burla mucho de manera desagradable o cuando una persona joven queda fuera de las cosas a propósito. No es intimidación cuando dos jóvenes de aproximadamente la misma fuerza o poder discuten o pelean o cuando las burlas se hacen de manera amigable y divertida.

Cuando era niño, durante los primeros 18 años de su vida …

	Muchas veces	Pocas veces	Una vez	Nunca
¿Con qué frecuencia sufría de intimidación?	1	2	3	4

Esta pregunta se trata de peleas físicas. Una pelea física ocurre cuando dos jóvenes de aproximadamente la misma fuerza o poder deciden pelearse.

Cuando era niño, durante los primeros 18 años de su vida…

	Muchas veces	Pocas veces	Una vez	Nunca
¿Con qué frecuencia se encontraba en una pelea física?	1	2	3	4

Las siguientes preguntas se tratan sobre la frecuencia, cuando era niño, con que pudo haber visto o escuchado ciertas cosas en su vecindario o comunidad (No en su casa ni en la televisión, en las películas o en el radio)

Cuando era niño, durante los primeros 18 años de su vida…

	Muchas veces	Pocas veces	Una vez	Nunca
¿Vio o escuchó que alguien era golpeado?	1	2	3	4
¿Vio o escuchó que alguien era acuchillado, golpear con un machete, o que recibía un disparo?	1	2	3	4
¿Vio o escuchó que alguien era amenazado con un cuchillo, un machete, o pistola?	1	2	3	4

Estas preguntas son sobre si experimentó o no alguno de los siguientes eventos cuando era niño. Todos los eventos están relacionados con la violencia colectiva, incluyendo guerras, terrorismo, conflictos políticos o étnicos, genocidios, represiones, desapariciones, tortura y crímenes violentos organizados, como bandidaje y guerra de pandillas.

Cuando era niño, durante los primeros 18 años de su vida

	Muchas veces	Pocas veces	Una vez	Nunca
¿Fue obligado a huirse y vivir en otro lugar debido a alguno de los eventos anteriores?	1	2	3	4
¿Experimentó la destrucción deliberada de su casa debido a alguno de los eventos anteriores?	1	2	3	4
¿Fue golpeado por soldados, policías, militares, paramilitares o pandillas?	1	2	3	4
¿Algún familiar o amigo fue asesinado o golpeado por soldados, policías, militares, paramilitares o pandillas?	1	2	3	4

Appendix C: Script Announcing the Study

Today in the cafeteria, there is a researcher set up who is interested in collecting information related to health and childhood experiences for immigrants to the United States. She is working on her PhD at Virginia Commonwealth University and will use the information gathered to show that more health resources need to be created for immigrants. Participation in the survey will also allow you to enter a raffle to win cash.

The survey is available in Spanish and English and will probably take about 15-20 minutes for you to complete the survey. In order to give you time to complete the survey we will be extending break by 15 minutes today.

Appendix D: Research Participant Information Sheet

STUDY TITLE: Trauma History for Latine Immigrants: Psychometric Properties of the Adverse Childhood Experiences- International Questionnaire
VCU INVESTIGATOR: Charol Shakeshaft, Professor Virginia Commonwealth University, (804) 828-9892

You are invited to participate in a research study about how health issues and childhood experiences are related in immigrants to the United States. This study will allow us to test the questionnaire as published by the World Health Organization for use with immigrants to the United States. Your participation is voluntary.

In this study, you will be asked to take a surveys and answer questions about childhood experiences and your current health status. Participants will be asked to complete a 46 question questionnaire one time. The questionnaire will take about 10 minutes to complete. Upon completion of the questionnaire you will turn it in and receive a raffle ticket. The winning raffle tickets will be drawn at the end of the night and the numbers posted at the front of the library. We expect about 500 people to participate in this study.

What alternative treatments or procedures are available?

If you decide not to enter this study, you can still receive the list of health resources in the area. You can take the survey in either Spanish or English. The researcher will be present for two nights, so the survey can be taken home and returned if you would like.

Risks and Discomforts	Benefits to You and Others
• Participation in the research might involve some loss of privacy. There is a small risk that someone outside the research study could see the questionnaire data. • The study questionnaires ask questions that are sensitive in nature and may make you feel uncomfortable.	• There is no guarantee that you will receive any benefits from being in this study. However, possible benefits include winning a gift card through the raffle. • This is not a treatment study, and you are not expected to receive any direct medical benefits from your participation in the study. The information from this research study may lead to better resources in the future for immigrants to the United States.

If you have any questions, concerns, or complaints about this study now or in the future, please contact Dr. Charol Shakeshaft at cshakeshaft@vcu.edu **or** (804) 828-9892**.**

Appendix E: Hoja De Información Del Participante En La Investigación

TÍTULO DEL ESTUDIO: Historia de traumas para inmigrantes latinos: propiedades psicométricas de las experiencias adversas en la infancia- Cuestionario Internacional.
INVESTIGADOR DE VCU: Charol Shakeshaft, Profesor en la Virginia Commonwealth University, (804) 828-9892

Se le invita a participar en un estudio de investigación sobre cómo los problemas de salud y las experiencias en la infancia están relacionados en los migrantes a los Estados Unidos. Este estudio nos permitirá probar el cuestionario publicado por la Organización Mundial de la Salud para usarlo con los migrantes a los Estados Unidos. Su participación es voluntaria.

En este estudio, se le pedirá que participe en encuestas y que responda preguntas sobre sus experiencias en la infancia y su estado de salud actual. A los participantes se les pedirá que completen un cuestionario de 46 preguntas en una ocasión. Responder el cuestionario le tomará aproximadamente 10 minutos. Al terminar el cuestionario lo devolverá y recibirá un boleto para una rifa. El sorteo de los boletos ganadores se realizará al final de la noche y los números se colocarán en el frente de la biblioteca. Esperamos que unas 500 personas participen en este estudio.

¿Qué tratamientos o procedimientos alternativos están disponibles?

Si decide no participar en este estudio, aún podrá recibir la lista de recursos sanitarios en la zona. Puede participar en la encuesta ya sea en español o en inglés. El investigador está presente durante dos noches, de tal manera que puede llevarse la encuesta a casa y devolverla si lo desea.

Riesgos y molestias	Beneficios para usted y para otras personas
• La participación en la encuesta podría involucrar cierta pérdida de privacidad. Existe un pequeño riesgo de que alguna persona fuera del estudio de investigación pudiera ver los datos del cuestionario. • Los cuestionarios del estudio hacen preguntas que son de naturaleza sensible y lo pueden hacer sentir incómodo.	• No hay garantía de que recibirá ningún beneficio por participar en este estudio. Sin embargo, los posibles beneficios incluyen una tarjeta de regalo a través del sorteo. • No se trata de un estudio de tratamiento y no se espera que reciba ningún beneficio médico directo. La información de este estudio de investigación puede conducir a mejores recursos en el futuro para los migrantes a los Estados Unidos.

Si tiene alguna pregunta, duda o queja sobre este estudio, ahora o en el futuro, póngase en contacto con el Dr. Charol Shakeshaft en cshakeshaft@vcu.edu **o al** (804) 828-9892**.**

Appendix F: Adverse Childhood Experiences International Questionnaire (ACE-IQ) Interviewer's Guide as Published by The World Health Organization

Introduction

The participant needs to feel comfortable about the survey and can refuse to be interviewed as participation is voluntary. Your interview should therefore be as natural as possible and conducted politely, like a normal conversation. Some of the questions being asked are very personal and so you should be sensitive to that - remember that there are services available to help participants who may be upset or want to seek help following the interview.

Behavior	Guidelines
Respect confidentiality	Maintain the confidentiality of all information you collect.
Respect participants' time	You are asking participants for their time so be polite and prepared to explain.
Tact	If you feel that a person is not ready to assist you, do not force them but offer to come back later.
Friendly disposition	Act as though you expect to receive friendly cooperation and behave accordingly.
Body language	Maintain good eye contact and adopt appropriate body language.
Pace of interview	Don't rush the interview. Allow the participant enough time to understand and answer a question. If pressured, a participant may answer with anything that crosses their mind.
Patience	Be patient and polite at all times during the interview.
Acceptance	No matter what the responses to questions, do not be judgmental or express shock at a participant's experience. Overt responses of any kind may lead to refusing or concealing important information.
Appreciation	Thank them for their help and cooperation.

Asking questions

Topic	Guidelines

Issues relating to childhood experiences	Do not discuss or comment on issues relating to childhood experiences. Participants may not give correct answers to the questions but give the answers they think the interviewer is looking for.
Right or wrong answers	Point out that there are no right or wrong answers and that the interview is not a test.
Biased answers	Ask your questions according to guidelines given in the Question-by-Question Guide to avoid biased answers and ensure comparability of data
Read all options	All options must be read to the participant except for Don't know/Not sure, Refused, and Other.
Reading questions	Questions should be read: • as they are written in the text; • slowly and clearly emphasizing key words in bold; • in a pleasant voice that conveys interest and professionalism; • entirely to make sure the participant has heard it completely. Do not change the: • wording • order of the questions.
Making assumptions	Don't make assumptions about the participants' answers with comments such as "I know this probably doesn't apply to you, but…". This practice may prevent accurate and unbiased information.

Providing Clarification

You may need to provide clarification when the participant:

- is unable to answer the question asked;
- does not seem to understand the question and gives an inappropriate reply;
- does not seem to have heard the question;
- is taking a long time to answer the question and hesitates;
- asks about a specific part of the question to be repeated (it is acceptable to
- repeat only that part);
- asks for one option to be repeated (read all options again but you may omit one option if it has clearly been eliminated by the participant);
- asks for one term to be clarified (refer to the explanations provided in the Question-by-Question Guide).

When to probe further

You will need to probe further to get an appropriate response when the participant:

- seems to understand the question but gives an inappropriate response
- does not seem to understand what is asked
- misinterprets the question
- cannot make up his or her mind
- digresses from the topic or gives irrelevant information
- needs to expand on what has been said or clarify the response
- gives incomplete information or an answer is unclear
- says that he or she doesn't know the answer.

Common responses

The table below lists some common responses that may need further probing:

If the participant replies…	Then…
"I don't know"	Repeat the question.
"I still don't know"	This may mean that the participant • is taking time to think and wants to gain time; • does not want to answer because of personal reasons; • in fact does not know or has no opinion. Probe once before recording "don't know", for example, ask "Could you give me your best estimate?".
"Not applicable"	• Ask him/her why the question does not apply to him/her. • Write down "not applicable" if it is clear that the question is irrelevant.

Notes: Don't know/Not sure, Refuse and Not applicable should be used only as an absolute last resort.

Techniques

Technique	Guidelines
Repeat the question	The participant may come up with the right answer if he/she hears the question a second time.
Make a pause	This gives the participant time to collect his/her thoughts and expand on his/her answer.

Repeat the participant's reply	This is often a very effective way of having the participant reflect on the answer he/she has just given.
Use neutral probes	Avoid biased responses and probes. Never give the impression that you approve or disapprove of what the participant says, or that their answer is right or wrong. Instead, if you want more information, ask "anything else?", or "could you tell me more about…?"

Interruptions: Interruptions may occur during an interview. Take care that even if interrupted or delayed, you should remain patient and polite at all times.

Refusal to answer

Some participants may refuse to be interviewed. Reasons for this are varied and differ from one participant to another. Some participants may not refuse outright but may express hesitancy, reservation or hostility.

Participants must not be forced to respond to the whole interview or to any part of the survey process. However, the more refusals that are made, the less representative the survey is of the whole population.

Handling refusals

If you have a participant that does not want to be interviewed. In general, be pleasant, good-natured and professional and most participants will cooperate.

If...	**Then…**
The participant becomes defensive	• show patience and understanding; • provide token agreement and understanding of his/her viewpoint, that is, saying something like, "I can understand that" or "You certainly have the right to feel that way"; • convey the importance of the survey to the participant.
The participant may have misunderstood the purpose.	Try to explain the purpose again.
You think you may get a "no"	Try to leave and suggest coming back later before you get a partial or an absolute "no".

Appendix G: ACE-IQ Categories

Category	Question	Written Question
Physical Abuse	36 37	Did a parent, guardian or other household member spank, slap, kick, punch or beat you up? and Did a parent, guardian or other household member hit or cut you with an object, such as a stick (cane), bottle, club, knife, whip, machete, etc.?
Emotional Abuse	34 35	Did a parent, guardian or other household member yell, scream or swear a you, insult or humiliate you? *negatively worded question* and Did a parent, guardian or other household member threaten to, or actually, abandon you or throw you out of the house? *negatively worded question*
Contact Sexual Abuse	38 39	Did someone touch or fondle you or make you touch them in a sexual way when you did not want them to? and Did anyone have or attempt to have sexual intercourse with you, when you did not want them to?
Alcohol and/or drug abuser in the household	11	Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs?

Incarcerated household member	21	Did you live with a household member who was ever sent to jail or prison?
Household member mentally ill, or suicidal	20	Did you live with a household member who was depressed, mentally ill or suicidal?
Household member treated violently	31 32 33	Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted or humiliated? and Did you see or hear a parent or household member in your home being slapped, kicked, punched, or beaten up? and Did you see or hear a parent of household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip, machete etc.?
One or no parents, parental separation or divorce	24 25	Were your parents ever separated or divorced? and Did you mother, father, or guardian die?
Emotional Neglect	15 16	Did your parents/guardians understand your problems or worries? and Did you parents/guardians really know what you were doing with you free time when you were not at school or work?

Physical Neglect	28	Did your parents/guardians not give you enough food even when they could easily have done so?
	29	and
	30	Were your parents/guardians too drunk or intoxicated by drugs to take care of you?
		and
		Did you parents/guardians not send you to school even when it was available?
Bullying	40	Were you bullied?
Community Violence	42	Did you see or hear someone being beaten up in real life?
	43	and
	44	Did you see or hear someone being stabbed or shot in real life?
		and
		Did you see or hear someone being threatened with a knife, machete, or gun?
Collective violence	45	Where you forced to go and live in another place due to any of these above events?
	46	and
	47	Did you experience the deliberate destruction of your home due to any of these above events?
	48	and
		Were you beaten up by soldiers, police, militia, paramilitary, or gangs?
		and
		Was a family member or friend killed or beaten up by soldiers, police, militia, paramilitary, or gangs?

Appendix H: Binary Scoring Method for ACE- IQ

All questions are yes/no - if the participant responded yes for any of the questions in a category, award the individual a one for the category.

Category	Question
Physical Abuse	Did a parent, guardian, or other household member spank, slap, kick, punch or beat you up? *or* Did a parent, guardian, or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, etc.? **No (0) Yes(1)**
Emotional Abuse	Did a parent, guardian, or other household member yell, scream or swear at you, insult or humiliate you? *or* Did a parent, guardian, or other household member threaten to, or actually, abandon you or throw you out of the house? **No (0) Yes(1)**
Contact Sexual Abuse	Did someone touch or fondle you or attempt to touch or fondle you in a sexual way when you did not want them to? *or* Did anyone have or attempt to have sexual intercourse with you, when you did not want them to? **No (0) Yes(1)**
Alcohol and/or drug abuser in the household	Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs **No (0) Yes(1)**

Incarcerated Household member	Did you live with a household member who was ever sent to prison or jail? **No (0) Yes(1)**
Someone chronically depressed, mentally ill, institutionalized or suicidal	Did you live with a household member who was depressed, mentally ill or suicidal? **No (0) Yes(1)**
Household member treated violently	Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted or humiliated? *or* Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up? *or* Did you see or hear a parent or household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip etc.? **No (0) Yes(1)**
One or no parents, parental separation or divorce	Were your parents ever separated or divorced? *or* Did your mother, father or guardian die? *or* Where you separated from your parents for a long period of time? **No (0) Yes(1)**
Emotional neglect	Did your parents/guardians understand your problems and worries? *or* Did your parents/guardians really know what you were doing with your free time when you were not at school or work? **No (1) Yes(0)** *Note: for this question, it's the "no" answer which scores a "1".

Physical Neglect	Did your parents/guardians not give you enough food even when they could easily have done so? *or* Were your parents/guardians too drunk or intoxicated by drugs to take care of you? *or* Did your parents/guardians not send you to school even when it was available? **No (0) Yes(1)**
Bullying	Were you bullied? **No (0) Yes(1)**
Community Violence	Did you see or hear someone being beaten up in real life? *or* Did you see or hear someone being stabbed or shot in real life? *or* Did you see or hear someone being threatened with a knife or gun in real life? **No (0) Yes(1)**
Collective Violence	Were you forced to go and live in another place due to any of these events? *or* Did you experience the deliberate destruction of your home due to any of these events? *or* Were you beaten up by soldiers, police, militia, or gangs? *or* Was a family member or friend killed or beaten up by soldiers, police, militia, or gangs? **No (0) Yes(1)**

Appendix I: Frequency Scoring Method

Items are scored based on the frequency of the ACE. Participant must respond with one of the bolded responses in order to receive one for that category.

Category	Written Question
Physical Abuse	Did a parent, guardian, or other household member spank, slap, kick, punch or beat you up? **Many times** *or* Did a parent, guardian, or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, etc.? **Many times**
Emotional Abuse	Did a parent, guardian, or other household member yell, scream or swear at you, insult or humiliate you? **Many times** *or* Did a parent, guardian, or other household member threaten to, or actually, abandon you or throw you out of the house? **Many times**
Contact Sexual Abuse	Did someone touch or fondle you or make you touch them in a sexual way when you did not want them to? **Any affirmative response** *or* Did anyone have or attempt to have sexual intercourse with you, when you did not want them to? **Any affirmative response**
Alcohol and/or drug abuser in the household	Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs **No (0)** **Yes (1)**

Incarcerated Household member	Did you live with a household member who was ever sent to prison or jail? **No (0)** **Yes (1)**
Someone chronically depressed, mentally ill, institutionalized or suicidal	Did you live with a household member who was depressed, mentally ill or suicidal? **No (0)** **Yes (1)**
Household member treated violently	Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted or humiliated? **Many times** *or* Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up? **few times** or **many times** *or* Did you see or hear a parent or household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip etc.? **few times** or **many times**
One or no parents, parental separation or divorce	Were your parents ever separated or divorced? *or* Did your mother, father or guardian die? *or* Where you separated from your parents for a long period of time? **No (0)** **Yes (1)**
Emotional neglect	Did your parents/guardians understand your problems and worries? **Rarely** or **never** *or* Did your parents/guardians really know what you were doing with your free time when you were not at school or work? **Rarely** or **never**

Physical Neglect	Did your parents/guardians not give you enough food even when they could easily have done so? **Many times** *or* Were your parents/guardians too drunk or intoxicated by drugs to take care of you? **Many times** *or* Did your parents/guardians not send you to school even when it was available? **Many times**
Bullying	Were you bullied **Many times**
Community Violence	Did you see or hear someone being beaten up in real life? **Many times** *or* Did you see or hear someone being stabbed or shot in real life? **Many times** *or* Did you see or hear someone being threatened with a knife or gun in real life? **Many times**
Collective Violence	Were you forced to go and live in another place due to any of these events? **Any affirmative response** *or* Did you experience the deliberate destruction of your home due to any of these events? **Any affirmative response** *or* Were you beaten up by soldiers, police, militia, or gangs? **Any affirmative response** *or* Was a family member or friend killed or beaten up by soldiers, police, militia, or gangs? **Any affirmative response**

Appendix J: Scoring the Health Questions

How would you rate your overall health?

Very Poor **(0)** Poor **(1)** Neither Good nor Poor **(2)** Good **(3)** Very Good **(4)**

Do you suffer or have suffered from any of the following conditions? Check all that apply: **If any items are selected give participant a 1 for health conditions**

___ Heart Disease	___ Obesity	___ Asthma
___ Stroke	___ Liver Disease	___ Depression/ Anxiety
___ Cancer	___ High blood pressure	___ Illegal drug use
___ Diabetes	___ Epilepsy	___ High Cholesterol

During last 4 weeks, how much have you been bothered by the following problems?

Responses receive a score of 0, 1, 2 for responses of not bothered, bothered a little, bothered a lot respectively. Plus the questions on the PHQ-9 asking about sleep and feeling tired are scored 0 (not at all), 1 (several days), or 2 (more than half the days or nearly every day). This provides a score ranging from 0-30. Somatic symptoms are classified as 5 (low), 10 (medium), and 15 (High).

	Not Bothered	Bothered a Little	Bothered a lot
Stomach pain	1	2	3
Back Pain	1	2	3
Pain in your arms, legs or joints	1	2	3
Menstrual cramps of other problems with you periods	1	2	3
Pain or problems during sexual intercourse	1	2	3
Headaches	1	2	3
Chest Pain	1	2	3
Dizziness	1	2	3

Fainting Spells	1	2	3
Feeling your heart pound or race	1	2	3
Shortness of Breath	1	2	3
Constipation, loose bowels, or diarrhea	1	2	3
Nausea, gas, or indigestions	1	2	3

Over the last 2 weeks, how often have you been bothered by any of the following problems?

PHQ-9 depression severity. Responses of "not at all," "several days," "more then half the days," and "nearly every day receive a score of 0, 1, 2, and 3 respectively, resulting in a score between 0 and 27. Scores of 5, 10, 15, and 20 are identified as the cutpoints for mild, moderate, moderately severe, and severe depression respectively.

	Not at All	Several Days	More than half the days	Nearly every day
Little interest or pleasure in doing things	1	2	3	4
Feeling, down, depressed, or hopeless	1	2	3	4
Trouble falling or staying asleep, or sleeping to much	1	2	3	4
Feeling tired or having little energy	1	2	3	4
Poor appetite or overeating	1	2	3	4
Feeling bad about yourself- or that you are a failure or have let yourself of your family down	1	2	3	4
Trouble concentrating on things such as reading or watching TV	1	2	3	4
Moving or speaking so slowly that others people have noticed, or the opposite- being so fidgety or restless that you have been moving around a lot more than usual	1	2	3	4

Thoughts that you would be better off dead or thoughts of hurting yourself in some way	1	2	3	4

Over the last 4 weeks, how often have you been bothered by any of the following problems?

GAD-7 Anxiety Severity. Responses of "not at all," "several days," "more then half the days," and "nearly every day receive a score of 0, 1, 2, and 3 respectively, resulting in a score between 0 and 21. Scores of 5, 10, 15, and 20 are identified as the cutpoints for mild, moderate, moderately severe, and severe anxiety respectively.

	Not at all	Several days	More than half the days
Feeling nervous, anxious, on edge, or worrying a lot about different things	1	2	3
Feeling restless so that it is hard to sit still	1	2	3
Getting tired very easily	1	2	3
Muscle tension, aches or soreness	1	2	3
Trouble falling asleep or staying asleep	1	2	3
Trouble concentrating on things such as reading or watching tv	1	2	3
Becoming easily annoyed or irritable	1	2	3

Have any of the following happened to you more than once in the last 6 months?

PHQ Alcohol Abuse/ Dependence. A response of yes on any of the 5 questions related to alcohol abuse or dependence indicates the participant might have probable alcohol abuse or dependence.

	No	Yes
You drank alcohol even though a doctor suggested that you stop drinking because of a problem with your health?	1	2

You drank alcohol, were drunk, or hung over while you were working, going to school, or taking care of children or other responsibilities?	1	2
You missed or were late for work, school, or other activities because you were drinking or hung over.	1	2
You had a problem getting along with other people while you were drinking.	1	2
You drover a car after having several drinks or after drinking too much.	1	2

Appendix K: Code Book

Item	Code
Form language	
English	0
Spanish	1
Gender	
Female	0
Male	1
Other	3
Native language	
Other	0
Spanish	1
Country of origin	
Columbia	1
El Salvador	2
Guatemala	3
Honduras	4
Mexico	5
Other South American	6
Caribbean	7
Other Central American	8
United States	10
Northern triangle country	
Not Northern Triangle Country	0
Northern Triangle Country	1
Population of location immigrated from	
City	0
Country	1
Suburb	2
Education level	
Less than Elementary school/ no formal education	0
Elementary school	1
High school	2
Some technical school	3
Completed technical school	4
Some College/University	5
Completed College/University	6

Postgraduate	7
No response	10
Time living in the United States of American	
1 year and under	1
2 years	2
3-5 years	3
6-10 years	4
11-15 years	5
16-20 years	6
21+ years	7
Age of participants	
18-25 years old	1
26-30 years old	2
31-35 years old	3
36-40 years old	4
41-50 years old	5
51+ years old	6
Self-rated health	
Very poor	1
Poor	2
Neither good nor bad	3
Good	4
Excellent	5
All health conditions	
No	0
Yes	1
All somatic questions	
Not bothered	0
Bothered a little	1
Bothered	2
Bothered a lot	3
Somatic symptom levels	
None	0
Mild	1
Moderate	2
Severe	3
All depression levels	
Not at all	0
Several Days	1

More than half the days	2
Nearly every day	3
Depression levels	
None	0
Mild	1
Moderate	2
Severe	3
All anxiety questions	
Not at all	0
Several Days	1
More than half the days	2
Nearly every day	3
Anxiety levels	
None	0
Mild	1
Moderate	2
Severe	3
All alcohol questions	
No	0
Yes	1
Alcohol disorder	
No	0
Yes	1
ACE: Parents understand your problems and worries	
Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
No response	10
ACE: Parents know what you were doing with your free time?	
Always	1
Most of the time	2
Sometimes	3
Rarely	4
Never	5
No response	10

ACE: How often did you feel that you were treated badly or unfairly because of your race, ethnicity, color of your skin, spoke a different language, had an accent, or because you came from a different country or culture?

Always	5
Most of the time	4
Sometimes	3
Rarely	2
Never	1
No response	10

ACE: How often did your family sometimes cut the size of meals or skipped meals because food was not available?

Always	5
Most of the time	4
Sometimes	3
Rarely	2
Never	1
No response	10

ACE: Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drug?

No	0
Yes	1
No response	10

ACE: Did you live with a household member who was depressed, mentally ill, or suicidal?

No	0
Yes	1
No response	10

ACE: Did you live with a household member who was ever sent to prison or jail?

No	0
Yes	1
No response	10

ACE: Did you live in a household where a household member had to leave the country either to live or work?

No	0
Yes	1
No response	10

ACE: Did you live in a household where you feared a household member would be forced to leave the country they were living or working in?

No	0
Yes	1
No response	10

ACE: Were your parents ever separated or divorced?

No	0
Yes	1

No response	10

ACE: Did your mother, father, or guardian die?

No	0
Yes	1
No response	10

ACE: Were you ever separated from your caregiver for a large amount of time due to migration?

No	0
Yes	1
No response	10

ACE: How often did you parents/guardians not give you enough food even when they could have easily done so?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Were your parents/ guardians too drunk or intoxicated by drugs to take care of you?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: How often did your parents/ guardians not send you to school, even when it was available?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did your see or hear a parent or household member in our home being yelled at, screamed at, sworn at, insulted, or humiliated?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up?

Many times	4
A few times	3

Once	2
Never	1
No response	10

ACE: Did you see or hear a parent or household member in your home being hit or cut with an objct, such as a stick (or cane), bottle, club, knife, whip, machete, etc.?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did a parent, guardian or other household member yell, scream or swear at you, insult or humiliate you?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did a parent, guardian or other household member threaten to, or actually abandon you or throw you out of the house?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did a parent, guardian or other household member spank, slap, kick, punch or beat you?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did a parent, guardian or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, machete, etc.?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did someone touch or fondle you or make you touch them in a sexual way when you did not want them to?

Many times	4

A few times	3
Once	2
Never	1
No response	10

ACE: Did anyone have or attempt to have sexual intercourse with you, when you did not want them to?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: How often were you bullied?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: How often where you in a physical fight?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did you see or hear someone being beaten up?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did you see or hear someone being stabbed, hit with a machete, or shot?

Many times	4
A few times	3
Once	2
Never	1
No response	10

ACE: Did you see or hear someone being threatened with a knife, machete, or gun?

Many times	4
A few times	3
Once	2
Never	1

No response	10
ACE: Were you forced to go live in another place due to any of these above events?	
Many times	4
A few times	3
Once	2
Never	1
No response	10
ACE: Did you experience the deliberate destruction of your home due to any of the above events?	
Many times	4
A few times	3
Once	2
Never	1
No response	10
ACE: Were you beaten up by soldiers, police, militia, paramilitary, or gangs?	
Many times	4
A few times	3
Once	2
Never	1
No response	10
ACE: Was a family member or friend killed or beaten up by soldiers, police, militia, paramilitary, or gangs?	
Many times	4
A few times	3
Once	2
Never	1
No response	10
Binary all Categories	
No	0
Yes	1
Frequency all Categories	
No	0
Yes	1

Appendix L: Demographic Factors

Characteristic	*n*	%
Form language		
Spanish	167	91
English	17	9
Gender		
Female	115	63
Male	68	37
Other	1	1
Native language		
Spanish	183	99
Other	1	1
Country of origin		
Guatemala	56	30
El Salvador	38	21
Columbia	34	20
Mexico	15	8
Characteristic		
Other South American	15	8
Honduras	13	7
Caribbean	7	4
Other Central American	4	2
United States	2	1
Northern triangle country		
Northern Triangle Country	107	58
Not Northern Triangle country	77	42
Population of location immigrated from		
City	108	59
Country	42	23
Suburb	34	19
Education level		
High school	68	37
Completed College/University	32	17
Some College/University	26	14
Elementary school	20	11
Completed technical school	14	8
Some technical school	8	4
Postgraduate	8	4

Less than Elementary school/ no formal education	5	3
No response	3	2
Time living in the United States of American		
3-5 years	63	34
2 years	29	16
16-20 years	27	15
6-10 years	27	15
1 year and under	21	11
11-15 years	11	6
21+ years	6	3
Age of participants		
31-35 years old	46	25
36-40 years old	35	19
41-50 years old	33	18
26-30 years old	27	15
21-25 years old	26	14
18-20 years old	10	5
51+ years old	7	4

Appendix M: Expanded ACE-IQ Binary Scoring Method

All questions are yes/no - if the participant responded yes for any of the questions in a category, award the individual a one for the category.

Category	Question
Physical Abuse	Did a parent, guardian, or other household member spank, slap, kick, punch or beat you up? *or* Did a parent, guardian, or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, etc.? **No (0) Yes(1)**
Emotional Abuse	Did a parent, guardian, or other household member yell, scream or swear at you, insult or humiliate you? *or* Did a parent, guardian, or other household member threaten to, or actually, abandon you or throw you out of the house? **No (0) Yes(1)**
Contact Sexual Abuse	Did someone touch or fondle you or attempt to touch or fondle you in a sexual way when you did not want them to? *or* Did anyone have or attempt to have sexual intercourse with you, when you did not want them to? **No (0) Yes(1)**
Alcohol and/or drug abuser in the household	Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs **No (0) Yes(1)**

Incarcerated Household member	Did you live with a household member who was ever sent to prison or jail? **No (0)** **Yes(1)**
Someone chronically depressed, mentally ill, institutionalized or suicidal	Did you live with a household member who was depressed, mentally ill or suicidal? **No (0)** **Yes(1)**
Household member treated violently	Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted or humiliated? *or* Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up? *or* Did you see or hear a parent or household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip etc.? **No (0)** **Yes(1)**
One or no parents, parental separation or divorce	Were your parents ever separated or divorced? *or* Did your mother, father or guardian die? *or* Did you live in a household member who had to leave the country either to live or work? *or* Did you live in a household where you feared a household member would be forced to leave the country they were living or working in? *or* Where you separated from your parents for a long period of time due to migration? **No (0)** **Yes(1)**

Emotional neglect	Did your parents/guardians understand your problems and worries? *or* Did your parents/guardians really know what you were doing with your free time when you were not at school or work? **No (1) Yes(0)** *Note: for this question, it's the "no" answer which scores a "1".
Physical Neglect	Did your parents/guardians not give you enough food even when they could easily have done so? *or* Were your parents/guardians too drunk or intoxicated by drugs to take care of you? *or* Did your parents/guardians not send you to school even when it was available? *Or* Your family sometimes cut the size of meals or skipped meals because food was not available? **No (0) Yes(1)**
Bullying	Were you bullied? **No (0) Yes(1)**
Community Violence	Did you see or hear someone being beaten up in real life? *or* Did you see or hear someone being stabbed or shot in real life? *or* Did you see or hear someone being threatened with a knife or gun in real life? **No (0) Yes(1)**

Collective Violence	Were you forced to go and live in another place due to any of these events? *or* Did you experience the deliberate destruction of your home due to any of these events? *or* Were you beaten up by soldiers, police, militia, or gangs? *or* Was a family member or friend killed or beaten up by soldiers, police, militia, or gangs? **No (0) Yes(1)**
Racism/ Discrimination	How often did you feel that you were treated badly or unfairly because of your race, ethnicity, color of your skin, spoke a different language, had an accent, or because you came from a different country or culture? **No (0) Yes(1)**

Appendix N: Frequency Scoring Method

Items are scored based on the frequency of the ACE. Participant must respond with one of the bolded responses in order to receive one for that category.

Category	Written Question
Physical Abuse	Did a parent, guardian, or other household member spank, slap, kick, punch or beat you up? **Many times** *or* Did a parent, guardian, or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip, etc. ? **Many times**
Emotional Abuse	Did a parent, guardian, or other household member yell, scream or swear at you, insult or humiliate you? **Many times** *or* Did a parent, guardian, or other household member threaten to, or actually, abandon you or throw you out of the house? **Many times**
Contact Sexual Abuse	Did someone touch or fondle you or make you touch them in a sexual way when you did not want them to? **Any affirmative response** *or* Did anyone have or attempt to have sexual intercourse with you, when you did not want them to? **Any affirmative response**
Alcohol and/or drug abuser in the household	Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs **No (0)** **Yes (1)**

Incarcerated Household member	Did you live with a household member who was ever sent to prison or jail? **No (0)** **Yes (1)**
Someone chronically depressed, mentally ill, institutionalized or suicidal	Did you live with a household member who was depressed, mentally ill or suicidal? **No (0)** **Yes (1)**
Household member treated violently	Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted or humiliated? **Many times** *or* Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up? **Few times** or **Many times** *or* Did you see or hear a parent or household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip etc. ? **Few times** or **Many times**
One or no parents, parental separation or divorce	Were your parents ever separated or divorced? *or* Did your mother, father or guardian die? *or* Did you live in a household member who had to leave the country either to live or work? *or* Did you live in a household where you feared a household member would be forced to leave the country they were living or working in? *or* Where you separated **No (0)** **Yes (1)**
Emotional neglect	Did your parents/guardians understand your problems and worries? **Rarely** or **never**

	or Did your parents/guardians really know what you were doing with your free time when you were not at school or work? **Rarely** or **never**
Physical Neglect	Did your parents/guardians not give you enough food even when they could easily have done so? **Always** or **Most of the Time** *or* Were your parents/guardians too drunk or intoxicated by drugs to take care of you? **Many times** *or* Did your parents/guardians not send you to school even when it was available? **Many times**
Bullying	Were you bullied **Many times**
Community Violence	Did you see or hear someone being beaten up in real life? **Many times** *or* Did you see or hear someone being stabbed or shot in real life? **Many times** *or* Did you see or hear someone being threatened with a knife or gun in real life? **Many times**
Collective Violence	Were you forced to go and live in another place due to any of these events? **Any affirmative response** *or* Did you experience the deliberate destruction of your home due to any of these events? **Any affirmative response** *or* Were you beaten up by soldiers, police, militia, or gangs?

	Any affirmative response *or* Was a family member or friend killed or beaten up by soldiers, police, militia, or gangs? **Any affirmative response**
Racism/ Discrimination	How often did you feel that you were treated badly or unfairly because of your race, ethnicity, color of your skin, spoke a different language, had an accent, or because you came from a different country or culture? **Always** *or* **Most of the time** *or* **Sometimes**