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## Examining the Effects of Communication and Acculturation on Relationship Satisfaction and Postpartum Depressive Symptomatology in Latino Couples

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To the Graduate Council:

I am submitting herewith a thesis written by Jessica Andrea Hughes entitled "Examining the Effects of Communication and Acculturation on Relationship Satisfaction and Postpartum Depressive Symptomatology in Latino Couples." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Psychology.

Kristina Coop Gordon, Major Professor

We have read this thesis and recommend its acceptance:

Gregory Stuart, Todd Moore, L. Christian Elledge

Accepted for the Council:

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Examining the Effects of Communication and Acculturation on Relationship Satisfaction and  
Postpartum Depressive Symptomatology in Latino Couples

A Thesis Presented for the  
Master of Arts  
Degree  
The University of Tennessee, Knoxville

Jessica Andrea Hughes  
August 2014

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## Abstract

The present study builds on prior research that has evaluated the longitudinal association between relationship adjustment and depressive symptoms during pregnancy and the postpartum period by focusing on a group of women at high risk for perinatal depression, in this case, Latinos. Most studies have evaluated the association between relationship functioning and depressive symptoms during the postpartum period. However, depression occurs as frequently during pregnancy as in the postpartum period (Evans et al., 2001) and has been shown to be an important predictor of postpartum depression (Milgrom et al., 2008) in Caucasian samples. Since poor communication has been linked to higher levels of marital dissatisfaction in Caucasian samples, it is crucial to explore how communication may play a role in the relationship between marital dissatisfaction and depression in Latinos. Additionally, acculturation levels may not only impact the relationship between marital satisfaction and depression, it may also impact communication. Knowledge in this area could contribute more information on how to effectively intervene with Latinos, and the variables that need to be targeted in order to prevent the onset, recurrence, and greater severity of depression. 175 couples living in a small Southeastern city participated in the study as part of a larger longitudinal study. SEM analyses indicated that relationship satisfaction did not mediate the relationship between communication and postpartum depression. Results also indicated that acculturation did not moderate the relationship between communication and relationship satisfaction, and that the indirect effect was not significant at varying levels of acculturation. However, communication did significantly predict relationship satisfaction for men but not women. Further exploratory analyses indicated that women's level of acculturation marginally predicted women's depressive symptoms at 12 months following enrollment. Specifically, the less acculturated women were, the more depressed they were.

Findings also replicate previous findings from Caucasian samples that show that satisfaction and communication are significantly related across time points both within their own reports as well as with reports of their partner. Implications are discussed.

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## Chapter 1

### Introduction and Literature Review

Previous research indicates that relationship discord might be an important antecedent in the development of depression in Latinos, yet this link has not received enough attention in the existing literature. Specifically, research indicates that marital satisfaction is a strong predictor of co-occurring depression, as well as depression two years later (Hollist, Miller, Falceto, & Fernandes, 2007). Furthermore, rates of depression postpartum may reach as much as 40% to 50% in ethnic and racial minority populations (Yonkers et al., 2001), compared to 25% of Caucasian women (O'Hara & Swain, 1996), yet very few studies have examined the link between relationship satisfaction and postpartum depression in minority samples (Hassert & Kurpius, 2011). The Latino population is the largest and fastest growing ethnic minority group in the United States (U.S. Census Bureau, 2009), and the lack of empirical studies with this population is concerning given the exponentially higher rates of postpartum depression (PPD) in Latina women and the major implications this has on public health. Further, the extent to which cultural factors might affect the association between relationship satisfaction and postpartum depression has not been extensively considered in this population; consequently, the purpose of this paper is to examine the effects of acculturation on the relationship between intimate relationship functioning and postpartum depressive symptomatology in Latinas.

#### *Relationship Satisfaction and Postpartum Depression*

In primarily Caucasian samples, relationship satisfaction not only affects onset and occurrence of depression and changes in communication, but it also is a robust predictor of postpartum mental health (Beck, 2001; Robertson et al., 2004; Whisman, Davila & Goodman,

2011). Conflict within an intimate relationship may be a key factor influencing the development of postpartum depression (PPD), and women who report relationship distress appear to be at elevated risk for PPD (Barnett et al. 1993; Beck 2001; Boyce et al. 1998; Marks et al. 1996; Morinaga and Yamauchi 2003). Further, studies conducted to date suggest that poorer relationship functioning before and during pregnancy is associated with greater likelihood of PPD, measured both in terms of depressive symptoms (e.g., Don & Mickelson, 2012; Hock, Schirtzinger, Lutz, & Widaman, 1995; Milgrom et al., 2008) and depression diagnosis (e.g., Gotlib, Whiffen, Wallace, & Mount, 1991). Poorer relationship functioning following the birth of a child also appears to predict onset of major depression during the postnatal period (Boyce & Hickey, 2005). Moreover, women who report poor quality of relationship with their partner are likely to develop more severe symptoms of greater duration (Campbell et al. 1992; Fisher et al. 2002) and to have a reoccurrence of depression, relative to postpartum women who describe positive partner relationships (Campbell, et al., 1992; Viinamaki et al., 1997). Thus, the perinatal period represents an important time in which to study the association between relationship quality and depressive symptomatology in women. However, although research has made significant advancements in understanding PPD and relationship functioning in Caucasian samples, there is a significant gap in the research directed at understanding these problems in individuals from ethnic minority groups.

One study examining the relationship between depressive symptoms in Latino couples found that husbands' and wives' depression scores were significantly correlated with each other (Treviño, Wooten, & Scott, 2007). Further, marital satisfaction also has been found to be a strong predictor of future depression and was also related to co-occurring depression in Latinos (Hollist, et al., 2007). However, to date, very little published research has directly examined the

relationship between dyadic satisfaction and postpartum depression symptomatology in Latinos. One study found that social support was minimally correlated with postpartum depressive symptoms in Latinos; however, they failed to take partner support into account (Zayas, Jankowski & McKee; 2003). In a study conducted by Hassert and Kurpius (2011) in a Latino sample, results indicated that marital satisfaction predicted postpartum depression in women. However, this study was cross-sectional in nature and thus could not make conclusions about participants' depressive symptoms or relationship quality prior to or during pregnancy.

Also lacking are studies that examine the influence of cultural variables on relationship quality and incidence of depressive symptomatology. One such variable might be acculturation level. Acculturation has been defined as the process of adjustment and cultural change that occurs as an individual adapts to a new society or nonnative culture (Berry et al., 2002; Organista, Organista, & Kurasaki, 2003). Along these lines, acculturation level and poor family relationships in a sample of Mexican American women appear to predict PPD longitudinally (Martinez-Schallmoser, Telleen, & McMullen, 2003). Unfortunately, the majority of the research done in this area has focused on family functioning as a whole, and has been conducted with children and adolescents, not parental dyads. Further, the extent to which cultural factors might affect the relationship between relationship adjustment and depressive symptoms has not been extensively considered (Sarmiento & Cardemil, 2009).

#### *Relationship Satisfaction and Communication*

Not only has relationship satisfaction been implicated in the development of depression, but marital communication also has been linked to the development of marital distress in Caucasians (see Baucom et al., 2007 for a review), and there is reason to believe that dyadic communication also might be a relevant variable for Latino couples. Indeed, Vega, Kollody, and

Valle (1988) found that negative emotional interactions were related to increased levels of marital strain in Mexican American couples. Research on relationship quality and marital communication typically has been carried out in Caucasian couples. However, a recent cross-cultural study (Christensen, Eldridge, Catta-Preta, Lim, & Santagata, 2006) has linked the demand/withdraw pattern in Latinos to marital distress, similarly to Caucasian couples. The demand/withdraw pattern is when the couple struggles with one partner desiring more communication while the other avoids communication about conflict (Christensen & Heavy, 1993). Research has found that typically women take the demanding role, while men take the role of withdrawing in both distressed and non-distressed couples (Christensen, 1988; Christensen & Heavy, 1993; Markman, Silvern, Clements, & Kraft-Hanak, 1993).

These findings may be linked to the value of *simpatia*, which refers to avoidance of confrontation and voicing dissent as a central factor in promoting interpersonal harmony (Diaz-Guerrero, 1994), which suggests that poor communication might be particularly distressing to Latino couples. Other factors affecting communication in Latinos might be the cultural value of *marianismo*, which raises the expectation that women be caring, nurturing, and self-sacrificing or self-silencing and prioritizing the needs of the family, and thus they might be less likely to take on the “demand” role to request change in their relationships. Consequently, due to both of these value systems, conflict might be more upsetting to Latinos with low acculturation, whereas it might be less upsetting for more highly acculturated Latinos. Given the importance and centrality of harmony and togetherness in families among Latinos (Arredondo & Perez, 2003; Miranda, Frevert, & Kern, 1998), there is good reason to believe that levels of acculturation might affect the relationship between communication and relationship satisfaction for this population.

Empirical findings in this regard are mixed. Negy & Snyder (1997) examined the effect

of acculturation on marital distress, and their findings suggested that higher levels of acculturation among Mexican American couples was modestly related to higher levels of marital distress for wives, but was unrelated to relationship satisfaction for husbands. Parke and colleagues (2004) also found that only women's level of acculturation was directly and positively associated with marital problems. Flores, Tschann, VanOss, Marin, and Pantoja (2004) predicted that differences in levels of acculturation between marital partners would result in greater conflict due to a disparity in values. Unlike previous findings, they found that while couple-level acculturation was not related to wives' reports of marital conflict, when husbands were equally or more acculturated than their wives, they reported more openness regarding expressing their emotions during conflicts than husbands who were less acculturated. This finding suggests that acculturation might affect Latinos' acceptance of emotional expressiveness and conflict. Therefore, it is possible that acculturation is a moderator of the communication and relationship satisfaction relationship such that more acculturated Latinos are more accepting of conflict and thus it has less impact on their relationship satisfaction, whereas less acculturated Latinos see conflictual interactions as a violation of their cultural standards. Consequently, these interactions have more effect on their marital satisfaction. However, research findings remain mixed in this area, and further investigation is necessary.

It remains unclear how couple-level acculturation influences marital quality, though it is clear that acculturation is an important variable that could impact partner interactions and relationship conflict. Furthermore, as the empirical research in this area is limited, more exploration of the association between relationship satisfaction and postpartum depression is warranted, particularly regarding how dyadic communication and acculturation may interact to impact relationship satisfaction and postpartum depressive symptomatology.

Given that relationship satisfaction is at risk during the postpartum period and the perinatal period, and that there is an elevated risk of PPD in Latinas, this is a particularly critical time in which to study the association between relationship quality and depression in women, which has not been looked at extensively to date in Latinos. The studies conducted to date in this field have been mostly cross sectional in nature and had low sample sizes, thus they warrant further exploration longitudinally. Further, a majority of these studies also looks at family functioning as a whole (e.g., Sarmiento & Cardemil, 2009) or effects on shared parenting (Martinez, 2006; Sotomayor-Peterson et al., 2012), and not specifically at the dyadic relationship.

#### *Current Study*

The present study builds on prior studies that have evaluated the longitudinal association between relationship adjustment and depressive symptoms during pregnancy and the postpartum period by focusing on a group of women at high risk for perinatal depression, in this case, Latinas. Based on the literature and theory described above, the first aim is to examine the extent to which the association between relationship satisfaction and symptoms of postpartum depression in our sample mirrored that reported in the literature with Caucasians. We hypothesized that, consistent with the literature on Caucasians, lower levels of relationship satisfaction in women and men, will be associated with higher levels of women's postpartum depressive symptomatology.

Our second aim is to examine how communication affects these changes in satisfaction. We hypothesize that self-reports of conflictual communication will lead to decreased relationship satisfaction over time for both partners. Further, we hypothesize that relationship satisfaction as reported by each partner at 3 months postpartum will mediate the relationship between self-

reports of communication, measured at the end of pregnancy, and symptoms of women's postpartum depression 12 months following enrollment (~6 months postpartum), while controlling for depressive symptoms and relationship satisfaction at the end of pregnancy (refer to Figure 1).

Finally, given the mixed findings of the effect of acculturation on communication and relationship satisfaction, we will examine how acculturation affects the relationship between communication and satisfaction. For the purpose of the current study, acculturation will be defined as the level of adjustment and cultural change that occurs as an individual adapts to a new society or nonnative culture, and not as acculturative stress, which refers to the significant sense of loss experienced by individuals during the process of acculturation. We predict that each partner's own level of acculturation will moderate the relationship between their reports of communication and relationship satisfaction, such that at lower levels of acculturation, conflictual communication will have a greater negative impact on relationship satisfaction than when individuals have a higher level of acculturation. We will then examine the effect of communication on postpartum depressive symptoms through relationship satisfaction as moderated by acculturation (refer to Figure 2 in the Appendix).



## Chapter 2

### Materials and Methods

#### Participants

A total of 175 Latino couples were recruited from a community sample in a large southeast city as part of a larger longitudinal study examining the efficacy of a couple based intervention on smoking cessation in expectant Latino fathers. The couples that were a part of the current study came from the control arm of the larger sample and did not receive any relationship counseling in order to avoid the confounding effects of the couple-based intervention provided in the treatment arm. Eligible women were 16 years of age or older, not currently smoking, married or living with a partner who smokes daily, and between 8-25 weeks pregnant. Partners of eligible women were eligible if they were 18 years of age or older, smoked daily, were cohabitating with their pregnant partner, and planned to live in the area for at least two years.

Men (M) and women (W) in the current study were Hispanic, primarily White (M = 49.7%, W = 46.9%) or mixed race (M = 44.6%, W = 41.7%) and most participants reported Mexico as their country of origin (M = 78.3%, W = 79.4%). Men ranged in age from 18-46 ( $M = 29.27$ ,  $SD = 5.43$ ) and women ranged in age from 18-42 ( $M = 27.53$ ,  $SD = 5.86$ ). Men and women had mostly completed either elementary (M = 32.9%, W = 37.0%) or high school (M = 32.9%, W = 37.0%). Men's monthly income ranged from under \$500 (24.4%) to \$1,501 or more (24.4%), whereas women primarily reported monthly income ranging from \$501 to \$1,000 (33.3%) or 1,001 to \$1,500 (34.0%). Most partners were unmarried and cohabiting (71.4%) and had been involved in a relationship with their current partner for more than 3 years (64.6%). Follow-up rates were 89%, 81% and 81 % for end of pregnancy (EPS), 3-month postpartum and 12-month post enrollment, respectively. Results of attrition analyses revealed that participants

included in the analyses reported less household income and were more likely to report speaking only Spanish at home than those who were excluded from analyses.

## **Procedures**

Couples were recruited through advertisements (print, radio, TV, and fliers), attendance at local Hispanic festivals, and face-to-face recruiting at health clinics. All women who received their prenatal care at a local health center attended a prenatal class when they initiated care. In the class, several booths were set up for women to receive information about prenatal services and health. All pregnant women were approached and screened during this class. County Health Departments where this study was located do not collect information about legal status of patients, and our study did not collect this information. In order to protect the participants, a Certificate of Confidentiality was obtained. Due to the potentially low literacy levels among recently immigrated Latinos, all surveys were administered face-to-face by data collectors. Four face-to-face surveys of the couples were conducted throughout the duration of the study: at baseline, end of pregnancy (28-35 week gestation), three months postpartum, and 12 months from enrollment (~6 months postpartum). Although we have several time points of data, we chose the end of pregnancy assessment point to be the first predictor time point. Baseline measurements varied for each participant depending on the point that they were recruited for the study, so they could vary up to 28 weeks of pregnancy, but the end of pregnancy assessments were more consistent across participants and they had the added benefit of being closer to the actual birth of the child, thus more likely capturing the communication levels prior to and around the birth. Each member of the couple received \$10 for completing each survey (\$50 each or \$100 per couple over the year and a half of the study). Data collectors called couples to let them know which days they could come to do their survey.

## Measures

A demographic questionnaire was used to obtain background information on the couples for statistical control and to provide a description of the sample. Questions relevant to the current study included age, sex, race, cohabitation, and length of relationship.

*Acculturation.* Husbands' and wives' level of acculturation was measured at baseline using the Short Acculturation Scale (Marin, et al., 1987). Each partner completed the language subscale, which was comprised of 5 items, of the validated 12-item short acculturation scale. A sample item is, "In your opinion, how well do you understand spoken English?" (1=Very well to 4=Not at all well). A high score means that the respondent has developed a fairly high proficiency in English; uses predominantly English rather than Spanish when interacting with family members and outside associates; and has a majority of close friends, neighbors, and close coworkers who are European American rather than Latinos. The internal reliability was acceptable for this sample (males:  $\alpha = 0.72$ ; females  $\alpha = 0.80$ ).

*Constructive Communication.* Men and women were asked to respond to the seven-item Constructive Communication subscale of the Communication Patterns Questionnaire (Heavey, Larson, Zumtobel, & Christensen, 1996). The current study used the seven-item mutual constructive communication subscale of the larger 32-item Communication Patterns Questionnaire (Heavey et al., 1996). This subscale assesses the self-reported constructiveness of spouses' behavior during problem-solving discussions, in which high scores indicate adaptive, constructive communication behaviors, and low scores indicate more maladaptive or destructive communication behaviors. A sample item reads, "When some problem arises in the relationship, both members try to discuss the problem." (1=Very unlikely to 9=Very likely). Psychometric data strongly support its reliability and validity (Heavey, et al., 1996), and this subscale has

demonstrated high internal consistency, high levels of husband and wives agreement, and strong associations with other measures of intimate relationship adjustment, such as the Dyadic Adjustment Scale (Spanier, 1976), and with observational coding methods (Hahlweg, Kaiser, Christensen, Fehm-Wolfsdorf, & Groth, 2000). The internal reliability was acceptable for this sample (males:  $\alpha = 0.74$ ; females  $\alpha = 0.79$ ).

*Couples Satisfaction.* Both women and men were asked to complete the Couples Satisfaction Index, a scale designed to measure one's satisfaction in a relationship (Funk & Rogge, 2007). Women completed a 16-item version, while men completed the four-item short form, both of which are validated scales. Men completed the shorter form in order to reduce their burden, as they were already completing several more measures related to their motivation and attitudes towards smoking cessation. A sample item reads, "Please indicate the degree of happiness, all things considered, of your relationship." (0 = Extremely unhappy to 6 = Perfect). Since not all items of this scale are on the same likert scale, we standardized items by calculating z-scores for each item. The internal reliability was acceptable for this sample at end of pregnancy and 3 months postpartum (coefficient alphas were the same for both time points: males:  $\alpha = 0.85$ ; females  $\alpha = 0.96$ ).

*Depression.* Women only were asked to complete a seven-item emotional state of depression subscale of The Depression and Anxiety Stress Scale (DASS; Daza, Novy, Stanley, & Averil, 2002). Since men were also completing several measures on smoking cessation attitudes, in order to reduce their burden they were not asked to complete a measure of depressive symptomatology. A sample item states, "I felt sad and depressed." (0 = Did not apply to me at all to 3 = Applied to me very much, or most of the time). The internal reliability was acceptable for this sample at end of pregnancy and ( $\alpha = 0.82$  at end of pregnancy and  $\alpha = .90$  12 months after

enrollment). View Table 1 for descriptive statistics of all study variables.

### *Data analysis*

Study hypotheses were examined using structural equation modeling (SEM) with Mplus version 7.1 (Muthén & Muthén, 2012). SEM was used for a variety of reasons. First, SEM allows for the simultaneous estimation of all the paths in the model, providing estimates of each path that take into account all other variables in the model. In SEM an estimated covariance matrix is generated by simultaneously estimating several regression equations. This estimated covariance matrix is compared to the covariance matrix of the observed data to determine the degree of fit using goodness-of-fit statistics. Second, SEM can address latent variables so that the paths between elements in a model can be estimated without the biasing effects of measurement error associated with particular instruments (Hoyle, 1991). By using multiple indicators for each key construct, the common variance among the indicators is extracted to represent the error-free and reliable construct variance. All central analyses are conducted among the latent constructs, which provides disattenuated (true) and unbiased estimates of the population effects when other sources of possible validity bias are not present (Little et al., 1999). In the current study, items for each measured construct were first parceled into three composites (in order to achieve a identified model) using an Item-to-Construct Balance approach (see also “single factor analysis” parceling; Landis et al., 2000 and see Little, Cunningham, Shahar, & Widaman, 2002 and Little, et al., 2007 for a review on parceling approaches and benefits). Latent constructs were indicated by the three composite scores corresponding to their respective measured construct.

A confirmatory factor analysis (CFA) was conducted to establish that the measurement model is accurately represented by the hypothesized latent constructs, that the measurement of these latent indicators is internally consistent, and that the constructs are metrically invariant

overtime. First, a configural invariant model was specified; where all parameters were free to vary over time. Next, a weak invariant model that constrained the manifest indicator loadings across time was conducted. A model has weak invariance when the RMSEA falls within the confidence intervals of the configural model, and the CFI changes  $< .01$ . Third, indicator means were equated over time to test for strong factorial invariance (for the logic of invariance testing see Little, 1997 and Meredith, 1993). For a strong invariant model, the RMSEA falls within the confidence intervals of the weak invariant model, and the CFI changes  $< .01$ . To evaluate model fit, we emphasized the following set of goodness-of-fit indices: root mean square error of approximation (RMSEA), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and standardized root mean square residual (SRMR). Model fit was considered acceptable following the following fit indices' cut-off values: a RMSEA value smaller than .08 and CFI and TLI values  $> .90$ , and SRMR  $< .08$  (Hooper, Coughlan, & Mullen, 2008).

Once the analysis of the measurement model was complete and acceptable fit was established, a mediation model testing the association between constructive communication, satisfaction, and symptoms of postpartum depression was estimated for each partner in SEM. Missing data on at least one of the predictor variables or outcome variable occurred for either one or both of the couple members. Percent missing values ranged from 0% to 6.8% for communication, 6% - 15% for satisfaction, and from 6.8% to 12% for depression scores. Thus, full information maximum likelihood estimation (FIML) was used to accommodate missing data, which uses all of the available information in the dataset to calculate parameter estimates without excluding cases with missing values (Kline, 2010). FIML is relatively robust against nonnormality and has been found to be less biased and more efficient than other strategies, such as pairwise and listwise deletion (Arbuckle, 1996). The mediation models in SEM used

maximum likelihood (ML), which is the default option. A bootstrapping method was used to obtain confidence intervals around the indirect effect. The moderated mediation analysis in SEM used an algorithm integration option with a default algorithm equal to the expectation maximization algorithm. This algorithm is the default option when creating latent interaction terms using the XWITH statement in Mplus. Finally, a Monte Carlo estimation procedure was used to construct confidence intervals around the indirect effect at high, medium, and low levels of acculturation (Selig & Preacher, 2008).

## Chapter 3

### Results

#### *Preliminary Analyses*

Preliminary analyses in Mplus indicated significant weak to moderate correlations between couple members' ratings of satisfaction ( $r = 0.52, p < .001$  (end of pregnancy),  $r = 0.35, p < .001$  (3 months postpartum)), communication ( $r = 0.41, p = .001$ ), as well as their levels of acculturation ( $r = 0.22, p = .001$ ). These findings indicate that Latino couple members viewed satisfaction and communication within the relationship similarly but not to a high degree. Correlations of study variables are reported in Table 2. These included constructive communication, relationship satisfaction, levels of acculturation, and women's depressive symptomatology pre and postpartum. Overall, men and women's satisfaction and communication reports were correlated across all time points. However, only women's reports of satisfaction and communication at end of pregnancy were correlated with women's depressive symptoms at end of pregnancy, and only women's depressive symptoms at end of pregnancy predicted their symptoms at 12 months following enrollment.

#### *Confirmatory Factor Analysis*

A confirmatory factor analysis was run using the latent constructs of women's depression, as well as each partner's own report of constructive communication, and satisfaction. Root Mean Squared Error of Approximation (RMSEA), CFI, TLI, and Standardized Root Mean Square Residual (SRMR) were used to evaluate model fit. Model fit statistics for the CFA presented in Table 3. The change in fit from the configural invariance to weak invariance was trivial, with the value for RMSEA for the weak model fitting within the confidence intervals for



the configural model and a change in CFI was  $< .01$ . The change in model fit from the weak invariance to strong invariance was also trivial, with the value for RMSEA for the strong model fitting within the confidence intervals for the weak model and a change in CFI was  $< .01$ . Given that there was no substantial decrease in model fit as described above, this indicated support for the more parsimonious model. Thus, we can conclude that factor loadings and indicator means were approximately equivalent over time. Loading constraints from the weak model were retained in latent regression analyses.

### *SEM Model*

Once model fit was evaluated and measurement invariance was established in a confirmatory factor analysis, a mediation model was conducted. The first model examined the degree to which women's report of satisfaction, communication, and level of acculturation predicted their own level of postpartum depression whereas the second model examined whether men's report of satisfaction, communication, and level of acculturation predicted women's depression. Contrary to expectation, for men, relationship satisfaction did not predict women's postpartum depressive symptomology,  $B = -0.15$ ,  $S.E. = 0.14$ ,  $df = 248$ ,  $p = .28$ , 95% C.I. [-0.58, 0.17] but the effect was trending towards significance for women's report of relationship satisfaction,  $B = -0.20$ ,  $S.E. = 0.11$ ,  $df = 225$ ,  $p = .07$ , 95% C.I. [-0.71, 0.03]. Also, for women, communication at end of pregnancy did not predict relationship satisfaction at three months postpartum,  $B = 0.12$ ,  $S.E. = 0.10$ ,  $df = 225$ ,  $p = .24$ , 95% C.I. [-0.12, 0.41]. For men, communication at end of pregnancy was a significant predictor of their own level of relationship satisfaction at three months postpartum,  $B = 0.32$ ,  $S.E. = 0.09$ ,  $df = 248$ ,  $p = .000$ , 95% C.I. [0.91, 0.55], such that lower scores on communication was associated with lower relationship satisfaction.

Further, relationship satisfaction at 3 months postpartum did not mediate the relationship between communication, measured at the end of pregnancy, and symptoms of postpartum depression 12 months following enrollment when controlling for end of pregnancy levels of own report of relationship satisfaction, women's depression, partner's levels of satisfaction, length of cohabitation, and marital status, for men,  $B = -0.05$ ,  $S.E. = 0.06$ ,  $df = 248$ ,  $p = .45$ , 95% C.I. [-0.17, 0.08], or women,  $B = -0.03$ ,  $S.E. = 0.03$ ,  $df = 225$ ,  $p = .33$ , 95% C.I. [-0.11, 0.59]. Length of cohabitation with partner did not predict women's depressive symptoms,  $B = -0.05$ ,  $S.E. = 0.09$ ,  $p = .59$ , 95% C.I. [-0.28, 0.17], but those that were married were more depressed,  $B = 0.52$ ,  $S.E. = 0.15$ ,  $p = .001$ , 95% C.I. [0.11, 1.12] than those that were not married. Refer to Figures 3 through 6 for mediation results.

Lastly, acculturation was added to the above model to examine whether individual's own level of acculturation moderated the relationship between satisfaction at end of pregnancy and communication at three months postpartum. Acculturation did not moderate the association between relationship satisfaction at end of pregnancy and communication at three months postpartum for women,  $B = -0.29$ ,  $S.E. = 0.41$ ,  $p = .49$ , or men,  $B = -0.10$ ,  $S.E. = 0.07$ ,  $p = .13$ . Further, the indirect effect was not moderated by acculturation for men at low levels,  $B = -0.07$ ,  $S.E. = 0.08$ ,  $p = .35$ , 95% C.I. [-0.10 – 0.15], moderate levels,  $B = -0.06$ ,  $S.E. = 0.06$ ,  $p = .35$ , 95% C.I. [-0.05, 0.10], and high levels of acculturation,  $B = -0.04$ ,  $S.E. = 0.05$ ,  $p = .38$ , 95% C.I. [-0.10, 0.10]. The same was true for women at low levels of acculturation,  $B = -0.06$ ,  $S.E. = 0.06$ ,  $p = .38$ , 95% C.I. [-0.05 - 0.15], moderate levels,  $B = -0.02$ ,  $S.E. = 0.03$ ,  $p = .51$ , 95% C.I. [-0.04, 0.06], and high levels,  $B = 0.02$ ,  $S.E. = 0.05$ ,  $p = .62$ , 95% C.I. [-0.05, 0.05]. Refer to Figures 7 through 10 for moderated mediation results. Moreover, these analyses indicated that women's acculturation marginally predicted their own depressive symptoms at 12 months after enrollment,

$B = -0.16$ ,  $S.E. = 0.09$ ,  $p = 0.088$ , 95% C.I. [-0.38, 0.03], such that the less acculturated women were, the more depressive symptoms they endorsed. Men's level of acculturation did not predict women's postpartum depressive symptoms at 12 months after enrollment,  $B = -0.07$ ,  $S.E. = 0.10$ ,  $p = .46$ , 95% C.I. [-0.28, 0.13]. Also, women's level of acculturation did not predict their own levels of relationship satisfaction at 3 months postpartum,  $B = 0.16$ ,  $S.E. = 0.15$ ,  $p = .29$ , 95% C.I. [-0.01, 0.25], and men's level of acculturation did not predict their own levels of relationship satisfaction at 3 months postpartum,  $B = 0.053$ ,  $S.E. = 0.076$ ,  $p = .49$ , 95% C.I. [-0.89, 0.22].

Model results are presented in Table 4 and 5.

## **Chapter 4**

### **Discussion**

The present study evaluated the longitudinal association between relationship adjustment and depressive symptoms during pregnancy and the postpartum period in Latino couples. Preliminary analyses examining correlations among study variables indicated that women's level of satisfaction and her reports of their communication at end of pregnancy were correlated with her depressive symptoms at end of pregnancy, which replicates previous cross-sectional findings (Hassert & Kurpius, 2011). Furthermore, the only variables that were significantly correlated with women's depressive symptoms at 12 months following the baseline assessment were women's level of relationship satisfaction at end of pregnancy, and depressive symptoms at end of pregnancy. However, men's report of satisfaction or communication was not significantly correlated with women's depressive symptoms. This lack of association might be due to the possibility that men are not as accurate reporters of relationship functioning. Therefore, if women are reporting relationship dissatisfaction, which may be related to symptoms of depression, men may not accurately capture these associations. However, men's and women's satisfaction and communication were significantly related across time points, though these were low correlations compared to findings in Caucasian samples. This finding suggests that whereas their levels of satisfaction and communication are related, they might be viewing the relationship slightly differently. The pattern of these results replicate previous findings that men and women's levels of satisfaction and communication are significantly related to each other, and extends this longitudinally in a Latino sample. Furthermore, whereas it replicates findings from Caucasians, it also indicates that they may agree slightly less given the lower correlations. Finally, the amount of time that couples had been living together did not predict women's

depressive symptoms, but women who were married were significantly more depressed than unmarried females.

### *Satisfaction and Postpartum Depression*

Results following SEM analyses indicated that men's reports of satisfaction at three months postpartum did not predict women's depressive symptomatology at 12 month's following enrollment. Women's own report of satisfaction also did not predict their own levels of depressive symptomatology, though it was trending towards significance. Thus, lower levels of each partner's report of relationship satisfaction at three months postpartum did not significantly predict higher levels of women's postpartum depressive symptomatology at six months postpartum.

This finding is surprising given the extensive literature linking relationship satisfaction before and during pregnancy and postpartum depression in Caucasians (Don & Mickelson, 2012; Beck, 2001; Robertson et al., 2004; Whisman, Davila & Goodman, 2011). Given that little research has examined this link in Latinos, and that no study has examined this link longitudinally, this finding might suggest that relationship satisfaction during pregnancy might not be as relevant a predictor of postpartum depressive symptoms in Latina women as compared to primarily Caucasian samples. The present findings are also notable in so far as they examine the link of relationship satisfaction and postpartum depressive symptoms longitudinally, which has not been extensively looked at in a Latino sample, especially with regards to postpartum depression (Hassert & Kurpius, 2011). Therefore, these findings suggest that previous links between relationship functioning and depression might be less robust than previously thought, or perhaps the direction of causality should be reversed. However, as the findings indicated a trend toward significance for these women, it still is possible that women's own report of relationship

satisfaction during pregnancy may be a predictor of their postpartum depressive symptoms; thus these findings warrant further study.

### *Communication and Relationship Satisfaction*

We also predicted that poorer communication at end of pregnancy would lead to decreased relationship satisfaction over time for men and women. As predicted, for men, poorer communication at end of pregnancy did significantly predict decreased relationship satisfaction at three months postpartum. For women, poorer communication did not predict decreased relationship satisfaction over time, which is somewhat surprising. Literature on communication and satisfaction in intimate relationships in Caucasian couples has suggested that increased conflictual communication predicts lower levels of satisfaction for both men and women (see Baucom et al., 2007 for a review). The limited research in this area with Latinos (Christensen et al., 2006; Wheeler, Updegraff, & Thayer, 2010) suggests similar pathways, such that increased conflictual communication has been linked to increased marital strain in Latino couples (Christensen, et al., 2006; Vega Kollody & Valle, 1988), and the current study adds to the literature by replicating the finding longitudinally for men but not women. Since this link has not been previously examined longitudinally in Latino couples (Christensen, et al., 2006), it is difficult to know why we found a significant relationship for men but not women.

One possibility is that men experience a greater shift after childbirth because it is a more sudden change than for women. Women's experience of pregnancy is different than for men in that they feel the growth of the child since conception. Men may be less able to fully capture the change until the birth of the child, therefore causing a more rapid shift in roles. This shift may cause a sudden increase or decrease in relationship satisfaction after birth of their child. Therefore, it may have been easier to capture change in men than for women because more

change occurred for the men. Another possibility is that following childbirth there may be a shift where women become less focused on their intimate relationships and more focused on their babies, causing men to become less satisfied.

### *Mediation*

Further, the present study builds on prior studies that have examined the association between relationship adjustment and depressive symptoms during pregnancy and the postpartum period in Latinos by examining the mediating effects of satisfaction on the relationship between communication and depressive symptoms after childbirth. We first examined the proposed mediation without controlling for prior levels of satisfaction, marital status, and length of relationship, and found a significant mediation for women but not for men, indicating that relationship satisfaction as reported by women did significantly mediate the relationship between wives report of communication and women's symptoms of depression after childbirth. When adding prior levels of relationship satisfaction, symptoms of depression during end of pregnancy, as well as age, race and length of relationship as covariates, the indirect effect was no longer significant for women and continued to be non-significant in men. After further analyses, we found that controlling for prior levels of satisfaction the mediation effect was no longer significant. A possible explanation is that relationship satisfaction and communication are so highly linked that analyses were not capable of teasing apart causality.

As there has not been extensive research examining these links, our study provides some intriguing possibilities regarding how communication and satisfaction are related to depressive symptoms following childbirth in Latinos. Given there was a significant mediation prior to controlling for prior levels of satisfaction for women, this may indicate that communication does predict postpartum depression through its shared variance with relationship satisfaction at all

time points for Latinas. However, it also is possible that the present study reversed the order of the associations. Given that the end of pregnancy study variables were highly correlated, it is possible that women's depressive symptoms predict satisfaction at later time points through its effects on communication, or that satisfaction predicts depression through its effect on communication.

#### *Moderating Effects of Acculturation*

We also examined the moderating effect of acculturation on the relationship between communication at end of pregnancy and relationship satisfaction at three months postpartum, as well as how this moderating relationship impacted the proposed mediation. Results indicated that acculturation was not a significant moderator of the relationship between communication and satisfaction and that the indirect effect of the mediation was not significant at high, low, and moderate levels of acculturation. Examining these links longitudinally adds a level of complexity not previously examined. However, the present study's sample generally reported low levels of acculturation and we may not have had enough variance to determine the effect of acculturation on study variables. Furthermore, not only was the sample low on acculturation, but the measure used only captured one facet of acculturation (i.e., language use). Further investigation in this area is needed to examine whether other facets of acculturation may moderate the relationship between communication and satisfaction.

Despite the finding that acculturation did not moderate the relationship between communication and satisfaction, exploratory analyses indicated that women's level of acculturation marginally predicted women's depressive symptoms at 12 months following enrollment. Specifically, women who were less acculturated were more depressed. Although this was a marginally significant finding, this may contradict one previous study that found that



acculturation was not significantly associated to Latino couples' depressive symptoms (Le Sage & Townsend, 2004), though this study only examined general depressive symptoms, not postpartum symptoms. Further, our findings suggest that acculturation did not predict relationship satisfaction for women or men. This finding contradicts other research in that higher levels of acculturation have been found to predict higher levels of relationship distress for wives (Negy & Snyder, 1997; Park, et al., 2004).

#### *Limitations and Future Directions*

The present study has several limitations that are worth noting. One limitation concerns our measures. We only utilized the language subscale from the Short Acculturation measure, rather than using the entire measure, in order to reduce burden on the couples and because it has also been shown to have as high of a coefficient alpha as using all items of the scale (Marin et al., 1987). However, Marin and colleagues (1987) also state that using all items of the measure would provide a more complete understanding of acculturation. This subscale captures only one facet of acculturation, and it is possible that having multiple indicators of level acculturation (social relations, media use, ethnic loyalty) would allow us to better ascertain the effect acculturation has on the relationship between the communication and satisfaction relationship. Another measurement limitation was our measure of depression. The DASS is not as comprehensive a measure as other measures of depression. Having a more comprehensive measure of depression may have allowed us to capture women's more varied experiences of depression. Moreover, the communication measure assesses patterns and assumes that avoidance in communication has negative implications. However, avoidance might mean something different for Latinos than Caucasians given the aforementioned cultural values that Latinos ascribe to.

Further, the current investigation did not assess men's depressive symptoms. Men had substantially more measures to fill out with regards to smoking cessation, and therefore, in order to reduce their burden, they were not administered the depression symptom items. Having had both men and women's level of depression over time could help elucidate the effects of communication and satisfaction on men's level of depression after childbirth as well as women's and future studies should take this into consideration. Examining this link also may shed light on whether men's levels of depression affect women's depression and relationship satisfaction, and how men's level of acculturation affects their own symptoms of depression.

Another limitation concerns our sample. There was fairly little variance among individuals with regards to their level of acculturation, depressive symptoms, and relationship satisfaction. Overall, the sample was low on acculturation, moderately satisfied and reported little depressive symptomatology. Having a sample of couples with a greater range of scores on acculturation and relationship satisfaction may help elucidate whether differences in these areas affects levels of depression over time.

Moreover, study participants were read the questionnaires due to low levels of literacy. This may have impacted reports of depression given potential social desirability effects. It is plausible that individuals did not accurately report their true levels of depression due to social desirability. Future studies might use audio recordings of individuals reading questionnaire items and participants indicating their responses on a numbered likert scale. Another way to circumvent social desirability effects would be to have men also rate women's symptoms of depression.

Future studies should examine the tested model on a sample of Latino couples that have more variance with regards to their level of acculturation, relationship satisfaction, and severity

of depression. Doing so would further elucidate the role that acculturation plays on the relationship between communication and satisfaction and how this impacts depression over time. Further, future studies should examine whether discrepancies between partners level of acculturation affects the moderating effect on the relationship between communication and satisfaction. It is possible that differences in levels of acculturation between couples would result in greater conflict due to a disparity in values, as predicted by Flores and colleagues (2004). They found that while couple-level acculturation was not related to wives' reports of marital conflict, when husbands were equally or more acculturated than their wives, they reported more openness regarding expressing their emotions during conflicts than husbands who were less acculturated. Thus, it would be interesting to examine whether disparities in acculturation not only affects communication, but also relationship satisfaction and levels of depression.

### *Conclusion*

Despite these limitations, the present study contributes to the limited research on Latino couples with regards to the longitudinal relationship between communication patterns, satisfaction, and levels of depression over time. This is the first study to simultaneously examine how communication, relationship satisfaction and acculturation affect levels of depression longitudinally, as well as how acculturation may affect the relationship between communication and relationship satisfaction. Given our findings, it is possible that for women, relationship satisfaction is an important area to target in future predictive studies of depressive symptoms, as the end of pregnancy correlations suggest that communication, satisfaction and depression are linked. Furthermore, for men, their communication skills may be a more important area to target to improve their overall relationship satisfaction. Our findings also replicate previous findings from Caucasian samples that show that satisfaction and communication are significantly related

across time points both within their own reports as well as with reports of their partner.

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## Appendix

*Table 1. Descriptive Statistics*

	<u>Husbands</u>		<u>Wives</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Satisfaction T1	16.33	3.45	66.49	13.45
Satisfaction T2	16.29	3.36	67.44	13.19
Communication T1	55.76	7.82	54.01	9.49
Women's Depression T1	---	---	1.52	2.69
Women's Depression T3	---	---	1.40	2.94
Acculturation	1.68	0.61	5.63	2.50

*Note.* Men received the 4 item satisfaction measure while women received a 16 item measure. T1 = end of pregnancy, T2 = 3 months postpartum, T3 = 12 months from enrollment

*Table 2. Men and Women's Longitudinal Correlations*

	1	2	3	4	5	6	7	8	9	10	11
1. Women's Satisfaction T1	---	---	---	---	---	---	---	---	---	---	---
2. Women's Satisfaction T2	.55**	---	---	---	---	---	---	---	---	---	---
3. Men's Satisfaction T1	.52**	.25**	---	---	---	---	---	---	---	---	---
4. Men's Satisfaction T2	.45**	.35**	.63**	---	---	---	---	---	---	---	---
5. Women's Communication T1	.66**	.43**	.21**	.23**	---	---	---	---	---	---	---
6. Men's Communication T1	.41**	.20**	.51**	.54**	.41**	---	---	---	---	---	---
7. Women's Depressive Symptoms T1	.38**	-.04	-.19*	-.04	-.37**	-.11	---	---	---	---	---
8. Women's Depressive Symptoms T3	-.10	-.09	-.17	-.10	-.04	.05	.34**	---	---	---	---
9. Women's Acculturation	-.05	.08	.06	.08	-.09	.05	.14	-.05	---	---	---
10. Men's Acculturation	.09	.12	-.06	.04	.16	-.06	-.03	-.04	.22**	---	---
11. Length Cohabitation	.05	.01	-.01	-.07	-.04	.05	-.02	-.04	-.22**	.06	---
12. Marital Status	.09	.06	.08	.01	.08	.05	.01	.25**	.17*	.08	.08

Note: T1 = end of pregnancy, T2 = 3 months postpartum, T3 = 12 months from enrollment

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

*Table 3. Goodness-of-fit indices of the longitudinal models*

	RMSEA (CI)	CFI	TLI	SRMR
<b>Women's' Mediation Model</b>				
Configural Invariance	.05 (.04 - .07)	.97	.96	.04
Weak Invariance	.06 (.05 - .07)	.96	.95	.05
Strong Invariance	.06 (.05 - .07)	.96	.95	.05
<b>Men's' Mediation Model</b>				
Configural Invariance	.04 (.03 - .06)	.98	.97	.05
Weak Invariance	.04 (.03 - .06)	.98	.97	.05
Strong Invariance	.04 (.02 - .06)	.98	.97	.05
<b>Women's' Moderated Mediation Model</b>				
Configural Invariance	.05 (.04 - .06)	.96	.95	.05
Weak Invariance	.06 (.05 - .07)	.95	.94	.05
Strong Invariance	.06 (.05 - .07)	.95	.94	.05
<b>Men's' Moderated Mediation Model</b>				
Configural Invariance	.04 (.03 - .05)	.96	.95	.06
Weak Invariance	.04 (.03 - .05)	.96	.95	.06
Strong Invariance	.04 (.03 - .05)	.96	.95	.06

*Note:* RMSEA = root mean square error of approximation; CI= 95% confidence interval; CFI = comparative fit index; TL = Tucker–Lewis index; SRMR = standardized root mean square residual.



Table 4. SEM Mediation and Regression Results

	Women			Men		
	B	S.E.	C.I.	B	S.E.	C.I.
SatisfactionT2→Women's Depression T3	-0.20 <sup>a</sup>	0.11	-0.71 - 0.03	-0.15	0.14	-0.58 - 0.17
CommunicationT1→Satisfaction T2	0.12	0.10	-0.12 - 0.41	0.32**	0.09	0.91 - 0.55
Mediation	-0.03	0.03	-0.11 - 0.59	-0.05	0.06	-0.17 - 0.08
Acculturation→Women's Depression T3	-0.16 <sup>b</sup>	0.09	-0.38 – 0.03	-0.07	0.10	-0.28 – 0.13
Acculturation→Satisfaction T2	0.16	0.153	-0.01 – 0.25	0.05	0.08	-0.89 – 0.22

Note: T1 = end of pregnancy, T2 = 3 months postpartum, T3 = 12 months from enrollment.

Satisfaction and communication are individuals own report while depression scores are only women's report

Confidence Intervals (95%) constructed in Mplus with bootstrapping

\*p <.05; \*\*p <.01; <sup>a</sup> p < .07; <sup>b</sup> p <.09

Table 5. SEM Moderated Mediation Results

	Women			Men		
	B	S.E.	C.I.	B	S.E.	C.I.
Moderation	-0.29	0.41	---	-0.10	0.07	---
Moderated Mediation						
Low Levels of Acculturation	-0.06	0.06	-0.05 - 0.15	-0.07	0.08	-0.10 - 0.15
Moderate Levels of Acculturation	-0.02	0.03	-0.04 - 0.06	-0.06	0.06	-0.05 - 0.10
High Levels of Acculturation	0.02	0.05	-0.05 - 0.05	-0.04	0.05	-0.10 - 0.10

*Note:* \*p <.05; \*\*p <.01; Confidence Intervals (95%) constructed using Monte Carlo method

Figure 1. Proposed Mediation

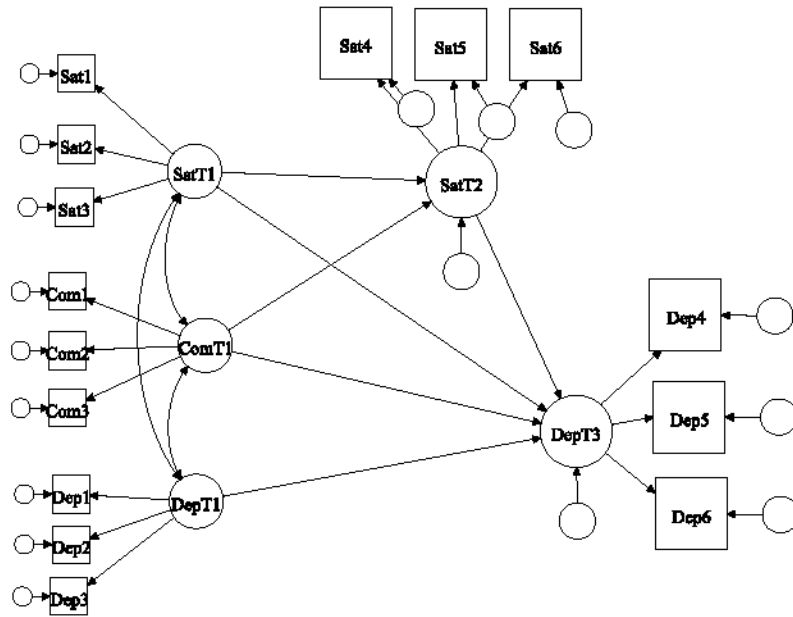


Figure 2. Proposed Moderated Mediation

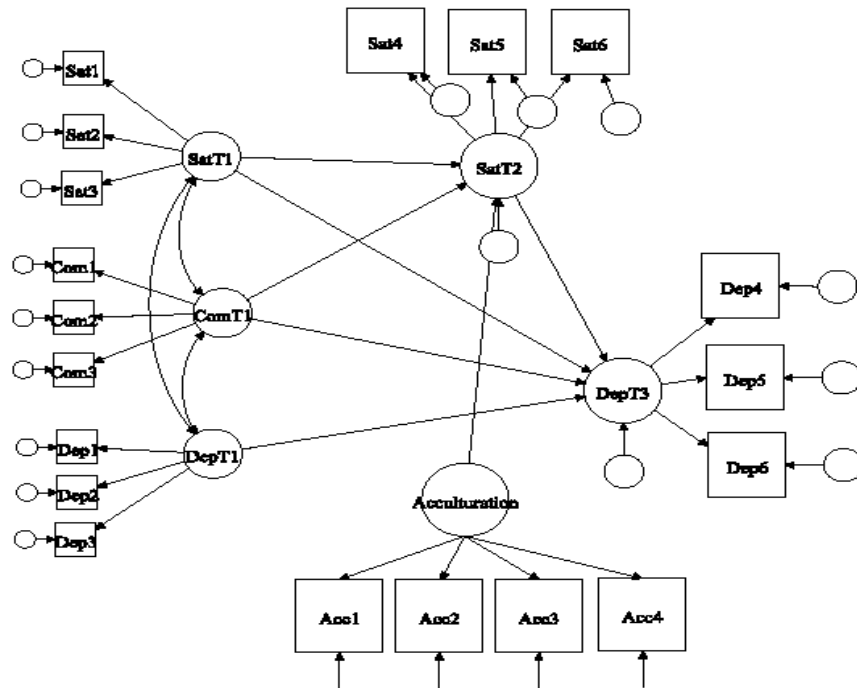


Figure 3. Women's SEM Mediation

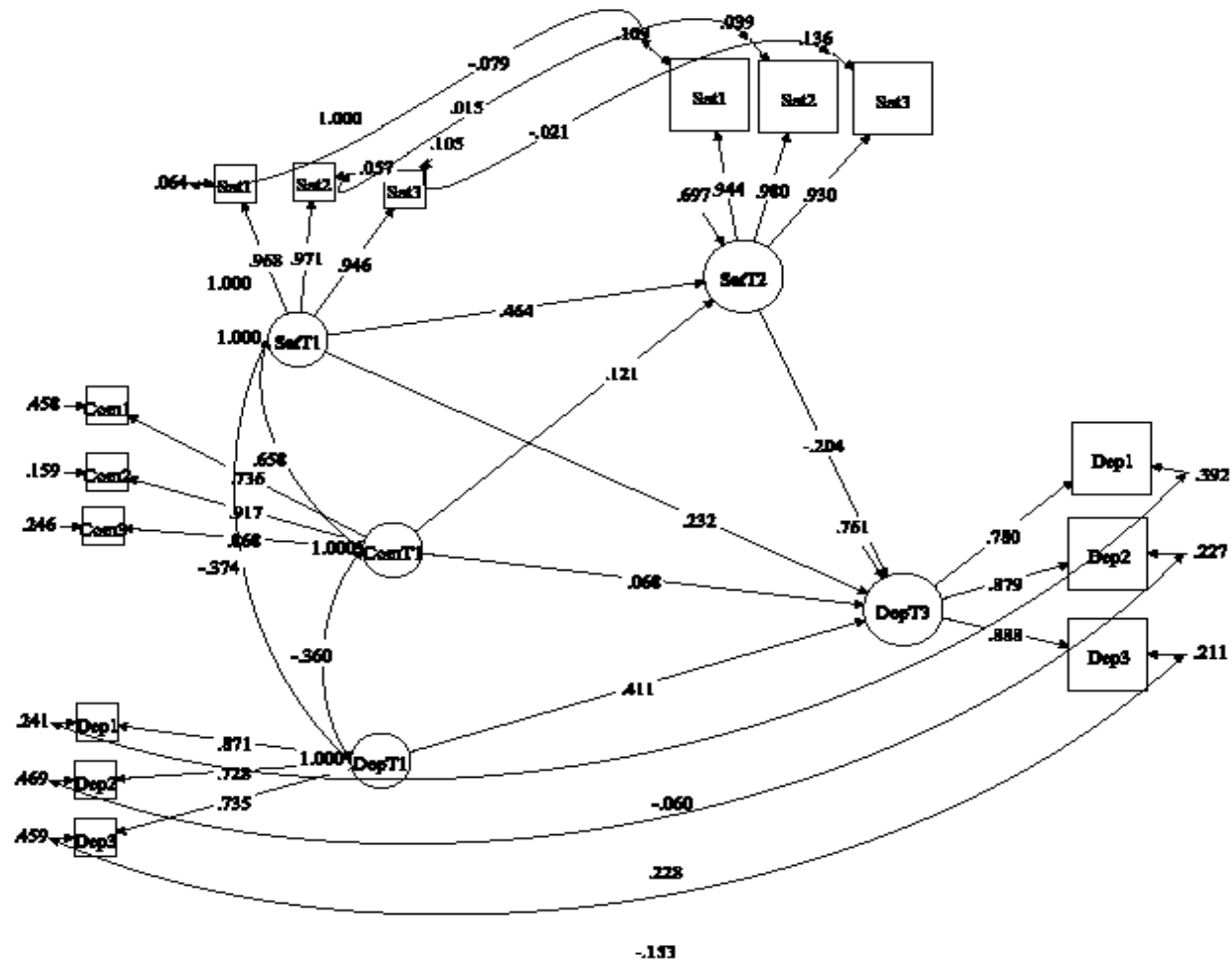


Figure 4. Women's SEM Mediation Significant Paths

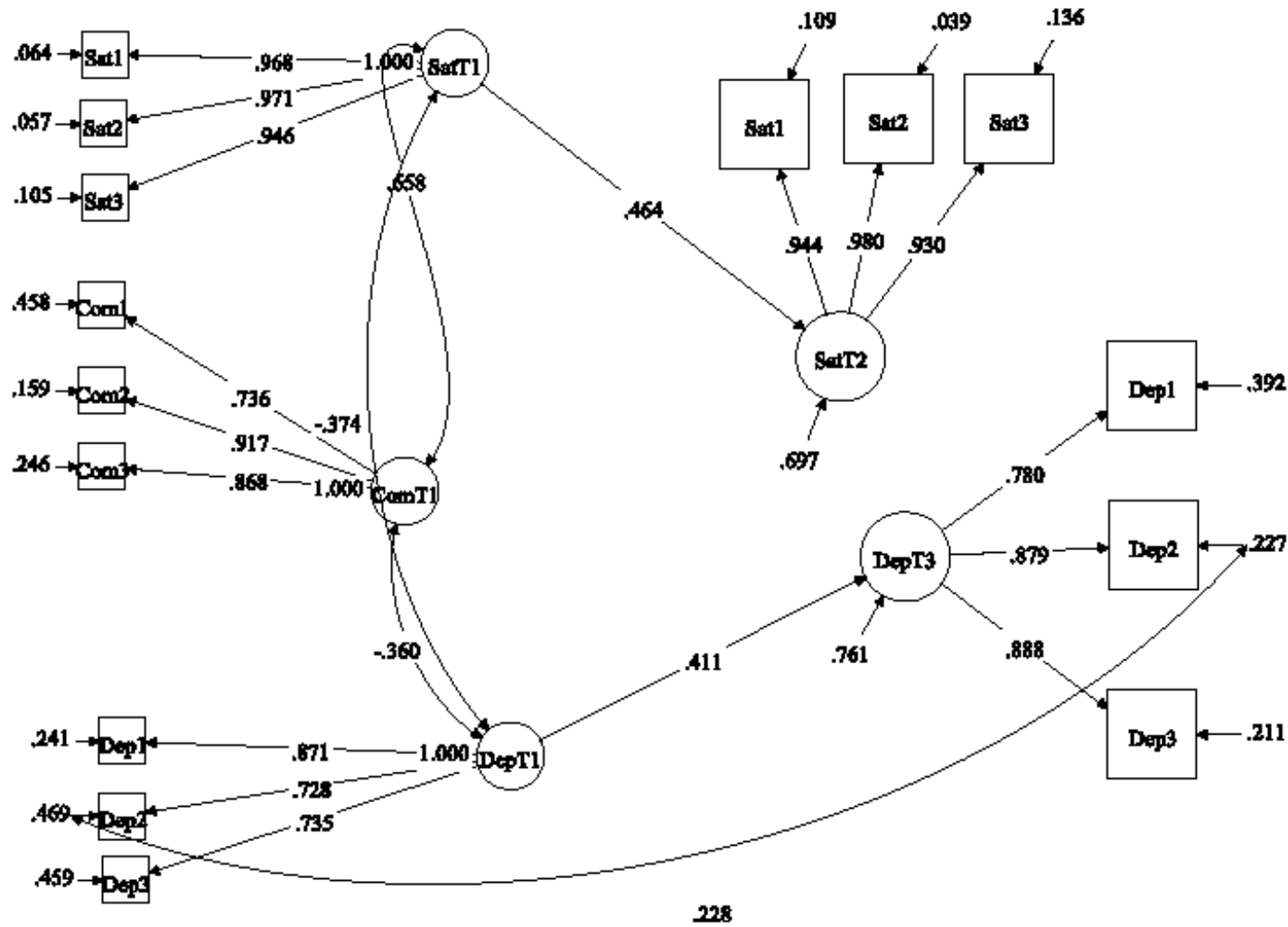


Figure 5. Men's SEM Mediation

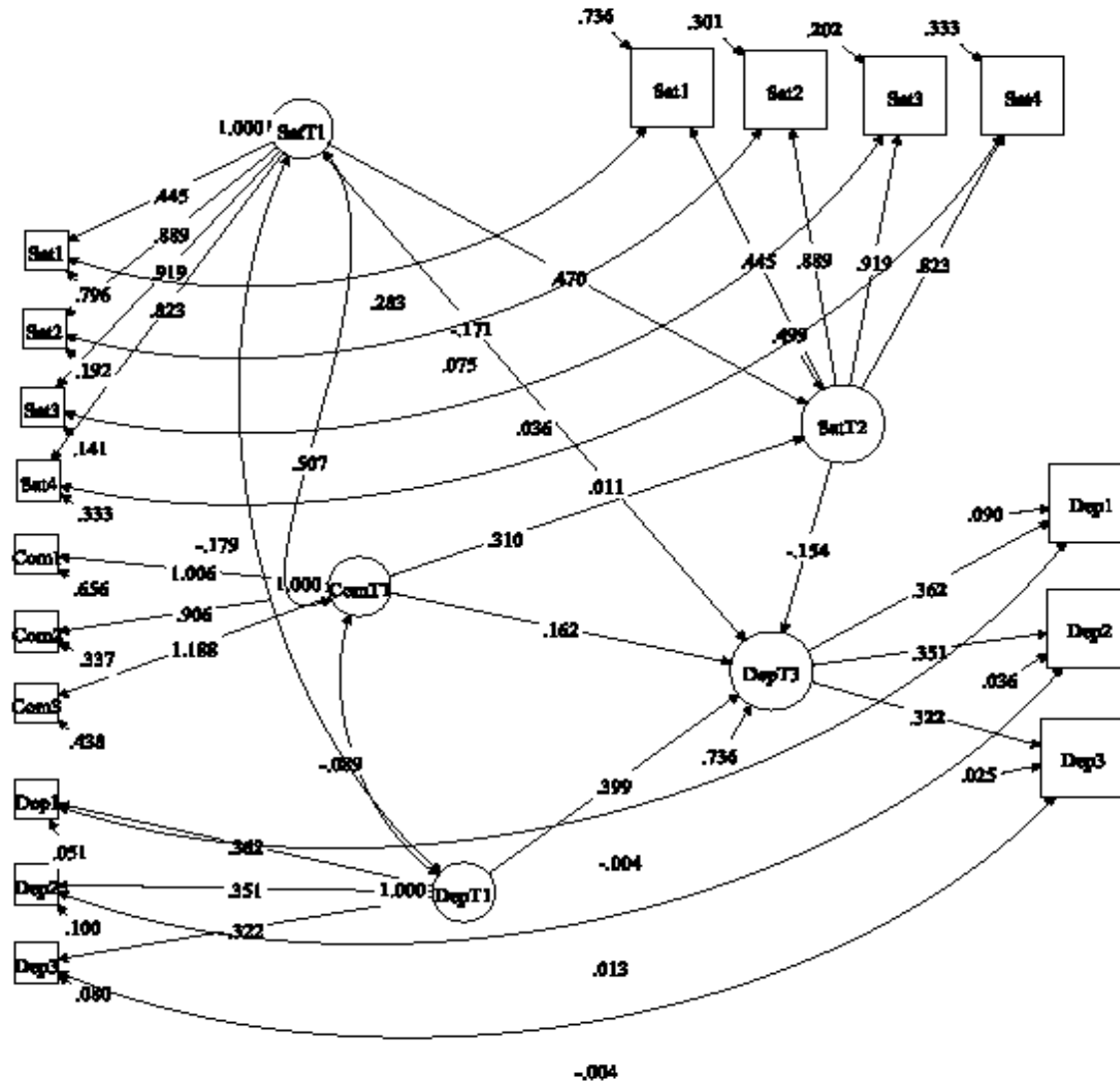


Figure 6. Men's SEM Mediation Significant Paths

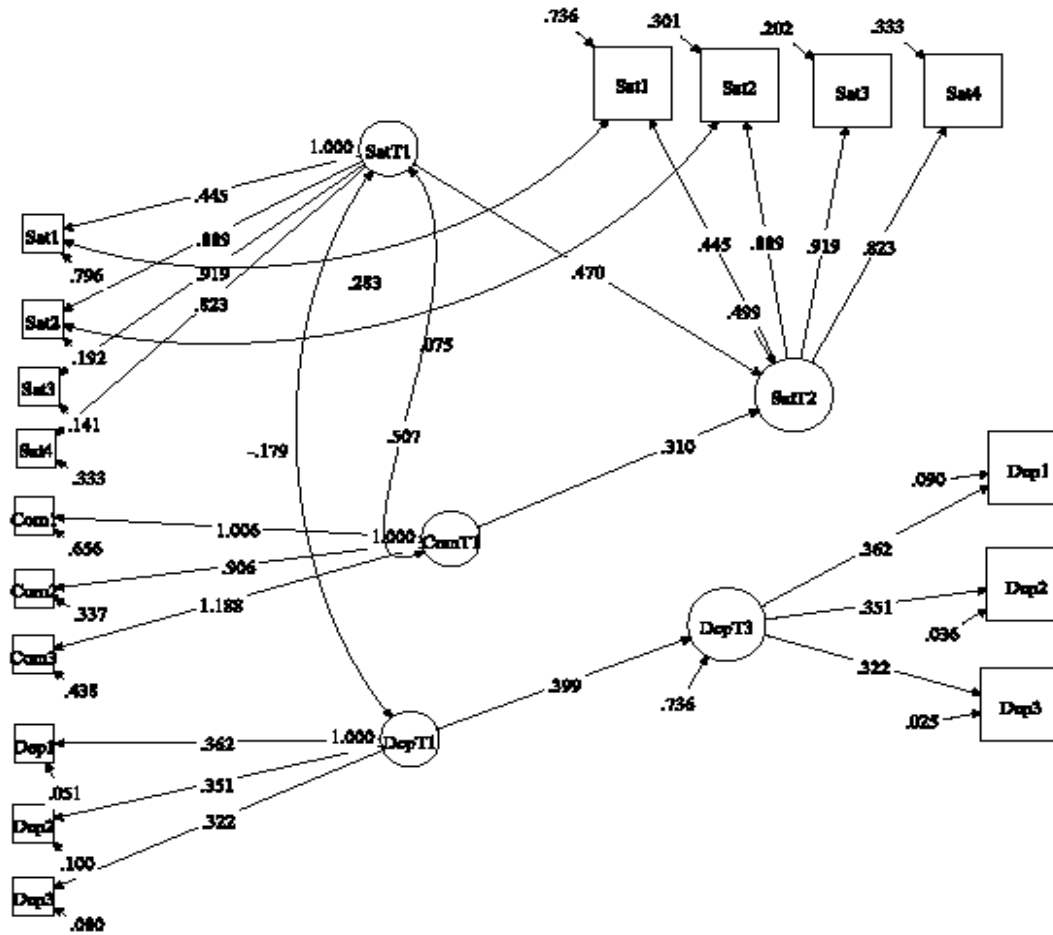




Figure 7. Women's SEM Moderated Mediation

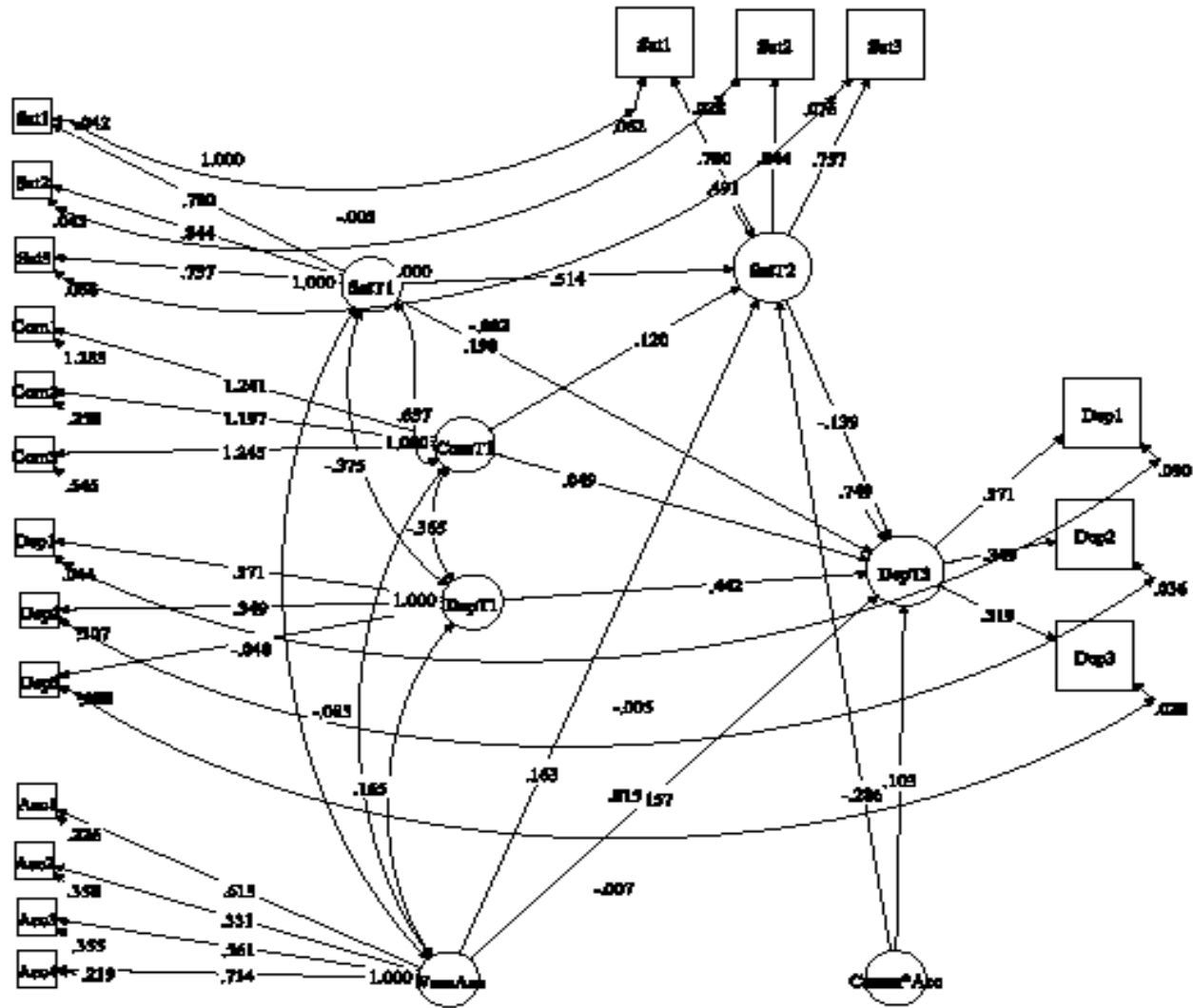


Figure 8. Women's SEM Moderated Mediation Significant Paths

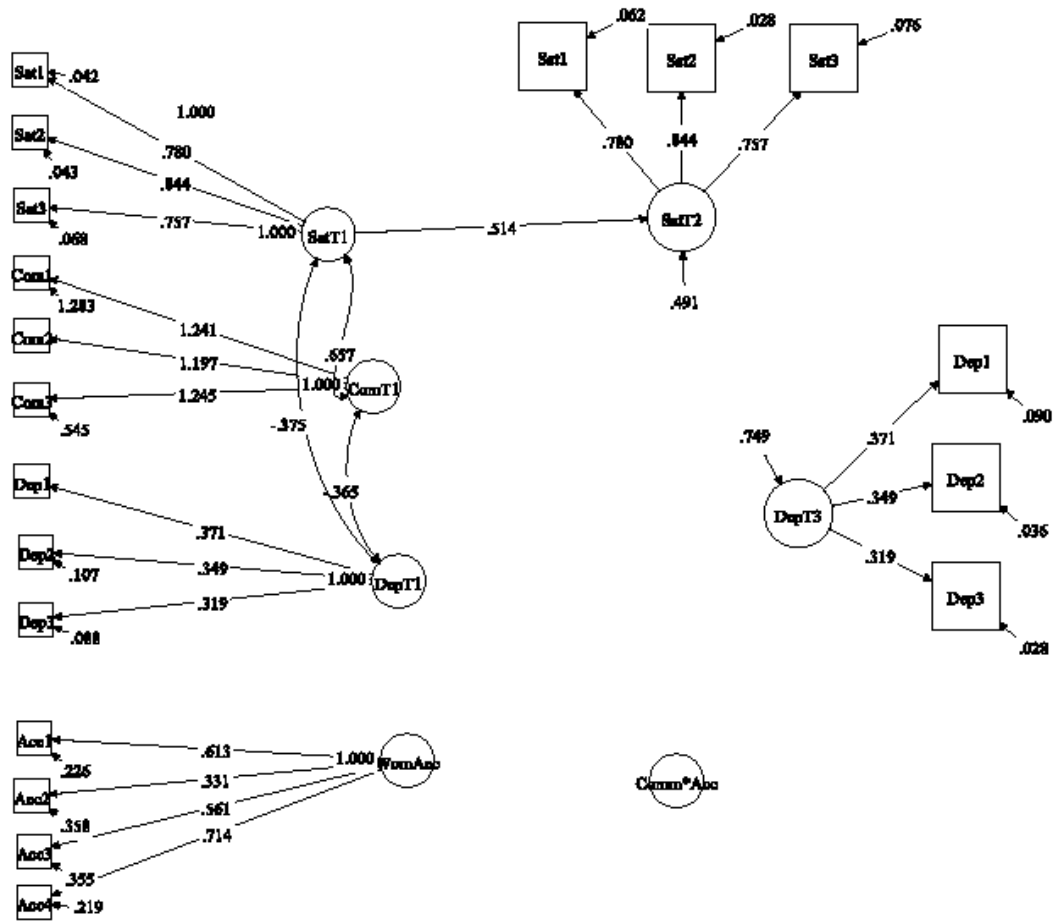


Figure 9. Men's SEM Moderated Mediation

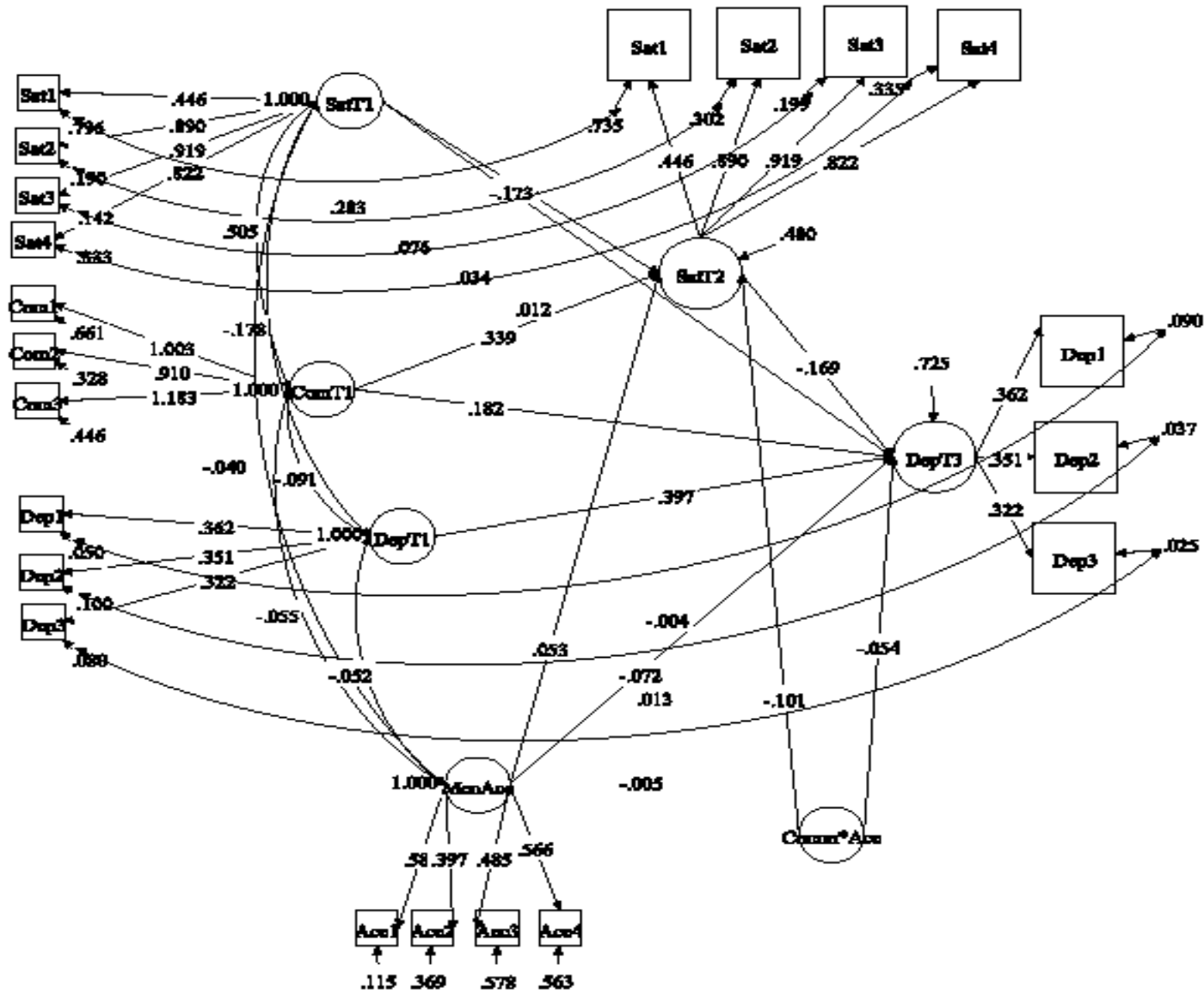
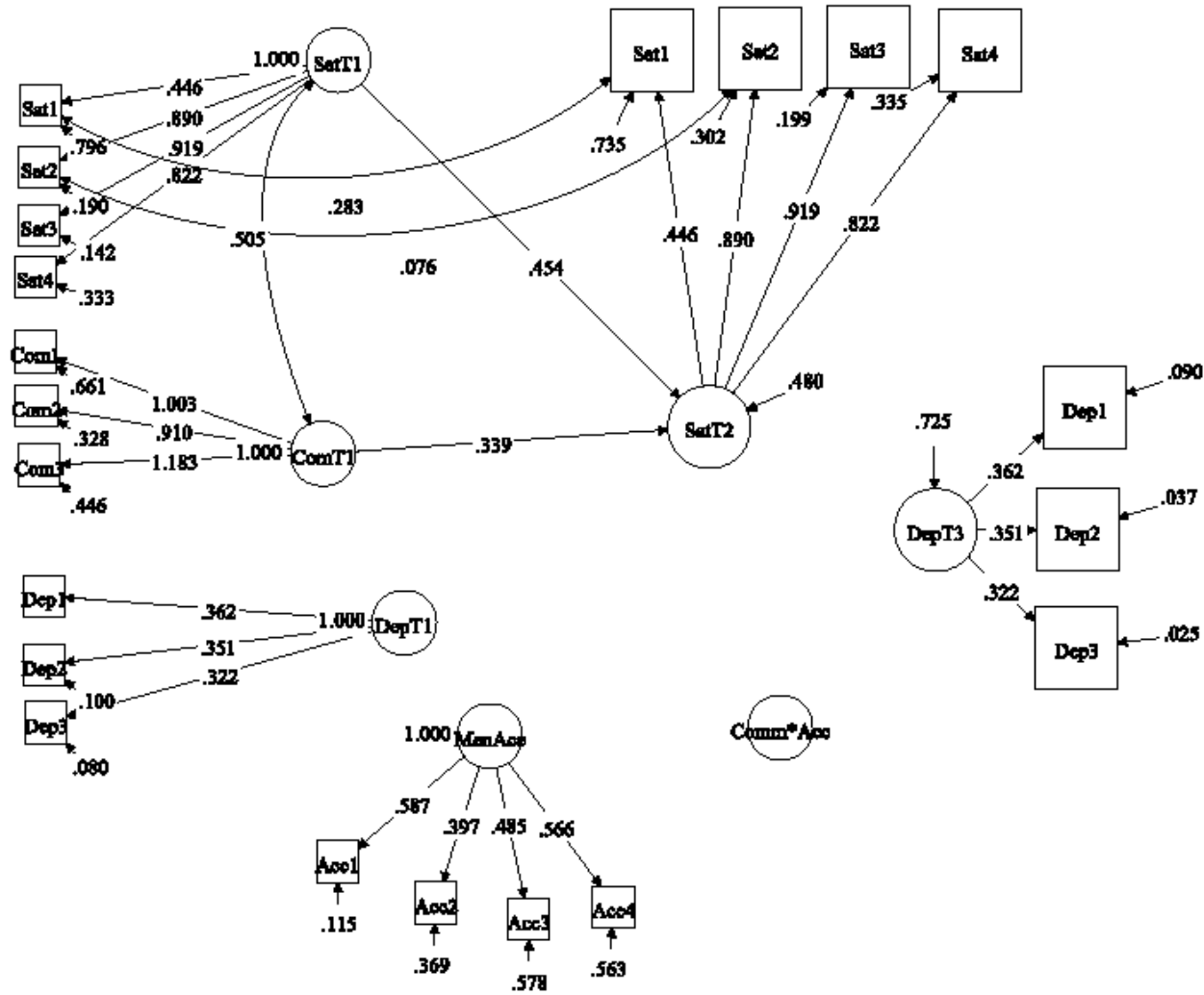


Figure 10. Men's SEM Moderated Mediation Significant Paths



### **Vita**

Jessica Hughes was born in Buenos Aires, Argentina, to parents Laurence and Maria Hughes. She is the youngest of three children, preceded by Brent and Natalie. She attended Lincoln American/International School in Argentina. After graduation, she moved to Miami, Florida to attend the University of Miami, where she was introduced to the field of Psychology. Jessica became involved with research by joining the lab of Dr. Jutta Joormann, where she worked for two and a half years. She obtained a Bachelors of Arts degree in May 2009 in Psychology. Following graduation, she accepted a position as a research assistant at Brown University in Providence, RI where she worked for two years. Jessica accepted a graduate teaching assistantship to work with Dr. Kristina Coop Gordon at the University of Tennessee, Knoxville in the Clinical Psychology doctoral program in 2011. She graduated with her Masters of Arts in Psychology in 2014.