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Measurement Invariance of Relationship Intimacy and Attachment Across Hispanic and non-Hispanic White College Women

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By

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ABSTRACT

The study of relationship intimacy and attachment has gained increasingly greater attention within the field. As such, researchers have developed numerous self-report measures of relationship intimacy and attachment. However, a majority of such measures have been developed and validated with White, Western populations, which calls into question the validity of such measures when used with minority populations. One way to establish validity of measures is to test for measurement invariance; namely, that the measures assess the same constructs across groups. The focus of this study was to test the measurement invariance of two commonly used measures of relationship intimacy, the Fear of Intimacy Scale (FIS) and the Personal Assessment of Intimacy in Relationships Inventory (PAIR), as well as two measures of adult romantic attachment, the Adult Attachment Scale (AAS) and the Adult Attachment Questionnaire (AAQ), across Hispanic and non-Hispanic White college women.

This study surveyed 444 college women from a southwestern U.S. University, who completed measures of relationship intimacy and adult romantic attachment. Results revealed that confirmatory factor analyses (CFA) provided poor model fit and failed to replicate pre-established factor structures of the measures. Consequently, exploratory structural equation models (ESEM) were used to further analyze study data. Results indicated the ESEM provided better fit to the data for all measures than conventional CFA models, suggesting that additional work may be warranted to further examine the theoretical underpinnings of these measures. Moreover, all measures (FIS, PAIR, AAS, AAQ) demonstrated scalar invariance across Hispanic and non-Hispanic White college women, suggesting that such measures assess similar constructs in these groups.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

Growing research from positive psychology suggests that social relationships are critical to well-being and have strong links to both physical and psychological health (Kansky, 2018). Romantic relationships in particular appear related uniquely to well-being. The phenomenon of romantic relationships appears to be multifaceted, and the impact of romantic relationships on well-being, is influenced by numerous factors, including gender, personality, and attachment orientation (Kansky, 2018; Gómez-López et al. 2019). Romantic relationships differ from other social relationships in several ways; however, researchers have struggled to develop a clear definition of romantic relationships (Kansky, 2018). Nonetheless, it appears that one notable distinction between general relationships and romantic relationships is a pronounced difference in the level of intimacy between partners (Moss & Schwebel, 1993).

Relationship Intimacy

Over the past few decades, there has been growing interest among researchers to better understand what enhances or interferes with the health of a relationship (Simpson & Campbell, 2013). Intimacy has been a construct of particular interest, given it has important implications for overall relationship functioning. However, the construct of intimacy has often been examined among researchers utilizing a range of operational definitions, highlighting the complexity of this construct and the need for clearer conceptualizations (Constant et al., 2016; Schaefer & Olson, 1981; Vitek & Yeater, 2020). Many theorists agree that intimacy is a complex and multidimensional construct consisting of various components, including love and affection, personal validation, trust, mutual commitment, and self-disclosure (Hook et al., 2003; Rubenstein & Shaver, 1982).

The interpersonal model of intimacy developed by Reis and colleagues (Reis & Patrick, 1996; Reis & Shaver, 1988) highlights the reciprocal nature of intimacy within relational dyads and describes intimacy as a process that ultimately influences relationship outcomes for both partners over time. For example, if one partner provides empathetic listening and support to the other following self-disclosure, the original partner is more likely to feel reinforced and engage in self-disclosure again in the future. Thus, the ability to experience intimacy in relationships provides a foundation wherein subsequent partner interactions can either strengthen or weaken the overall quality of one's romantic relationship (Weinberger et al., 2008).

Intimacy has long been considered an important component of human development, and empirical research has demonstrated a strong association between intimacy and an individual's psychosocial adjustment (e.g., Beyers & Seiffge-Krenke, 2010; Braithwaite et al., 2010; Erikson, 1959). Erikson (1959) posited that intimacy is a primary developmental task for young adults, and suggested that without intimacy, people are unable to develop meaningful interpersonal connections with others. Intimacy seems to fulfill a variety of psychological needs, such as love and belonging by helping one avoid loneliness (Maslow, 1966; Brown, 1995). Intimacy can also promote positive feelings about oneself and others, which can lead to a feeling of being understood by others (Prager, 1998). Additionally, intimacy has been linked to happiness, contentment, a sense of well-being, and social support and is posited to act as a buffer to the negative effects of stress (Hook et al., 2003; Miller & Lefcourt, 1982). In contrast, people who lack intimate relationships experience more stress-related symptoms, are more likely to develop illness, and have higher mortality rates (Dandurand & Lafontaine, 2013; Nik-Azin et al., 2013). A lack of intimacy in relationships is

associated with increased psychological distress, depression, and other emotional disorders (Yoo et al., 2014). Furthermore, lack of intimacy is often associated with other relationship issues, such as a decreased sense of security within the relationship and increased jealousy (Theiss & Solomon, 2006) and has been postulated to be one of the most important predictors of divorce (Weinberger et al., 2008). Research has suggested that intimacy interacts with and influences a variety of other relationship domains, including relationship commitment and communication (Taghiyar et al., 2015; Yoo et al., 2014). Empirical studies also have consistently demonstrated a positive association between relational intimacy and couple satisfaction, such that higher levels of perceived intimacy are related to higher levels of marital satisfaction (Dandurand & Lafontaine, 2013; Greeff & Malherbe, 2001; Schaefer & Olson, 1981).

Romantic Attachment

Attachment theory has become a major theoretical perspective in the study of close relationships and is a helpful framework for conceptualizing individuals' comfort with intimacy and closeness in relationships (Bowlby, 1969; Simpson et al., 1996). Attachment theory was originally developed to explain parent-child relationships; however, attachment theory has since been extended to conceptualize attachment bonds between romantic partners (Hazan & Shaver, 1987). That is, similar to a mother being a primary attachment figure in childhood, a romantic partner may be seen as a primary attachment figure in adulthood (Hazan & Shaver, 1987). When an attachment figure is seen as emotionally unavailable or unreliable, an individual is likely to experience insecurity within the relationship. However, when an attachment figure is perceived to be available, reliable, and able to provide support

when needed, one is more likely to feel a sense of security within the relationships (Hazan & Shaver, 1987).

There is a large body of literature suggesting that adult attachment style is linked to the quality of one's relationship functioning, including levels of intimacy desired and achieved within a romantic relationship (e.g., Dandurand & Lafontaine, 2013; Feeney & Noller, 1991; Hazan & Shaver, 1987; Pielage et al., 2005). For example, individuals displaying less secure forms of attachment exhibit greater difficulties achieving intimacy goals within a relationship compared to individuals displaying greater attachment security (Feeney & Noller, 1991; Hazan & Shaver, 1987). Secure attachment has been associated with high levels of trust, commitment, and satisfaction (Simpson, 1996). Additionally, attachment security is predictive of relationship stability (Duemmler & Kobak, 2001). On the other hand, insecure attachment orientations (anxious and avoidant orientations) have been shown to be negatively associated with couple satisfaction (Mikulincer & Shaver, 2007). Avoidant insecure attachment is associated with greater discomfort with intimacy and lower levels of relationship commitment, whereas anxious insecure attachment is associated with a constant need for reassurance, high levels of jealousy, greater relationship commitment, and fears of abandonment by a romantic partner (Hazan & Shaver, 1987).

Influence of Culture

For centuries, romantic love has been an area of great interest for writers, philosophers, and musicians. The question of whether romantic love is a Western cultural concept or a universal human construct is an important one, and it has become clear that concerns relating to romantic relationship quality and intimacy are not unique to only Western cultures (De Munck et al., 2011; Karandashev, 2015). Furthermore, the traditional

view of attachment proposes that the basic tenets of attachment theory apply universally to all cultures (van Ijzendoorn & Sagi-Schwartz, 2008). However, the growth of cross-cultural psychology has revealed cultural differences in interpersonal behaviors and processes associated with romantic relationships (see Kitayama & Cohen, 2010, for a review), and some researchers have offered opposing viewpoints suggesting that there may be cultural variations in attachment orientations (e.g., Fraley et al., 2015). Culture may in fact influence the fundamental norms of intimacy expression and the construct of intimacy may convey disparate experiences to people, based on age, gender identity, education, and culture, making it difficult to develop a clear and widely accepted definition of the construct (Martin & Tardif, 2014). Moreover, culture may influence how one views the role of intimacy in romantic relationships as well as the importance of closeness within relationships.

Several studies have found cultural differences in relationship quality and processes. For example, Ting-Toomey (1991) examined the cultural variability in intimacy expressions of love commitment (i.e., feelings of attachment and commitment), self-disclosure (i.e., quality and quantity of self-disclosure), ambivalence (i.e., feelings of uncertainty about the partner and relationship), and conflict (i.e., frequency of arguments) among individuals in France, Japan, and the U.S. Researchers found that individuals in France and the U.S. reported a significantly higher degree of love commitment and self-disclosure compared to the Japanese respondents. In addition, the U.S. respondents reported a higher degree of ambivalence about their partners and relationships than their Japanese counterparts, and the French respondents reported the lowest degree of conflict in comparison to the Japanese and United States groups. Furthermore, a study investigating intimacy expression among Chinese and American couples found that American couples reported significantly higher levels of

passion than did Chinese couples (Gao, 2001). These findings suggest that culture likely influences various expressions of relational attachment and self-disclosure.

Familism is a cultural value that emphasizes the interdependence and closeness of family relationships (i.e., the family as the central support system) is commonly associated with Hispanic/Latinx populations. Some research has suggested that this cultural value has important implications for romantic relationships among U.S. Latinos, as Familism is associated with higher partner support and closeness (Campos et al., 2016). Interestingly, these patterns have not been observed in other samples (e.g., European or East Asian cultures), suggesting these cultural values may be unique to Hispanic populations. Additionally, research has suggested that Mexican American and Anglo-American couples demonstrate differences in perspectives of marital intimacy (e.g., love and sexual attitudes). For example, Contreras and colleagues (1996) found that respondents who identified as Hispanic reported more pragmatic beliefs about love and reported being less idealistic about sex compared to their non-Hispanic White counterparts. However, while couples may differ in the way they feel about particular aspects of marital intimacy, they do not necessarily differ in their overall satisfaction or contentment with their romantic relationships (Contreras et al., 1996).

Individualism and collectivism are two cultural factors that may influence the dynamic of romantic relationships. Dion and Dion (1993) argued that individualistic cultures place greater focus on passion and personal satisfaction, whereas collectivistic cultures demonstrate greater interest in intimacy as it relates to both the partners and families involved. From an attachment perspective, attachment avoidance, which has connections to self-reliance, may be more encouraged in cultures associated with independence and

achievement; whereas attachment anxiety, which has greater connections to self-consciousness in relationships, may be more encouraged in cultures with a focus on interdependence and reliance on the group rather than the individual (Turan et al., 2016).

Studies have found individuals more invested in their in-group (i.e., collectivistic cultures) tend to be more dependent on their partners and more fearful of rejection (Agishtein & Brumbaugh, 2013; Cheng & Kwan, 2008). Additionally, prior research has suggested that higher levels of collectivism are likely related to less fear of intimacy across cultures (Ingersoll et al., 2008). For example, Ingersoll et al. (2008) investigated the association between collectivism/ individualism and individuals' fear of intimacy among Chinese and American populations. Results suggested that collectivism was negatively associated with fear of intimacy in both Chinese and American samples; however, individualism appeared to be only associated positively with fear of intimacy in the Chinese population. The authors posited that because individualism is less common in China, it may be viewed as disconcerting to others or be associated with higher levels of personal ambition, leading individuals to be more fearful of intimate relationships until they are more established in their careers.

Furthermore, Dion and Dion (1993) found that individuals high in individualism tend to perceive their relationships as less rewarding and less intimate compared to those high in collectivism. Individualism, a cultural factor commonly associated with Western views/ ideals, is characterized by a desire to be self-sufficient. Within individualistic cultures, dependency on others in both familial and romantic contexts is met commonly with ambivalence (Karandashev, 2015). Presumably, an individual's motivation to be independent

can conflict with the development of an intimate bond with a romantic partner (Dion & Dion, 1991).

However, it is important to note that a large proportion of studies investigating the relationship between collectivism and relationship functioning used samples where collectivism is based on East Asian Confucianism (e.g., Chinese or Japanese cultures), rather than collectivistic cultures where collectivism is honor-based (e.g., Middle Eastern or Latin American cultures). Differences between these two types of collectivism have important implications for how these values influence romantic intimacy (Agishtein & Brumbaugh, 2013). For example, Confucian-based collectivism emphasizes the suppression of emotions in order to avoid offending others, whereas honor-based collectivism has no such implications for emotion suppression. Further, this discrepancy highlights an important difference in individuals' comfort with closeness in relationships based on the type of membership in a collectivistic society. Therefore, additional research should endeavor to better understand relationship intimacy among honor-based collectivistic cultures, such as Latin American or Hispanic cultures.

Measurement Issues

Despite the growing body of literature suggesting the potential influence of culture on relationship dynamics, many relationship measures commonly used in research and clinical settings have been developed and validated with White, Western populations and have yet to be examined among different minority populations (e.g., ethnic and sexual minorities). This calls into question the validity of these measures when used with non-mainstream populations. It is important to determine whether measures of relationship functioning reflect the same factor structure and demonstrate invariance (i.e., same factor loadings) across

relevant groups (e.g., ethnic groups). The importance of tests of measurement invariance across Hispanic and non-Hispanic White women is of particular value and is crucially important given the fact that Hispanics represent the largest and fastest-growing minority group in the United States (Passel et al., 2011). Further, given that a large proportion of relationship research has been conducted with college students (e.g., Simon et al., 2019; Tepeli & Tari, 2018), it is critical that the measurement invariance of these measures be investigated within college populations.

Measuring Intimacy

While intimacy is one of the most important components of romantic relationships, it is one of the least understood, and a relatively understudied domain of relationship functioning relative to other relationship components such as satisfaction, sexual functioning, or communication. Relationship intimacy is a key factor of romantic relationship research as it has notable clinical implications. The creation and refinement of construct definitions and measures of romantic love and close relationships have been useful to clinicians and researchers in that they provide a concrete way to measure specific behaviors and feelings (Hook et al., 2003). Difficulties with intimacy (e.g., emotional intimacy, sexual intimacy) is a common factor for individuals seeking couples therapy and increasing intimacy within romantic relationships is often one of the goals of marital or couples-based therapy (Doss et al., 2004). Couples having difficulty feeling close to one another or even couples just wanting to improve their relationship can be assisted in exploring which intimate behaviors are lacking in their relationship and work on improving them. Responses to measures of intimacy also prove useful in counseling to help each partner in a couple to discover what the other needs and wants in intimate interactions.

Several different interventions for marital discord have focused on increasing couples' levels of intimacy using such approaches (e.g., Javadivala et al., 2019; Olson et al., 2012). For example, the Relationship Enhancement Education and Counseling program (REEC) (Javadivala et al., 2019) works on strengthening relationships by improving individual's levels of sexual, emotional, social, recreational, intellectual, and physical intimacy, as assessed via the Personal Assessment of Intimacy in Relationships questionnaire (Schaefer & Olson, 1981). Additionally, interventions such as Emotion-Focused Couples Therapy and Gottman's Relationships Enrichment Program have been shown to be effective at reducing women's fear of intimacy, as assessed via Descutner and Thelen's (1991) Fear of Intimacy Scale (Jalali et al., 2018). Among the available measures to assess relationship intimacy, the Fear of Intimacy Scale (FIS; Descutner & Thelen, 1991), and the Personal Assessment of Intimacy in Relationships (PAIR; Schaefer & Olson, 1981) are two commonly used scales among researchers and clinicians in this field. A discussion of each measure follows.

Fear of Intimacy Scale (FIS).

The FIS (Descutner & Thelen, 1991) measures individuals' anxiety about close, dating relationships. Descutner and Thelen (1991) conceptualized the fear of intimacy (i.e., the inability to exchange thoughts and feelings with a romantic partner) as an important component of intimacy as they postulated it often being an antecedent to intimacy problems. The FIS considers three central features: the content of personal information exchanged, the emotional valence of the information shared, and the level of vulnerability experienced between partners. Descutner and Thelen (1991) proposed that intimacy can only exist with the presence of all three components. Higher scores on the FIS are shown to be positively

associated with depression, and negatively correlated with social support, self-esteem, loneliness, and couple satisfaction (Descutner & Thelen, 19991; Doi & Thelen, 1993; Ingersoll et al., 2008). The FIS also is associated significantly with dimensions of attachment, such that higher scores on the FIS are correlated negatively with confidence in one's partner's dependability (r = -.40, p <.001) and comfort with closeness (r = -.59, p <.001), and associated positively with fear of abandonment (r =.30, p <.001).

The FIS has demonstrated a high test-retest reliability (r = .89, p < .001), and a significant correlation between client FIS scores and therapist's fear of intimacy ratings (r = .37, p < .05). The FIS provides clinical utility in that it can highlight gender differences in the expression and experience of intimacy in relationships. An advantage over other measures of intimacy (e.g., the Miller Social Intimacy Scale; Miller & Lefcourt, 1982) is that the FIS assesses an individual's fear of intimacy regardless of whether he/she is currently in a romantic relationship, allowing for a broader utility of the measure. Additionally, this measure is relatively brief, making it an attractive measure to examine intimacy among college students cross-culturally. While the FIS has been replicated and validated with several different populations, including college students (Descutner & Thelen, 1991), middle-aged samples (Doi & Thelen, 1993), and sexual minority populations (Greenfield & Thelen, 1997), Ingersoll et al. (2008) found notable differences among Chinese and American populations with respect to structural and measurement parameters of the FIS between groups. The authors suggested that while the FIS appears to be suitable for research in Chinese populations, there appear to be a number of differences in how intimacy is viewed between Chinese and American populations, therefore, the authors urged caution when directly comparing scores on the FIS between groups. Further, Ingersoll et al. (2008) failed to

replicate Descutner and Thelen's (1991) original single-factor structure of the FIS, and rather found support for a 3-factor model (i.e., imagined openness, imagined fear of closeness, and past fear of closeness). Ingersoll and colleagues' (2008) finding supports Hook and colleagues' (2003) assertion that the FIS is not unifactorial. To date, the FIS has not been validated or tested for measurement invariance among Hispanic populations. Due to concerns about differences in definitions and the expression of intimacy across cultures, it is important to evaluate further the FIS prior to its use in other cultures.

Personal Assessment of Intimacy in Relationships (PAIR).

The PAIR (Schaefer & Olson, 1981) was developed in response to the need for a more precise evaluation of intimate relationships and measures an individual's level of perceived and desired level of intimacy within the romantic dyad. The PAIR can be utilized in clinical settings to provide a measure of partners' goals, needs, and expectations in relationships, as well as highlighting a couple's perceptual agreements and disagreements. The PAIR differs from the FIS in that it assesses levels of intimacy across various domains hypothesized to encompass intimacy. The original instrument was developed to assess six domains of intimacy: emotional, social, sexual, intellectual, recreational, and conventionality. The conventionality domain was used later to indicate the degree to which an individual attempts to "fake good," rather than a domain of intimacy (Schaefer & Olson, 1981). Higher scores on each of the PAIR subscales, (emotional, social, sexual, intellectual, and recreational) are correlated significantly with martial satisfaction (r = .47, .38, .34, .51, and .51, p< .001, respectively), as well as relationship conflict (r = -.39, -.18, -.13, -.35, and -.36, p<.001, respectively). Additionally, higher scores each of the five subscales of the PAIR

have been shown to be associated negatively with both anxious and avoidant insecure attachment orientations (Lafontaine et al., 2018).

Several researchers have utilized the PAIR in empirical studies. For example, Costa et al. (2020) used the PAIR to investigate the impact of relationship intimacy on anxiety and depression in pregnant women; Greeff and Malherbe (2001) used the PAIR to examine the relationship between intimacy and marital satisfaction in couples, while Schudlich et al. (2013) used the PAIR to assess the impact of relationship intimacy on the association between adult romantic attachment and couples' conflict behaviors. While these studies, and more, have used the PAIR in empirical research, Schaefer & Olson's (1981) original 5-factor structure has not been replicated consistently across studies (e.g., Hook et al., 2003; Moore et al., 1998; Walker et al., 2014). Moore and colleagues (1998) proposed a 27-item 3-factor model using EFA with individuals in the general population. These domains included communication (i.e., experiencing an open exchange of ideas), engagement (i.e., feeling connected to one's partner), and shared friendships (i.e., engaging in common activities with friends). Additionally, Walker and colleagues (2014) proposed a 23-item 3-factor model using similar methods with a clinical population. Similar to the FIS, the PAIR has not been validated or tested for measurement invariance in Hispanic populations.

Measuring Adult Attachment

The growing popularity of attachment theory as a framework for understanding romantic relationships has led to the development of numerous self-report instruments measuring adult attachment orientations. Importantly, rather than categorizing individuals into one of the three types of attachment orientations (i.e., anxious, avoidant, or secure), modern measures of adult attachment conceptualize attachment tendencies along a

continuum, rather than specific categories (i.e., continuous rather than categorical variables; Fraley et al. 2015; Lubiewska & Van de Vijver, 2020). Measures of adult attachment can be useful clinically, especially within the context of couple therapy, and can offer a model of healthy relationships. For example, within an Emotion-Focused Therapy (EFT) framework, a healthy relationship is considered to be one characterized by a secure attachment bond between partners (Johnson, 2015). Among the available measures to assess adult romantic attachment, two commonly used scales among researchers and clinicians in this field include the Adult Attachment Scale (AAS; Collins & Read, 1990) and the Adult Attachment Questionnaire (AAQ; Simpson et al., 1996). A discussion of each measure follows.

Adult Attachment Questionnaire (AAQ).

The AAQ (Simpson et al., 1992) assess both avoidant and anxious attachment dimensions and was one of the first measures to demonstrate that adult attachment may be best described as two orthogonal dimensions. Higher scores on each of the dimensions suggests greater avoidance or anxiety/ambivalence. Higher scores on the anxious dimension of the AAQ has been associated with more initiation and escalation of conflict, lower reported levels of marital satisfaction, and greater levels of depression (Campbell et al., 2005), whereas higher scores on the avoidant dimension of the AAQ has been associated with lower relationship commitment and more negative responses to partner support (Assaad & Lemay, 2018). Further, avoidant and anxious attachment, as measured via the AAQ, has been shown to prospectively predict depressive symptoms (r = .22 and r = .35, p <.001, respectively; Hankin et al., 2005), such that greater attachment avoidance and anxiety are associated positively to greater depressive symptoms.

The AAQ (Simpson et al., 1992) has been used empirically in a variety of studies, including investigations of attachment orientations and conflict resolution in relationships (Simpson et al., 1996). Further, previous research has shown the AAQ to be invariant across gender and relationship status and has replicated the original 2-factor structure of the AAQ (Gray & Dunlop, 2019). A reliability generalization meta-analysis of adult attachment measures found the AAQ to be relatively stable across samples and thus concluded that the AAQ is relatively reliable (Graham & Unterschute, 2015). However, the avoidance subscale was found to produce statistically significantly more reliable scores with White participants compared to non-White individuals. Overall, authors suggested that the AAQ appears to be a relatively robust measure for studying adult attachment across diverse samples. Given that there may be cultural differences in attachment orientations and that the avoidance subscale of the AAQ may be more sensitive to White populations, it is important to investigate the AAQ for invariance among ethnic groups.

Adult Attachment Scale (AAS).

The AAS (Collins & Read, 1990) consists of three subscales assessing an individuals' comfort with emotional closeness (Close), comfort with depending on or trusting in others (Depend), and anxious concern about being abandoned or unloved (Anxiety). The AAS differs from the AAQ in that it follows a 3-factor structure, whereas the AAQ holds a 2-factor structure. However, some have argued that the closeness and dependency factors of the AAQ could be combined into a single avoidance subscale (Graham & Unterschute, 2015). Discriminant analyses revealed that individuals with high scores on Close and Depend, coupled with low scored on Anxiety, appear to have a secure attachment style; individuals displaying high scores on Anxiety coupled with moderate scores on Close and Depend,

appear to have an anxious attachment style; and individuals with low scores on Close, Depend, and Anxiety, appear to have an avoidant attachment style (Collins & Read, 1990). Collins and Read (1990) found moderate associations between the Close and Depend factors (r = .38) and weak associations between the Anxiety and Close (r = -.08) and Anxiety and Depend (r = -.24) factors. The AAS has shown test-retest correlations for Close, Depend, and Anxiety of .68, .71, and .52, respectively.

The AAS has been utilized a great deal in the empirical literature and has been shown to correlate as expected with other measures of attachment (Sperling et al., 1996), as well as measures of trust and self-esteem (Collins & Read, 1990). For example, the Close and Anxiety factors of the AAS are associated with measures of self-esteem, with higher scores on the Close factor associated with greater self-esteem, and the higher scores on the Anxiety factor associated with less (r = .19, p<.05; r = -.29, p <.001, respectively). Additionally, the Close and Depend factors are associated with measures of trust, with higher scores on both factors associated with greater reported levels of trust (r = .22, p<.05; r = .30, p<.001, respectively). A reliability generalization meta-analysis of attachment measures demonstrated that the AAS is generally considered to be reliable for research purposes but also appeared to be susceptible to sample characteristics (Graham & Unterschute, 2015). Consequently, the authors urged caution when using the AAS across diverse groups and countries. To date, there have not been any studies assessing the AAS for measurement invariance among ethnic groups.

Goals of the Current Study

There were two main study aims. The first aim was to test measures of intimacy (i.e., FIS and PAIR) and attachment (i.e., AAQ and AAS) for measurement invariance across

ethnic groups (i.e., Hispanic and non-Hispanic White college women). The second aim was to examine if the proposed factor structures found in prior work on the FIS, PAIR, AAQ, and AAS would be replicated. This goal was especially salient for the PAIR and the FIS, given the widespread use of the measures (e.g., Jalali et al., 2018; Yeganehfarzand et al., 2019), as well as the failure of several studies to replicate the original factor structures of both measures. This study examined the factor structure of the PAIR by testing both the original 5-factor model proposed by Schaefer and Olson (1981) as well as the 3-factor model proposed by Moore and colleagues (1998). Additionally, both the original single-factor structure of the FIS proposed by Descutner and Thelen (1991) and the 3-factor structure proposed by Ingersoll et al. (2008) were tested and compared for model fit.

METHODS

Participants

Participants included 444 college women from the University of New Mexico. Inclusion criteria were: (1) identifying as female; (2) currently being in an opposite-gender relationship for at least six months; (3) being at least 18 years old; and (4) ability to read English. Prior research investigating the PAIR used a cut-off of current relationship length of at least six months (e.g., Lafontaine et al., 2018); hence the time requirement for being in a relationship in the present study.

Of the 444 participants, data from 371 participants were used for the current analyses. Participants' ages ranged from 18–60, with a mean age of 22.82 (SD = 6.84). The majority of participants reported their race as White (93.3%, *n* = 346), while the remainder of the sample identified as American Indian or Alaska Native (3.5%, *n* = 13), Asian (0.8%, *n* = 3), Black or African American (1.6%, *n* = 6), and Native Hawaiian or Other Pacific Islander (0.8%, *n* =

3). Roughly 28% (*n* = 104) of participants identified as a first or second-generation immigrant, and 40% (*n* = 148) reported speaking more than one language at home. More than half of participants identified as Hispanic, Latinx, or Spanish origin (59.3%, *n* = 220). Roughly 30% (*n* = 112) of participants were freshman, 15% (*n* = 56) were sophomores, 26% (*n* = 95) were juniors, and 29% (*n* = 108). were seniors. The majority of participants self-identified as heterosexual or straight (73.6%, *n* = 273), while the remainder of the sample identified as bisexual (17.8%, *n* = 66), pansexual (3.5%, *n* = 13), and other (5.1%, *n* = 19. The majority of participants were single (54.7%, *n* = 203), 31.5% were currently living with a partner (*n* = 117), and 11.1% were presently married (*n* = 41).

While the sample was racially/ethnically diverse, there was only adequate power for testing measurement invariance among Hispanic and non-Hispanic White participants. Thus, women who identified as a racial group other than non-Hispanic White and did not endorse a Hispanic ethnicity were eliminated from the subsequent analyses. Additionally, women who self-identified as lesbian (*n* = 2) were not included in the analyses, as this study was interested in first examining relationship intimacy and attachment styles of women who were interested in dating men and who were currently in a romantic relationship with a man.

Measures

Demographic Questionnaire

This self-report measure (see Appendix A) assessed basic demographic information (e.g., age, marital status, sexual orientation, academic status, ethnic and social membership).

Fear of Intimacy Scale (FIS)

The FIS (Descutner & Thelen, 1991; see Appendix B) is 35-item self-report measure of individual's fear of intimacy (i.e., anxiety about close, dating relationships) and is assessed

via a 5-point Likert scale ranging from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). A sample item includes "I have held back my feelings in previous relationships." Higher scores indicate a greater fear of intimacy. Descutner and Thelen (1991) reported a test-retest reliability of 0.89 and an internal consistency of 0.93 for the FIS. In the current study, internal consistency of the FIS was .92.

Personal Assessment of Intimacy in Relationships Inventory (PAIR)

The PAIR (Schaefer & Olson, 1981; see Appendix C) is a 36-item of relationship intimacy, encompassing five domains of intimacy: emotional intimacy (i.e., feeling closeness, ability to share feelings), social intimacy (i.e., having a common social network), sexual intimacy (i.e., physical affection/ closeness), intellectual intimacy (i.e., sharing ideas), and recreational intimacy (i.e., sharing experiences). The scale assesses intimacy in terms of how a relationship currently is and how one believes a relationship "should be." Respondents answer each item on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item includes "My partner listens to me when I need someone to talk to." Higher scores reflect higher levels of relationship intimacy. Schaefer and Olson (1981) reported internal consistency coefficients above .70 for each of the subscales of the PAIR. In the current study, internal consistency was 0.89, 0.69, 0.74, 0.81, and 0.70 for the emotional intimacy, social intimacy, sexual intimacy, intellectual intimacy, and recreational intimacy subscales, respectively.

Adult Attachment Scale (AAS)

The AAS (Collins & Read, 1990; see Appendix E) is an 18-item self-report questionnaire that asks respondents to report on their feelings about romantic relationships. The AAQ yields three subscales: Close (i.e., an individual's' comfort with closeness and

intimacy), Depend (i.e., comfort with depending on or trusting in others), and Anxiety (i.e., worries about being abandoned or unloved). Items are rated on a 5-point Likert scale ranging from 1 (*Not at all characteristic of me*) to 5 (*Very characteristic of me*). A sample item includes "I know people will be there when I need them." Collins & Read (1990) reported an internal consistency of 0.75, 0.72, and 0.69 for the Depend, Anxiety, and Close subscales respectively. In the current study, internal consistency was 0.81, 0.77, and 0.76 for the Depend, Anxiety, and Close subscales, respectively.

Adult Attachment Questionnaire (AAQ)

The AAQ (Simpson et al., 1992; see Appendix F) is a 17-item self-report questionnaire that asks individuals to indicate how they relate to romantic partners in general. The AAQ assesses attachment along two dimensions: avoidance (i.e., the degree to which an individual demonstrates negative views of others and tends to avoid or withdraw from closeness and intimacy in relationships), and anxiety/ ambivalence (i.e., the degree to which an individual possesses negative views of the self in regard to relationships and are preoccupied with abandonment, loss, and a partner's level of commitment). A sample item includes "I find it relatively easy to get close to others." Each item is rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Simpson et al. (1996) reported and internal consistency of $\alpha = 0.74$ and 0.76 for the avoidance and anxiety/ambivalence dimensions respectively. In the current study, internal consistency for the both the avoidance and anxiety subscales of the AAQ was 0. 84 and 0.85 for the avoidance and anxiety subscales respectively.

Procedure

This study was conducted in compliance with the university's Institutional Review Board. This study was conducted online through the Opinio survey software. Opinio is a secure, encrypted, online questionnaire tool licensed for use by all investigators at UNM. Participants were recruited through the psychology research subject pool and through student advertisement listservs. In return for completing study measures (roughly 45-50 minutes to complete), participants had the option to choose between receiving 1 research credit via SONA or entry into a raffle drawing for one of ten $100 Amazon gift cards. Interested participants were provided with a link to complete the online study measures.

Data Analytic Strategy

First, factor structures of each measure (FIS, PAIR, AAS, and AAQ) were examined utilizing confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM). Often, relationship measures are examined within a traditional CFA framework; however, recent research has suggested that the conventional CFA approach may fail to adequately capture the more complicated multidimensionality of some psychological measures and can lead to inflated factor correlations, poor goodness-of-fit indices, correlated error terms, and poor discriminant validity (e.g., Gu et al., 2017; Tóth-Király et al., 2018). CFA assumes that items load onto only a single factor, and therefore sets cross-loadings to zero within models; however, in practice, this assumption is often violated (Hopwood & Donnellan, 2010). Furthermore, the practice of setting cross-loadings to zero has been criticized as being overly restrictive (Asparouhov & Muthén, 2009; Marsh et al. 2014). ESEM was developed to address these common sources of model misfit and includes beneficial aspects of both CFA and Exploratory Factor Analysis (EFA) approaches. Further, this technique allows for the presence of cross-loadings of items into factors (Marsh et al.,

2009). Compared with CFA, ESEM provides more accurate estimates of factor correlations, which frequently result in better discriminant validity (Asparouhov & Muthén, 2009). Prior work investigating the measurement invariance of adult romantic attachment measures between genders and relationship status experienced difficulties with respect to model misfit within the traditional CFA framework, and, as a consequence, utilized an ESEM approach to allow for significant cross-loadings among dimensions of attachment (Gray & Dunlop, 2019). The authors concluded that the ESEM framework, relative to the CFA approach, provided a more accurate basis for assessing measurement invariance among attachment measures (Gray & Dunlop, 2019).

Based on the possible limitations of using only CFA, this study examined whether the less restrictive ESEM approach would be a better fit to the data than more restrictive CFA approaches. Furthermore, given that previous studies have failed to replicate the original factor structures of the PAIR and the FIS, multiple factor structures were examined for model fit. For the PAIR, both the original 5-factor structure proposed by Schaefer and Olson (1981) and the 3-factor structure proposed by Moorer et al. (1998) were examined. Additionally, both the original single-factor structure of the FIS proposed by Descutner and Thelen (1991) and the modified 3-factor structure proposed by Ingersoll et al. (2008) were tested. For the AAQ and AAS, the original 2-factor model of the AAQ was examined, as well as the original 3-factor model for the AAS. Numerous studies using SEM approaches have traditionally assessed model fit based on approximate fit indices, such as CFI (Comparative Fit Index) greater than or equal to .90, RMSEA (Root Mean Square Error of Approximation) less than or equal to 0.08, and SRMR (Standardized Root Mean Square Residual) less than or equal to 0.08 (Bentler, 1990; Hu & Bentler, 1998). However, there is growing evidence to suggest

that commonly used fixed cut-off values in structural equation modeling may be inappropriate given that they tend to be overly sensitive to correlated residuals and non-specific error (e.g., Montoya & Edwards, 2021; Sellbom & Tellegen, 2019); that is, prior work suggested that SRMR may be the best indicator of model fit for exploratory approaches (Montoya & Edwards, 2021). Consequently, this study assessed model fit based on SRMR and considered a model to provide adequate fit to the data with a SRMR value less than or equal to 0.08 (Hu & Bentler, 1998; Montoya & Edwards, 2021).

Contingent upon achieving reasonably adequate model fit based on SRMR, the PAIR, FIS, AAQ, and AAS then were examined individually for their measurement invariance across ethnic groups (with the best fitting model used to examine invariance). Measurement invariance testing involves fitting progressively more restrictive models to the data (Chen et al., 2005). The data were fit to three different measurement invariance models: configural, metric, and scalar. Configural invariance tests whether the underlying factor model fits well across groups. In the configural invariance model, all factor loadings and intercepts are allowed to load freely within each group (i.e., each group is allowed to have their own loadings and intercepts, as well as residual variances). Metric invariance tests whether or not the factor loadings are equivalent across groups. In the metric invariance model, the factor loadings are constrained to be equal across groups, but the intercepts are allowed to differ. Scalar invariance specifies whether or not the intercepts are invariant across groups. In the scalar invariance model, the factor loadings and intercepts are constrained to be equal across groups. Metric and scalar invariance are evaluated by determining whether the increasingly restrictive model resulted in a notable decrease in model fit. Given the noteworthy problems associated with using only chi-square test to compare models (Cheung & Rensvold, 2002),

multiple indexes were used to compare models for fit. Model fit was seen as decreasingly significant in fit if the CFI decreased by more than 0.01 and the RMSEA increased by more than 0.015 (Chen, 2007; Cheung & Rensvold, 2002). Notably, these criteria have been used in previous measurement invariance research utilizing ESEM approaches (e.g., Gray & Dunlop, 2019; Marsh et al., 2010). All analyses were conducted in Mplus 8.7 using full-information maximum likelihood estimation with robust standard errors (MLR), which provided estimates of standard errors and fit indexes appropriate for conditions such as ordinal Likert-scale item responses and data non-normality (Muthén & Muthén, 2017).

RESULTS

Preliminary Analyses

Independent-samples t-tests were conducted to examine possible differences in age among the Hispanic and non-Hispanic white women. Participants identifying as of Hispanic were significantly younger (M = 21.91, SD = 5.72) than participants identifying as non-Hispanic White (M = 24.15, SD = 8.04; t (369) = 3.141, p <.001. Chi-square analyses revealed no significant differences between groups with respect to marital status, $\chi 2$ (4) = .688, p = .95 or sexual orientation $\chi 2$ (7) = 9.571, p = .21. Table 1 presents descriptive statistics for relationship measures among Hispanic and non-Hispanic White women. Table 2 provides correlations among FIS, PAIR, AAS, and AAQ subscales for Hispanic and non-Hispanic White college Women.

Invariance of Fear of Intimacy Scale (FIS)

Both Descutner & Thelen's (1991) original single-factor and Ingeroll and colleagues' (2008) modified 3-factor models were tested for fit in the two groups of women. Fit statistics for all models are presented in Table 3. As shown, neither of the traditional CFA models fit

the data well. Given the poor CFA model fit, ESEM was utilized to assess model fit of the FIS. Results revealed that a 3-factor ESEM of the FIS provided the best fit to the data [$\chi 2$ (493) = 932.541, $p < 0.001$, CFI = 0.888, RMSEA = 0.049 (90% CI = 0.044 – 0.054), SRMR = 0.043]. Table 4 displays the standardized factor loadings for the ESEM model of the FIS. As shown, the first factor represented imagined openness, the second factor represented imagined fear of closeness, and the third factor represented past fear of closeness. Given that the 3-factor ESEM model provided the best fit to the data, this model was utilized in tests of measurement invariance across the two groups.

Table 3 presents the results of tests of measurement invariance of the ESEM 3-factor model of the FIS. A test of configural invariance indicated that the model fit the data reasonably well in both groups [$\chi 2$ (986) = 1707.982, $p < 0.001$, CFI = 0.831, RMSEA = 0.063 (90% CI = 0.058 – 0.068), SRMR = 0.053], suggesting that the same factor structure of the FIS could be estimated and fit reasonably well based on RMSEA and SRMR in Hispanic and non-Hispanic White college women. A test of metric invariance also indicated that the model fit the data well in both groups [$\chi 2$ (1082) = 1703.158, $p < 0.001$, CFI = 0.855, RMSEA = 0.056 (90% CI = 0.051 – 0.061), SRMR = 0.064]. Given that CFI and RMSEA in the metric model did not demonstrate a noticeable depreciation when invariance of factor loadings was imposed, the metric model was retained (ΔCFI = 0.024; ΔRMSEA = -0.007), suggesting that conditions were met for metric invariance across Hispanic and non-Hispanic White college women. Lastly, imposing scalar invariance again did not significantly worsen the RMSEA and CFI statistics [$\chi 2$ (1114) = 1741.011, $p < 0.001$, CFI = 0.853, RMSEA = 0.053 (90% CI = 0.050 – 0.060), SRMR = 0.065; ΔCFI = -0.002; ΔRMSEA = -0.001],

suggesting that scalar invariance was achieved across n Hispanic and non-Hispanic White college women.

Invariance of Personal Assessment of Intimacy in Relationships (PAIR)

Both Schaefer & Olson's (1981) original 5-factor and Moore and colleagues' (1998) modified 3-factor models of the PAIR were tested for fit in the current sample of Hispanic and non-Hispanic White college women. Fit statistics for all models are presented in Table 3. Again, neither of the traditional CFA models fit the data well. Given the poor CFA model fit, ESEM was used to assess model fit of the PAIR. Results revealed that a 5-factor ESEM of the PAIR provided the best fit to the data [$\chi 2$ (295) = 533.383, $p < 0.001$, CFI = 0.941, RMSEA = 0.041 (90% CI = 0.040 – 0.053), SRMR = 0.030]. Table 5 displays the standardized factor loadings for the ESEM model of the PAIR. As shown, the first factor represents emotional intimacy, the second factor represents social intimacy, the third factor represents sexual intimacy, the fourth factor represents intellectual intimacy, and the final fifth factor represents recreational intimacy. Given that the 5-factor ESEM model provided the best fit to the data, this model was utilized in tests of measurement invariance across the two groups.

Table 3 displays the results of tests of measurement invariance of the ESEM 5-factor model of the PAIR. A test of configural invariance indicated that the model fit the data reasonably well in both groups [$\chi 2$ (590) = 963.107, $p <.001$, CFI = 0.911, RMSEA = 0.058 (90% CI = 0.052 – 0.065), SRMR = 0.037], suggesting that the same factor structure of the PAIR could be estimated and fit reasonably well based on RMSEA and SRMR in Hispanic and non-Hispanic White college women. A test of metric invariance indicated that metric invariance was achieved, as the model did not demonstrate a noticeable depreciation of the

CFI and RMSEA when invariance of factor loadings was imposed [$\chi 2$ (715) = 1046.767, $p <$ 0.001, CFI = 0.921, RMSEA = 0.050 (90% CI = 0.043 – 0.056), SRMR = 0.052; ΔCFI = 0.001; ΔRMSEA = -0.008]. Lastly, imposing scalar invariance again did not significantly worsen the RMSEA and CFI statistics [$\chi 2$ (740) = 1082.350, $p <$ 0. 0001, CFI = 0.919, RMSEA = 0.050 (90% CI = 0.043 – 0.055), SRMR = 0.053, ΔCFI = -0.002; ΔRMSEA = 0.000], suggesting that scalar invariance of the PAIR was achieved across Hispanic and non-Hispanic White college women.

Invariance of Adult Attachment Scale (AAS)

The original 3-factor structure proposed by Collins & Read (1990) was tested for fit in the current sample of Hispanic and non-Hispanic White college women. Fit statistics for all models are presented in Table 3. As shown in Table 3, the traditional CFA model did not fit the data well. Given the poor CFA model fit, the ESEM framework was utilized to assess model fit of the AAS. Results revealed that a 3-factor ESEM of the AAS provided the best fit to the data [$\chi 2$ (102) = 398.984, $p <$ 0.001, CFI = 0.873, RMSEA = 0.081 (90% CI = 0.073 – 0.089) SRMR = 0.045]. Table 6 displays the standardized factor loadings for the ESEM model of the AAS. As shown, generally, the first factor represents the Close dimension, the second factor represents the Depend dimension, and the third factor represents the Anxiety dimension. Given that the 3-factor ESEM model provided the best fit to the data, this model was utilized in tests of measurement invariance across the two groups.

Table 3 displays the results of tests of measurement invariance of the ESEM 3-factor model of the AAS. A test of configural invariance indicated that the model fit the data reasonably well in both groups [$\chi 2$ (204) = 459.676, $p <$ 0.001, CFI = 0.894, RMSEA = 0.075 (90% CI = 0.066 – 0.084), SRMR = 0.047], suggesting that the same factor structure of

the AAS could be estimated and fit reasonably well based on RMSEA and SRMR in Hispanic and non-Hispanic White college women. A test of metric invariance also indicated that the model fit the data well in both groups [$\chi 2$ (229) = 536.696, $p < 0.001$, CFI = 0.880, RMSEA = 0.072 (90% CI = .064 – 0.081), SRMR = 0.058, ΔCFI = -0.014; ΔRMSEA = -0.003]. Given that CFI and RMSEA in the metric model did not demonstrate a noticeable depreciation when invariance of factor loadings was imposed, the metric model was retained, suggesting that the conditions were met for metric invariance across Hispanic and non-Hispanic White college women. Lastly, imposing scalar invariance again did not significantly worsen the RMSEA and CFI statistics [$\chi 2$ (264) = 552.132, $p < 0.001$, CFI = 0.880, RMSEA = 0.070 (90% CI = 0.062 – 0.078), SRMR = 0.059, ΔCFI = 0.000; ΔRMSEA = -0.002], suggesting that scalar invariance was achieved across Hispanic and non-Hispanic White college women.

Invariance of Adult Attachment Questionnaire (AAQ)

The original 2-factor structure proposed by Simpson and colleagues (1992) was tested for fit in the current sample of Hispanic and non-Hispanic White college women. Fit statistics for all models are presented in Table 3. Again, the traditional CFA did not fit the data well. Given the poor CFA model fit, ESEM was utilized to assess model fit for the AAQ. Results revealed that a 2-factor ESEM of the AAQ provided the best fit to the data [$\chi 2$ (53) = 211.605, $p < 0.001$, CFI = 0.890, RMSEA = 0.082 (90% CI = 0.071 – 0.094) SRMR = 0.055]. Table 7 displays the standardized factor loadings for the ESEM model of the AAQ. As shown, generally, the first factor represented avoidance and the second factor represented anxiety. Given that the 2-factor ESEM model provided the best fit to the data, this model was utilized in tests of measurement invariance across the two groups.

Table 3 displays the results of tests of measurement invariance of the ESEM 2-factor model of the AAQ. A test of configural invariance indicated that the model displayed adequate fit in both groups [$\chi 2$ (106) = 281.576, $p < 0.001$, CFI = 0.883, RMSEA = 0.087 (90% CI = 0.074 – 0.099), SRMR = 0.057], suggesting that the same factor structure of the AAQ could be estimated and fit reasonably well based on RMSEA and SRMR in Hispanic and non-Hispanic White college women. A test of metric invariance also indicated that the model displayed adequate fit in both groups [$\chi 2$ (128) = 315.515, $p < 0.001$, CFI = 0.875, RMSEA = 0.081 (90% CI = .070 – 0.093), SRMR = 0.076]. Given that CFI and RMSEA in the metric model did not demonstrate a noticeable depreciation when invariance of factor loadings was imposed (ΔCFI = -0.008; ΔRMSEA = -0.006), the metric model was retained, suggesting that the conditions were met for metric invariance across Hispanic and non-Hispanic White college women. Lastly, imposing scalar invariance again did not significantly worsen the RMSEA and CFI statistics [$\chi 2$ (139) = 334.674, $p < 0.001$, CFI = 0.870, RMSEA = 0.080 (90% CI = 0.069 – 0.091), SRMR = 0.077, ΔCFI = 0.005; ΔRMSEA = -0.001], suggesting that scalar invariance was achieved across Hispanic and non-Hispanic White college women.

DISCUSSION

The study of relationship intimacy and attachment has gained increasingly greater attention within the field. As such, numerous self-report measures of relationship intimacy and attachment have been developed by researchers and used in both research and clinical practice. However, a majority of measures have been developed and validated with White, Western populations, therefore calling into question the validity of such measures when used with diverse populations. The primary aim of the current study was to evaluate the

measurement invariance of measures of relationship intimacy (FIS, PAIR) and adult romantic attachment (AAS, AAQ) among Hispanic and non-Hispanic White college women. Additionally, given that previous studies have failed to replicate factor structures of the PAIR and FIS, an additional goal of this study was to examine the factor structure of commonly used relationship measures.

Summary of Findings

Given that several studies have failed to replicate traditional CFA models of the FIS, PAIR, AAS, and AAQ, as well as evidence of substantial cross-loadings of the measures' items (Gray & Dunlop, 2019), this study tested both traditional CFA and ESEM models for these measures. Results revealed that ESEM models provided better fit to the data relative to traditional CFA models. Specifically, a 3-factor ESEM model of the FIS, a 5-factor ESEM model of the PAIR, a 3-factor ESEM model of the AAS, and a 2-factor ESEM model of the AAQ provided adequate fit to the data, and a better fit than respective CFA models that allowed zero cross-loadings of items. Most items loaded the strongest to their hypothesized factor, although there were several other significant cross-loadings, suggesting that zero cross-loadings in CFA likely resulted in misfit of the factor structures. This evidence of model misfit could likely have influenced previous studies' failure to replicate factor structures, especially for the FIS and the PAIR (e.g., Gray & Dunlop, 2019; Ingersoll et al., 2008; Moore et al., 1998) and is consistent with previous studies investigating measurement invariance of attachment measures utilizing ESEM approaches over CFA (Dunlop & Gray, 2019). Support for the use of ESEM over CFA is an important finding in and of itself, given that recent research has suggested that ESEM provides numerous benefits over traditional CFA approaches, such as allowing cross-loadings of items, thus leading to more accurate

estimates of factor correlations (Asparouhov & Muthén, 2009; Marsh et al., 2009). Thus, ESEM approach may allow researchers to assess more accurately the domains of relationship functioning such as attachment and intimacy and examine measurement invariance among groups who commonly complete such measures, as well.

Further, the 3-factor ESEM model of the FIS, 5-factor ESEM model of the PAIR, 3-factor ESEM model of the AAS, and 2-factor ESEM model of the AAQ all demonstrated scalar invariance across Hispanic and non-Hispanic White college women. Taken together, these findings suggest that researchers and clinicians can utilize these measures with college educated Hispanic and non-Hispanic White women, with the assumption that items on these measures can be interpreted similarly and that they assess the same constructs in each group. Additionally, scalar invariance suggests that comparisons compassions of scores on the FIS, PAIR, AAS, and AAQ among Hispanic and non-Hispanic White college women are meaningful and that any group differences (e.g., higher scores on the FIS present in one group compared to the other) in fact reflect what appear to be true group differences. Furthermore, given that prior research has suggested that there may be cultural differences in intimacy expression and attachment styles (e.g., Agishtein & Brumbaugh, 2013; Fraley et al., 2015), it is important for researchers to be able to use measures that allow them to draw meaningful conclusions about cultural differences in the experience and expression of relationship intimacy and attachment.

Strengths of the Current Study

There are a number of notable strengths of this study. Research on measurement invariance often focus on a single measure, whereas this study provided a more comprehensive investigation of measurement invariance, considering four separate measures

of relationship functioning, across two separate, but related domains (intimacy and romantic attachment). Given that measurement invariance of one instrument of adult attachment is not necessarily applicable to other measures of attachment, an investigation of several separate measures (i.e., AAQ, AAS) may be useful, as these measures are commonly utilized among researchers (Crowell et al., 1999). Additionally, there was notable cultural diversity in the sample. For example, almost half of the sample reported speaking more than one language at home, and over a quarter of the sample identified as either a first- or second-generation immigrant.

Limitations and Future Directions

Despite these strengths, this project has a number of limitations. First, while the models presented provided adequate fit to the data via the RMSEA and SRMR fit indices (suggesting a low amount of residual error within models), based on the CFI and chi-square fit indices, the measurement models provided less than ideal fit to the data. The literature is mixed regarding approaches to assessing model fit, with some researchers arguing that traditional approximate fit indices (AFI; e.g., CFI, TLI, RMSEA) provide the best approach (e.g., Browne & Cudeck, 1993; Hu & Bentler, 1998), while others argue that SRMR (e.g., Montoya & Edwards, 2021) or chi-square (e.g., Ropovik, 2015) provide superior advantages in assessing model fit. Importantly, researchers have noted that chi-square and CFI values are influenced by a variety of factors, including number of model variables, sample size, correlations among variables, and factor loadings (Shi et al., 2018). Studies have suggested that there is a greater likelihood that the chi-square fit statistic will reject the hypothesized model when sample sizes are notably small (Bearden et al., 1982, Sprott, 1980). It is important to note, that the current analyses are based on a smaller than ideal sample size, and

therefore the small sample size may have influenced the significant chi-square fit statistic of the models. Recommendations for sample size in CFAs are varied, but a critical sample size of 200 participants in each group is required (Kline, 2011). While the Hispanic group met this requirement (n = 220), the sample size of the non-Hispanic White group fell slightly below the suggested group sample size (n =151). Investigations of measurement invariance utilizing larger samples per group could prove beneficial and increase power to further investigate exploratory models of relationship measures.

Further, while it has become commonplace for many studies utilizing SEM approaches to assess model fit via AFI rather than chi-square statistics, Ropovik (2015) urged caution in researchers defaulting to AFI and ignoring significant chi-square indices when considering model fit. Ropovik (2015) and others (e.g., Hayduk, 2014), noted that model test failure caused by significant chi-square statistics can be caused by model misspecification, irrespective of sample size. Therefore, Ropovik (2015) suggested that while the exact fit hypothesis postulated by the chi-square statistic is unrealistic for many applications, researchers should inspect thoroughly models when presented with a significant chi-square to assess for possible areas of misspecifications. Therefore, given the significant chi-square statistics for the models estimated in this study, it is important to recognize that there is some degree of model misfit between the observed data and the measurement models, despite the adequate model fit based on other fit indices.

Further, given that the original factor structures were not replicated using traditional CFA approaches, which is consistent with prior studies failing to replicate original factor structures of several measures of relationship intimacy and attachment (e.g., Gray & Dunlop, 2019; Ingersoll et al. 2008; Moore et al., 1998), this calls into question the validity of such

measures and whether they may are theoretically outdated (i.e., the constructs have changed over time). Research on adult romantic attachment has often found a positive correlation between the anxious and avoidant attachment dimensions, while these dimensions are intended to be orthogonal and distinct constructs (Bartholomew, 1994; Hudson & Fraley, 2016). Carver (1997) posited that the anxious and avoidant attachment dimensions are correlated as they both are likely related to features such as negative emotionality, or the tendency for individuals to make negative attributions about relationships. Given that the ESEM approach allows for items to cross load onto different factors, the inherent relationship between the anxious and avoidance dimensions is further highlighted, and thus these approaches may provide a more accurate depiction of the association between the anxious and avoidant attachment dimensions.

Moreover, this study found that Descutner and Thelen's (1991) contention that fear of intimacy can be conceptualized as unifactorial was unsupported. More recent work (i.e., Hook et al., 2003; Moorer et al. 1998) suggested that a three-factor model provides a more comprehensive "coverage" of the construct. This work is consistent with the findings from this study, which further supports the contention that intimacy is a multidimensional construct. However, this issue requires further exploration to investigate the meaning of these varying factors and the dimensionality of such constructs. Additionally, this may warrant the deletion of redundant items or the inclusion of new items that can measure different aspects of intimacy. While this study provides further evidence that ESEM may be a more advantageous approach compared to traditional CFA approaches with respect to relationship intimacy and attachment, additional work is needed to further demonstrate the utility of an ESEM approach in modeling relationship intimacy and romantic attachment as latent

variables with items that are allowed to cross-load. Going forward, researchers should be mindful of the presence of cross-loadings among attachment measures such as the AAS and AAQ, and intimacy measures such as the PAIR and FIS, as revisions to these measures may be warranted if these are, in fact, distinct factors within such measures.

Another notable limitation of this study is that it only assessed the invariance of four separate measures of relationship intimacy and attachment across Hispanic and non-Hispanic White college women in the Southwest United States who were currently in an opposite-gender relationship. As a result, the study findings may not generalize to other groups (e.g., other ethnic groups, men, individuals currently in a same-gender relationship, non-college populations) or to other relationship measures. Moreover, given that cross-cultural psychology has revealed cultural differences in interpersonal behaviors and processes associated with romantic relationships, additional work should be conducted to test invariance of intimacy and attachment measures among other groups, such as the LGBTQ+ community and other racial/ethnic groups. Notably, while there has recently been an increase in research aimed at understanding relationship processes among sexual minorities, the majority of studies examining relationship dynamics have largely been conducted using a heterocentric lens and, as a consequence, findings may not generalize to sexual minority populations (Wright, 2020). Mohr and Fassinger (2003) highlighted the importance of considering adult attachment among sexual minority individuals, as attachment orientation appears to be linked with self-acceptance and self-disclosure of sexual orientation. For example, Mohr and Fassinger (2003) found that attachment avoidance and anxiety were positively correlated with self-acceptance difficulties and attachment avoidance was positively associated with low levels of outness in everyday life among individuals who

identify as lesbian, gay, and bisexual. Moreover, while research has shown that there appears to be little to no difference between sexual minority and heterosexual individuals with respect to how meaningful they rate relationship intimacy, individuals in same-gender relationships tend to perceive greater devaluation and barriers (e.g., laws and policies) to achieving their intimacy-related goals compared to individuals in opposite-gender relationships (Frost, 2011). This further underscores the need for additional research to investigate various relationship experiences among LGBTQ+ populations.

There is also work suggesting that ethnic and cultural differences in romantic relationship quality and experience (e.g., Agishtein & Brumbaugh, 2013; Campos et al., 2016; Cheng & Kwan, 2008; Ge et al., 2022). Some studies have found that individuals from East Asian countries and Mexico tend to report higher levels of attachment avoidance (e.g., Friedman et al., 2010) relative to individuals in the U.S., however, other studies have found no differences based on ethnic background for attachment avoidance or partner closeness (Campos et al., 2016). While Campos and colleagues (2016) did not find ethnic differences among groups, researchers did observe differences in levels of partner closeness and partner support based on endorsement of familism as a cultural value, suggesting that perhaps cultural values and level of acculturation are important factors to consider when assessing cultural differences in relationship processes, rather than just ethnic identity alone. Furthermore, researchers have noted that observed differences may, in part, be reflective of the extent to which measures of attachment security reflect cultural norms specific to the U.S. regarding appropriate levels of closeness and support seeking from partners. This further highlights the importance of measurement invariance testing among relationship measures. In sum, given that cultural values and level of acculturation have been shown to impact

relationship dynamics (e.g., Agishtein & Brumbaugh, 2013; Cheng & Kwan, 2008), acculturation and related issues such as ethnic identity should be considered when attempting to apply paradigms and models from one culture to another.

Conclusion

This study examined the factor structures and measurement invariance among four commonly utilized measures of relationship intimacy and adult attachment. Results provided support for measurement invariance among Hispanic and non-Hispanic White college women on all measures (FIS, PAIR, AAS, and AAQ) within an ESEM framework, which is consistent with prior studies investigating measures of adult attachment (e.g., Gray & Dunlop, 2019). Given that models using traditional CFA approaches offered poor to borderline model fit, ESEM was an alternative approach that to CFA that enabled this study to proceed with measurement invariance testing of widely used relationship measures. Given that all measures demonstrated scalar invariance, future work can utilize such measures to investigate mean differences among Hispanic and non-Hispanic White women on domains of relationship intimacy and romantic attachment, which undoubtedly will provide important contributions to the extant romantic relationship and cross-cultural psychology literature.

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Table 1

Descriptive Statistics of FIS, PAIR, AAS, and AAQ for Hispanic and non-Hispanic White Women

	Non-Hispanic White Women		Hispanic Women	
	Mean (*SD*)	Cronbach's α	Mean (*SD*)	Cronbach's α
FIS				
Total	79.42 (*18.01*)	0.91	81.14 (*20.32*)	0.92
Imagined Openness	30.15 (*9.25*)	0.89	30.17 (*9.71*)	0.89
Imagined Fear of Closeness	34.20 (*8.69*)	0.84	35.75 (*10.05*)	0.86
Past Fear of Closeness	15.07 (*4.30*)	0.75	15.22 (*5.05*)	0.84
PAIR				
Engagement	64.05 (*10.52*)	0.86	62.66 (*11.51*)	0.85
Communication	32.04 (6.68)	0.88	32.03 (*6.59*)	0.88
Shared Friendships	8.73 (*3.17*)	0.72	8.64 (*3.122*)	0.72
AAS				
Close	3.61 (*0.80*)	0.79	3.52 (*0.76*)	0.72
Depend	2.84 (*0.89*)	0.84	2.78 (*0.84*)	0.80
Anxiety	2.85 (*0.86*)	0.75	2.85 (*0.87*)	0.77
AAQ				
Avoidance	27.77 (*9.47*)	0.85	29.02 (*9.52*)	0.87
Anxiety	33.20 (*7.71*)	0.78	33.14 (*8.25*)	0.86

Note. FIS = Fear of Intimacy Scale, PAIR = Personal Assessment of Intimacy in Relationships Inventory, AAS = Adult Attachment Scale, AAQ = Adult Attachment Questionnaire.

Table 2

Correlations of FIS, PAIR, AAS, and AAQ Among Hispanic and non-Hispanic White Women

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. FIS Total	-	-0.49**	-0.49**	-0.24**	0.05	-0.04	0.08	-0.02	0.07
2. PAIR Engage	-0.48**	-	0.73**	0.38**	-0.10	-0.07	0.00	0.07	0.02
3. PAIR Comm	-0.56**	0.66**	-	0.40**	-0.13	-0.05	-0.04	0.13	0.01
4. PAIR Friend	-0.16*	0.27**	0.42**	-	0.13	0.17*	-0.08	-0.11	-0.11
5. AAS Close	0.10	-0.12	-0.12	-0.13	-	0.62**	-0.28**	-0.78**	-0.35**
6. AAS Depend	0.09	-0.14*	-0.10	-0.09	0.57**	-	-0.39**	-0.68**	-0.43**
7. AAS Anxiety	-0.01	0.08	0.05	-0.03	-0.01	-0.28**	-	0.28**	0.71**
8. AAQ Avoid	-0.11	0.10	0.11	0.14*	-0.82**	-0.73**	0.06	-	0.38**
9. AAQ Anxiety	-0.07	0.08	0.07	-0.02	-0.06	-0.35**	0.78**	0.16*	-

Note. Correlations for non-Hispanic White women are above the diagonal and correlations for Hispanic women are below. ** = correlation is significant at the 0.01 level, * = correlation is significant at the 0.05 level. FIS Total = Total score for Fear of Intimacy Scale, PAIR Engage = Engagement subscale of Personal Assessment of Intimacy in Relationships Inventory, PAIR comm = Communication subscale of Personal Assessment of Intimacy in Relationships Inventory, PAIR Friend = Shared Friendships subscale of Personal Assessment of Intimacy in Relationships Inventory, AAS Close = Close subscale of Adult Attachment Scale, AAS Depend = Depend subscale of Adult Attachment Scale, AAS Anxiety = Anxiety subscale of Adult Attachment Scale, AAQ Avoid = Avoidance subscale of Adult Attachment Questionnaire, AAQ Anxiety = Anxiety subscale of Adult Attachment Questionnaire.

Table 3

Summary of Model Fit and Measurement Invariance Testing Across Hispanic and non-Hispanic White Women

	Comparing model fit indices						
	$\chi 2$	*df*	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA
FIS							
1. Original 1-factor CFA	1945.298	560	0.711	0.082 (0.078 – 0.086)	0.078		
2. Modified 3-factor CFA	1180.797	557	0.870	0.055 (0.051 – 0.059)	0.054		
3. ESEM 3-factor	932.541	493	0.888	0.049 (0.044 – 0.054)	0.043		
4. ESEM 3-factor Configural	1707.982	986	0.831	0.063 (0.058 – 0.068)	0.053		
5. ESEM 3-factor Metric	1703.158	1082	0.855	0.056 (0.051 – 0.061)	0.064	+ 0.024	- 0.007
6. ESEM 3-factor Scalar	1741.011	1114	0.853	0.055 (0.050 – 0.060)	0.065	- 0.002	- 0.001
PAIR							
1. Modified 3-factor CFA	1006.158	321	0.840	0.076 (0.071 – 0.081)	0.065		
2. Original 5-factor CFA	1985.074	579	0.794	0.081 (0.077 – 0.085)	0.082		
3. ESEM 3-factor	703.315	273	0.880	0.065 (0.059 – 0.071)	0.047		
4. ESEM 5-factor	533.383	295	0.941	0.041 (0.040 – 0.053)	0.030		
5. ESEM 5-factor Configural	963.107	590	0.911	0.058 (0.052 – 0.065)	0.037		
6. ESEM 5-factor Metric	1046.767	715	0.921	0.050 (0.043 – 0.056)	0.052	+ 0.001	- 0.008
7. ESEM 5-factor Scalar	1082.350	740	0.919	0.050 (0.043 – 0.056)	0.053	- 0.002	0.000
AAS							
1. Original 3-factor CFA	592.634	132	0.837	0.089 (0.081 – 0.096)	0.079		
2. ESEM 3-factor	398.984	102	0.873	0.081 (0.073 – 0.089)	0.045		
3. ESEM 3-factor Configural	459.676	204	0.894	0.075 (0.066 – 0.084)	0.047		
4. ESEM 3-factor Metric	536.696	229	0.880	0.072 (0.064 – 0.081)	0.058	- 0.014	- 0.003
5. ESEM 3-factor Scalar	552.132	264	0.880	0.070 (0.062 – 0.078)	0.059	0.000	- 0.002

Table 3 (continued)

	Comparing model fit indices						
	$\chi 2$	*df*	CFI	RMSEA (90% CI)	SRMR	ΔCFI	ΔRMSEA
AAQ							
1. Original 2-factor CFA	306.647	64	0.869	0.093 (0.082 – 0.103)	0.069		
2. ESEM 2-factor	211.605	53	0.890	0.082 (0.071 – 0.094)	0.055		
3. ESEM 2-factor Configural	281.576	106	0.883	0.087 (0.074 – 0.099)	0.057		
4. ESEM 2-factor Metric	315.515	128	0.875	0.081 (0.070 – 0.093)	0.076	- 0.008	- 0.006
5. ESEM 2-factor Scalar	334.674	139	0.870	0.080 (0.069 – 0.091)	0.077	0.005	- 0.001

Note. $p < 0.001$ for all models shown; CFI = Comparative fit index; CI = Confidence interval; B-ESEM = Bifactor exploratory structural equation model; RSMSEA = Root mean square error of approximation; SRMR = Standardized root mean square residual; FIS = Fear of Intimacy Scale; PAIR = Personal Assessment of Intimacy in Relationships Inventory; AAS = Adult Attachment Scale; AAQ = Adult Attachment Questionnaire.

Table 4

Standardized Factor Loadings for the ESEM model of the FIS for Hispanic and non-Hispanic White Women

Item	Standardized factor Loadings F1	F2	F3
Imagined Openness			
3. I would feel comfortable expressing my true feelings to O.	0.534	-0.069	-0.069
6. I would feel at ease telling O that I care about him.	0.398	0.218	-0.087
7. I would have a feeling of complete togetherness with O.	0.540	0.146	-0.118
8. I would be comfortable discussing significant problems with O.	0.662	0.035	0.018
10. I would feel comfortable telling my experiences, even sad ones, to O.	0.674	-0.089	0.096
14. I would not be afraid to share with O what I dislike about myself.	0.352	-0.084	0.047
17. I would not be nervous about being spontaneous with O.	0.313	0.031	-0.047
18. I would feel comfortable telling O things that I do not tell other people.	0.802	-0.037	0.013
19. I would feel comfortable trusting O with my deepest thoughts and feelings.	0.847	-0.014	0.083
21. I would be comfortable revealing to O what I feel are my shortcoming and handicaps.	0.491	0.072	0.142
22. I would be comfortable with having a close emotional tie between us.	0.500	0.258	-0.034
25. I would be comfortable with telling O what my needs are.	0.498	0.098	0.108
27. I would feel comfortable about having open and honest communication with O.	0.550	0.138	-0.047
29. I would feel at ease to completely be myself around O.	0.789	-0.035	-0.097
30. I would feel relaxed being together and talking about our personal goals.	0.758	-0.060	-0.095
Imagined Fear of Closeness			
1. I would feel uncomfortable telling O about things in the past that I have felt ashamed of.	0.005	0.332	0.093
2. I would feel uneasy talking with O about something that has hurt me deeply.	0.346	0.167	0.125
4. If O were upset, I would sometimes be afraid of showing that I care.	-0.054	0.593	-0.012
5. I might be afraid to confide my innermost feelings to O.	0.159	0.523	0.140
9. A part of me would be afraid to make a long-term commitment to O.	0.025	0.533	0.033

Table 4 (Continued)

Item	Standardized factor Loadings		
	F1	F2	F3
11. I would probably feel nervous showing O strong feelings of affection.	-0.027	0.713	0.055
12. I would find it difficult being open with O about my personal thoughts.	0.216	0.496	0.089
13. I would feel uneasy with O depending on me for emotional support.	-0.116	0.633	-0.014
15. I would be afraid to take the risk of being hurt to establish a closer relationship with O.	-0.031	0.423	0.066
16. I would feel comfortable keeping very personal information to myself.	0.086	0.318	0.169
20. I would sometimes feel uneasy if O told me about very personal matters.	0.029	0.535	-0.152
23. I would be afraid of sharing my private thoughts with O.	0.249	0.499	0.058
24. I would be afraid that I might not always feel close to O.	-0.023	0.540	-0.001
26. I would be afraid that O would be more invested in the relationship than I would be.	-0.114	0.561	-0.128
28. I would sometimes feel uncomfortable listening to O's personal problems.	-0.041	0.487	-0.097
Past Fear of Closeness			
31. I have shied away from opportunities to be close to someone.	0.051	-0.049	0.715
32. I have held back my feelings in previous relationships.	-0.047	-0.064	0.761
33. There are people who think that I am afraid to get close to them.	-0.029	0.126	0.634
34. There are people who think that I am not an easy person to get to know.	0.070	0.006	0.489
35. I have done things in previous relationships to keep me from developing closeness.	-0.118	0.170	0.692

Note. F1 = factor 1 – Imagined Openness, F2 = factor 2 – Imagined Fear of Closeness, F3 = factor 3 – Past Fear of Closeness.

Table 5

Factor Loadings of the Five-Factor ESEM of the Personal Assessment of Intimacy in Relationships Inventory for Hispanic and non-Hispanic White Women

	Standardized factor Loadings				
Item	F1	F2	F3	F4	F5
Emotional Intimacy					
1. My partner listens to me when I need someone to talk to.	0.725	0.002	0.072	-0.102	0.162
7. I can state my feelings without him getting defensive.	0.550	0.140	0.130	0.038	0.070
13. I often feel distant from my partner.	0.361	0.088	0.214	0.381	0.099
19. My partner can really understand my hurts and joys.	0.682	0.127	0.037	-0.072	0.144
25. I feel neglected at times by my partner.	0.462	0.110	0.154	0.450	-0.027
31. I sometimes feel lonely when we're together.	0.325	0.137	0.166	0.428	0.105
Social Intimacy					
2. We enjoy spending time with other couples.	0.103	0.536	-0.028	-0.159	0.112
8. We usually keep to ourselves.	0.022	0.201	0.091	0.167	-0.005
14. We have very few friends in common.	-0.201	0.669	-0.019	0.252	0.059
20. Having time together with friends is an important part of our shared activities.	0.214	0.653	-0.074	-0.202	-0.036
26. My of my partner's closest friends are also my closest friends.	-0.205	0.776	-0.001	-0.048	-0.040
32. My partner disapproves of some of my friends.	0.204	0.094	0.025	0.325	0.150
Sexual Intimacy					
3. I am satisfied with our sex life.	-0.049	0.026	0.763	-0.189	0.149
9. I feel our sexual activity is just routine.	0.069	-0.157	0.122	0.237	0.238
15. I am able to tell my partner when I want sexual intercourse.	-0.069	-0.080	0.748	-0.200	-0.017

Table 5 (continued)

Item	Standardized factor Loadings				
	F1	F2	F3	F4	F5
21. I hold back my sexual interest because my partner makes me feel uncomfortable.	0.113	-0.040	0.464	0.254	-0.067
27. Sexual expression is an essential part of our relationship.	-0.126	0.084	0.762	-0.190	-0.039
33. My partner seems disinterested in sex.	-0.011	-0.068	0.610	0.224	-0.163
Intellectual Intimacy					
4. My partner helps me clarify my thoughts.	0.595	0.048	0.095	-0.128	0.267
10. When it comes to having a serious discussion, it seems that we have little in common.	0.130	-0.045	0.026	0.401	0.426
16. I feel put-down in a serious conversation with my partner.	0.443	0.117	0.136	0.395	-0.037
22. I feel it is useless to discuss somethings with my partner.	0.413	0.225	0.018	0.353	0.054
28. My partner frequently tries to change my ideas.	0.258	0.076	0.102	0.407	0.063
34. We have an endless number of things to talk about.	0.222	0.097	0.122	-0.015	0.306
Recreational Intimacy					
5. We enjoy the same recreational activities.	-0.120	0.178	0.034	-0.079	0.725
11. I share very few of my partners' interests.	-0.210	0.064	-0.037	0.329	0.689
17. We like playing together.	0.349	0.005	0.199	-0.177	0.385
23. We enjoy the outdoors together.	0.050	0.067	-0.071	-0.135	0.474
29. We seldom find time to do fun things together.	-0.071	-0.025	0.051	0.254	0.233
35. I think that we share some of the same interests.	0.085	0.042	0.105	-0.136	0.549

Note. F1 = factor 1 – Emotional Intimacy, F2 = factor 2 – Social Intimacy, F3 = factor 3 – Sexual Intimacy, F4 = factor 4 – Intellectual Intimacy, F5 = factor 5 – Recreational Intimacy.

Table 6

Factor Loadings of the Three-Factor ESEM of the Adult Attachment Scale for Hispanic and non-Hispanic White Women

	Standardized factor Loadings		
Item	F1	F2	F3
Close			
1. I find it relatively easy to get close to others.	0.428	0.146	0.024
7. I do not worry about someone getting too close to me.	0.417	0.146	0.115
9. I am somewhat uncomfortable being close to others.	0.670	0.113	0.005
13. I am comfortable having others depend on me.	0.219	-0.009	0.002
15. I am nervous when anyone gets too close.	0.866	-0.091	-0.114
17. Often, partners want me to be closer than I feel comfortable being.	0.695	-0.010	-0.036
Depend			
3. I find it difficult to allow myself to depend on others.	0.101	0.553	0.161
6. I am comfortable depending on others.	0.110	0.598	0.188
8. I find that people are never there when you need them.	0.073	0.508	-0.239
14. I know that people will be there when I need them.	-0.141	0.729	-0.109
16. I find it difficult to trust others completely.	0.161	0.576	-0.033
18. I am not sure that I can always depend on others to be there when I need them.	-0.051	0.749	-0.099
Anxiety			
2. I do not worry about being abandoned.	0.150	-0.166	0.491
4. In relationships, I often worry that my partner does not really love me.	-0.096	-0.166	0.737
5. I find that others are reluctant to get as close as I would like.	-0.005	0.008	0.571

Table 6 (Continued)

Item	Standardized factor Loadings		
	F1	F2	F3
10. In relationships, I often worry that my partner will not want to stay with me.	-0.093	-0.054	0.809
11. I want to merge completely with another person.	0.216	0.105	0.332
12. My desire to merge sometimes scares people away.	-0.098	0.197	0.593

Note. F1 = factor 1 – Close, F2 = factor 2 – Depend, F3 = factor 3 – Anxiety.

Table 7

Factor Loadings of the Two-Factor ESEM of the Adult Attachment Questionnaire for Hispanic and non-Hispanic White Women

	Standardized factor loadings	
Item	F1	F2
Avoidance		
1. I find it relatively easy to get close to others.	0.644	-0.072
2. I'm not very comfortable having to depend on other people.	0.540	-0.177
3. I'm comfortable having others depend on me.	0.232	0.087
5. I don't like people getting too close to me.	0.847	-0.047
6. I'm somewhat uncomfortable being too close to others.	0.796	0.057
7. I find it difficult to trust others completely.	0.664	-0.022
8. I'm nervous whenever anyone gets too close to me.	0.787	0.119
9. Others often want me to be more intimate than I feel comfortable being.	0.605	0.104
Anxiety		
4. I rarely worry about being abandoned by others.	0.084	0.311
10. Others often are reluctant to get as close as I would like.	-0.040	0.714
11. I often worry that my partner(s) don't really love me.	0.262	0.467
12. I rarely worry about my partner(s) leaving me.	0.008	0.134
13. I often want to merge completely with others, and this desire sometimes scares them away.	-0.136	0.740

Note. F1 = factor 1 – Avoidance, F2 = factor 2 – Anxiety.

APPENDICES

Appendix A	Demographics Questionnaire
Appendix B	Fear of Intimacy Scale (FIS)
Appendix C	Personal Assessment of Intimacy in Relationships Inventory (PAIR)
Appendix D	Adult Attachment Scale (AAS)
Appendix E	Adult Attachment Questionnaire (AAQ)

Appendix A
Demographics Questionnaire

INSTRUCTIONS: For each of the questions below, either fill in the blank or select the response that best reflects your experience.

1. Age: _____

2. Year in College
- Freshman
- Sophomore
- Junior
- Senior

3. What is your marital status?
- Single
- Married
- Separated
- Divorced
- Living together
- Widowed

3. How would you describe your sexual identity?

- Heterosexual or straight
- Gay
- Lesbian
- Bisexual
- Fluid
- Pansexual
- Queer
- Demisexual
- Questioning
- Asexual
- Other
- I prefer not to answer

4. Do you identify as Hispanic, Latino, or Spanish origin?
- No, not of Hispanic, Latino or Spanish origin
- Yes, Mexican, Mexican American, Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, another Hispanic, Latino, or Spanish origin - Please write in origin (for example, Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard):

  _____

5. What is your race?
   - White
   - Black or African American
   - American Indian or Alaska Native – write in name of enrolled or principal tribe: _____
   - Middle Eastern
   - Asian Indian
   - Chinese
   - Filipino
   - Other Asian -Write in race (for example, Hmong, Laotian, Thai, Pakistani, Cambodian):_____
   - Japanese
   - Korean
   - Vietnamese
   - Native Hawaiian
   - Guamanian or Chamorro
   - Samoan
   - Other Pacific Islander – Write in race (for example, Fijian, Tongan):_____
   - Some other race - write in race:_____

6. Choose the generation that applies to you:
   - 1st generation- you were born in another country
   - 2nd generation – you were born in the US; either parent was born in another country
   - 3rd generation – you were born in the US; both parents born in the US; all grandparents born in another country
   - 4th generation – you and your parents were born in the US; at least one grandparent born in another country with remainder born in the US
   - 5th generation – you and your parents were born in the US and all grandparents born in the US

7. What is the highest level of education that your Father or male guardian completed?
   - no formal schooling
   - grades 1- 8
   - some high school (no diploma or GED); GED
   - High school graduate
   - some college/technical school
   - Associates Degree, (e.g., AA, AAS)
   - College graduate (B.A., B.S.)
   - some graduate school
   - advanced degree (M.A., M.S.) Ph.D., M.D., J.D.

8. What is the highest level of education that your Mother or female guardian completed?
   - no formal schooling

- grades 1- 8
- some high school (no diploma or GED); GED
- High school graduate
- some college/technical school
- Associates Degree, (e.g., AA, AAS)
- College graduate (B.A., B.S.)
- some graduate school
- advanced degree (M.A., M.S.) Ph.D., M.D., J.D.

9. Thinking back to grade school, which social class would you have identified with?
    - Lower class
    - Lower-middle class
    - Middle Class
    - Upper-middle class
    - Upper class

10. Which social class group do you currently identify with?
    - Lower class
    - Lower-middle class
    - Middle Class
    - Upper-middle class
    - Upper class

11. Do you speak more than one language?
    - No
    - Yes

    11a. If so, which ones:_____

15. What language do you normally speak at home? _____

Appendix B
Fear of Intimacy Scale

Part A Instructions:
Imagine you are in a close, dating relationship. Respond to the following as you would if you were in that close relationship. Rate how characteristic each statement is of you on a scale of 1 to 5 as described below.

1	2	3	4	5
Not at all characteristic of me	Not characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

Note. In each statement, "O" refers to the person who would be in the close relationship with you.

1. I would feel uncomfortable telling O about things in the past that I have felt ashamed of.
2. I would feel uneasy talking with O about something that has hurt me deeply.
3. I would feel comfortable expressing my true feelings to O.
4. If O were upset, I would sometimes be afraid of showing that I care.
5. I might be afraid to confide my innermost feelings to O.
6. I would feel at ease telling O that I care about him.
7. I would have a feeling of complete togetherness with O.
8. I would be comfortable discussing significant problems with O.
9. A part of me would be afraid to make a long-term commitment to O.
10. I would feel comfortable telling my experiences, even sad ones, to O.
11. I would probably feel nervous showing O strong feelings of affection.
12. I would find it difficult being open with O about my personal thoughts.
13. I would feel uneasy with O depending on me for emotional support.
14. I would not be afraid to share with O what I dislike about myself.
15. I would be afraid to take the risk of being hurt in order to establish a closer relationship with O.
16. I would feel comfortable keeping very personal information to myself.
17. I would not be nervous about being spontaneous with O.
18. I would feel comfortable telling O things that I do not tell other people.

19. I would feel comfortable trusting O with my deepest thoughts and feelings.
20. I would sometimes feel uneasy if O told me about very personal matters.
21. I would be comfortable revealing to O what I feel are my shortcoming and handicaps.
22. I would be comfortable with having a close emotional tie between us.
23. I would be afraid of sharing my private thoughts with O.
24. I would be afraid that I might not always feel close to O.
25. I would be comfortable with telling O what my needs are.
26. I would be afraid that O would be more invested in the relationship than I would be.
27. I would feel comfortable about having open and honest communication with O.
28. I would sometimes feel uncomfortable listening to O's personal problems.
29. I would feel at ease to completely be myself around O.
30. I would feel relaxed being together and talking about our personal goals.

Part B Instructions:

Respond to the following statements as they apply to your past relationships. Rate how characteristic each statement is of you on a scale of 1 to 5 as described below.

1	2	3	4	5
Not at all characteristic of me	Not characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

31. I have shied away from opportunities to be close to someone.
32. I have held back my feelings in previous relationships.
33. There are people who think that I am afraid to get close to them.
34. There are people who think that I am not an easy person to get to know.
35. I have done things in previous relationships to keep me from developing closeness.

Appendix C
Personal Assessment of Intimacy in Relationships (PAIR)

Instructions:
Please respond to each question as your relationship is now, using the scale below.

1	2	3	4	5
Does not describe me/my relationship at all				Describes me/my relationship very well

1. My partner listens to me when I need someone to talk to.
2. We enjoy spending time with other couples.
3. I am satisfied with our sex life.
4. My partner helps me clarify my thoughts.
5. We enjoy the same recreational activities.
6. My partner has all the qualities I've ever wanted in a mate.
7. I can state my feelings without him getting defensive.
8. We usually keep to ourselves.
9. I feel our sexual activity is just routine.
10. When it comes to having a serious discussion, it seems that we have little in common.
11. I share very few of my partners' interests.
12. There are times when I do not feel a great deal of love and affection for my partner.
13. I often feel distant from my partner.
14. We have very few friends in common.
15. I am able to tell my partner when I want sexual intercourse.
16. I feel put-down in a serious conversation with my partner.
17. We like playing together.
18. Every new thing that I have learned about my partner has pleased me.
19. My partner can really understand my hurts and joys.
20. Having time together with friends is an important part of our shared activities.
21. I hold back my sexual interest because my partner makes me feel uncomfortable.

22. I feel it is useless to discuss somethings with my partner.
23. We enjoy the outdoors together.
24. My partner and I understand each other completely.
25. I feel neglected at times by my partner.
26. My of my partner's closest friends are also my closest friends.
27. Sexual expression is an essential part of our relationship.
28. My partner frequently tries to change my ideas.
29. We seldom find time to do fun things together.
30. I don't think anyone could possibly be happier than my partner and I when we are with one another.
31. I sometimes feel lonely when we're together.
32. My partner disapproves of some of my friends.
33. My partner seems disinterested in sex.
34. We have an endless number of things to talk about.
35. I think that we share some of the same interests.
36. I have some needs that are not being met by my relationship.

Appendix D
Adult Attachment Scale (AAS)

Instructions: Please read each of the following statements and rate the extent to which it describes your feelings about romantic relationships. Please think about all your relationships (past and present) and respond in terms of how you generally feel in these relationships.

1	2	3	4	5
Not at all characteristic of me				Very characteristic of me

(1) I find it relatively easy to get close to others.
(2) I do not worry about being abandoned.
(3) I find it difficult to allow myself to depend on others.
(4) In relationships, I often worry that my partner does not really love me.
(5) I find that others are reluctant to get as close as I would like.
(6) I am comfortable depending on others.
(7) I do not worry about someone getting too close to me.
(8) I find that people are never there when you need them.
(9) I am somewhat uncomfortable being close to others.
(10) In relationships, I often worry that my partner will not want to stay with me.
(11) I want to merge completely with another person.
(12) My desire to merge sometimes scares people away.
(13) I am comfortable having others depend on me.
(14) I know that people will be there when I need them.
(15) I am nervous when anyone gets too close.
(16) I find it difficult to trust others completely.
(17) Often, partners want me to be closer than I feel comfortable being.
(18) I am not sure that I can always depend on others to be there when I need them.

Appendix F
Adult Attachment Questionnaire (AAQ)

Instructions: Please indicate how you typically feel toward romantic (dating) partners *in general,* using the scale below.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

1. I find it relatively easy to get close to others.
2. I'm not very comfortable having to depend on other people.
3. I'm comfortable having others depend on me.
4. I rarely worry about being abandoned by others.
5. I don't like people getting too close to me.
6. I'm somewhat uncomfortable being too close to others.
7. I find it difficult to trust others completely.
8. I'm nervous whenever anyone gets too close to me.
9. Others often want me to be more intimate than I feel comfortable being.
10. Others often are reluctant to get as close as I would like.
11. I often worry that my partner(s) don't really love me.
12. I rarely worry about my partner(s) leaving me.
13. I often want to merge completely with others, and this desire sometimes scares them away.
14. I'm confident others would never hurt me by suddenly ending our relationship.
15. I usually want more closeness and intimacy than others do.
16. The thought of being left by others rarely enters my mind.
17. I'm confident that my partner(s) love me just as much as I love them.