SPANISH MEASUREMENT OF ADULT ATTACHMENT: RELIABILITY AND VALIDITY
OF THE EXPERIENCES IN CLOSE RELATIONSHIPS SCALE IN
A HISPANIC AMERICAN SAMPLE

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Thesis Prepared for the Degree of

MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

May 2015

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Measures of adult attachment developed in English have been translated and validated in multiple Spanish-speaking countries, yet to this date no self-report adult attachment instrument has been systematically examined for validation with Latinos/Hispanic Americans. The present study examined psychometric properties of a Spanish version of a widely used adult attachment scale, the Experiences in Close Relationships Scale (ECRS), with a bilingual college student sample. Following the dual-language split half (DLSH) quantitative method of evaluating semantic equivalence, 209 bilingual, Latinos/Hispanic American college students recruited from a large public university completed a DLSH version of the ECRS (half English, half Spanish). Internal consistency reliability and DLSH reliability were within acceptable limits, although significantly smaller than coefficients of the English ECRS completed by a large Caucasian sample (n = 459); 3- to 8-week test-retest reliability was also adequate. Exploratory factor analysis revealed a two-factor solution with 35 items accounting for 40% of the variance, which was similar to the English ECRS. Convergent validity was supported by findings that showed significant associations of attachment dimensions with social self-efficacy, self-esteem, depressive symptoms, and comfort with self-disclosure, but not interpersonal trust. Evidence for discriminant validity was found in that attachment dimensions were not significantly associated with social desirability. Theoretical implications, limitations, and future directions of the study will be discussed based on adult attachment theory and cross-cultural perspectives.
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CHAPTER 1: INTRODUCTION

Attachment theory (Bowlby, 1969) has become one of the leading empirically grounded frameworks for understanding individual differences in psychological adjustment, emotional regulation, psychopathology, and health behaviors (see Cassidy & Shaver, 2008, for a review). According to the theory, the quality of emotional bonds developed between infants and their primary caregivers remain moderately stable into early adulthood (Fraley, 2002; Hamilton, 2000) and are believed to serve as guiding “internal working models” that influence close relationships in adulthood (Hazan & Shaver, 1994, p. 5).

Although initial attachment theorists understood adult attachment as being categories or typologies (e.g., secure, preoccupied, dismissive, and fearful; Bartholomew & Horowitz, 1991), subsequent research revealed that a categorical approach falls short of capturing variability of adult attachment (e.g., Fraley & Waller, 1998). Contemporary adult attachment researchers conceptualize attachment styles using a two-dimensional model of adult attachment (Brennan, Clark, & Shaver, 1998). The two underlying dimensions include attachment anxiety, characterized by fear of rejection and a need for reassurance, and attachment avoidance, characterized by fear of intimacy and by discomfort with closeness and self-disclosure. In this conceptual model, secure attachment refers to those with both low anxiety and low avoidance.

As with other psychological constructs, attachment theory was developed in Western cultures and applied into other cultures. Some researchers argue that attachment theory is universal and that the secure attachment style is normative across most cultures (van IJzendoorn & Sagi-Schwartz, 2008). However, in recent years theorists have begun to question the generalizability of the theory to non-Western individuals (e.g., Rothbaum, Weisz, Pott, Miyake,
& Morelli, 2000) stressing that adult attachment must be investigated in cultures beyond English-speaking societies before assuming it as a universal construct.

Limited research has investigated adult attachment constructs among Latinos/Hispanic Americans. Previous findings have been mixed on rates of attachment styles among Latinos/Hispanic Americans when compared to Caucasian participants with studies reporting higher anxiety but no difference in avoidance (Wei, Russell, Mallinckrodt, & Zakalik, 2004), higher avoidance but no difference in anxiety (Lopez, Melendez, & Rice, 2000), or no difference between samples (Tacón & Caldera, 2001). Moreover, some theorists have questioned whether secure attachment is normative in Spanish-speaking cultures, suggesting that attachment anxiety may be more adaptive among Latinos/Hispanic Americans and Spaniards (Molero, Shaver, Ferrer, Cuadrado, & Alonso-Arbiol, 2011).

Having reliable and valid instruments to measure the construct of adult attachment is a necessary means for evaluating adult attachment across cultures. Measures of adult attachment originally developed for use in the U.S. have been translated for use in Spanish-speaking countries. For example, the Experiences in Close Relationships Scale (ECRS; Brennan, Clark & Shaver, 1998) was adapted for use in Spain (Alonso-Arbiol, Balluerka, & Shaver, 2007) and Mexico (Friedman et al., 2010). In addition, Schmitt et al. (2004) investigated attachment styles in 53 countries using the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991). Despite the emergence of Spanish measures of attachment, to this date no measure of attachment has been thoroughly validated with Spanish-speakers in the U.S.

Latinos/Hispanic Americans comprise the largest and one of the fastest growing minority groups in the United States (U.S. Census Bureau, 2012). It is estimated that by 2050, the number of Latino/Hispanic people in the U.S. will account for approximately 30% of the total population.
of the country (Ortm & Guarneri, 2009). Given the increase in Latino/Hispanic American population in the US, a measure of adult attachment that is validated on Spanish-speakers in the US is necessary in order to fully understand the affective and relational processes of this population.

Present Study

The purpose of this thesis is to examine psychometric properties of the ECRS (Brennan et al., 1998), one of the most widely used measures of adult attachment, with a U.S. bilingual college sample. After a careful review of all available Spanish-language measures of attachment from peer-reviewed journals, Alonso-Arbiol et al.’s (2007) Spanish translation of the ECRS was selected for this study. This measure underwent a careful translation back-translation process and was validated with a large college and community sample in Spain. However, complete confidence cannot be assumed when applying it to Latino/Hispanic individuals in the U.S. due to linguistic and cultural differences between U.S. Latinos and Spaniards. Therefore, it is crucial to examine psychometric properties of this measure within a Spanish-speaking sample in the U.S.

Guidelines proposed by Mallinckrodt and Wang (2004) will be followed for adapting the ECRS for the Spanish-speaking population in the U.S.: (a) since the ECRS has already been translated-back-translated, a team of bilingual attachment researchers will review the Spanish version and modify item content to ensure linguistically appropriate wording for U.S. Spanish speakers; (b) a separate team of bilingual researchers, unfamiliar with attachment literature, will review and verify items and instructions; (c) psychometric properties of the translated version from the bilingual sample will be compared to those of the original version from a large sample recruited from the same university; (d) two counterbalanced, split-half forms will be administered (each containing half of the items from the English version and half of the items from the Spanish
versions of the ECRS); (e) and measures for verifying convergent validity will include Center for Epidemiological Studies-Depression (Radloff, 1977), Distress Disclosure Index (Kahn & Hessling, 2001), Interpersonal Trust Scale (Rotter, 1967), Social Self-Efficacy Scale (Sherer et al., 1982), and Self-Esteem Scale (Rosenberg, 1965); discriminant validity will be assessed with the Impression Management subscale of the Balanced Inventory of Desirable Responding (Paulhus, 1984).

Measures of reliability will include internal consistency, test-retest reliability, and dual-language split-half (DLSH) reliability (correlations between items in both languages completed by the same participants). Reliability measures of the Spanish version will also be compared to those of the English version. Convergent validity will be verified using constructs that have strong conceptual relatedness with adult attachment variables based on the theory. Specifically, convergent validity will be examined for each split-half version using measures of self-esteem, depressive symptoms, social self-efficacy, comfort with self-disclosure, and trust. Discriminant validity will be examined by investigating the correlation between attachment variables and social desirability. An exploratory factor analysis (EFA) will be conducted to examine factorial validity; two orthogonal dimensions are expected to emerge from the EFA that correspond to attachment anxiety and avoidance.

Hypotheses

1. It is predicted that mean differences between Spanish and English split halves will be nonsignificant. Moreover, DLSH reliability and internal consistency will be adequate for both the subscales in the bilingual sample; these reliability tests will be similar to that of the English-only sample. Test-retest reliability coefficients will be within acceptable limits.
2. It is predicted that the factor structure of items in the Spanish will be similar to the English comparative sample. Specifically, a two-factor solution is expected for both versions. Moreover, correlation between the two factors is expected to be small or nonsignificant, indicating orthogonal dimensions.

3. Self-esteem and social self-efficacy are expected to be negatively associated with attachment anxiety and depressive symptoms to be positively associated with attachment anxiety. On the other hand, interpersonal trust and comfort with self-disclosure are expected to be negatively associated with attachment avoidance.

4. Social desirability is expected to have small or negligible correlations with attachment variables.
CHAPTER 2: LITERATURE REVIEW

Attachment Theory

Attachment theory was originally developed to understand the emotional bond between infants and their caregivers, although the theory has since extended to explain close relationships in adolescents and adults (Hazan & Shaver 1994). Through his clinical work with children and adolescents, John Bowlby (1973, 1980) attempted to understand the impact of mother-infant attachment relationships and the emotional distress that resulted from disruptions of those relationships.

Bowlby defined attachment as the infant’s seeking closeness to his or her primary caregiver (e.g., mother). During infancy the caregiver is understood both as a “safe haven,” in which infants seek comfort when they perceive a threat or experience stress, and a “secure base,” from which the infant explores the environment. The attachment system is both evolutionarily necessary for the survival of the human species and biologically necessary for the development of the individual (Ainsworth & Bowlby, 1991). During a stressful situation (e.g., hunger) or threatening situation (e.g., separation), an infant would signal or seek his or her mother. In turn, the mother responds and protects her young, thus increasing the likelihood of survival and reproductive success. As Bowlby predicted, the attachment system has been found to remain consistent into adulthood (Fraley, 2002; Hamilton, 2000). Attachment behaviors during adulthood might include seeking proximity or social support during stressful situations (e.g., Hazan & Zeifman, 1999). Alternatively, internalized representations of attachment relationships may be elicited to provide adults with emotional regulation (Mikulincer & Shaver, 2004).

Complementing Bowlby’s theoretical framework, Mary Ainsworth developed the Strange Situation study to evaluate how 1-year-old infants responded to their mother’s leaving
them and returning to them (Ainsworth, Blehar, Waters, & Wall, 1978). Ainsworth found that most infants responded with minimal anxiety when their mothers left, were able to explore their surroundings, and were easily comforted upon the return of their mothers; these were deemed to have secure attachment. A second group of infants were distressed when their mother left, showed little exploration, and were difficult to comfort upon their mother’s return; this group was classified as anxious-ambivalent. The third group showed little distress when their mothers left the room and avoided their mothers when they returned; this group was called the anxious-avoidant group.

Although Bowlby and Ainsworth focused on children’s attachment to caregivers, the study of attachment extended into close relationships in adolescence and adulthood. Hazan and Shaver (1987) cited Bowlby (1979) stating that “attachment behavior [characterizes] human beings from the cradle to the grave” (p. 511). Expanding upon Ainsworth’s empirical findings of attachment typologies and Bowlby’s (1980) concept of internal working models, researchers have made significant advances in measurement and theory of adult attachment.

**Adult Attachment and Measurement**

Ainsworth’s coding system, developed to investigate patterns of infant-mother relationships in the Strange Situation (Ainsworth et al., 1978), forms the basis for measuring adult attachment. Though initially referred to as Groups A, B, and C, Ainsworth’s categories are now referred to as avoidant, secure, and anxious. Following these categories, a series of measures were developed to investigate attachment in adults. These include narrative and interview measures of attachment (e.g., Adult Attachment Interview, AAI; George, Kaplan, & Main, 1985) as well as self-report measures (e.g., Relationships Questionnaire, RQ, Bartholomew & Horowitz, 1991; ECRS; Brennan et al., 1998). Roisman et al. (2007) argue that
the two methods of measuring adult attachment correspond to two “cultures” of research; that is, developmental psychology (for interview/narrative) and social psychology (self-report). Moreover, self-report measures are typically more cost-effective for researchers, though they have been criticized for not capturing more in-depth understanding of the attachment mechanisms (see Mikulincer & Shaver, 2007, Ch. 4 for a review).

The most widely used narrative measure of adult attachment is the AAI (George et al., 1985). The AAI is a semi-structured interview developed by Main, Kaplan, and Cassidy (1985) for assessing attachment with parents in dyads of Strange Situations. Aimed at examining attachment of adults with primary attachment figures from their own childhood, the AAI grew out of a developmental tradition (Roisman, 2009). The interview responses are scored into one of three major classifications: autonomous, dismissing, or preoccupied, which correspond with Ainsworth’s secure, avoidant, and anxious-ambivalent categories, respectively. A later version of the AAI scoring includes the ‘unresolved/disorganized’ category (Main, Hesse, & Kaplan, 2005). Various alternatives to coding systems emerged that reflect basic format of the AAI.

A second line of measuring adult attachment is composed of self-report instruments. Hazan and Shaver (1987) developed one of the first self-report measures of adult attachment. The authors theorized that attachment in adulthood would be expressed through romantic relationships as well as internalized parental attachments. Their measure comprises of three short paragraphs or vignettes corresponding with Ainsworth et al.’s (1978) three categories model of attachment: secure, avoidant, and anxious-ambivalent. In both the community and college samples, Hazan and Shaver (1987) found similar prevalence rates of attachment types to those found in infants: 56% of participants were secure, 23-25% were avoidant, and 19-20% were anxious-ambivalent. In addition, the authors found that each of the attachment styles were
uniquely associated with various styles of relationship as well as self-reported loneliness (i.e., individuals with secure attachment reported least levels of loneliness, followed by avoidant attachment, and anxious-ambivalent attachment). In addition, individuals with secure attachment reported greater friendship experiences and were less likely to experience a fear of closeness and emotional extremes when compared to adults with insecure attachment.

Bartholomew and Horowitz’s (1991) Relationship Questionnaire (RQ) adopted Hazan & Shaver’s (1987) self-reported vignettes and expanded the three categories into a four-category typology of adult attachment. In their typology secure and preoccupied attachment correspond with secure and anxious-ambivalent attachment, respectively, whereas, fearful and dismissive consist in two distinct types of avoidant attachment. Bartholomew and Horowitz argued that attachment styles correspond to two dimensions or models: model of self and model of others. The four categories could be understood as having positive or negative internal working models (or views) of self and others. Thus, individuals with secure attachment have a positive view of both self and others; individuals with preoccupied attachment have a negative view of self and a positive view of others; dismissing, a positive view of self and a negative view of others; and fearful, a negative view self and others.

Bartholomew and Horowitz (1991) found convergent validity through unique correlations with various interpersonal problems. Specifically, fearful attachment was associated with overly passive interpersonal problems, dismissing attachment was associated with a lack of warmth in social interactions, and preoccupied attachment was associated with interpersonal problems of warmth and dominance (i.e., depending on others for self-worth and doing so by controlling means).
Using the three-fold typology of adult attachment, Simpson (1990) developed the Adult Attachment Questionnaire (AAQ). Using sentences from Hazan and Shaver’s (1987) vignettes, the author wrote 13 items, to which participants responded on a 7-point Likert scale. The study followed 144 dating couples longitudinally. Simpson (1990) found that individuals with secure attachment style reported greater relationship interdependence, commitment, trust, and satisfaction than those with anxious and avoidant attachment; participants with anxious and avoidant styles had less frequent positive emotions and more frequent negative emotions. Of individuals no longer with their romantic partner at 6 months follow-up, men with avoidant attachment reported the least emotional distress. During the 1990s several additional self-reported measures were developed based on the Hazan and Shaver’s (1987) vignettes (e.g., Mikulincer, Florian, & Tolmacz, 1990) and Bartholomew and Horowtiz’s (1991) paragraphs (e.g., Griffin & Bartholomew, 1994).

Due to the expanding number of scales of adult attachment, Brennan, et al. (1998) developed the Experiences in Close Relationships Scale (ECRS) after administering 323 non-redundant items from 60 subscales of self-report adult attachment measures. A factor analysis revealed two primary factors, avoidant attachment ($\alpha = .94$) and anxious attachment ($\alpha = .91$) that explained 62.8% of the variance in the 60 scales. Each subscale included 18 items corresponding to each dimension. A small correlation was found between the two factors ($r = .12$), suggesting they were orthogonal. This two-dimensional solution was consistent with Bartholomew and Horowitz’s (1991) model of attachment instead of the three-category typology of Hazan and Shaver (1987). Currently, the ECRS is the most widely used measure of adult attachment. The two dimensions can be understood in terms of the affective response (Anxiety)
and behavioral responses (Avoidance) to close relationships or the internal working models of self and others (Crowell, Fraley, & Shaver, 2008).

These attachment dimensions (Anxiety and Avoidance) have been theoretically and empirically linked with various constructs of symptomatology, self-concept, and interpersonal functioning. Anxiety has been found to be associated with high levels of depression (Bifulco, Moran, Ball, & Lillie, 2002; Marganska, Gallagher, & Miranda, 2013; Riggs & Han, 2009; Wei, Russel, & Zakalik, 2005), low self-esteem (Foster, Kernis, & Goldman, 2007; Huntinger & Luecken, 2004), and low social self-efficacy (Mallinckrodt & Wang, 2004, Mallinckrodt & Wei, 2005; Wei et al., 2005). Avoidance has been found to be associated with comfort with self-disclosure (Garrison, Khan, Sauer, & Florczak, 2012; Mikulincer & Nachshon, 1991; Wei et al., 2005) and low interpersonal trust (Mikulincer, 1998; Welsch & Houser, 2010).

Previous studies have also examined the relationship between attachment dimensions and social desirability. Leak and Parsons (2001) evaluated social desirability and attachment measures of RQ (Griffin & Bartholomew, 1994), Attachment Styles Questionnaire (Feeney, Noller, & Hanrahan, 1994) and AAS (Collins & Read, 1990), and found that all three attachment measures were associated with impression management, but that the RQ is least influenced by self-deceptive bias. However, these instruments of adult attachment all measured attachment from a categorical approach. Social desirability has been used as a discriminant criterion for dimensional measures of adult attachment, finding small or negligible correlations with variables on the AAI (Bakermans-Kranenburg & van IJzendoorn, 1993; Crowell et al., 1996) and the ECRS (Yárnoz-Yeben & Comino, 2011; Wei et al., 2007). Researchers have also found social desirability to be a nonsignificant covariate for other research questions involving adult attachment (Ein-Dor, Mikulincer, & Shaver, 2011; Mikulincer & Orbach, 1995). Taken
together, these findings suggest that the dimensional approach taken by the ECRS may be less influenced by social desirability.

Cross-Cultural Research on Attachment

As research on attachment theory expanded in its application from children and parents to adults as well as outside of the U.S. and Europe, researchers began to question whether some of the constructs from the Western-based attachment perspectives applied to different cultures. Working from ethological and evolutionary perspectives, Bowlby (1969; Ainsworth & Bowlby, 1991) argued that attachment theory was universal and applies across cultures. Ainsworth’s (1967) early studies conducted in Uganda are often cited as support for the universality of attachment theory (e.g., van IJzendoorn & Sagi, 2001).

Early studies of attachment during infancy as measured by the Strange Situation found similar attachment typologies, although prevalence rates varied across cultures. For example, in one early meta-analysis of almost 2,000 mother-infant dyads conducted in 8 countries (multiple studies from the U.S. and 5 European countries as well as 1 or 2 studies from Israel, Japan, and China) found more variability of infant attachment classifications within each country than between countries (van IJzendoorn & Kroonenberg, 1988). These authors also found that the A classification (insecure avoidant) occurred more frequently in Western countries, whereas the C classification (insecure resistant) was more frequent in Israel and Japan. Based on cross-cultural research on the Strange Situation, Main (1990) speculated that despite differing parenting practices, attachment mechanisms remain intact and are consistent across various cultures. Moreover, van IJzendoorn (1990) called for further research on cross-cultural validity of attachment theory, emphasizing the need for examining constructs theoretically related to attachment. These authors seemed to accept the universality of attachment across cultures.
In a more recent review, Van IJzendoorn and Sagi-Schwartz (2008) reviewed multiple studies of infant attachment from outside the U.S. and Europe. Authors found support for the cross-cultural universality of attachment styles and that attachment security was normative among most studies. Despite the lack of cross-cultural support for parental sensitivity and childhood competence, key constructs of the attachment system, authors maintained attachment is culturally universal. Critics argue that basic tenants to attachment theory are embedded in Western culture. For example, Rothbaum et al. (2000) argue that competence, as understood by autonomy, self-expression, and positive self-concept, is not appropriate for use in Asian cultures, where preservation of social harmony is valued. Although the controversy over the universality of attachment is far from being resolved, the debate has spurred a surge in studies examining attachment across cultures, an important aspect of which centers on cross-cultural measurement of attachment.

One way to investigate the universality of adult attachment is by evaluating attachment across ethnic groups within the U.S. Since Latinos/Hispanic Americans are the largest minority group in the U.S, it seems crucial to examine attachment processes in this ethnic group. However, only a few studies have included samples of Latinos/Hispanic Americans large enough to compare attachment processes with other ethnic groups (e.g., Asian Americans, African Americans, and Caucasians) and these available studies all used English-version of adult attachment scales, assuming no significant cross-cultural differences. Since there is a large percentage of Latinos/Hispanic Americans who consider Spanish as their primary language, a Spanish measure of adult attachment, validated in a U.S., is crucial in order to capture the full variability in attachment functions within Latinos/Hispanic Americans.
Research of adult attachment among Latinos/Hispanic Americans could shed light on the role that individual differences in adult attachment play in various experiences unique to this population. For example, little is known about attachment processes in response to stressors many Latinos/Hispanic Americans experience such as discrimination, immigration, and acculturation. According to Bowlby (1969), the attachment mechanism is elicited during a threatening or stressful situation. Moreover, cultural constructs such as familismo and an interdependent self-construal might also impact attachment processes in Latinos/Hispanic Americans. Familismo, the emphasis of family over the individual (Keefe, 1984; Lugo Steidel & Contreras, 2003), and interdependent self-construal, the emphasis of role/status and relationships over the individual self (Singelis, 1994), both focus on the value of dependence on others. Therefore, attachment anxiety might play a more adaptive role for Latinos/Hispanic Americans. On the other hand, among Hispanic immigrants who have been separated from their support system, attachment avoidance may buffer negative effects that stressors have on their health and well-being. Having a reliable Spanish attachment instrument validated with Latinos/Hispanic Americans will enable researchers to carry out empirical studies to examine these speculations, which would have significant implications to both attachment theory and to psychological health of Latinos/Hispanic Americans.

Cross-ethnic attachment research (U.S. Latinos)

In light of the controversy on the universality of attachment theory, empirical studies in adult attachment across cultures have emerged over the past decade. Despite this, relatively few cross-ethnic/racial or cross-national studies have examined Latinos/Hispanic populations in comparison with U.S. or Caucasian samples. A thorough search through the literature revealed only three cross-ethnic studies within the U.S. and four cross-national studies comparing samples
from Spanish-speaking countries to a sample from the U.S. Table 1 presents summary of five of these studies with effect sizes of differences in attachment. In one study, Lopez et al. (2000) examined adult romantic attachment with the AAQ (Simpson, 1990) and parental attachment with the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) among African American, Latinos/Hispanic American, and Caucasian college students. In terms of parental attachment, African Americans reported significantly more maternal overprotection than Caucasian students. No differences in attachment anxiety were found across the three groups; however, Latino/Hispanic American and African American students reported greater attachment avoidance than Caucasian students.

Table 1

<table>
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<tr>
<th>Study</th>
<th>Sample</th>
<th>Sample size</th>
<th>Measure</th>
<th>Primary Findings</th>
<th>Anxiety</th>
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<td>Tacón &amp; Caldera (2001)</td>
<td>Mexican-American (women)</td>
<td>96</td>
<td>AAS</td>
<td>Hisp. = 16%</td>
<td>Goodness of fit: $\chi^2$, $p = ns$</td>
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†$p < .10; *p < .05; **p < .01; ***p < .001$

In another study examined adult attachment in Mexican American and non-Hispanic White college women (Tacón & Caldera, 2001). Using a Hazan and Shaver’s (1987) vignettes,
the authors found a similar distribution of attachment styles in Mexican American women 
(63.5%, 16%, and 13.5%) and in non-Hispanic White women (59.3%, 2.3%, and 15.3%) for 
secure, avoidant, and ambivalent styles, respectively. The authors also compared group means 
of Close, Depend, and Anxiety attachment dimensions from the Adult Attachment Survey (AAS; 
Collins & Read, 1990) and found no differences between Mexican American and non-Hispanic 
White women. These results suggest that adult attachment patterns may be similar in 
Latina/Hispanic American and Caucasian female college students.

Wei et al. (2004) examined attachment patterns in Caucasian, African American, Asian 
American, and Latino/Hispanic college students and found that the factor structure of the ECRS 
did not vary across four groups. This suggests that the construct of attachment as measured by 
the ECRS shares similar factor structure across these four ethnic groups. Asian Americans 
scored significantly higher on anxiety than Caucasian college students; for Latinos/Hispanic 
Americans this difference approached significance ($p = .051$). Asian Americans and African 
Americans scored higher on avoidance than their Caucasian peers. In addition, the authors 
examined whether structural paths of attachment to negative mood were equivalent among all 
four groups. They found that anxiety was associated with negative mood in all four groups, but 
that this association was stronger in Asian Americans than African American and Caucasian 
college students. The path from attachment anxiety to negative mood was invariant across all 
four groups.

Cross-national attachment (Spanish-speaking countries)

Only four empirical studies were found that examined cross-national comparisons of 
attachment involving Spanish-speaking countries. Schmitt et al. (2004) conducted a 
multinational study across 62 “cultural regions,” including Spain as well as 6 Latin American
countries. Participants ($N = 17,804$) completed the RQ measure of attachment, measures of self-esteem and agreeableness (from the *Big Five Inventory*; Benet-Martínez & John, 1998), as well as socio-cultural indices (e.g., fertility rate, Gross Domestic Product, and national profiles of individualism vs. collectivism). Schmitt et al. found that in most cultural regions secure romantic attachment was normative (i.e., higher rates of secure attachment than other styles). Although the authors do not discuss findings specific all Spanish-speaking countries together, visual inspection of rates of attachment styles in individual countries revealed similar rates to other Western countries. Using means and standard deviations reported by in the study, effect sizes of the differences in rates of attachment were calculated for U.S. with Mexico and Spain. These differences are reported in Table 2 and reveal differences in direction and effect size when comparing differences between U.S.-Mexico and U.S.-Spain. Results also suggest that the two-dimension structure as measured by the RQ has both convergent validity and discriminant validity. Specifically, in most cultures the Model of Self was positively associated with self-esteem and was not associated with agreeableness; the opposite occurred with the Model of Other, in that it was positively associated with agreeableness and was not associated with self-esteem. The authors also found that socio-cultural indices were associated with romantic attachment styles.

Table 2

*Differences in RQ Rates of Attachment Comparing Samples from U.S. with Samples from Mexico and Spain (Schmitt et al., 2004)*

<table>
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<tr>
<th>Countries</th>
<th>Secure</th>
<th>Dismissing</th>
<th>Preoccupied</th>
<th>Fearful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico &amp; US</td>
<td>Mexico &lt; U.S.</td>
<td>Mexico &gt; U.S.</td>
<td>Mexico &lt; U.S.</td>
<td>Mexico &lt; U.S.</td>
</tr>
<tr>
<td>Cohen’s $d = .36$</td>
<td>Cohen’s $d = .03$</td>
<td>Cohen’s $d = .09$</td>
<td>Cohen’s $d = .31$</td>
<td></td>
</tr>
<tr>
<td>Spain &amp; US</td>
<td>Spain &gt; U.S.</td>
<td>Spain &lt; U.S.</td>
<td>Spain &gt; U.S.</td>
<td>Spain &lt; U.S.</td>
</tr>
<tr>
<td>Cohen’s $d = .22$</td>
<td>Cohen’s $d = .66$</td>
<td>Cohen’s $d = .28$</td>
<td>Cohen’s $d = .12$</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* This study also included 4 other Spanish-speaking counties (Peru, Bolivia, Chile, & Argentina), not included on this table.

Participants were: Mexico ($n = 273$), Spain ($n = 273$), & US ($n = 2481$)
In another study, Alonso-Arbiol, Balluerka, Shaver, and Gillath (2008) examined factorial structure of the ECRS in college students from Spain ($N = 747$) and the U.S. ($N = 1,265$). The authors found that these two versions are comparable, and that the Avoidance and Anxiety scales exhibit high internal consistency reliability in both languages, though the alpha coefficients are slightly yet significantly lower for the Spanish version. Avoidance was related to relationship status in both language groups, with about the same effect size. The factor structure of the measure was similar in both samples. Patterns of attachment differed between samples; the mean of attachment anxiety was higher and the mean of attachment avoidance was lower in the Spanish sample compared with the U.S. sample.

Molero, Shaver, Ferrer, Cuadrado, and Alonso-Arbiol (2011) investigated adult attachment in 295 heterosexual couples from Spain. They found that attachment avoidance was more detrimental to relationship satisfaction than attachment anxiety. Citing higher rates of anxiety in Spanish (Alonso-Arbiol et al., 2008) and Latinos/Hispanic Americans when compared to Caucasian adults (Wei et al., 2004), the authors suggest that attachment anxiety may be more normative in Spain than in the U.S. Overall, however, Molero et al. report that their findings in patterns of attachment, relationship satisfaction, and well-being that are consistent with studies from English-speaking countries.

Friedman et al. (2010) examined attachment and relationship satisfaction in U.S., Mexico, and Hong Kong. Participants were all university students, currently involved in a relationship for at least 3 months and included 214, 153, and 200 participants for the U.S, Hong Kong, and Mexican samples, respectively. Attachment avoidance was significantly higher in Mexico and Hong Kong compared with the U.S. sample; attachment anxiety was higher in Hong Kong than in the U.S., but no difference was found in attachment anxiety between Mexico and
the U.S. Both attachment avoidance and anxiety were associated with negative relationship outcomes. As predicted, though, the association between attachment avoidance and relationship indicators was stronger in both collectivistic cultures than in the U.S. Researchers also found that the relationship between attachment anxiety and negative relationship outcomes was stronger in collectivist countries than in the U.S., though these results were less consistent. For example, the anxiety-relationship satisfaction association was stronger in Hong Kong and Mexico than in the United States, whereas links between attachment anxiety and perceptions of partner support and levels of relationship conflict were stronger in Mexico than in the United States, but they were not stronger in Hong Kong.

The findings in attachment patterns in the previous cross-ethnic and cross-national are not consistent. For example, Wei et al. (2004) and Alonso-Arbiol et al. (2008) found higher rates of attachment anxiety when compared to Caucasian and U.S. college students. This pattern was not found by Friedman et al. (2010), in which the Mexican sample reported higher rates of attachment avoidance but not attachment anxiety. One potential issue is the measure that was used in these studies. In the next section, measures of attachment that have been validated in Spanish-speaking countries will be reviewed.

**Spanish Measures of Adult Attachment**

Numerous Spanish-language self-report measures of adult attachment have been developed in Spain as well as various Latin American countries. Much like measures developed in the English language, varying methods have been used to develop Spanish-language instruments. The most common method is direct translation of measures developed in English (e.g., Brennan et al., 1998). Guidelines for translating measures (i.e., translation-back-translation) were used in varying degrees and ranged from least rigorous, where a single author...
translated the measure, to most rigorous, where a team translated the items and had them back-translated by an independent professional translator. A second strategy involved developing a scale purely based on attachment theory, disregarding items from other measures (e.g., Casullo & Fernandez, 1994). The third method that was used to develop attachment instruments was to combine items from multiple existing attachment measures and run exploratory factor analyses (EFA) to select items (e.g., Márquez Domínguez, Rivera Aragón, & Reyes Lagunes, 2009). The following section presents detailed descriptions of 10 measures of attachment published in peer-reviewed journals that have been validated in other Spanish-speaking countries. Table 3 contains a summary of all Spanish measures.

Hidalgo (2000) examined adult attachment in Spanish college students ($N = 261$, ages 18 to 58, $M_{age} = 22$ years). Seventy-five percent of the participants were female and 72.6% were single. The self-report measures included both a translated version of Hazan and Shaver’s (1987) three vignettes as well as 15 items derived from the vignettes (details on translation were not included). Participants were asked to endorse the vignette that they identify with the most (categorical) and to rate each of the three attachment styles (i.e., secure, anxious, avoidant) on a 1 to 7 Likert scale (dimensional). An EFA on the scale revealed a three-factor model that accounted for 70% of the variance. The first factor included 5 items from anxious attachment and one secure item; it accounted for 33% of the variance ($\alpha = .93$). (The secure item was “Me siento a gusto dependiendo de otros,” or “I feel comfortable depending on others,” which in Spanish fits theoretically with anxious attachment.) The second factor included 5 items from the avoidant subscale and accounted for 27% of the variance ($\alpha = .75$). The third factor included 4 of the 5 items from secure attachment subscale and accounted for 9% of the variance ($\alpha = .86$).
<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Country</th>
<th>Source</th>
<th>C/D</th>
<th>Sample</th>
<th>Factors</th>
<th># items</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hidalgo (2000)</td>
<td>Spain</td>
<td>Sentences from H&amp;S vignettes</td>
<td>C</td>
<td>college $(N = 261)$</td>
<td>anxiety, avoidance, secure$^a$</td>
<td>15</td>
<td>.75 – .93</td>
</tr>
<tr>
<td>Casullo &amp; Fernández Liporace (2004)</td>
<td>Argentina</td>
<td>Sentences from RQ vignettes</td>
<td>C</td>
<td>community $(N = 800)$</td>
<td>fearful &amp; avoidant, anxious, secure$^a$</td>
<td>11</td>
<td>.35 – .62</td>
</tr>
<tr>
<td>Schmitt et al. (2004)</td>
<td>Spain &amp; 6 Latin American countries</td>
<td>RQ</td>
<td>C</td>
<td>college &amp; community $(N = 17,804)$</td>
<td>secure, dismissing, preoccupied, and fearful</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>Alonso-Arbiol et al. (2007)</td>
<td>Spain (Basque country)</td>
<td>ECRS</td>
<td>D</td>
<td>college $(N = 602)$ &amp; community $(N = 439)$</td>
<td>avoidance, anxiety$^a$</td>
<td>36</td>
<td>.83 – .87</td>
</tr>
<tr>
<td>Melero &amp; Cantero (2008)</td>
<td>Spain</td>
<td>75 items from various scales</td>
<td>C</td>
<td>college &amp; community $(N = 445)$</td>
<td>preoccupied, fearful-hostile, secure, &amp; avoidant$^a$</td>
<td>40</td>
<td>.68 – .86</td>
</tr>
<tr>
<td>Márquez Domínguez et al. (2009)</td>
<td>Mexico</td>
<td>128 items from ECRS, AAQ, &amp; RQ</td>
<td>D</td>
<td>community $(N = 611)$</td>
<td>avoidant, anxious, secure$^a$</td>
<td>70</td>
<td>.91 – .94</td>
</tr>
<tr>
<td>Zambrano et al. (2009)</td>
<td>Colombia</td>
<td>ECRS-R</td>
<td>D</td>
<td>college $(N = 371)$</td>
<td>anxiety, avoidance$^a$</td>
<td>21</td>
<td>.81 – .89</td>
</tr>
<tr>
<td>Friedman et al. (2010)</td>
<td>Mexico</td>
<td>ECRS</td>
<td>D</td>
<td>college $(n = 200)$</td>
<td>anxiety, avoidance</td>
<td>36</td>
<td>.79 – .88</td>
</tr>
<tr>
<td>Fernández-Fuertes et al. (2011)</td>
<td>Spain</td>
<td>ECRS-R</td>
<td>D</td>
<td>community $(N = 598)$</td>
<td>anxiety, avoidance</td>
<td>36</td>
<td>.83 – .86</td>
</tr>
<tr>
<td>Ripoll-Núñez (2011)</td>
<td>Colombia</td>
<td>AAS</td>
<td>D</td>
<td>community $(N = 366)$</td>
<td>depend and anxiety</td>
<td>14$^b$</td>
<td>.75 – .79</td>
</tr>
</tbody>
</table>
Note. C/D = attachment categories or attachment dimensions; H&S = Hazan & Shaver (1987); RQ = Relationship Questionnaire (Bartholomew & Horowitz, 1991); ECRS = Experiences in Close Relationships Scale (Brennan, Clark, & Shaver, 1998); AAQ = Adult Attachment Questionnaire (Simpson et al., 1996); ECRS-R = Experiences in Close Relationships Scale – Revised (Fraley, Waller, & Brennan, 2000); AAS = Adult Attachment Scale (Collins & Read, 1990)

a Factors are presented in order of variance accounted for (highest first); b author does not specify number of items.
The authors compared prevalence rates from 15-item scale to the vignettes. Prevalence rates were comparable for both scales and consisted in 54%, 21%, and 26% (15-item scale) and 59%, 22%, and 9% (vignettes) of secure, avoidant, and anxious attachment, respectively (1.4% of respondents did not identify with any of the descriptions in the vignettes). Of note, the largest difference was in anxious attachment. Attachment styles measured by the 15-item scale and vignettes matched for 72% of the participants (the contingency coefficient was .60, \( p < .001 \)), suggesting that the measures coincide significantly.

Casullo and Fernández Liporace (2004) examined two measures of adult attachment (romantic and non-romantic) in 800 individuals from a community sample in Argentina (50% female; ages 30 to 60, \( M = 43 \)). The authors developed three items for each of the four adult attachment styles proposed by Bartholomew (1994; i.e., secure, preoccupied, dismissing, and fearful). The authors developed two 12-item scales for romantic and non-romantic attachment. Items in the romantic and non-romantic attachment scales were identical except for the relationship term (e.g., “Although I’d like to, it is difficult to trust other people” vs. “Although I’d like to, it is difficult to trust my romantic partner”). Participants would then rate how often they experience each item on a 4-point Likert scale. EFA revealed three-factor structures for both non-romantic attachment (11 items) and romantic attachment (9 items), accounting for 45% and 50% of the variance, respectively. One item was eliminated from the non-romantic attachment and three from the romantic attachment measure for low "discriminative power" and low factor loadings, though the eliminated items were not reported. Aside from those that were eliminated, individual items loaded onto the same three factors in both scales (non-romantic and romantic). The first factor consisted of items developed for the fearful and avoidant subscales (all 6 items from the non-romantic and 5 from the romantic attachment scales), and accounted for
19% and 20% of the variance in the non-romantic and romantic scales, respectively. The second factor was anxious attachment and consisted in 3 items in the non-romantic and 2 items in the romantic attachment scale, accounting for 15% and 18% of the variance, respectively. The third factor consisted in 2 secure attachment items in both scales (the same item was eliminated) and accounted for 11% and 12% of the variance in non-romantic and romantic scales, respectively. Internal consistency coefficients for non-romantic and romantic attachment were below acceptable levels: fearful/avoidant ($\alpha = .62 & .60$), anxious ($\alpha = .51 & .42$), and secure ($\alpha = .35 & .28$), though the authors argued that these values were acceptable for having few items items. This measure has been used to measure adult attachment in more recent studies. Despite these studies offering little in the way of reporting improved psychometrics, they found links between insecure attachment (as measured by Casullo & Fernández Liporace, 2004) to low levels of well-being (Páez, Fernández, Campos, Zubieta, & Casullo, 2006) and increased levels of psychopathology (González, Ysern, Martorell, Matéu, & Barreto, 2011).

Schmitt et al. (2004) investigated the cross-cultural variability of attachment as measured by the RQ (Bartholomew & Horowitz, 1991). In addition to collecting socio-demographic information, investigators administered the RQ and outcome measures including self-esteem and agreeableness. The 62 “cultural regions” ($N = 17,804$) included Spanish-speaking countries of Spain, Mexico, Peru, Bolivia, Chile, and Argentina. Schmitt et al. did not detail information on the translation procedures other than stating that researchers (and not professional translators) adapted the measure into their language using translation back-translation method. Results from Schmitt et al.’s study suggest that attachment security is normative in 79% of the cultures, meaning that in most countries attachment security is the highest occurring style. Rates of attachment styles in Spanish-speaking countries were similar to other Western/Anglo countries.
with the exception of Mexico and Bolivia, where rates of dismissing romantic attachment are more common than secure romantic attachment. As predicted, attachment styles were associated with measures of convergent and discriminant validity as well as socio-demographic variables, though the authors did not discuss these relationships in individual cultures. Across most cultures, Model of Self was positively associated with self-esteem and was not associated with agreeableness; conversely, Model of Other was positively associated with agreeableness and was not associated with self-esteem. Moreover, countries with higher fertility rates, lower scores of GDP, and increased overall stress (measured by Human Development Index) had higher levels of insecure attachment (preoccupied, fearful, and dismissing attachment).

Alonso-Arbiol et al. (2007) examined a Spanish version of the ECRS in community and clinical samples of the Basque country of Spain. Although this translation had been used previously by Alonso-Arbiol (2000; Alonso-Arbiol, Shaver, & Yárnoz, 2002), psychometric properties, including validity and reliability, was explored in more depth in their 2007 article. A translation back-translation method was used in which two bilingual attachment researchers independently translated the ECRS into Spanish and an independent translator (blind to attachment theory) translated it back into English. In addition, a Spanish translation of the RQ (Schmitt et al., 2004) was used. The Spanish version of the ECRS was administered to a college sample ($N = 602$; 48% female; ages 18 to 36, $Mdn = 20$) and two community samples consisting of individuals ($N = 393$, 52% female; ages 16 to 63, $M = 31$) and heterosexual couples ($N = 92$, 46 couples; ages 21 to 80 years, $M = 39$).

An EFA revealed two factors (avoidant and anxious) that accounted for 35% and 32% of the variance in samples 1 (college) and 2 (community-individuals), respectively. In both samples avoidance was the first factor, accounting for 19% and 18% of the variance, and the
second factor was anxiety, accounting for 16% and 13% of the variance, respectively. In addition, the two subscales were not significantly correlated in either sample ($r = -.02$ & -.15, $p = ns$), suggesting anxiety and avoidance are orthogonal. Internal consistency coefficients for avoidance and anxiety subscales were found to be adequate in sample 1 ($\alpha = .87$ & .85) as well as sample 2 ($\alpha = .86$ & .83). Moreover, test-retest reliability was examined in sample 2 and was also found to be acceptable (.69 & .75). In both of these samples, 4 items were problematic since they loaded onto both factors. Three items were intended for the anxiety subscale and loaded positively onto anxiety, though one item (item 4) also loaded negatively onto avoidance, and two items (12 & 26) loaded positively onto avoidance. Only one item (29) was problematic for the avoidance subscale item since it loaded positively onto the anxiety subscale as well. After removing the problematic items, the 32-item measure continued having acceptable internal consistency ($\alpha = .87$ & .82) and 6-week test-retest reliability (.69 & .76) for avoidance and anxious subscales, respectively. The 32-item scale was used in study 3 and found acceptable internal consistency coefficients for avoidance ($\alpha = .86$) and anxiety ($\alpha = .87$).

Alonso-Arbiol et al. (2007) reported a similar response pattern between RQ and ECRS, suggesting criterion validity. In addition, attachment styles were correlated with relationship status (i.e., avoidance correlated with “uncoupled” status and negatively correlated with length of relationship). Moreover, the authors compared factor loadings of the sample 1 to a large U.S. college sample and found them to be significantly correlated ($r = .83$ for avoidance and .87 for anxiety). Finally, construct validity was found with significant associations with various indices of couple satisfaction and functioning. The Spanish translation of the ECRS (ECRS-S; Alonso-Arbiol et al., 2007) was chosen for the present study.
Melero and Cantero (2008) developed a self-report measure of adult romantic attachment and administered it to 445 Spanish adults (64% female, ages 18 to 54, $M = 3.5$) composed of both community (64.5%) and college samples (31.9%). A pool of 75 items was developed from attachment literature that contained categories of affective styles. After removing items (with loadings of less than $| .40 |$), items that loaded on to more than one factor, and those that did not fit conceptually), an EFA revealed a four factor structure from 40 items that accounted for 40% of the variance. The factors in order of variance accounted for were: (a) low self-esteem, need for approval, fear of rejection (13 items, 14% of the variance); (b) hostile conflict resolution, rancor, and possessiveness (11 items, 10% of the variance); (c) secure affect or expression of feelings and comfort with relationships (9 items, 9% of the variance); and (d) emotional self-sufficiency and discomfort with intimacy (7 items, 7% of the variance). Internal consistencies were acceptable ($\alpha = .86$, .80, .77, & .68, for factors 1 through 4, respectively). Participants also completed the RQ (Bartholomew & Horowitz, 1991), and post hoc analyses indicated that scores on the Spanish measure of attachment corresponded with the vignettes endorsed on the RQ. A four-factor solution revealed the affective styles of Distant (30% of participants), Secure (29%), Preoccupied (26%), and Fearful-Hostile (16%). The factor structure accounted for 40% of the variance and was consistent with attachment structures from previous research with the exception of the presence of the Fearful-Hostile type.

Márquez Domínguez, Rivera Aragón, and Reyes Lagunes (2009) examined the psychometric properties of a Spanish measure of attachment in a community sample from Mexico ($N = 611$, 50% female; ages 18 to 71, $M = 27$). The original item pool consisted of 128 items from translated and back-translated measures of attachment, including the ECRS (Brennan et al., 1998; Spanish version: Alonso-Arbiol, 2000), the AAQ (Simpson et al., 1996; Spanish
version not reported), and the RQ (Bartholomew & Horowitz, 1992; Spanish version: Sánchez, 2000). The authors did not describe the procedure used for adapting items for Spanish wording other than mentioning that previous studies used translation back-translation procedures. An EFA indicated a three-factor structure with 73 items (factor loadings >.40) that accounted for 42% of the variance. The factors in order of variance accounted for were Avoidant, Anxious, and Secure attachment; internal consistencies were adequate (α = .94, .94, & .91). The factors were not orthogonal due to significant correlation coefficients among them. A second EFA, with 21 items (factor loadings of > .60) revealed a three-factor structure accounting for 55% of the variance. The factors included Avoidance (31% of the variance), Anxiety (15% of the variance) and Secure (9% of the variance) with adequate internal consistencies (α = .89, .87, & .81). Correlation between subscales was not reported. An analysis of variance (ANOVA) conducted on attachment style and relationship status found a main effect on secure attachment; post hoc analyses revealed that individuals in a serious dating relationship (noviazgo) reported higher rates of secure attachment than those in an informal relationship (p < .05).

Zambrano et al. (2009) examined the psychometric properties of a revised version of the ECRS (Fraley, Waller, & Brennan, 2000) in a college sample from Colombia (N = 371; 61% female; M_age = 21.7 years, SD = 4.2). The authors first translated the 36 items from the original scale into Spanish; a professional translator later verified this translation. After removing four items, an EFA indicated an 8-factor structure with 32 items (accounting for 58% of the variance). Five factors with low eigenvalues (≤ 2) were removed; items with low factor loadings (< .40) and items that loaded onto more than one factor were also removed. The 21 remaining items revealed a three-factor structure that accounted for 36% of the variance: factor 1 corresponded with Anxiety (9 items, 16% of the variance), and factors 2 (6 items, 12% of the variance) and 3
(6 items, 9% of the variance), which were combined, corresponded with Avoidance. Internal consistency coefficients were adequate for Anxiety ($\alpha = .88$) and avoidance ($\alpha = .80$). Moreover, the two dimensions were found to be orthogonal since correlation coefficient between anxiety and avoidance was nonsignificant ($r = .09, p < .76$). An ANOVA was conducted on attachment style and gender; no significant difference was found between men and women (though anxiety and gender was approaching significance).

Friedman et al. (2010) used translations of the ECRS (Brennan et al., 1998) to examine attachment and relationship satisfaction in college samples from the U.S., Mexico, and Hong Kong. Researchers from a Mexican university used a translation back-translation method to translate items into Spanish. In the Mexican sample, internal consistency coefficients for avoidance and anxiety were .79 and .88, respectively. Results also suggested that attachment dimensions were associated with relationship variables though these were different in each cultural sample. Among all samples, both attachment avoidance and anxiety were associated with negative relationship outcomes (i.e., low relationship satisfaction, low social support, low investment, and high relationship conflict), though this association was stronger in Mexico and Hong Kong collectivistic cultures compared with the U.S. For example, the anxiety-relationship satisfaction association was stronger in Hong Kong and Mexico than in the United States, whereas links between attachment anxiety and perceptions of partner support and levels of relationship conflict were stronger in Mexico than in the United States, but they were not stronger in Hong Kong.

Fernández-Fuertes, Orgaz, Fuertes, and Carcedo (2011) examined a Spanish version of the revised ECRS (Fraley et al., 2000) in adolescents from Spain who have been involved in a romantic relationship during the previous 12 months ($N = 598$; 64.2% female; ages 15 to 19, $M =$
Translation carried out by the researchers, who then examined the appropriateness of wording in the Spanish version; wording was further adjusted after a small pilot study. A confirmatory factor analysis (CFA) was conducted with the original 36 items and found partial support for the two-factor structure ($\chi^2 = 3078$, GFI = .78, NNFI = .87, CFI = .88, SRMR = .098, & RMSEA = .083). Internal consistency coefficients were adequate for Anxiety ($\alpha = .83$) and Avoidance ($\alpha = .86$); the low correlation between Anxiety and Avoidance dimensions ($r = .18$) suggests orthogonality. After removing 18 items with low item-total correlations (< .20), a second CFA with 18 items indicated a two-factor structure with a better fit ($\chi^2 = 602$, GFI = .90, NNFI = .87, CFI = .88, SRMR = .064, & RMSEA = .076) and closer to findings from previous studies (e.g., Sibley, Fischer, & Liu, 2005). Internal consistency coefficients were adequate for Anxiety ($\alpha = .80$) and Avoidance ($\alpha = .86$); the 18-item scale revealed lower correlation between Anxiety and Avoidance dimensions ($r = .12$).

Ripoll-Núñez (2011) examined psychometric properties of the AAS (Collins & Read, 1990) in 183 heterosexual couples currently cohabitating from Colombia (ages 18 to 69, $M = 36.85$; 77.6% were married, 85.2% had 1 or 2 children). The AAS consists of 18 items that measure three underlying dimensions (i.e., Close, Depend, and Anxiety), corresponding with Hazan and Shaver’s (1987) three vignettes. A translation back-translation procedure was used; two bilingual psychologists verified the translations. A principal components analysis resulted in only two of the dimensions. Internal consistencies of Depend and Anxiety subscales were adequate for men ($\alpha = .75 & .77$) and women ($\alpha = .75 & .79$). The authors did not discuss the item loadings. In addition, the participants completed a measure on marital adjustment and one that measures relationship attribution and responsibility. In men, negative causal and
responsibility attributions fully mediated the relationship between anxiety and satisfaction; in women causal attribution only partially mediated this relationship.

Translation Methodology

The recent interest in cross-cultural comparison research increases the need to ensure instrument equivalence when adapting instruments into other cultures (Mallinckrodt & Wang, 2004). Using inadequate instruments may result in errors in result findings. For example, Berkanovic (1980) re-examined a study in which Latinos/Hispanic Americans were interviewed either in English or Spanish and argued that the instrument used compromised findings enough to discard the results.

Theorists have conceptualized equivalence of psychological instruments in various ways (Flaherty et al., 1988; Lonner, 1985; van de Vijver, 2001). Flaherty et al. (1988) argued that there are five types of equivalence: (a) content equivalence, when each item is relevant to the construct being measured in each culture; (b) semantic equivalence, when items connote similar meaning in each culture; (c) technical equivalence, when data collection and results are comparable in each culture; (d) criterion equivalence, when the instrument measured is related to within-culture norms; and (e) conceptual equivalence, when it measures a similar underlying construct across cultures.

The most frequently used method in translating a measure into another language is known as translation back-translation (Brislin, 1970, 1980; Brislin, Lonner, & Thorndike, 1973), which involves a series of steps to ensure equivalence. The first step involves an individual or team of bilingual translators that translate the instrument from the original language to the target language. Second, the instrument is back-translated into the original language by an independent individual or team. Finally, a team of bilingual experts compares the items, rating
the level of equivalence in measures across both instruments. Items rated as exactly the same are maintained, those that are different are excluded, and items that are somewhat similar are revised and included in the translated instrument. Although Brislin’s translation back-translation method corrects for errors that may arise from direct translation of items by one researcher, this method is limited to semantic equivalence (Flaherty et al., 1988) and may not be sufficient for the other dimensions of equivalence (Geisinger, 1994; Rogler, 1999).

Decentering is an iterative process in which both the translated language and the original language are considered, whereas back-translation considers the original version as the standard against which the target language is compared (Marin & Marin, 1991). This approach is considered an extension of the translation back-translation process used to improve conceptual equivalence of adapted measures (Beck, Bernal, & Froman, 2003). Through iteration, translators consider the both versions and are able to adapt a measure that is more likely to reflect the intended meaning than a literal translation of the measure original measure.

In order to supplement the translation back-translation and decentering procedures in translation methodology, Mallinckrodt and Wang (2004) developed the dual-language split-half (DLSH), a quantitative method for evaluating semantic equivalence between measures. The process in the DLSH includes various steps starting with a team of bilingual team of experts independently translating and back-translating the measure. Following translation, a large criterion sample \((N > 300)\) is obtained to complete the original measure and a smaller bilingual sample \((N > 30)\) to complete alternate forms of the DLSH measure. Each form includes half the items from the original language and half from the translated; versions are counterbalanced, resulting in two alternative versions. Although each participant only sees each item once, all items from the scale are presented in both languages. Data analyses include: DLSH reliability,
internal consistency reliability, test re-test reliability, and construct validity correlations, and the ability to compare the original version to the translated version.

One of the primary advantages of using DLSH over administering full scales in both languages is that it accounts for fatigue and priming effects. Ægisdóttir, Gerstein, and Çinarbas (2008) sifted through 615 empirical articles from three major counseling journals and found 15 articles that included a measure translation. Of these 15 studies, Ægisdóttir et al. concluded that the most rigorous method for obtaining equivalence in translation was Mallinckrodt and Wang’s (2004) DLSH method.
CHAPTER 3: METHOD

Participants

Power

Various recommendations for adequate sample size for factor analysis have been proposed. Some researchers have suggested using minimum sample sizes of 100 (Gorsuch, 1983; Kline, 1979), 200 (Guilford, 1954), or even 250 (Cattell, 1978). Others have recommended a participants-to-item ratio, which is the ratio of participants for each item included in the factor analysis. Most agree that a minimum ratio of 5:1 is necessary (Gorsuch, 1983, Kline, 1979), with an ideal ratio being 10:1 (Everitt, 1979). Since the ECRS (Brennan et al., 1998) contains 36 items, the goal of the sample size for the present study will be set at 360 participants (the 10:1 ratio) with 180 as a minimum number of participants (the 5:1 ratio).

Recruitment and selection criteria

Criteria for selection included: college students currently attending the University of North Texas, self-identifying as Latino/Hispanic and bilingual fluency in written Spanish. Bilingual fluency was assessed with two methods: (a) a self-report of Spanish language proficiency in reading, writing, speaking, and listening (ranging from 1 = very poor to 5 = very good or fluent) and (b) a brief Spanish language screener, which consists in a short paragraph and two reading comprehension questions at the at 4th grade reading level adapted from Bilingual Reading Comprehension – Grade 4 (Bierling, 2006). Participants were excluded if their self-reported reading Spanish fluency score was 2 or below (i.e., poor or very poor) or if they answered both of the reading comprehension questions incorrectly.
Participants were recruited through undergraduate psychology courses at UNT, undergraduate courses outside psychology, and Latino and Hispanic organizations. Students enrolled in psychology classes were recruited using the SONA online sign up system. Information about the study included on the SONA website was available to all students in qualified psychology courses. Participants received two SONA credits for their participation for the baseline survey and one SONA credit for the follow-up survey. Participants not enrolled in psychology courses were recruited in classes and departments with higher percentages of Latino/Hispanic (e.g., Spanish courses) students as well as through Latino/Hispanic organizations (e.g., Hispanic Students for Higher Education, League of United Latin American Citizens, Lambda Theta Phi-Latin Fraternity, Hispanic Student Association). Recruitment included emails to organization leaders and instructors followed by attending classes and organizations in person. Participants recruited outside of the SONA system were entered into a raffle drawing to win one of five $40 gift cards to Target.

Bilingual sample

Participants included 209 bilingual Latino/Hispanic American college students. Sixteen participants were excluded based on Spanish fluency items. Participants were also excluded if they moved to the US as an adult (18 years or older) since the target population was U.S. Latinos/Hispanic Americans and it is possible that these participants are international students; four additional participants were excluded. Six participants were excluded from the analyses since they left over 10% of the ECRS items incomplete. The final sample included 183 participants (132 female, 51 male). The mean age of the sample was 20.8 ($SD = 4.34$). Most participants identified as Mexican American ($n = 107$) or Mexican ($n = 33$) with the remaining participants ($n = 43$) reporting other countries of heritage (e.g., El Salvador, Colombia, Puerto
Rico) or multiple countries. In terms of generation status, 30 participants were first generation (i.e., born in a Latin American country), 123 were second generation (i.e., at least one parent born in a Latin American country), and 29 were third generation (i.e., at least one grandparent born in a Latin American country); one participant did not report generation status. The sample was representative of college classification levels: 51 freshman, 36 sophomore, 38 junior, 51 senior, and 7 graduate students.

Follow-up sample

A subsample of 41 bilingual participants completed the Spanish ECRS within 3 to 8 weeks ($M = 6.01$, $SD = 1.67$) from the initial survey. After three weeks, participants received an email inviting them to complete the follow-up survey. Participants completed the survey online for 1 additional SONA credit or 1 additional raffle ticket. Demographic variables of the follow-up sample were similar to the larger sample in terms of age ($M = 19.7$, $SD = 1.60$), sex (28 women, 13 men), ethnic identity (23 Mexican Americans, 8 Mexicans, 10 “Other”) immigrant generation status (6 first generation, 29 second generation, 5 third generation), and college standing (16 freshmen, 11 sophomores, 9 juniors, 5 seniors, 0 graduate students).

Criterion sample

A large sample of US-born Caucasian students ($N = 459$) was also used in the present study. Archival data collected from the same university in the 2012-2013 academic year were used for the criterion sample. Participants completed the English ECRS among other measures. Psychometric properties of the ECRS from the criterion sample were calculated and compared to those of the dual language ECRS from the bilingual sample in order to examine reliability and validity of the Spanish ECRS. Sample characteristics were similar to the bilingual sample for
age ($M = 20.96$, $SD = 3.77$), sex (278 women, 181 men), and college standing (138 freshmen, 101 sophomores, 97 juniors, 119 seniors, 4 graduate students).

Measures

Demographics

Participants completed a general series of questions regarding demographic information, including age, gender, ethnicity, country of origin, and immigrant family status.

Adult attachment

The Experiences in Close Relationships Scale (ECRS; Brennan, Clark, & Shaver, 1998) was used to measure attachment adult attachment. This 36-item, self-report measure consists in the subscales of Anxiety and Avoidance. The Anxiety subscale measures fear of abandonment and rejection; the Avoidance subscale assesses discomfort with intimacy and dependence. Brennan et al. (1998) administered 323 non-redundant items from all attachment measures available at the time to a college sample ($N = 1,086$) and conducted an exploratory factor analysis (EFA). A two-factor structure emerged with Anxiety and Avoidance consisting in nearly orthogonal dimensions ($r = .12$). The ECRS measures each dimension with 18 items (with 14 of the 36 items reverse scored). Participants respond to statements about their experiences in romantic relationships on a 7-point Likert scale from 1 (disagree strongly) to 7 (agree strongly). The ECRS is scored by calculating the average rating on items within each subscale; higher scores indicate greater anxiety about rejection/abandonment and greater avoidance of intimacy/interdependence. Internal consistency coefficients for Anxiety and Avoidance were .91 and .94, respectively (Brennan et al., 1998). Test retest reliability has been found for periods ranging from three weeks (.70 for both subscales; Brennan, Shaver, & Clark,
Evidence for validity of the subscales was found with associations an attachment measure, the RQ (Bartholomew & Horowitz, 1991) as well as with the theoretically related constructs intimate touch and romantic sexuality (Brennan et al., 1998). Among a Latino/Hispanic American college sample, the ECRS was found to have a similar factor structure as with the Caucasian sample; reliability for Anxiety and Attachment subscales at .92 and .93, respectively, and subscales were significantly associated with negative mood (Wei et al., 2004).

In addition to the English version of the ECRS, participants also completed a modified version of the Spanish ECRS (Alonso-Arbiol et al., 2007). Internal consistency was adequate in Spanish samples for both Anxiety ($\alpha = .83$ to .85) and Avoidance ($\alpha = .86$ to .87) and 3- to 8-week test-retest reliability was .75 and .69 for Anxiety and Avoidance, respectively. The authors reported associations in the expected direction with attachment categories of the RQ (Bartholomew & Horowitz, 1991) and with relationship status (Alonso-Arbiol et al., 2007).

A team of bilingual attachment researchers reviewed Alonso-Arbiol et al.’s version and modified item content to ensure linguistically appropriate wording for U.S. Spanish speakers. Word changes were made for awkward wording (e.g., for six items, the word afectiva was changed to emocional), to improve clarity (e.g., for items ECRS19 and ECRS21 encuentro was changed to me resulta), or because it was deemed closer to the original ECRS version (e.g., in item ECRS7, the word violento was changed to incómodo).

Depression

The Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977) is a 20-item self-report scale that assesses the frequency of occurrence of depressive symptoms during the past week. The scale includes items that measure affective,
cognitive, and physical symptoms of depression. Participants report how often they experienced each symptom during the previous week on a 4-point Likert scale from 0 (rarely or none of the time) to 3 (most of the time). Four items are positive and are reverse scored. Sample items include, “I felt lonely” and “I did not feel like eating; my appetite was poor.” Total scores are summed and range from 0 to 60, and higher scores correspond with greater depressive symptomology. Radloff (1977) reported adequate reliability of the CES-D including internal consistency ($\alpha = .85$), test-retest reliability ranging from 2 to 8 weeks ($r = .51$ to .67), and split-half reliability ($r = .51$ to .67). Studies administering the CES-D to Latino/Hispanic American samples have also reported high internal consistency ($\alpha = .84$ to .87; Cervantes, Padilla, & Salgado de Snyder, 1991; Crocket et al., 2005). Internal consistency for the current sample was .89.

The CES-D is able to differentiate between participants in treatment and those who are not in treatment for depression. Convergent validity was found in community samples were reported with correlations between the CES-D and measures of depression, from .37 to .63 (Lubin, 1967; Bradburn, 1969); well-being, from -.18 to -.25 (Bradburn, 1969; Crowne & Marlowe, 1960); and psychopathology at .54 (Langer, 1962); correlations in clinical samples were higher for all measures except negative affect (Bradburn, 1969). Orme, Reis, and Herz (1986) also reported convergent validity with correlations with state and trait anxiety as well as self-esteem.

Self-disclosure

The Distress Disclosure Index (DDI; Kahn & Hessling, 2001) is a 12-item instrument that measures the degree to which a person is comfortable talking to others about personally distressing information. Participants respond to statements about their comfort with
self-disclosure on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Six items are reverse-scored and scores are summed to obtain a total score (ranging from 12 to 60). A sample item includes, “I typically don't discuss things that upset me.” Higher scores reflect greater willingness to disclose distress. The DDI was validated with three college samples (N = 278, 331, & 90) consisting of mostly Caucasian participants (88% to 92%; Kahn & Hessling, 2001). The authors showed convergent validity of the DDI through expected correlations with self-disclosure and self-concealment. Evidence for predictive validity was provided in a previous study with findings demonstrating significant correlations of the DDI with actual numbers of disclosure during the interview and independent ratings of the level of disclosure (Kahn, Lamb, Champion, Eberle, and Schoen, 2002). Kahn and Hessling (2001) reported high internal consistency across samples (α = .92 to .95) and stable test-retest reliabilities across 2-month (r = .80) and 3-month periods (r = .81). The DDI was used in a study by Uysal, Lin, and Knee (2009), which included a small sample of Latino/Hispanic participants (n = 34). The authors did not report internal consistency for this subsample, though the alpha coefficient was high (α = .92) for the entire sample (N = 180; 31% Caucasian, 20% African American, and 21% Asian American). Internal consistency for the current sample was high (α = .94).

Self-esteem

The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) is a 10-item measure that assesses general self-esteem. Participants rate the extent to which each item applies to their self-evaluation on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Items include statements such as, “On the whole, I am satisfied with myself” and “I certainly feel useless at times.” Five negatively worded items are reverse-scored. Total scores are summed and higher scores indicate elevated levels of self-esteem. Rosenberg (1965)
reported high internal consistency ($\alpha = .93$) in his original study that included over 5,000 high school students. Internal consistency has been high in studies using the RSE across 53 countries ($\alpha = .81$; Shchmitt & Allik, 2005) and across U.S. ethnic groups ($\alpha = .90$ to .91; Sinclair et al., 2010). Test-retest reliability at 6-month intervals was high ($r = .70$ to .72) though correlation was lower at an 18-month interval ($r = .61$; Torrey, Mueser, McHugo, & Drake, 2000). Schmitt and Allik (2005) reported convergent validity of the RSE across 53 countries, reporting correlations with extraversion, neuroticism, and “model of self” dimension from attachment theory.

The RSE has been examined in various Latino/Hispanic American groups (e.g., Mexican American, Dominican American, Puerto Rican) and high internal consistency has been reported with alpha coefficients ranging from .79 to .85 (Phinney, Cantu, & Kurtz, 1997; Supple & Plunkett, 2011; Umaña-Taylor & Fine, 2001), although authors examining internal consistency in small subsamples of Hispanic groups, such as Puerto Ricans ($n = 23$), found lower levels of internal consistency ($\alpha = .71$). Internal consistency for the current study was high ($\alpha = .90$).

Social self-efficacy

The Social Self-Efficacy subscale (SSES) of the Self-Efficacy Scale (Sherer et al., 1982) is a 6-item that measures perceived ability in social situations. Participants rate their ability on a 5-point Likert scale from 1 (completely disagree) to 5 (completely agree). The SSES includes items such as “I do not handle myself well in social gatherings” (reverse scored). Three items are reverse-scored, and ratings on each item are summed for a composite score. Higher SSES scores indicate higher levels of self-efficacy expectations. Studies have reported moderate internal consistency ($\alpha = .71$) and evidence of construct validity through significant correlations with self-esteem, internal locus of control, interpersonal competency, assertiveness, and social introversion (Sherer & Adams, 1983; Sherer et al., 1982). Although reliability and
validity of the SSES has not been reported in a Latino/Hispanic American sample, Constantine, Okazaki, and Utsey (2004) administered the full scale to 320 international students (which included students from Latin America) and reported high internal consistency for the SSES ($\alpha = .87$). Internal consistency for the present sample was moderate ($\alpha = .72$).

Trust

The Interpersonal Trust Scale (ITS; Rotter, 1967, 1971) is a 25-item instrument that measures general trust in a variety of interpersonal situations including teachers, parents, politicians, physicians, classmates, and friends. Participants rate the extent to which they agree with statements on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Sample items include, "Most people can be counted on to do what they say they will do," and “In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.” Scores are summed and higher scores indicate lower self-perceived interpersonal trust. Rotter (1967) reported adequate internal consistency ($\alpha = .76$), split-half reliability ($r = .76$); and test-retest reliability at 3 months ($r = .68$) and 7 months ($r = .56$). Rotter (1967) reported convergent and discriminant validity through correlations with peer ratings of gullibility, dependency, and trustworthiness over and above peer ratings of humor, popularity, and friendship. Discriminant validity of the ITS was also found with small correlations with social desirability (Rotter, 1967) and no correlation with self-disclosure (MacDonald, Kessler, & Fuller, 1972). To date, no study has reported psychometric properties of the ITS in a Latino/Hispanic American sample. Cronbach’s alpha for the current sample was .75.

Social desirability

The Impression Management subscale of the Balanced Inventory of Desirable
Responding, Version 6 (BIDR-IM; Paulhus, 1988) consists of 20 items that measures intentional socially desirable responding. Participants rate how much they agree with each statement regarding favorable self-presentation on a 7-point Likert scale, ranging from “1” (*not true*) to “7” (*very true*). To score the BIDR-IM, half of the items are reverse-scored. Scores are then dichotomously coded with responses of “6” and “7” scored as “1” and responses of “1” through “5” scored as “0,” resulting in a total score ranging from 0 to 2. Higher scores refer to a greater tendency to respond in a more socially desirable way. Paulhus (1986) reported adequate internal consistency for the BIDR-IM (α = .75 to .83) and 5-week test-retest reliability (r = .65). Paulhus (1986) reported findings supporting concurrent validity with a significant correlation with the Marlowe-Crowne scale (Crowne & Marlowe, 1960), and convergent validity with correlations on Lie (L) scale of the Minnesota Multiphasic Personality Inventory (MMPI) and the L scale of Eysenck Personality Inventory (Eysenck & Eysenck, 1964) and “role play” scales (e.g., Sd subscale; Wiggins, 1959). More recently, Lanyon and Carle (2007) provided further support for convergent validity of the BIDR-IM through correlations with various measures that tap into exaggeration of virtue, including the L and L + K scales of the MMPI-2, the Endorsement of Excessive Virtue (EEV) scale of the Psychological Screening Inventory (PSI; Lanyon, 1993), Good Impression (Gi) scale of the California Psychological Inventory (CPI; Gough, 1975), the Motivational Distortion (MD) scale of the Sixteen Personality Factors (16PF; Winder, O’Dell, & Karson, 1975). No study to date has investigated psychometric properties of the BIDR-IM in a Latino/Hispanic American sample. Cronbach’s alpha for the current sample was .71.

**Ethical Considerations**

Because the proposed study is survey-based research that does not involve sensitive
material, minimal risk is involved for research participants. Participants were provided with an informed consent form with information on the nature and purpose of the study, foreseeable risks, potential benefits, confidentiality, a statement that participation is voluntary, and investigator information will be obtained from all participants. Participants were informed that their participation and their responses will remain confidential and that no identifying information is included in the survey. Data will be reported in an aggregate format and the completed surveys will only be viewed by the investigators and eligible members of the research laboratory who have completed required human subject protection training. No circumstances exist that would require confidentiality to be broken. Participants were also informed that their participation is completely voluntary and that they may decline participation at any point during the data collection procedure without any consequence. Participants were also notified of available counseling services (including the UNT University Counseling Center on campus) should any psychological distress arise.

Procedure

Participants completed a paper-and-pencil survey that contained demographic information, the DLSH ECRS (containing half English, half Spanish items), and measures to assess convergent and discriminant validity (see Measures section). Three weeks after the initial survey completion, participants were invited via email to complete the Spanish ECRS to establish test retest reliability. Participants completed the follow-up survey on Qualtrics, an online survey software provider. Compensation included one additional SONA credit or an extra ticket for a raffle drawing.
CHAPTER 4: RESULTS

Data Cleaning

Several data cleaning procedures were conducted prior to running any analyses. First, visual inspection of data was used to identify missing values and data entry errors. Data entry errors included entering multiple digits (e.g., 55 instead of 5) or values that were greater than the Likert scale (e.g., entering a 7 for a 1-5 scale); these were corrected by verifying original entries. If 10% or fewer items were missing from a scale or subscale, values were replaced with the mean score of the other items within the scale. Five participants completed only the Spanish portion of the ECRS and were excluded from analyses that included English split-half or full ECRS. Skewness, kurtosis, and outliers were then checked for outcome variables to evaluate normality. Depression and impression management were significantly positively skewed and self-esteem was significantly negatively skewed. As recommended by Tabachnick and Fidell (2013), square root, logarithm, and reflected logarithm linear transformation procedures were performed for depression, impression management, and self-esteem variables, respectively.

Univariate outliers were examined for two English and Spanish 9-item scales of the ECRS (i.e., Avoidance and Anxiety) using $z$ scores and Tukey’s (1977) boxplot method. Mean scores from each 9-item scale were calculated and converted into $z$ scores. Using the criterion of an absolute value of $z \geq 3$. Tukey’s method using a graphical display with a boxplot calculates outliers based on the median and the interquartile range (IQR), which is the middle 50% of the scores, using the threshold of 1.5 IQR from the rest of the values. No cases were detected as univariate outliers using $z$ scores and boxplot methods.

Multivariate outliers were detected using the multivariate Mahalanobis distance statistic ($M$ score), which included ECRS scales as well as variables of convergent validity (i.e., self-
esteem, depressive symptoms, social self-efficacy, comfort with self-disclosure, and trust) and discriminant validity (i.e., social desirability). Only one case was identified as a significant multivariate outlier using the $p$ value of less than .001, as recommended by Tabachnick and Fiddell (2013). This case was included in analyses of reliability and factorial validity, but excluded from analyses of convergent and discriminant validity.

Primary Analyses

Reliability analyses

First, mean differences in dual-language (Spanish and English) split-half scales were calculated. Two paired-sample $t$ tests were conducted to examine mean differences between English and Spanish scales of Avoidance and Anxiety. Results, presented in Table 4, revealed no significant difference at $p < .05$ between English and Spanish 9-item scales, suggesting similar mean scores of split-halves. Means and standard deviations for the attachment dimensions across all three samples are presented in Table 5.

Table 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>$n$</th>
<th>Spanish items</th>
<th>English items</th>
<th>$t$</th>
<th>$df$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>183</td>
<td>3.23</td>
<td>1.08</td>
<td>3.17</td>
<td>1.32</td>
<td>-0.69</td>
</tr>
<tr>
<td>Anxiety</td>
<td>183</td>
<td>3.82</td>
<td>1.06</td>
<td>3.72</td>
<td>1.24</td>
<td>-1.56</td>
</tr>
</tbody>
</table>

Note. Paired sample $t$ tests compared mean differences of English language ECRS with means of Spanish version of ECRS.

Next, two tests of reliability (internal consistency reliability and DLSH reliability) were calculated for the dual-language ECRS in the bilingual sample and compared to those of the English ECRS in the criterion sample. For DLSH reliability, Pearson product-moment correlations were calculated between the two dual-language split-half scales (9 English items and
Correlations between the same two 9-items scales were calculated for the English ECRS in the criterion sample. Group differences in these values were compared using Fisher’s $r$ to $Z$ transformations. Results, displayed in Panel A, Table 6, indicated significant differences between bilingual and criterion samples. Specifically, DLSH reliability coefficients for Avoidance ($r = .66$) and Anxiety ($r = .73$) in the bilingual sample were significantly different than the correlations of split-half scales for Avoidance ($r = .79$) and Anxiety ($r = .81$) in the criterion sample.

Table 5

<table>
<thead>
<tr>
<th>Means and Standard Deviations of ECRS</th>
<th>Avoidance and Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>$n$</td>
</tr>
<tr>
<td>Bilingual Sample – Test</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>183</td>
</tr>
<tr>
<td>Anxiety</td>
<td>183</td>
</tr>
<tr>
<td>Bilingual Sample – Retest (3-8 week)</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>41</td>
</tr>
<tr>
<td>Anxiety</td>
<td>41</td>
</tr>
<tr>
<td>Criterion Sample</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>459</td>
</tr>
<tr>
<td>Anxiety</td>
<td>459</td>
</tr>
</tbody>
</table>

Note. The possible range for attachment variables is 1 to 7.

A similar procedure was conducted for internal consistency. Cronbach’s alpha coefficients for the full 18-item scales (Spanish and English items combined) were calculated for the bilingual sample and compared with the criterion sample using Feldt’s (1969) ratio of $(1 - \alpha_1) / (1 - \alpha_2)$, which is distributed on the $F$ distribution with $df_1 = (N_2 - 1)$ and $df_2 = (N_1 - 1)$. Results, displayed in Panel B, Table 6 revealed significant differences between Cronbach’s alpha coefficients. Specifically, internal consistency coefficients for Avoidance ($\alpha = .91$) and Anxiety ($\alpha = .89$) in the bilingual sample were significantly different than coefficients for Avoidance ($\alpha =$
and Anxiety ($\alpha = .93$) in the English-only sample. As with DLSH reliability, internal consistency coefficients for the dual-language ECRS were significantly different from the English version, suggesting that they are not equivalent.

Test retest reliability was evaluated using Pearson-product moment correlations between the mean score of 18-item dual-language ECRS at time 1 (T1) and the Spanish ECRS three to eight weeks later at time 2 (T2). Results, displayed in Panel C, Table 6, revealed correlations of .70 for Avoidance and .60 for Anxiety scales of the ECRS, suggesting adequate 3- to 8-week test-retest reliability.

Table 6

Dual-Language, Split-Half, Internal Consistency, and Retest Reliabilities

<table>
<thead>
<tr>
<th></th>
<th>Bilingual Sample ($N = 183$)</th>
<th>Criterion Sample ($N = 459$)</th>
<th>Group Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual-language split-half reliability (Pearson correlations)</td>
<td>9 Spanish with 9 English items</td>
<td>9 English with 9 English items</td>
<td>$r$ to $Z$ transformation</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.66</td>
<td>.79</td>
<td>$Z = 3.24, p &lt; .01$</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.72</td>
<td>.81</td>
<td>$Z = 2.33, p &lt; .05$</td>
</tr>
<tr>
<td><strong>Panel B</strong></td>
<td></td>
<td></td>
<td>Feldt test</td>
</tr>
<tr>
<td>Internal consistency (Cronbach’s alpha)</td>
<td>9 Spanish with 9 English items</td>
<td>9 English with 9 English items</td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>.91</td>
<td>.94</td>
<td>$F(458, 182) = 1.51, p &lt; .05$</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.89</td>
<td>.93</td>
<td>$F(458, 182) = 1.53, p &lt; .05$</td>
</tr>
<tr>
<td><strong>Panel C</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test-retest reliability (Pearson correlations)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>.60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. All Pearson correlations significant at the $p < .01$ level.*

Factorial validity
An exploratory factor analysis (EFA) using principal axis factoring (PAF) extraction with a varimax rotation was performed on the 36 items from the dual language ECRS to examine whether Brennan et al.’s (1998) two-factor structure would hold in the bilingual sample. Multicollinearity, normality, and factorability of the correlation matrices were checked. Multivariate outliers were examined using Mahalanobis distance statistic (M score) regressing ECRS items onto age. Five cases were identified as outliers at the $p < .001$ level (as recommended by Tabachnick & Fidell, 2013) and excluded from the EFA analyses. Skewness and kurtosis were examined using a cutoff value of $z < 3.29$ (where $z = \text{Skewness} / \text{SESkewness}$); three variables were positively skewed (items ECRS25, ECRS27, and ECRS31), but were not removed from the remaining analyses. Multicollinearity analyses revealed adequate levels of Tolerance ($> .30$) and VIF ($< 4.0$).

A principal components extraction was used prior to PAF extraction to estimate the number of factors and revealed seven factors with eigenvalues $\geq 1$. The first two factors had eigenvalues of 8.30 and 6.91, and they accounted for 42% of the variance. Eigenvalues for the remaining factors were $< 2$, with minimal change in eigenvalues after the third factor. The scree plot (Figure 1) revealed a visual break after the second factor as well. This suggests that data from the bilingual sample reflect a two-factor solution, which is consistent with Brennan et al.’s (1998) findings.

The PAF with varimax rotation was performed next, constraining the data to two factors. Varimax matrix rotation was selected because Anxiety and Avoidance are conceptualized as orthogonal dimensions. Factor loadings on the rotated matrix for were examined using cutoff values of $\geq .45$ on the expected factor and low loadings on the other factor (with a difference of $\geq |.15|$). All items loaded on the expected factor, with 18 odd items loading onto Factor I.
(Avoidance) and 18 even items loading onto Factor II (Anxiety). However, two items loaded onto their expected factors at below the cutoff level: item ECRS22 loaded onto Factor II at .35 and item ECRS29 loaded onto Factor I at .44. A second PAF was performed removing item ECRS22 from the analysis. Factor loadings for all 35 items met cutoff values, with the exception of ECRS29, which remained at .44. A third PAF was conducted with ECRS22 and ECRS29 removed from the analysis. Results from the third factor analysis revealed no meaningful change in variance accounted for in the bilingual sample. Therefore, ECRS29 was not removed from further analyses.
Results from the 35-item scale indicated that variance accounted from rotated factors was 22% for Factor I and 18% for Factor II. Factor loadings are presented in Table 7.

**Table 7**

*Factor Loadings for 35-item Dual-language ECRS in Bilingual Sample (N = 183)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor I (Avoidance)</th>
<th>Factor II (Anxiety)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>.73</td>
<td>.21</td>
</tr>
<tr>
<td>13</td>
<td>.73</td>
<td>.21</td>
</tr>
<tr>
<td>23</td>
<td>.72</td>
<td>-.03</td>
</tr>
<tr>
<td>35</td>
<td>.70</td>
<td>-.24</td>
</tr>
<tr>
<td>9</td>
<td>.68</td>
<td>.23</td>
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<tr>
<td>25</td>
<td>.68</td>
<td>-.15</td>
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<td>19</td>
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<td>-.02</td>
</tr>
<tr>
<td>27</td>
<td>.67</td>
<td>-.19</td>
</tr>
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Table 8

Factor Loadings for 36-item ECRS in Criterion Sample (N=459)

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<th>Item</th>
<th>Factor I (Avoidance)</th>
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<td>.56</td>
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</table>
consistency coefficients were conducted with the 18-item Avoidance was .91 and for the 17-item Anxiety scale was .89. Average inter-item correlation coefficients were .38 for Avoidance and .33 for Anxiety. These values were below coefficients for the criterion sample (.49 for Avoidance and .42 for Anxiety), but were within recommended levels of .2 to .4 (Briggs & Cheek, 1986). Pearson product-moment correlation between the two scales was not significant ($r = .07$, $p = .37$), suggesting orthogonality. For comparison, a PAF was performed on the 36-item English ECRS using the Caucasian criterion sample. This resulted in a 2-factor solution with the first rotated factor accounting for 25% and the second rotated factor accounting for 23%. Factor loadings (see Table 8) indicate odd items (Avoidance) load onto Factor I and even items (Anxiety) load onto Factor II; all items meet cutoff levels.

Validity analyses

The final set of analyses involves evaluating the construct validity of the Spanish ECRS. To evaluate convergent validity, Pearson correlations were calculated between the ECRS scales and variables, which have been demonstrated to be conceptually related. Means, standard deviations, and ranges for the outcome variables are displayed in Table 9. Results, demonstrated in Table 10 indicated that Anxiety was significantly negatively correlated with social self-efficacy, self-esteem, and positively correlated with depressive symptoms. Avoidance was significantly negatively associated with comfort with self-disclosure, but not significantly

Table 9

<table>
<thead>
<tr>
<th>Variable</th>
<th>$N$</th>
<th>Possible Range</th>
<th>Mean</th>
<th>SD</th>
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<td>Social Self-Efficacy</td>
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<td>1-5</td>
<td>3.06</td>
<td>0.791</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>182</td>
<td>1-5</td>
<td>3.88</td>
<td>0.814</td>
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<tr>
<td>Depressive Symptoms</td>
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<td>0-3</td>
<td>0.93</td>
<td>0.516</td>
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<tr>
<td>Interpersonal Trust</td>
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<td>1-5</td>
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<td>0.394</td>
</tr>
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<td>Distress Self-Disclosure</td>
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<td>1-5</td>
<td>3.02</td>
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<tr>
<td>Impression Management</td>
<td>183</td>
<td>0-1</td>
<td>0.29</td>
<td>0.167</td>
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</table>
correlated to interpersonal trust. Of note, Avoidance was also associated with variables that were predicted to correlate with Anxiety (social self-efficacy, self-esteem, and depressive symptoms). Discriminant validity was assessed by correlations between an unrelated construct (social desirability) with Anxiety and Attachment subscales, which were expected to be small or nonsignificant. Results indicated that social desirability was not significantly correlated with the ECRS scales.

Table 10

<table>
<thead>
<tr>
<th></th>
<th>Convergent Validity</th>
<th>Discriminant Validity</th>
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<tbody>
<tr>
<td></td>
<td>SSES</td>
<td>RSES</td>
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<tr>
<td>Avoidance</td>
<td>-.22**</td>
<td>-.18*</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-.18*</td>
<td>-.47**</td>
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</tbody>
</table>

*Note: Bolded values were expected to be significantly correlated with Anxiety and Avoidance. Italicized values were expected to be nonsignificant.*

BIDR-IM = Impression Management subscale of the Balanced Inventory of Desirable Responding, Version 6 (Paulhus, 1988); CES-D = Center for Epidemiological Studies-Depression Scale (Radloff, 1977); DDI = Distress Disclosure Index (Kahn & Hessling, 2001); ITS = Interpersonal Trust Scale (Rotter, 1967); RSE = Rosenberg Self-Esteem Scale (Rosenberg, 1965); SSES = Social Self-Efficacy subscale of the Self-Efficacy Scale (Sherer et al., 1982).

*p < .05; **p < .01

Post hoc exploratory analysis

Although not a part of the hypothesis, independent samples t tests were conducted to evaluate mean differences of Avoidance and Anxiety between the bilingual sample and criterion sample. Results revealed that the Avoidance was rated more highly in the bilingual sample (M = 3.16, SD = 1.11) than in the criterion sample (M = 2.79, SD = 1.16), t(640) = 3.71, p < .001. A significant Levene’s test (F = 5.625, p = .018) suggested equal variances were not assumed for Anxiety. Results using adjusted degrees of freedom and standard error indicated no significant difference between the bilingual sample (M = 3.75, SD = 1.08) and the criterion sample (M =
3.68, $SD = 1.27$), $t(391.04) = 0.63$, $p = .53$. Effect sizes for these differences were $d = -.33$ and $d = -.06$, respectively.
CHAPTER 5: DISCUSSION

With a growing interest in research on attachment theory, the ECRS (Brennan et al., 1998) has become one of the most widely used self-report measures of adult attachment. Researchers have recently challenged the assumption that attachment is a universal construct (e.g., Rothbaum et al., 2000; Wang & Mallinckrodt, 2003), suggesting instead that cultural differences may play a role in the way attachment behaviors are expressed. One way to evaluate the assumption of universality is with cross-cultural studies. Given the increase in Latino/Hispanic Americans in the U.S., it seems to be an ideal avenue to examine cross-cultural applicability of attachment. Yet to date no measure has been validated in Spanish with U.S. Latinos. The present study examined psychometric properties of a Spanish measure of the ECRS, modified from Alonso-Arbiol et al.’s (2007) translation with a U.S. English-Spanish bilingual college sample. Findings provide general support to the reliability, factorial validity, and construct validity of the Spanish ECRS examined in this study, suggesting that it may be a useful tool for measuring adult attachment of U.S. Latino/Hispanic individuals. Some specific findings are highlighted and discussed in this section.

Tests of Reliability

In order to evaluate reliability of the Spanish ECRS, recommendations outlined by Mallinckrodt and Wang (2004) were followed and three tests of reliability were conducted. DLSH was developed for establishing semantic equivalence (i.e., meanings of each item are similar) by evaluating psychometric properties of a dual language split-half measure (half English and half Spanish) administered to bilingual individuals and compared to an English-only measure administered to a large criterion sample. In addition, tests of internal consistency
reliability and 3- to 8-week test-retest reliability evaluate technical equivalence (i.e., data
collection method is comparable).

Prior to reliability analyses, mean scores of split half forms were evaluated and no
significant difference was found (see Table 4). First, DLSH reliability was evaluated (see Panel
A, Table 6). Significant correlations between half English and half Spanish were found ($r = .66$
to .72), but these were significantly smaller than those between the same item subsets in English
from the criterion sample ($r = .79$ to .81). Despite being significantly smaller, the DLSH
coefficients were large and considered to be adequate values for split-half reliability. This
finding provides support for the semantic equivalence of the Spanish ECRS.

Second, internal consistency coefficients (see Panel B, Table 6) for the dual-language
ECRS in the bilingual sample ($\alpha = .89$ to .91) were slightly smaller than the internal consistency
coefficients from the criterion sample ($\alpha = .93$ to .94). However, the Cronbach’s alphas of the
dual-language ECRS were within acceptable levels and absolute differences between internal
consistency coefficients were no more than .04. Third, test-retest reliability was established by
administering the Spanish ECRS to a subsample of 41 participants three to eight weeks following
the initial survey. Retest correlation coefficients were found to be acceptable ($r = .60$ to .70; see
Panel C, Table 6) and comparable to previous findings in U.S. Caucasian ($r = .68$ to .71;
Brennan et al., 2000; Lopez & Gormley, 2002) and Spanish samples ($r = .69$ to .74; Alonso-
Arbiol et al., 2007), indicating that the Spanish ECRS is stable over time. The internal
consistency reliability and test-retest reliability provides support for the technical equivalence in
measurement translation.

Factorial Validity
Factor analysis was used for further evaluating conceptual equivalence of translated measures. Results from a principal components analysis indicated a two-factor structure of the dual-language ECRS, which is consistent with results from the English ECRS (Brennan et al., 1998). Results from the exploratory factor analysis revealed that all items loaded on the expected factor, with Avoidance accounting for more variance than Anxiety.

Visual inspection of the factor loadings revealed slightly different pattern across samples (see Tables 7 and 8). Two items in the Avoidance scale (ECRS7 and ECRS35), which tapped into discomfort with closeness, had significantly greater factor loading rankings in the bilingual sample compared to their positions in the criterion sample. Specifically, their respective ranked factor loadings were 1st and 4th for the bilingual sample, but 12th and 11th for the criterion sample. Conceptually, avoidance is characterized by discomfort with closeness, emotional distancing, and impulsive self-reliance. From a cultural perspective, collectivistic societies—including Latin American cultures—are more likely to promote behaviors that involve closeness and harmony with others. Thus, it may be that discomfort with psychological closeness is more of a central feature for attachment insecurity experienced by Latino Americans than other types of avoidant behaviors. More research is needed before a solid conclusion can be drawn.

In terms of individual items, one item was problematic: item ECRS22 (I do not often worry about being abandoned / La mayoría del tiempo no me preocupa la idea de ser abandonado/a), since it loaded onto the expected factor at .35, below the cutoff of .45. Unlike in the present study, item ECRS22 was not found to be problematic for two studies that factor analyzed Spanish versions of the ECRS (Alonso-Arbiol et al.’s, 2007; Friedman, 2006). This item was modified from Alonso-Arbiol et al.’s translation to improve clarity since it contained a negative (“do not”) and a vague, positive time frame (“often”). Both qualities make it a
particularly difficult item to translate (Brislin et al., 1973). For the present study a more precise time frame was chosen ("la mayoría del tiempo" instead of "a menudo"), which may have altered the meaning of the item. Taken together, Alonso-Arbiol’s original translation may be more appropriate to use in the Spanish ECRS.

Tests of Construct Validity

Convergent validity was examined by evaluating associations between Avoidance and Attachment and theoretically related variables (see Table 10). This hypothesis received partial support. As predicted, Anxiety was significantly positively correlated with self-esteem and social self-efficacy and negatively correlated with depressive symptoms. In addition, Avoidance was significantly negatively correlated with comfort with self-disclosure. Contrary to the hypothesis, Avoidance was not significantly related to interpersonal trust. Avoidance is conceptually related to mistrusting others since it is characterized by distancing behaviors and withdrawing from others. This link has been supported in some previous studies (Hofstra, van Oudenhoven, & Buunk, 2005; Mikulincer, 1998) but not others (Welch & Houser, 2010). One possible explanation for the present finding is that Avoidance may be more associated with interpersonal trust at an individual level (i.e., within one’s romantic relationship) rather than trust at a society level. The ITS (Rotter, 1967), which was used to measure trust in this study taps into trust at the societal level (e.g., item 1: Hypocrisy is on the increase in our society). Another possibility is that in U.S. Latinos/Hispanic Americans, a certain level of mistrust may be normative and not reflective of attachment insecurity. Latino/Hispanic Americans have been found to report lower levels of trust in others than non-Hispanic Whites (Weaver, 2006). Moreover, as with other minority groups, U.S. Latinos and Hispanic Americans often experience discrimination and microagressions. As a result, a certain degree of skepticism or “cultural
“cultural mistrust” might be adaptive rather than detrimental for living in the U.S. Empirical support for this phenomenon has been found in African Americans (Whaley, 2001) and experts on multicultural counseling suggest this non-pathological “cultural mistrust” occurs in counseling (Ridley, 2005; Sue & Sue, 2012). Research in political science also seems to support this argument (Abrajano & Alvarez, 2010; Wenzel, 2006), with acculturation and discrimination experience being negatively correlated with political trust.

Moreover, Avoidance was associated with variables that were predicted to correlate with Anxiety (social self-efficacy, self-esteem, and depressive symptoms). The correlation coefficients between Avoidance with self-esteem and depression ($r = -.18$ & $.19$, respectively) were significant, but below those of Anxiety ($r = -.47$ & $.40$, respectively). This pattern of correlations—smaller correlations with Avoidance than Anxiety—is consistent with previous research using Caucasian samples for depression (for a review see Mikulincer & Shaver, 2007) and self-esteem (e.g., Lopez & Rice, 2006). On the other hand, the association between social self-efficacy with Anxiety and Avoidance were very similar ($r = -.19$ & $-.22$, respectively). This finding was unexpected since the Anxiety dimension is conceptualized as having a negative working model of self (Bartholomew & Horowitz, 1991). Moreover, this finding is inconsistent with past research (e.g., Mallinckrodt & Wei, 2005; Wei et al., 2005) indicating a similar pattern to depression and self-esteem, with larger correlation coefficients for social self-efficacy and Anxiety ($r = -.45$) than Avoidance ($r = -.21$). One possible explanation for this finding is poor criterion equivalence of the Spanish ECRS. However, findings with other outcome variables were largely significant in the expected direction. Alternatively, social self-efficacy may not be an appropriate outcome variable for U.S. Latinos/Hispanic Americans. Social self-efficacy may be more culturally appropriate for individuals from individualistic cultures—where the self is
defined more in separateness from others. Cross-cultural research supports this claim, with Asians and Asian Americans reporting significantly lower rates of social self-efficacy than Caucasians (Cianni, 1994; Leung, 2001). Future research is needed to evaluate whether a culturally sensitive measure that taps into group efficacy or collective efficacy (Klassen, 2004), such as *familismo* or *filial piety.*

Discriminant validity was supported by social desirability having no significant correlation with Avoidance or Anxiety. Similar results have been found in previous studies with samples from the U.S. (Wei et al., 2007) and Spain (Yáñez-Yeben & Comino, 2011). Social desirability is not theoretically related to either of the attachment dimensions. Further evidence for discriminant validity provided since, although both dimensions are associated with various affective and interpersonal constructs, it is not redundant with any construct (none of the correlations exceed .50). This finding is consistent with the ECRS in both English (Brennan et al., 1998) and Spanish (Alonso-Arbiol et al., 2007). In addition to discriminant validity—and more importantly—this finding confirms that the latent variables represented by items in Spanish are orthogonal in nature as described by theory (Bartholomew & Horowitz, 1991).

Finally, although not a part of the original hypotheses, the bilingual sample reported significantly higher levels than the criterion sample on Avoidance ($d = .33$), but not Anxiety ($d = .06$). One possibility of this finding is measurement differences between the English and Spanish-language versions. However, in the present study, there were non-significant within-person differences in means of split-half between language forms. Moreover, previous studies have found higher mean scores for Latino/Hispanic American and Mexican samples in comparison to U.S. Caucasian samples (see Table 1), with some studies finding larger effect sizes for Avoidance than Anxiety (Friedman et al., 2010; Lopez et al., 2000). Therefore, a more
plausible explanation for this finding is that it reflects actual population differences in Avoidance rather than measurement differences. Lopez (2000) suggested that this difference might be to individual-contextual interactions. Specifically, minority students in a predominantly Caucasian college setting may experience heightened cultural mistrust, which in turn enhances avoidant behaviors in their romantic relationships. In this sense Avoidance could be an adaptive behavioral strategy for Latino/Hispanic college students. Future research could evaluate whether attachment avoidance is related to perceived discrimination or racial microaggressions (e.g., Sue et al., 2007).

Limitations

The conclusions made in the present study should be viewed in light of limitations. The limitations in the present study are related to issues with methodology and limitations of the present sample.

Methodological limitations

Results were based on data that were collected using only self-report measures. The use of self-report measures poses threats to construct validity of the present study. Participants’ responses to self-report surveys may not be reflective of their true behaviors, affective, or cognitive experiences because of systematic distortions (e.g., social desirability, acquiescence). Moreover, the use of all self-report measures may introduce mono-method bias since responses may be due to similar response style rather than true relationships between constructs. Mono-operations bias (use of only one type of instrument) was also present for our independent variable, though the present study included various outcome variables as measures of convergent validity. These limitations could be minimized using an interview measure of attachment (e.g., AAI; George et al., 1985).
The use of a follow-up administration of the dual-language ECRS provided evidence for the stability of this measure. However, only a subsample of the initial survey completed the follow-up survey. This poses a threat to internal validity to the finding of retest reliability. Participant attrition may have played a role in that participants who remained in the study may be substantially different than those who did not. Another limitation to the follow-up was that the range of time between T1 and T2 (3 to 8 weeks) was not controlled, which may have added unnecessary error variance to retest reliability. Finally, the cross-sectional design of the present study limits external validity since it highlights associations between the dual-ECRS and variables of convergent validity, but not causal relationships.

Sample limitations

The present study has several limitations due to sampling, including issues with using a bilingual sample as well as generalizability issues with using a single college sample. There are three issues with using a bilingual sample for measurement equivalence. First, fluency of both languages is not consistent across individuals, posing a threat to statistical conclusion validity (i.e., heterogeneity of units of Spanish fluency). Because it was a college sample, participants were expected to have a high school level of English fluency. In an effort to control for Spanish fluency, screening procedures were used (i.e., self-reported reading fluency and reading exercise with multiple choice questions). However, it is possible that a number of participants overestimated their Spanish language ability, feeling pressure to complete the Spanish ECRS items despite their ability. Likewise, participants may have underestimated their Spanish language ability and excluded from the analyses. Either situation poses a threat to content validity and may be due to participants’ reactivity to the experimental condition or unintended experimenter expectations (i.e., having the title of “Latino Attachment and Wellness”).
A second problem with using a bilingual sample is that participants did not consist of a single, homogeneous group of test takers. U.S. Hispanic and Latino individuals vary in country of origin, acculturation and enculturation, language ability, and identity. Third, bilingual participants cannot be assumed to be equivalent to the criterion sample. Sireci (1997) has called this “representation problem” since bilingual individuals who are highly proficient in both languages may be considered highly achieving. On the other hand bilingual individuals who are less proficient in one language may be lower achieving in that language. Although an attempt to control for selection bias by using two samples (bilingual and criterion) from the same university, internal validity in these comparison analyses could be threatened.

Finally, results from the present study were based on a sample of U.S. Latinos or Hispanic Americans from a specific university setting in Texas. This poses a threat to external validity (i.e., generalizability). Random sampling of all of the U.S. Latinos/Hispanic Americans would likely offer a different picture in terms various variables, including age, education, and socioeconomic status factors, language fluency, and relationship status, thus making it crucial to examine the Spanish ECRS with samples outside the college setting and in different geographical locations outside the southwestern U.S.

Theoretical Implications

Despite the limitations noted above, the present study offers several meaningful implications for attachment theory and for counseling psychology. This was the first study to thoroughly evaluate psychometric properties of the Spanish ECRS with a Latino/Hispanic sample. Results were generally consistent with previous studies using English-speaking U.S. samples. Obtaining semantic equivalence is a crucial aspect when validating a translated measure. The present study used quantitative analyses (DLSH; Mallinckrodt & Wang, 2004) to
establish semantic equivalence of the Spanish version of the ECRS. The use of a bilingual sample has the benefit of testing equivalence since group effects are eliminated and differences in measures or items can be assumed to be due to linguistic differences. Results from internal consistency and test-retest reliability were similar to the criterion sample and previous research, lending preliminary support to technical equivalence. Moreover, correlations in the expected directions with measures that are theoretically related (convergent validity) or unrelated (discriminant validity) suggest criterion validity. Finally, results from the exploratory factor analysis suggest conceptual equivalence.

In terms of the broader debate on the universality and cross-cultural applicability of attachment as a construct, the present study provides some preliminary support that the factor structure of attachment dimensions as measured by the ECRS holds up among U.S. bilingual college students. Though previous studies have evaluated attachment in U.S. Latino/Hispanic American college students (Lopez et al., 2000; Wei et al., 2004), the present study provides initial validation of the Spanish version of the ECRS, which could be used in community samples in order to further evaluate the universality of attachment. Although tests of reliability and validity were within adequate limits, they were almost consistently lower than findings from the criterion sample or previous research. This can be expected when translating a measure from one language to another, but make it difficult to rule out the possibility of cultural differences in attachment.

Findings from the present study indicate a more nuanced understanding of interpersonal aspects of attachment among Latinos is necessary. The nonsignificant correlation between Avoidance and interpersonal trust could indicate that the construct of mistrust may not be a central aspect to avoidant attachment among Latinos. This may be a cultural norm for Latinos
but also may be the result of experiences of discrimination as ethnic minorities in the U.S. Participants from the bilingual sample also reported higher levels of attachment avoidance with a moderate effect size. This difference could not be accounted for by the language, since there was no significant difference between split-half forms. Avoidance may be more normative for U.S. Latinos than in Caucasian samples. Finally, the lower correlation coefficient between Anxiety and social self-efficacy indicates that self-efficacy may not be reflective of attachment insecurity as it has been found in previous studies. Taken together, these results suggest that cultural differences may exist in the expression and formation of attachment in Latinos/Hispanic Americans.

Future Directions

Although results from this study offer a validation of the Spanish ECRS, future research would likely build upon this area of study. Additional studies could explore possible variations of the attachment system in Latinos/Hispanic Americans. Results from this study indicated that social self-efficacy and interpersonal trust were not associated with attachment dimensions as were expected. Advanced statistical methods would be useful for confirming equivalence between the Spanish and English ECRS. Item response theory offers quantitative method of comparing item and test functioning across two test forms by constraining parameters of the Spanish ECRS onto the English ECRS. Likewise, confirmatory factor analysis provides fit indices by imposing factor structure of the English ECRS onto the Spanish ECRS. Although these methods require large samples, they would provide evidence for technical and conceptual equivalence beyond reliability analyses and exploratory factor analysis. Future research could also evaluate the Spanish ECRS in different age groups. The ECRS measures romantic attachment, yet college students tend to be unmarried and may not be in a committed romantic
relationship. Evaluating psychometric properties in a community sample that includes individuals in long-term relationships would enable use of the Spanish ECRS to a broader age range.

Future research could explore attachment dimensions with culturally-sensitive variables, including *familismo* and interdependent self-construal. Although *familismo*—characterized by a heightened sense of family centrality—is conceptually consistent with the construct of attachment, no studies to date have examined these variables together. Future research examining *familismo* with different types of social support might shed some light findings from the present study that are inconsistent from past research. For example, it is possible that due to *familismo*, Latino individuals are more mistrustful of others and society. Existing measures of *familismo* include the Pan-Hispanic Familism Scale (Villarreal, Blozis, & Widaman, 2005) or the Attitudinal Familism Scale (Lugo Steidel & Contreras, 2003).

Likewise, interdependent self-construal may be a fruitful line of work for examining cultural differences of attachment theory. A handful of studies have found that interdependent self-construal moderates the association between attachment and well-being (Shelton, Zamudio, Askings, & Wang, 2014; Wang & Ratanasiripong, 2010) and the association between attachment dimensions and social support (Frías, Shaver, & Díaz-Loving, 2014). Future research could explore the role of cultural orientation using the Self-Construal Scale (Singelis, 1994).

Another method for exploring cultural variations in attachment constructs among Latinos is through a qualitative approach. Future research could explore Latinos’ beliefs of their ideal of romantic attachment. Previous qualitative work has found cross-cultural variations in attachment between Taiwanese and U.S. college students (Wang & Mallinckrodt, 2006). Although this type of work would make it difficult to quantitatively explore cultural differences, qualitative
work would offer a deeper understanding of interpersonal patterns that are unique to Latinos and would be able to inform subsequent quantitative research.

Subsequent studies could explore the role of perceived or actual experiences of discrimination and attachment dimensions among U.S. Latinos and other minority populations. Discrimination fits conceptually within attachment theory since it consists in a threatening or stressful situation, and would be expected to elicit the attachment system. It is possible that discrimination experiences mediate some of the cultural differences between Latinos and Caucasian individuals, including the higher rates of Avoidance or the lack of association between Avoidance and interpersonal trust.

**Conclusion**

The universality of attachment theory has been called into question over the past decade, yet few studies have evaluated adult attachment among Latino/Hispanic individuals. Having a reliable and valid instrument is a first step toward cross-cultural research. The present study aimed to evaluate psychometric properties of the Spanish ECRS for use in U.S. Latinos or Hispanic Americans. The findings indicated that the Spanish ECRS has adequate reliability and validity in a bilingual sample. Specifically, semantic equivalence was established using a measure that had undergone translation-backtranslation and DLSH reliability, evidence for technical equivalence was found with internal consistency and test-retest reliability, and preliminary evidence for construct equivalence via exploratory factor analysis and correlations with related constructs in the expected directions. Despite these optimistic findings, measures of reliability and factor structure were not perfectly equal, suggesting cultural variations in the expression of adult attachment in U.S. Latinos or Hispanic Americans.
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doi:1.1521/jscp.2.1.41.22254


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