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The study tested the Investment Model as a predictor of college women's likelihood of staying with or leaving a romantic partner. Physical and sexual abuse measures were used to determine the frequency of abuse in dating relationships. Specifically, it was hypothesized that women who have high levels of commitment will be more likely to stay in a relationship with their boyfriend than women with low levels of commitment. Furthermore it was hypothesized that physical and sexual abuse by a partner would be associated with lower commitment, thus women with an abuse history would be more likely to leave the relationship.

The results suggest that abuse did not affect commitment. Women who experienced abuse were no different than women who had not experienced abuse in satisfaction, quality of alternatives or subjective norms. Women who were abused had higher levels of investment than women who had never experienced abuse. Commitment was negatively correlated with stay-leave decision. Women who scored high on commitment were more likely to stay in the relationship than women who had low commitment scores.

COLLEGE FEMALES' DECISION TO STAY OR LEAVE AN ABUSIVE

RELATIONSHIP: A TEST OF THE

INVESTMENT MODEL

by

Logan R. Collins

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CHAPTER I

INTRODUCTION

A study by the Department of Justice found that eighteen million women and three

million men have been raped during their lifetimes (Tjaden & Thoennes, 2006). Eighty-

eight percent of women report becoming victims of either sexual or physical violence by

the time they have finished their fourth year in college (Smith, White & Holland, 2003).

Twenty-five percent of women and 7.6 percent of men report having experienced abuse

within the context of a romantic relationship (Tjaden & Thoennes, 2006). Researchers

need to determine factors that make it difficult for some women to successfully leave an

abusive partner because this puts them at risk for later re-victimization (Bell, Goodman &

Dutton, 2007). Some studies have shown that most physically abused women at least

attempt to leave a relationship. A study by Goodman, Dutton, Weifnfurtt and Cook

(2003) found that 87% of their participants attempted to end their relationship at least

once during the previous year. Seventy percent of women in another sample attempted to

leave their abusive partners (Gondolf & Fisher, 1988). The current study examined

college women's decision to stay with or leave a boyfriend based on the Investment

Model (Rusbult, 1980).

Abuse is defined in different ways by various researchers. Physical abuse is any physical act in which a person intends to harm another person (Straus, 1979). In the present study, the Conflict Tactics Scale (Straus, 1979) was used to assess physical abuse, which includes being hit, grabbed, shoved or having something thrown at a victim. If a person's partner attempted these behaviors they would also be considered victims of physical abuse (Straus, 1979). Sexual abuse is classified in four groups of unwanted sexual contact. Unwanted touch, such as kissing, is the mildest type of behaviors, as assessed by the Sexual Experiences Survey (Koss, 1985). Verbal coercion occurs when a person pressures another person into sexual intercourse without using force. Attempted rape is when a person uses force or threat of force but no penetration occurs. Rape is using force or threat of force to penetrate someone with a finger, penis, or other object in the mouth, vagina or anus (Koss, 1985). Psychological abuse is classified as an attempt to control another person or decrease their self-worth by using personal information against them, which can be assessed by the Marshall's (1999) Subtle and Overt Scale of Psychological Abuse. Previous research has shown that women may report just as much harm from psychological abuse as physical abuse (Walker, 1979). This may be due to the fact that a boyfriend has "intimate knowledge" surrounding his partner's unique vulnerabilities (Marshall, 1999).

Due to the high rates of sexual and physical abuse that occur during the college years, females aged 18-24 are a population of great interest for studying dating violence. Previous research has shown that women are particularly vulnerable in the context of a romantic relationship (Tjaden & Thoennes, 2006). Men are more likely to use

manipulative tactics such as verbal or psychological pressure in a romantic relationship to obtain sex especially if they have already had previous sexual contact (Lyndon, White, & Kadlec, 2007). Men who perpetrate rape using force are more likely to do so to a stranger or acquaintance than a girlfriend (Lyndon et al., 2007).

Bell, Goodman, and Dutton, (2007) conducted a study on battered women's decisions to stay with or leave an abusive partner. Briefly, the authors found that women who have been victimized by a boyfriend or husband often find it very difficult to leave. Women who choose to leave an abusive partner return to him on average five times before ending contact permanently. Factors that make leaving difficult for women include being emotionally attached, economic dependence, worry regarding more interpersonal violence, and lack of family or community support. The safest option for a woman is to stay with an abusive partner if she will not be able to stay apart indefinitely because she is likely to suffer less violence by remaining in the relationship than attempting to leave and subsequently returning.

Women experience many negative outcomes in the short-term due to leaving an abusive relationship including posttraumatic stress disorder, problems with dissociation, sleep and lower self-efficacy. These mental health outcomes are significantly worse in women who leave an abusive partner compared to those who stay with an abusive partner. Bell et al. (2007) hypothesize that these poor mental health outcomes may be due to a loss of emotional support for the women who choose to leave, even if they were experiencing only a low level of support from their abusive partners. In their recent study, women in the completely apart group, who had left their abusive partner within 3 months

of the abuse and continued to have no contact throughout the year-long study, had the best outcomes. They experienced the lowest rates of stalking, physical and psychological abuse. Women who stayed in the relationship had the next best outcomes, followed by women who left the partner but returned over the course of a year.

The Investment Model

People sometimes choose to stay in relationships that are not satisfying because they perceive that costs of leaving are high. Research on women's decisions to stay or leave an abusive relationship is vital to providing effective services to them. Rusbult's (1980) Investment model is one way of conceptualizing the decision-making process. The model builds on Kelley and Thibaut's Interdependence theory, which states that people use a comparison level and a comparison level for alternatives to determine whether they should stay in or leave a relationship (Thibaut & Kelley, 1959). Comparison level is the level of reward a person believes he or she should obtain in a relationship. If the level of reward in a given relationship is above their comparison level, then the person will be satisfied in the relationship. If the level falls beneath the comparison level, the person will not be satisfied in that relationship. Comparison level for alternatives is the lowest level of satisfaction a person is willing to endure in light of other alternative relationships that are available to them. If a person's comparison level falls below the comparison level for alternatives, they will likely leave the relationship. If a person's comparison level rises above his or her comparison level of alternatives, the person will feel an increased dependence on the relationship to obtain good outcomes. Thibaut and Kelley classify people who stay in relationships in which their current outcomes are lower than their

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comparison level and/or lower than their comparison level of alternatives as being in a non-voluntary relationship. Rusbult's model was originally posited to study commitment in voluntary relationships but has been used in many types of research including non-voluntary abusive relationships (Le & Agnew, 2003).

Rusbult's model is a way of conceptualizing a person's commitment to a voluntary relationship, which facilitates a decision to stay or leave a relationship. It has also been applied to a variety of domains, such as non-voluntary relationships, jobs, sports and education (Le & Agnew, 2003). Commitment is a person's choice to remain in a relationship for a long period of time and is associated with a person's satisfaction, investment and quality of alternatives to the relationship (Rusbult, 1980). Commitment is the construct that is associated with a person's decision to stay in or leave a romantic relationship (Rusbult, 1980) (see *Figure 1*).

A meta-analysis of the Investment Model was conducted using fifty-two studies with 11,582 participants. The results of the meta-analysis indicated that satisfaction, quality of alternatives and investment level significantly predicted an individual's commitment level (Le & Agnew, 2003). Satisfaction level measures the difference between rewards and costs in a given relationship. One will think about what one deserves in a given relationship and compare this to the level of reward he or she is obtaining in their current relationship (Thibaut & Kelley, 1959). Satisfaction is positively associated with a person's commitment level (Le & Agnew, 2003). As the level of satisfaction increases a person will be more likely to be committed to their partner and stay in the relationship. However, satisfaction is only one component of commitment. A

person can be highly satisfied in a relationship but still not be committed because they have high quality alternatives. Quality of alternatives, comparable to previously referred comparison level for alternatives, represents a person's perception of other realistically available alternative relationships, including being single. Quality of alternatives is negatively associated with commitment level such that people who perceive good quality alternatives to their present relationship will have lower commitment and are more likely to leave their partner (Le & Agnew, 2003). Investment level corresponds to the degree that a person has spent time, effort, emotions and self-disclosure for the benefit of the relationship. It also includes friendships with mutual friends, social standing and shared material possessions that will be lost if the relationship dissolves. An increase in a person's investment level is correlated with an increase in commitment and a decision to remain in the relationship (Le & Agnew, 2003). High levels of investment, satisfaction and lower quality of alternatives define commitment and make it difficult for women to leave a relationship.

A woman may have low satisfaction and low investment but still stay in the relationship because her quality of alternatives is sufficiently low that she believes this relationship is her best option (Le & Agnew, 2003). Alternatively, a person may choose to leave a partner without a single best alternative relationship due to decreased satisfaction. Drigotas and Rusbult (1992) stated that, "the vitality and viability of an ongoing relationship may be threatened not so much by the presence of an irresistible alternative but rather by the fact that the individual no longer needs the relationship- because it no longer 'does' for the individual what it once 'did'" (p.83). The three factors

of the Investment Model interact to influence a person's decision to stay or leave a romantic partner.

Testing the Investment Model in Abusive Relationships

Only two previous studies have looked at abusive relationships through the lens of the Investment Model. Rusbult and Martz (1995) found that commitment predicted stay-leave decisions in battered women currently residing in a domestic violence shelter. Archival data were analyzed using available variables from intake information to form the constructs relevant to the Investment Model. They found that commitment was a proxy for satisfaction, such that women who experienced less severe abuse or those who had positive feelings toward the perpetrator were more committed. Women had higher commitment if they had low quality of alternatives due to poor education, financial situation or no transportation. Commitment was also related to investment such that women who were married, had children, or were in a relationship of long duration with the partner felt more committed. Quality of alternatives and investment predicted women's decision to return to their partner.

One recent study analyzed college women's stay-leave decisions as a function of previous abuse (Collins, Swartout, & White, 2009). College women were asked to report retrospectively about any sexually abusive episodes that occurred during adolescence. The stay or leave question was asked at the same time as the reports on sexual abuse, but was phrased to ask about their current relationship status with the perpetrator. Participants indicated whether the relationship with the perpetrator "got better", "stayed the same", "got worse" or "ended". Variables were selected from archival data as stand-

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ins for the key constructs of the Investment Model and therefore the study was not a direct test of the model. Comparison level for alternatives was assessed through the number of dating partners in high school. Investment was measured by the type of relationship victims had with the perpetrator (family member, stranger acquaintance or friend) and whether there had been previous sexual contact. Women who had sexual contact with a partner were deemed more invested in the relationship. Satisfaction level was a trichotomized variable regarding abuse.

Based on the findings of Rusbult and Martz reported above (1995), it was hypothesized that a woman's satisfaction would be lower in a relationship in which she suffered severe abuse compared to a woman who suffered mild or no abuse. Participants in the "none" category were not victimized, those in the mild group had experienced unwanted physical touch or verbal coercion, and those in the severe group experienced rape or attempted rape. Analyses showed that the Investment Model predicted women's choice to continue or end their relationship with a perpetrator of sexual assault. Women who stayed in a relationship with the perpetrator were most often victimized by a boyfriend, rather than a family member, acquaintance or another person. Women were more likely to stay in relationships with a boyfriend in contrast to a family member, acquaintance or another person, regardless of the degree of victimization. Women with no previous sexual contact were more likely to report ending the relationship than women with prior contact. Women who had more dating partners in high school, an indicator of comparison-level for alternatives, were more likely to leave if they experienced mild victimization but comparison level for alternatives did not influence decision-making for

those severely victimized. The three independent variables were put in to a binary logistic regression analysis to predict the stay-leave decision. Relationship termination following a sexual assault was associated with the severity of the assault as well as with investment in the relationship. Women who perceived that they had more alternatives were more likely to terminate a mildly abusive relationship compared to women who had fewer options. Relationship termination was less likely in mild victimization than severe, but was influenced by the quality of alternatives.

Extending the Investment Model: Subjective Norms

Choice and Lamke (1999) were interested in the way two questions captured college women's decisions to stay or leave an abusive relationship. "Will I be better off?" and "Can I do it?" were predicted using measures of relationship satisfaction, alternatives, investment, subjective norms, personal resources and barriers, and structural resources and barriers. Subjective norms measured a participant's perception of close friends and family's opinion of their relationship with the abusive partner (Madden, Ellen & Ajzen, 1992). Specific questions from the Investment Model regarding investment, quality of alternatives and satisfaction were used along with subjective norms to compose the "Will I be better off?" pathway. These combined variables accounted for 87% of the variance in the decision to stay or leave. However, the data were cross-sectional and measured intentions to leave rather than the actual behavior.

Based on the findings by Choice and Lamke (1999) subjective norms in conjunction with the Investment Model may best predict a woman's decision to stay or leave an abusive partner. Friends and family of victims can assert a great deal of

influence over a woman to leave her abusive partner once she has self-disclosed the abusive event. The impact of their opinions has an even greater effect when a woman values their opinions and wants to please them. The two statements regarding subjective norms were: (1) most people who are important to me think I should leave my boyfriend and (2) when it comes to leaving my boyfriend I want to do what most people who are important to me want me to do. These statements, rated on a five-point scale, appear to enhance their predictive power for stay-leave decisions.

Physical abuse victims were the target of research by Rusbult and Martz (1995) and Choice and Lamke (1999). Victims of sexual abuse were studied by Collins et. al (2009). Psychological abuse has not been studied using the Investment Model. Very little is known about the impact of experiencing multiple types of abuse, termed co-victimization, during the college years. One study by Smith et. al (2003) found that 62.5% of women reported being co-victimized by the end of their fourth year in college. They also showed an increase in the odds of being co-victimized once a woman was exposed to one type of violence. Co-victimization is often a neglected consideration in the study of abusive relationships that would be useful to study using the Investment Model.

CHAPTER II

GOALS AND HYPOTHESES

The goals of the present study were to extend the findings of the only previous

published study that has used the Investment Model to investigate abused women's

decision to stay in or leave a romantic relationship with their perpetrator. First, it was

hypothesized that investment, satisfaction and quality of alternatives form a latent

commitment construct, as found in previous research. Second, it was hypothesized that

the Investment Model would predict women's stay or leave decisions. Furthermore, the

model was tested in abused and non-abused women. It was hypothesized that the relation

between frequency of abuse and stay-leave decision is mediated by commitment. More

specifically, it was hypothesized that abused women would be more likely to leave the

relationship because of less commitment. Those who have not experienced abuse would

have higher levels of commitment and would be more likely to stay in the relationship.

Finally, the subjective norm construct was added to the model to provide better prediction

of staying versus leaving a relationship.

It was hypothesized that the Investment Model would predict stay-leave decisions

for college females who have been victims of physical, sexual or psychological abuse.

The decision to stay or leave would be best predicted by using all three constructs of the

Investment Model. Investment, quality of alternatives and satisfaction should be

modestly correlated with each other, because they form commitment. More specifically

higher levels of investment would indicate higher commitment and a tendency to maintain the relationship. High quality of alternatives would indicate low commitment and a tendency to leave the relationship. Females with low levels of satisfaction would be more likely to terminate the relationship. If a woman has high satisfaction and investment but also has high quality of alternatives she would be likely to leave. If a woman has low investment and low satisfaction but also has low quality of alternatives she would stay. It was hypothesized that there would be lower levels of satisfaction for women who were assaulted than those who were not assaulted.

This study overcomes limitations of previous studies because the data were collected using questions derived specifically from the Investment Model rather than choosing variables that resemble the constructs from archival data. The majority of research has focused on women from battered women's shelters and this study extended the findings to college women. These participants should have lower levels of abuse than women in battered women's shelters. This study also examined the way physical, sexual and emotional abuse or a combination of types of abuse may contribute to a decision to stay or leave an abusive partner.

CHAPTER III

OUTLINE OF PROCEDURES

All young adult women participating in the psychology department mass screening (N=
478) completed the Conflict Tactics Scale, Sexual Experiences Survey and Marshall's
Subtle and Overt Psychological Abuse at the University of North Carolina at Greensboro.
All participants were asked to return to the lab via multiple emails and telephone calls.
One hundred and eighty-five participants (38.7%) returned to the lab to complete the
Investment Model questionnaires. Participants who completed all the scales and were
ultimately used in the SEM model did not differ from those who did not return for the
Investment questionnaires in the mean number of physical abuse acts reported ($M_{included}$=
4.2, s.e.=.31; $M_{not\ included}$=3.5, s.e. =.21, $t(476)$=.99, p=.32). They also did not differ in the
mean number of sexual abuse acts reported ($M_{included}$= 4.1, s.e.=.58; $M_{notincluded}$= 3.3,
s.e.=.37., $t(476)$=1.11, p=.27).

Materials

The White adaptation of the Sexual Experiences Scale (SES; Koss et al., 1987)
was used to assess whether a participant has experienced sexual abuse since the age of
fourteen (Kosson, Kelly, & White, 1997). The scale inquires about eleven sexually
coercive behaviors such as unwanted touch, verbal coercion, attempted rape and rape.
Respondents indicated the frequency with which each behavior occurred from 1= never,

2=one time, 3= two times, 4= three to five times, and 5= more than five times since childhood. They indicated how many times these behaviors occurred since the age of fourteen in all of their romantic relationships. To calculate the frequency of sexual abuse experiences responses to each item were recoded so that 1=0, 2=1, 3=3.5, 4=8, and 5=12. These were then summed. This measure has an acceptable test-retest reliability over the span of two weeks (r=.61, p< .001) and good internal consistency of .93 (Koss & Gidycz, 1985). A study has shown the validity of the Sexual Experiences Survey for self-reporting four areas of sexual abuse including unwanted touch, verbal coercion, attempted rape, and rape (Koss & Gidycz, 1985).

The Conflict Tactics Scale (CTS) was used to determine whether the respondent has experienced physical abuse in the context of a romantic relationship since the age of fourteen (Straus, 1979). The CTS asks about the frequency a person's partner has hit them, attempted to hit them; hit them with something hard; pushed, grabbed or shoved them; threatened to hit or throw something at them; threw something at them; and threw something but not at them. Participants rated the frequency of these behaviors ever occurring within a relationship from 1= never, 2=one time, 3= two to five times, 4= six to ten times, and 5= more than ten. To calculate the frequency of physical abuse experiences responses to each item were recoded so that 1=0, 2=1 3=3.5, 4=8, and 5=12. These were then summed. The modified version of the scale was normed on a nationally representative sample and has good internal consistency (α=.88, p<.05). Self-reporting of physical aggression using the Conflict Tactics scale (Straus, 1979) has been validated in married and dating couples.

Marshall's Subtle and Overt Scale of Psychological Abuse (Marshall, 1999) contains 65 items and was used to determine any type of non-physical abuse a female may have experienced in the context of a romantic relationship. Overt abuse was a category that included behaviors that would be easy for the girlfriend as well as a third party to classify as abuse such as controlling her finances. The subtle abuse category encompasses acts that are more difficult to categorize such as decreasing a woman's self-esteem and making her question her ability to make wise decisions. A validation study conducted by Jones and colleagues (2005) found that the Overt Abuse scale has three factors including domination (α=.97), indifference (α=.87), and monitoring (α=.80).The Subtle Abuse scale has three factors which are undermining (α=.96) , discrediting (α=.93) and isolating (α=.89). Participants rated the frequency of these behaviors within a relationship from age fourteen, 0= never, 1=once, 2= only a couple of times, 3= every few months, and 4= about every other month, 5=about once a month, 6=about twice a month, 7=about every week, 8=a few times a week and 9=almost daily. These scores were summed for each individual to estimate her frequency of emotional victimization.

For each of these measures, the SES, CTS, and MSOSPA, respondents also indicated whether they were experiencing any of the behaviors in their current relationships. This allowed for classification of women as never abused, abused in past but not currently, currently being abuse but not in the past, and abuse both in the past and currently.

The questionnaire has three subscales: investments, alternatives and satisfaction in the relationship. Investment is measured by twelve questions (α=.76) such as "my sense

of personal identity (who I was) was linked to him and the relationship." Satisfaction includes fifteen questions (α=.49) including "how much did you love him." An alternative to the relationship is characterized by thirteen questions (α=.78) such as "how attractive were people other than your partner with whom you could have become involved?" All questions are rated on an eight point Likert scale. At the top of the questionnaire the directions read: "If you answered that you experienced any of the behaviors listed on the previous three abuse scales please think about your most recent relationship (or current relationship if behaviors occurred in this relationship) *before* these behaviors occurred. If you have not experienced any of the behaviors please fill out the questionnaire based on your current romantic relationship."

Following the same procedure of Choice and Lamke (1999) participants' Subjective Norms were tested based on two modified items from the subjective norm scale. The original ten items (α= .82) ask about subjective norms for items such as sleeping, doing laundry, and shopping. They were rated on a seven point Likert scale, from strongly agree to strongly disagree, the statement "most people who are important to me think I should do_____ in the next two weeks" for each of the ten items. The second item of the subjective norm scale rated in the same manner is "When it comes to _____, I want to do what most people who are important to me want me to do." Based on the work by Choice and Lamke, the behavior inserted in the sentence was "leaving my boyfriend" and the two-week period was dropped since leaving a significant other may take more social pressure than doing laundry.

Copies of all survey instruments can be found in the Appendix.

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Upon entering the mass screening, a participant was given a copy of the informed consent. Participants were required to have had a romantic relationship, either currently or at some point in the past, in order to participate in the study. If participants had never had a romantic relationship then they were told to skip these questionnaires and continue the mass screening packet. Eligible participants were given a packet, which included the Conflict Tactics Scale, Sexual Experiences Scale and Marshall's Subtle and Overt Scale of Psychological Abuse to assess abuse in the current and/or past relationships. The surveys were in random order within a larger packet.

Each participant was called back to the lab four to eight weeks following mass screening to fill out the Investment Model survey items about her current or past relationship. Those who have been abused filled out the questionnaire based on how they felt before the abuse occurred. Those who had not been abused filled out the questionnaire based on how they feel about their partner now. The last page of the packet included questions on demographic information and contact information. It also asked for the initials of the person she thought about while completing the Investment questionnaire. To create the stay versus leave variable, participants were asked if they are currently involved with the person they thought about while completing the measures. For some analyses, participants were classified into four groups based on their sexual and physical abuse status. For each type of abuse, those who only experienced abuse in the past were in the "past only" group. Those who experience abuse in their present relationship were in the "current only" group. Those who reported both past and present

abuse were included in the "past + current" group. Those who had never experienced abuse were in the "never" group.

During mass screening all women completed the questionnaires pertaining to abuse. In order to increase statistical power, *all* participants were asked to return to the lab to complete the Investment Model and subjective norms questionnaires. One hundred and eighty-six people returned to the lab at Time 1 but one person had to be dropped because she did not put her ID number on the forms (0.53%).

All participants were debriefed and given a list of community resources in case they have experienced or are currently experiencing abuse in a relationship.

CHAPTER IV

RESULTS

Data from Mass Screening were used to calculate abuse rates. For the CTS ($\alpha=$ .92), 50% of participants reported experiencing at least one type of physical abuse. The SES ($\alpha=$ .92) revealed that 41% reported some sexual abuse in a previous or current romantic relationship. Of these people, 13 % experienced only sexual abuse, 21 % experienced only physical abuse and 26% experienced co-victimization. Ninety-six percent of participants reported experiencing some type of emotional abuse. This may be due to poor scaling on the measure. The measure has a low-threshold for abuse; for example, any act of yelling was considered emotional abuse. The emotional abuse variable was dropped from further analysis because there was insufficient variability. *Table 1* shows the percentages of women by sexual and physical abuse status as well as co-victimization and the mean abuse frequency for each abuse group.

In order to use the latent construct commitment in subsequent analyses, it was necessary first to determine that the variables of investment, satisfaction, and quality of alternatives indeed constitute commitment, and to also determine the effect of adding subjective norms into the construct. Structural equation modeling was performed using Mplus version 5.1. Two confirmatory factor of analyses (CFA) were conducted and compared. The first confirmatory factor analysis was run using satisfaction, investment and quality of alternatives as indicators of commitment. As shown in *Figure 2*, the

loadings of investment were set to one. This allows the latent variable commitment to

have the same scale as investment. Previous research has supported that investment is an

important indicator of commitment (Le & Agnrew, 2003). This model fit the data well, χ^2

$=4.493(3)$, $p=.213$. Bentler comparative fit index (CFI) obtained was 1.0 and thus above

the .90 value needed to reject the null model (Hu & Bentler, 1999). The Tucker-Lewis

index (TLI) obtained was 1.0, which is above the .95 cut-off for good model fit suggested

by Hu (1999). The root mean square error of approximation (RMSEA) was .00, which is

below the value of .06 recommended by Hu and Bentler (1999) and thus indicates good

model fit. In summary, the specified model fits the data well, indicating a latent variable

commitment composed of investment, satisfaction and quality of alternatives.

In a second CFA, subjective norms were added as fourth indicator for

commitment. This model also fit the data well, $\chi^2 =.632(2)$, $p=.729$, CFI = 1.00, TLI =

1.067, and RMSEA = .00. *Table 3* compares the CFA with and without subjective norms.

The fit indices, Akaike's information criterion (AIC) and Bayes information criterion

(BIC), allow comparisons of models that are not hierarchically nested. AIC and BIC both

penalize for model complexity (with a greater penalty in the BIC) but do not take sample

size into account (but sample size was the same for both CFAs). Smaller values of both

AIC and BIC are preferred. For the two conducted CFAs, both AIC and BIC prefer the

model without subjective norms. That is, adding subjective norms to the measurement

model of commitment increases model complexity without significantly contributing to

model fit. Therefore, subjective norms do not significantly contribute to the latent factor

of commitment. For the following structural equation model, therefore, the factor loading for subjective norms on commitment was fixed to 0.

In the main structural equation model, as shown in *Figure 3*, the latent factor commitment was composed of the indicators investment, satisfaction, and quality of alternatives. Based on the previous CFA, the loading for subjective norms on commitment was fixed to 0. Commitment was modeled to predict the stay-leave decision. Sexual and physical abuse (composed of the sum of the SES and the sum of the CTS questions, respectively) were allowed to have direct effects on this latent factor commitment. The model was not tested separately for sexual and physical abuse because sexual and physical abuse scores were highly correlated and the pattern of relations between each form of abuse and the other variables was similar. Therefore no empirical or theoretical reason to test the model separately for different types of abuse existed. Sexual abuse and physical abuse were also modeled to have direct effects on the dichotomous stay-leave decision. This model fit the data acceptably, $\chi^2 =14.358$ (9), $p=.110$. Bentlers' comparative fit index (CFI) obtained was .80, below the .90 value needed to reject the null model (Hu & Bentler, 1999). The Tucker-Lewis index (TLI) obtained was .68, which is below the .95 cut-off suggested by Hu (1999). The root mean square error of approximation (RMSEA) was .057, which is below the cut-off value of .06 recommended by Hu and Bentler (1999). Therefore, the obtained model fit statistics fit the data acceptably.

In this structural model, commitment was a significant predictor of the stay-leave decision ($p = .029$). Higher committed women were less likely to leave a relationship.

Only physical abuse (CTS) was a significant predictor of commitment ($p = .005$) while sexual abuse did not significantly predict commitment. Women who experienced higher rates of physical abuse were more committed to the relationship. The direct effects of physical and sexual abuse on the stay-leave decision were not significant. The fact that commitment significantly predicts the stay-leave decision when sexual and physical abuse are included in the model indicates that commitment predicts stay-leave independent of abuse history.

Several one way ANOVAs were conducted to examine the effects of abuse status on components of commitment. The components of commitment considered were investment ($\alpha=.81$), satisfaction ($\alpha=.83$), quality of alternatives ($\alpha=.79$), and subjective norms ($\alpha=.71$). A one way ANOVA was conducted with physical abuse status (never abused, past abuse, current abuse or past and current abuse) on total investment (*Table 4*). The main effect of physical abuse status was significant, $F(3,179)= 7.60$, $MS_e=88.61$, $p < .001$. Tukey's HSD post-hoc tests revealed that women who had never been physically abused had significantly lower investment than women who only experienced current physical and those who experienced physical abuse currently and in the past. Numerically, women who had never experienced physical abuse had lower investment than those who had experienced physical abuse in the past, but this difference did not reach statistical significance ($p=.06$). Investment did not differ between any of the groups who experienced physical abuse.

Next another ANOVA with physical abuse status was conducted on total satisfaction. There was no effect of abuse status (p=.87) indicating that none of the groups differed in satisfaction in their relationship. Then a third ANOVA was run with physical abuse status on quality of alternatives. There was no effect of abuse status (p=.60), indicating that none of the groups differed in the quality of alternatives to their relationships. A fourth ANOVA of physical abuse status on subjective norms revealed no significant effect of abuse status (p=.31). The same analyses were conducted for women grouped in terms of sexual abuse (never abused, past abuse, current abuse or past and current abuse). Sexual abuse groups also significantly differed in total investment, F (3,179)= 3.59, MS_e=94.22, p= .02. Similar to physically abused women, those who had never been sexually abused had numerically lower investment than those who were sexually abused in the past, present and past and present. However, Tukey's HSD post-hoc tests did not reveal significant differences between sexual abuse groups. The difference in investment between women who had never experienced sexual abuse and those who experienced past and current abuse was marginally significant (p=.06). Again, similar to physical abuse status, there was no effect of sexual abuse on satisfaction (p=.24), quality of alternatives (p=.33) and subjective norms (p=.91). The physical and sexual abuse groups only differed in terms of investment in the relationship, such that women who had never experienced abuse showed lower investment than any of the physically abused groups. As seen in *Table 1*, co-victimization was low and therefore mean comparisons between co-victimization groups were not warranted.

Several interesting findings were observed in the correlations between the indicators of commitment and other variables of interest, displayed in *Table 2*. Sexual and physical abuse were highly correlated (r=.43). Investment (r= -.25) and satisfaction (r= -.17) were both related to the stay-leave decision. This correlation supports Rusbult's Investment model that states that as investment and satisfaction increases people are less likely to leave. Satisfaction is negatively correlated with sexual abuse (r=-.18) and co-victimization (r=-.16). There was a positive relation between investment and abuse status, physical abuse(r=.26), sexual abuse(r=.18) and co-victimization (r=.23).

Additional, a structural equation model similar to the first one was run. In this model as shown in *Figure 4*, the latent factor commitment was composed of the indicators investment, satisfaction, quality of alternatives, and subjective norms (fixed to 0). Commitment was allowed to have a direct effect on the stay-leave decision. Sexual and physical abuse (composed of the sum of the SES and the sum of the CTS questions, respectively) were allowed to have direct effects on this latent factor commitment but were not allowed to have direct effects on the stay-leave decision. The model had an acceptable fit to the data, χ^2 =15.941 (10), *p*=.101. The Bentler comparative fit index (CFI) obtained was .77, below the .90 value needed to reject the null model (Hu & Bentler, 1999). The Tucker-Lewis index (TLI) obtained was .68, which is below the .95 cut-off, suggested by Hu (1999). The root mean square error of approximation (RMSEA) was .057, which is below the value of .06 recommended by Hu and Bentler (1999). Therefore, the obtained model fit statistics indicate a reasonable fit to the data.

Given the acceptable model fit, the estimated parameters can be interpreted.

Figure 4 displays the unstandardized parameter estimates with their standard errors.

Neither sexual nor physical abuse had a significant effect on commitment. However, the

effect for physical abuse approached significance ($p = .07$), indicating a tendency for

women who experience higher rates of physical abuse to be more committed to a

relationship. Commitment had a significant negative effect on the decision to stay or

leave ($p = .01$). As commitment increased people were less likely to leave the

relationship.

CHAPTER V

DISCUSSION

The findings support Rusbult's theory (1980) that commitment to a relationship affects the decision to stay in or leave a romantic relationship. The results, however, do not suggest that abuse status affects commitment to a relationship. If at all, physical abuse seems to be a potential positive predictor of commitment, but this effect did not hold in all of the analyses run. This was also evident in the univariate ANOVAs showing that the majority of the components of commitment (satisfaction, quality of alternatives and subjective norms) did not differ between women with different abuse histories. The only consistent effect of physical and sexual abuse was on investment in a romantic relationship, with women experiencing higher rates of abuse being more invested.

The commitment model, which included satisfaction, quality of alternatives, and investment predicted whether or not people chose to stay in a relationship. People who had high commitment (i.e., high satisfaction, high investment, and low quality of alternatives) were less likely to leave a relationship whether or not they experienced abuse in the relationship. Participants who had low commitment (i.e., low satisfaction, low investment, and high quality of alternatives) were more likely to leave the relationship. Commitment was relatively independent of a woman's physical and sexual abuse status with the exception of investment, which was lower for women who had never been abused. This actually suggests slightly higher commitment for abused women.

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This was also suggested by the significant positive effect of physical abuse on the commitment factor in one of the structural equation models. This puzzling finding could be explained by the length of the relationship, which was not assessed in the current study. Abuse is more likely to occur in an advanced relationship and similarly, investment increases with the duration of the relationship. Therefore, women who had never experienced any type of abuse might be less invested because they have not been involved with their partner for a significant amount of time. Another possibility is that women use investment as a way to rationalize staying in an abusive relationship.

People often chose to stay in relationships that are unsatisfying rather than finding an alternative relationship. Even some people who experience physical and sexual abuse continue the relationship. It often takes women several attempts to successfully leave an abusive partner after making the decision to leave (Bell et. al, 2007). Therefore, a major limitation of this study is that the stay-leave decision could not be assessed at a later point in time. It is possible that physical and sexual abuse influences the decision to stay or leave over time and that this influence is mediated by commitment to the relationship. Another possibility is that the dichotomous variable stay-leave was not sensitive to the effects of abuse. A possibly better dependent variable might include intention to leave as well as unsuccessful attempts to leave. Future research should consider these variables.

Another limitation of the study is that participants were asked to recall how they felt about their partner before abuse occurred. Previous research has shown that autobiographical memory is constructed (Botzung, Denkova, Ciuciu, Scheiber &

Manning, 2008). Participants' retrospective self-report may be inaccurate because of their construction of their personal memories.

A side goal of the current study was to examine whether adding the construct of subjective norms would improve the measurement of commitment, as hypothesized by Choice and Lamke (1999). This did not seem to be the case in the present data. Therefore, it appears that Rusbult's (1980) conceptualization of commitment includes the most relevant dimensions. It is not necessary to assess a woman's subjective norms in order to get an accurate prediction of her commitment to a relationship. In addition, the current findings suggest that quality of alternatives is not a significant contributor to commitment either. This is in line with previous studies (Le & Agnew, 2003). The current study included quality of alternatives in the model because it is part of Rusbult's classic model of commitment. However, future studies should more closely examine the quality of alternatives component of commitment and determine if it should be retained in the model. Rusbult's model should be examined more closely to assess whether it has predictive ability in the modern world. Based on the current study, investment and satisfaction are the most important (and possibly only) predictors of commitment.

The findings of this study are important to clinicians who help abused college-age women. Although a woman may have a negative experience associated with abuse in a relationship there are other factors tying her to her partner that must be considered. Clinicians should help women discover healthier alternatives including being single.

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Appendix A. Tables and Figures

Table 1. Abuse Percentages. The percent of participants who reported only physical (CTS), only sexual (SES) and co-victimization in past, present and both past and present romantic relationships. Mean frequencies of abusive acts are presented with standard error values.

Abuse Status	% CTS (n)	Mean Frequency (*sd*)	% SES (n)	Mean Frequency (*sd*)	% Both (n)	Mean Frequency (*sd*)
Past Only	30.8 (57)	3.8 (4.57)	24.3 (45)	7.6 (13.64)	14.1 (26)	6.3 (6.63)
Current Only	9.2 (17)	2.2 (2.19)	1.1 (2)	3.5 (3.54)	.5 (1)	6.9 (N/A)
Past & Current	9.7 (18)	8.1 (0.89)	4.9 (9)	8.7 (6.25)	2.7 (5)	7.1 (4.29)
Never	50.3 (93)	0	69.7 (129)	0	43.8 (81)	0

Table 2: Correlations between indicators of commitment, abuse and stay-leave.

	Stay-Leave	Quality of Alternatives	Investment	Satisfaction	Subjective Norms	CTS	SES	Co-victimizaton
Stay-leave	1							
Quality of Alt.	.061	1						
Investment	-.252**	.025	1					
Satisfaction	-.174*	.111	.058	1				
Subjective Norms	-.119	-.043	.003	.128	1			
CTS	.046	.102	.252**	-.048	-.092	1		
SES	.106	.036	.178*	-.181**	-.090	.431**	1	
Co-victimization	.097	.068	.233**	-.152*	-.103	.738**	.927**	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3. Confirmatory Factor Analysis of the latent variable commitment with and without subjective norms.

Indicator	With Subjective Norms	Without Subjective Norms
AIC	5445.706	4143.161
BIC	5485.465	4172.980

Table 4. Means for abuse status groups, standard deviations in parentheses.

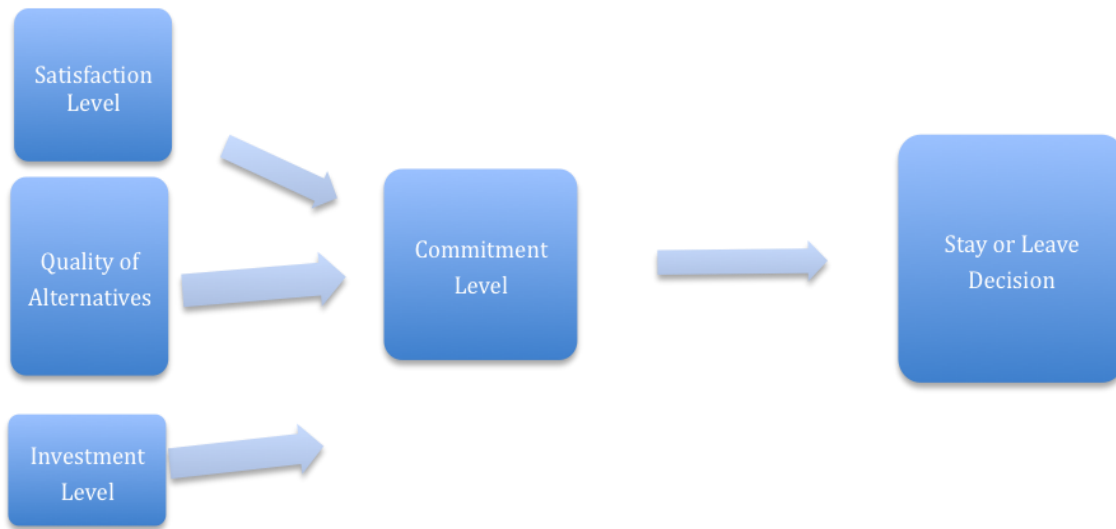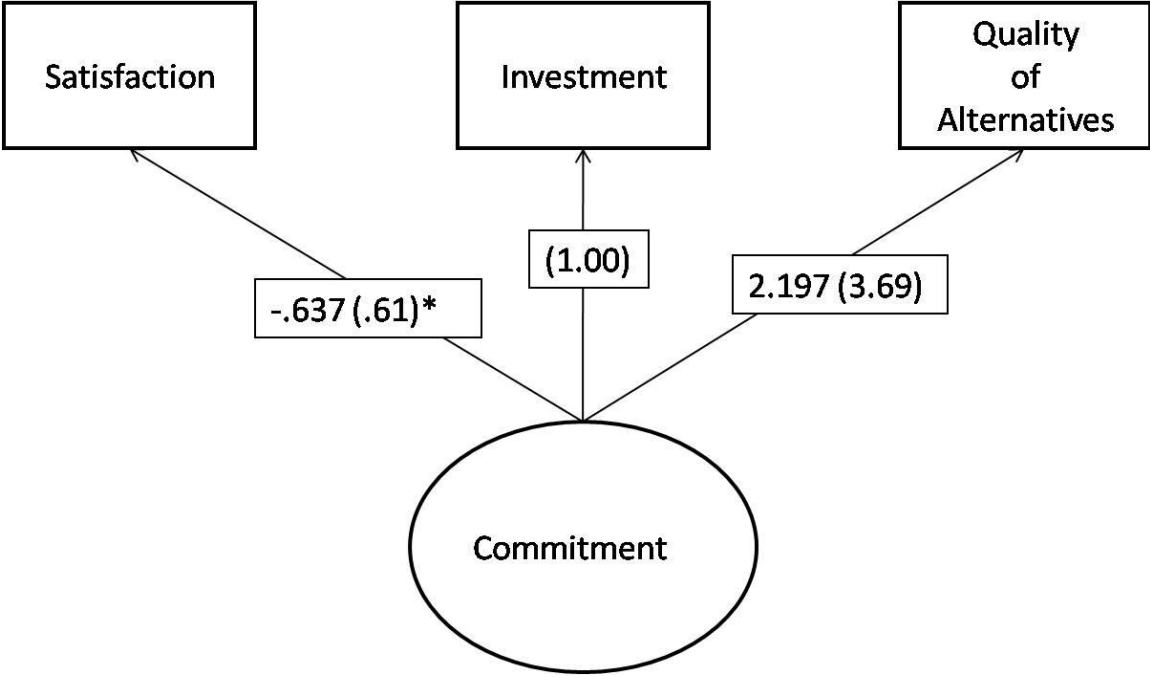|	Physical Abuse Status			
	Never abused (n = 92)	Current only (n = 17)	Past only (n = 56)	Current + Past (n = 18)
Investment	24.43 (8.62)	31.53 (11.13)	28.52 (10.43)	34.28 (8.14)
Satisfaction	31.90 (13.63)	32.71 (13.66)	30.68 (12.51)	29.83 (13.44)
Quality of Alternatives	37.17 (8.91)	35.12 (9.97)	38.57 (11.45)	36.39 (10.49)
Subjective Norms	24.35 (5.24)	22.53 (5.43)	23.27 (5.42)	22.39 (5.17)
	Sexual Abuse Status			
Investment	26.22 (9.45)	40.00 (15.56)	28.41 (10.17)	34.67 (10.27)
Satisfaction	32.63 (13.43)	28.50 (28.99)	27.93 (12.50)	31.44 (7.62)
Quality of Alternatives	36.69 (9.97)	40.00 (4.24)	38.00 (10.55)	42.67 (6.16)
Subjective Norms	23.84 (5.48)	23.00 (8.49)	23.27 (4.56)	23.00 (6.56)

Figure 1. Rusbult's Investment Model.

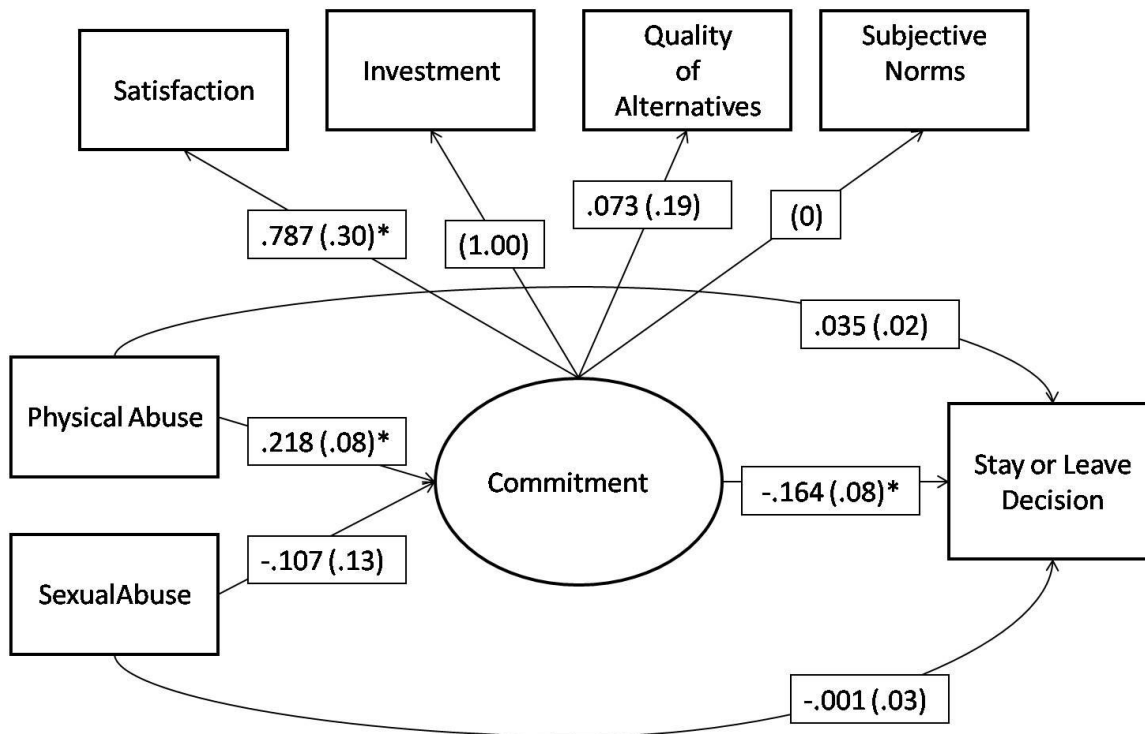*Figure 2*. CFA without Subjective Norms.

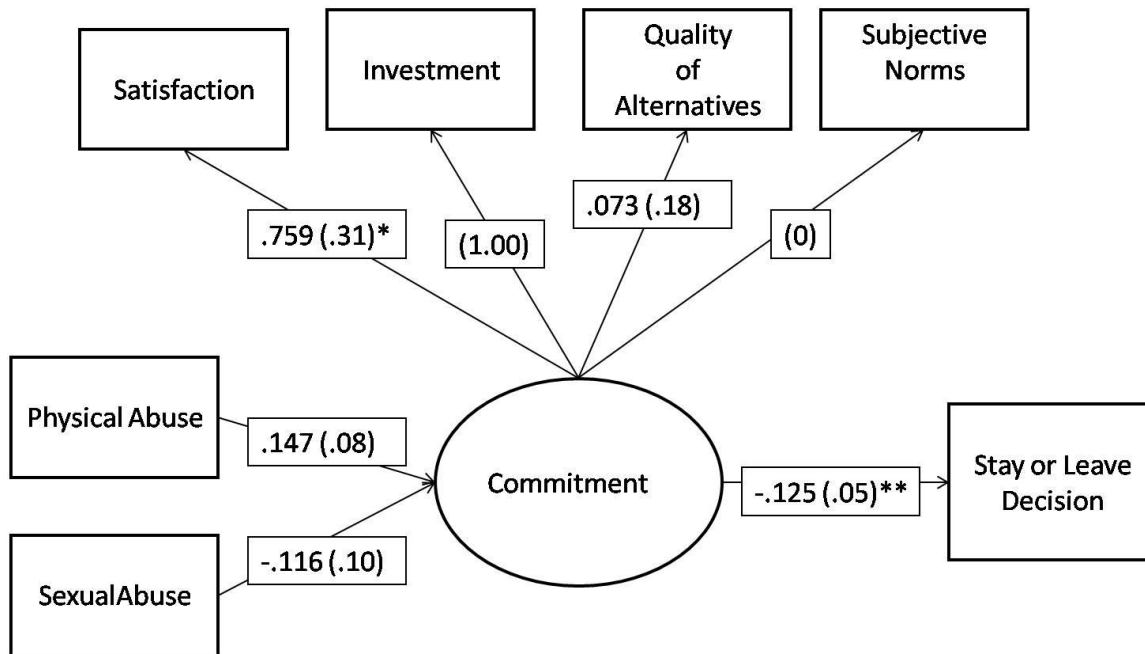*Figure 3*. Stay-Leave as a Direct Function of Commitment and Abuse.

Figure 4. Final Model: Stay –Leave as a Function of Commitment and Abuse.

Appendix B. Conflict Tactics Scale

No matter how well a couple gets along, there are times when they disagree on major decisions, get annoyed by something the other person does, or just have spats or fights because they are in a bad mood or tired or for some other reason. They also may use different ways of trying to settle their differences. This is a list of some of the things that your partner may have done when you had a dispute. Please indicate for each item how often this happened to you both in your **current romantic relationship (of at least 1 month)** and in **previous romantic relationships**.

Participants rated how often these things happened in the context of a romantic relationship.

A= Never

B= Once

C= 2-5 times

D= 6-10 times

E= More than 10 times

F= Does not apply

1. He threatened to hit or throw something at you.

2. He threw (but not at you), smashed, hit or kicked something.

3. He threw something at you.

4. He pushed, grabbed or shoved you.

5. He slapped you.

6. He kicked, bit, or hit you with his fist

7. He hit (or tried to hit) you with something hard

8. He beat you up

Appendix C.   Sexual Experiences Scale

The following questions concern sexual experiences that you may have had that were unwanted.

Participants rated how often each experience occurred as 0, 1, 2, or 3+ times. In one column they indicated how often each behavior occurred for their current romantic relationship and the other column was for previous romantic relationships. **Current romantic relationship** referred to a relationship that the participant is in right now and that she has been involved in for at least 1 month. If a participant was not currently involved in a romantic relationship then she was instructed to leave that column blank. **Previous romantic relationship** referred to all relationships prior to the current relationship since the age of 14 that lasted at least 1 month.

1. Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch or butt) or removed some of my clothes without my consent (*but did not attempt sexual penetration*) by:

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises that I knew were untrue, or continually verbally pressuring me after I said I didn't want to.

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.

c. Taking advantage of me when I was too drunk or out of it to stop what was happening.

d. Threatening to physically harm me or someone close to me.

e. Using force, for example holding me down with his body weight, pinning my arms, or having a weapon.

2. Someone had oral sex with me or made me have oral sex with them without my consent by:

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises that I knew were untrue, or continually verbally pressuring me after I said I didn't want to.

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.

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c. Taking advantage of me when I was too drunk or out of it to stop what was happening.

d. Threatening to physically harm me or someone close to me.

e. Using force, for example holding me down with his body weight, pinning my arms, or having a weapon.

3. A man put his penis into my vagina or butt, or someone inserted fingers or objects without my consent by:

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises that I knew were untrue, or continually verbally pressuring me after I said I didn't want to.

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.

c. Taking advantage of me when I was too drunk or out of it to stop what was happening.

d. Threatening to physically harm me or someone close to me.

e. Using force, for example holding me down with his body weight, pinning my arms, or having a weapon.

4. Even though it did not happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises that I knew were untrue, or continually verbally pressuring me after I said I didn't want to.

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.

c. Taking advantage of me when I was too drunk or out of it to stop what was happening.

d. Threatening to physically harm me or someone close to me.

e. Using force, for example holding me down with his body weight, pinning my arms, or having a weapon.

5. Even though it did not happen, a man TRIED to put his penis into my vagina or butt, or someone tried to stick in fingers or objects without my consent by:

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises that I knew were untrue, or continually verbally pressuring me after I said I didn't want to.

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.

c. Taking advantage of me when I was too drunk or out of it to stop what was happening.

d. Threatening to physically harm me or someone close to me.

e. Using force, for example holding me down with his body weight, pinning my arms, or having a weapon.

Appendix D. Rusbult Investment Scale

Participants were given explicit instructions about which partner they should think about while filling out all three Rusbult scales. For each scale they were to report about their most recent abusive partner (current or past). If they had never experienced abuse they were to report about their most recent relationship.

For each scale participants indicated the degree to which they agreed with each of the following statements regarding their partner. They rated each statement as: a) don't agree at all, b) agree slightly, c) agree moderately, d) agree completely.

1. I had disclosed my private thoughts and feelings to him.

2. He and I shared nearly all the same friends.

3. There were many activities and pastimes linked to my relationship.

4. He and I shared many material possessions (car, furniture, house).

5. I had put a great deal of time and effort in to our relationship.

6. He and I shared a family (children, in-laws, etc.)

7. My sense of personal identity (who I was) was linked to him and the relationship.

8. He and I shared many memories (vacations, special times together)

9.Had you put things in to the relationship that you had in some sense lost when the relationship ended or would lose if the relationship ended (e.g. time spent together, secrets disclosed to one another)?
Rated 0 (put nothing in to the relationship) to 8 (put everything in to the relationship)

10. Were there things "tied" to your relationship that you lost when the relationship ended or would lose if the relationship ended [e.g. material possessions (furniture, car, housing)]?
Rated 0 (nothing tied to relationship) to 8 (everything tied to the relationship)

11. Were there special activities associate with your relationship that you in some sense would have lost or they would become more difficult when or if the relationship ended (e.g. shared friends, recreational activities, job)?
Rated 0 (no activities associated) to 8 (many activities associated)

12. How much have you invested in the relationship- things that you put into it, things that were tied to it, activities that were connected to it, etc.?
0(nothing) to 8 (a great deal)

Appendix E. Rusbult Satisfaction Scale

Same instructions as Rusbult Investment scale.

1. He was physically attractive.

2. He had a number of very disagreeable qualities. (reverse-coded)

3. Our physical relationship was very satisfying.

4. He and I got along very well.

5. He had many irritating habits. (reverse-coded)

6. He and I wanted the same things in life.

7. He and I had very similar attitudes.

8. He had a very good sense of humor.

9. He and I supported each other.

10. He was very interesting.

11. He made me feel good about myself.

12. To what degree were you satisfied with your relationship?

13. How much did you love him?
Rated 0(not at all) to 8 (completely)

14. How did your relationship compare to other people's?
Rated 0 (not at all) to 8 (completely)

15. How did your relationship compare to your ideal?
Rated 0(not at all) to 8 (completely)

Appendix F: Rusbult Quality of Alternatives Scale

Same instructions as Rusbult Investment scale.

1. Alternative partners I might have dates were physically attractive.

2. I enjoyed spending time on my own, not involved in a dating relationship.

3. I would have had a very satisfying physical relationship with alternatives I might have dated.

4. There were many single people around with whom I might have become involved.

5. Alternative partners I might have dated would want the same things in life I want.

6. Alternative partners I might have dated had a very good sense of humor.

7. In alternative relationships I might have formed my partner and I would have supported each other.

8. I enjoyed spending time with friends rather than with a dating partner.

9. Alternative partners I might have dated would have made me feel good about myself.

10. How attractive were people other than your partner with whom you could have become involved?
Rated 0 (Alternatives are not at all appealing) to 8 (Alternatives were extremely appealing)

11. If you had not been dating him, would you have done okay- would you have found another appealing person to date?
Rated 0 (Hard to find another partner) to 8 (easy to find another partner)

12. How would you have felt about not being in a dating relationship; how would you have felt about spending time socially with friends and family instead?
Rated 0 (I'd feel terrible if I weren't dating) to 8 (I'd feel fine if I weren't dating)

13. How did your alternatives (dating another, spending time alone, etc.) compare to your relationship with your partner?
Rated 0 (Alternatives are much worse) to 8 (alternatives are much better)