RELATIONSHIPS BETWEEN ADULT ATTACHMENT STYLES, RELATIONSHIP SATISFACTION, AND SLEEP QUALITY

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By
Courtney Wohld
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CERTIFICATION OF APPROVAL

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Dr. Gary Williams Assistant Professor of Psychology	Date
Dr. AnaMarie Guichard Associate Professor of Psychology	Date
Dr. Jessica Lambert Assistant Professor of Psychology	Date

DEDICATION

To my family - for raising me to work hard and always do my best.

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TABLE OF CONTENTS

PAGE

LIST OF TABLES

TABLE PAGE

ABSTRACT

The purpose of this study was to examine the relationship between adult attachment styles, relationship satisfaction, and sleep quality. A total of 483 participants who were in a romantic relationship at the time of the study were used for the final analysis of the study. Past research has shown relationship satisfaction to be a significant predictor variable of sleep quality, therefore, relationship satisfaction was held constant in the analysis. A hierarchical regression analysis found that relationship satisfaction was a significant predictor variable for sleep quality in this study as well. The regression analysis also showed that anxious attachment was a significant predictor variable for sleep quality while controlling for relationship satisfaction, however, avoidant attachment was not uniquely associated with sleep quality. These findings provide additional research regarding how adult attachment styles and relationship satisfaction can contribute to overall sleep quality.

CHAPTER I

REVIEW OF THE LITERATURE

Healthy relationships between romantic partners can contribute to both physical and mental well-being for those involved in the relationship. Relationship satisfaction can be influenced by factors such as attachment styles and intimacy can influence overall relationship satisfaction in couples. Attachment styles may also have an effect on the quality of sleep obtained by individuals who are in a romantic relationship. Obtaining an adequate amount of sleep has also been found to have a positive effect on mental and physical overall well-being in adults. The purpose of the present study is to examine how attachment style influences relationship satisfaction and sleep quality in adults.

Relationships

Romantic relationships can play an important role in our everyday lives. Several research studies have found that healthy relationships involving positive interactions between the couple members can contribute to physiological health benefits (Grewen, Anderson, Girdler, & Light, 2003; Bradbury, Fincham, & Beach, 2000). A large body of evidence suggests that people who are involved in committed and satisfying relationships tend to live longer than individuals who are either involved in unsatisfying relationships or who live their lives isolated (Loving & Slatcher, 2013; Stanton & Campbell, 2014; Grewen et at., 2003).

One study by Grewen et al. (2003) evaluated two groups: one group who engaged in social and physical contact with their significant other before a stressful

event, and one group who experienced no contact with their significant other before the stressful event. Participants in the contact group were asked to hold hands for 10 minutes while watching a romantic video, and then hug for 20 seconds after the video. The no contact group was asked to sit quietly for 10 minutes without engaging with their partner. Results showed that participants who engaged in physical and social contact before a stressful event had lower systolic and diastolic blood pressure than individuals who did not engage in any contact with their partner before participating in the same stressful event. These findings indicate that positive social interactions between affectionate couples can lead to lower reactivity to stressful events. Lower levels of stress can then be related to lower blood pressure, which then influences healthier cardiovascular and immune system functioning (Stanton & Campbell, 2014; Grewen et al., 2003; Birditt, Newton, & Hope, 2012).

In addition to physical health benefits, people who are involved in committed and satisfying romantic relationships experience mental health benefits, and tend to live happier lives compared to those who are involved in unsatisfying relationships (Stanton & Campbell, 2014). People in healthy relationships tend to share personal values and experiences with each other, which can increase self-esteem and overall relationship satisfaction (Kane, Slatcher, Reynolds, Repetti, & Robles, 2014). For example, a study by Braithwaite, Delevi, and Fincham (2010) found that participants who were currently in a committed romantic relationship experienced fewer overall mental health problems than participants who were single. In addition, participants

who were in a committed romantic relationship also engaged in fewer health-risking behaviors (e.g. binge drinking) than did single participants.

Being in a romantic relationship can be beneficial for social support and companionship. A study by Gordon, Heimberg, Montesi, and Fauber, (2012) explored how romantic relationships influenced psychological well-being and whether participants with social anxiety benefited from relationships the same way people without social anxiety do. Results showed that all participants, with or without social anxiety, reported that their overall well-being was related to the quality of the romantic relationship they shared with their partner. Although both groups, socially anxious and non-socially anxious individuals, were more comfortable in social situations with a significant other, the socially anxious group reported higher levels of comfort when with their significant other than did the non-socially anxious group.

Attachment

According to Ainsworth and Bell (1970), attachment can be defined as a bond that has formed between two humans. Attachment theory, proposed by John Bowlby (1982), describes how infants establish an attachment bond with their caregivers, which serves safety and survival purposes. Infants, being unable to care for themselves, have the instinctual desire to be close to their mothers or primary caregivers, who are viewed as a natural protective figure to the infant. When the infant is separated from the protective figure, it is normal for the infant to cry or become distressed in an attempt to re-establish contact with the caregiver (Hazan & Shaver, 1987). Bowlby believed infants had the natural desire to explore and play, as

long as their protective figure was close by to intervene with anything perceived as threatening to the infant. The natural instincts, also known as the attachment behavioral system, of the infant enable the child to rely on their primary caregiver to react and protect them from any perceived threat (Hazan & Shaver, 1994). The type of reaction infants receive from their caregiver influences how the infant will behave when the primary caregiver is present, absent, or returns from being absent (Bowlby, 1982).

A study by Ainsworth, Blehar, Waters, and Wall (1978) explored different caregiving styles mothers provided when their infants seemed to be in distress. Results indicated that infants whose mothers were inconsistent when responding to their child showed more anxiety related symptoms such as crying more often or exploring less than other infants their age. Infants of mothers who did not respond to their child's distress became avoidant towards their mother and showed little comfort when their mother did acknowledge their distress. This study by Ainsworth et al. (1978) became known as the Strange Situation. This research conducted by Ainsworth et al. (1978) contributed to the development of three types of attachment styles: secure, avoidant, and anxious/ambivalent. Infant behaviors are observed and classified as one of these three attachment styles depending on how they react to the presence of their mother after being left alone for a period of time.

Hazan and Shaver (1987) proposed that attachment styles could also apply to adult romantic relationships. Instead of forming an attachment bond with a caregiver, adults form an attachment bond with their romantic partner. As a couple's romantic

relationship begins to develop, the couple may begin to see each other as a source of comfort or support. More specifically, the members of the couple may seek out the other member when faced with a stressful situation. If a threatening situation is not present, individuals should feel fine and able to do things on their own, which is characterized as secure attachment (Robles & Kane, 2014). If individuals are uncomfortable doing things on their own or do not seek comfort from their significant other during stressful situations, they may be defined as having an insecure attachment style (Robles & Kane, 2014). Insecure attachment can then be categorized as either anxious/ambivalent or avoidant attachment (Hazan & Shaver, 1994).

Adults with a secure attachment style tend to be warm and open in romantic relationships, and enjoy having intimate relationships with their partner (Pielage, Luteijn, & Arrindell, 2005). Securely attached adults seek comfort from their partners, and in return, can provide comfort to their romantic partner when necessary. Mikulincer, (1998) explored how adult attachment styles influenced how trusting participants were in their relationship, and how attachment style influenced their reaction to negative trust related experiences with their partner. Results showed that participants who scored higher in secure attachment were more trusting of their significant other than insecure participants were. In addition, secure participants were also found to have healthier coping skills when faced with violation of trust from their significant other than participants with an insecure attachment style did. Secure participants were able to cope with these trust violations by having open conversations with their significant other about the event. Anxiously attached

participants responded to trust violation events by describing excessive worry to their partner, while avoidant participants responded by distancing themselves from their partner.

Adults with anxious attachment styles tend to doubt the responsiveness of others, and constantly worry about being close to their significant other in order to relieve their sense of insecurity (Mikulincer, 1998; Stanton & Campbell, 2014). These individuals fall in love easily while experiencing fearful thoughts of rejection from their partner (Mikulincer, 1998). In addition, they worry about their partner's whereabouts and can show signs of mistrust or jealousy. In contrast, adults who are high in avoidant attachment tend to distance themselves emotionally from their significant other and will often avoid intimacy in the relationship (Stanton & Campbell, 2014). Avoidant adults may not look to their romantic partner for comfort in times of need, and in return, they may not respond to their partner when he or she is distressed. They have a difficult time trusting other people's intentions, and show lack of dependence on their significant other (Mikulincer, 1998).

In a study by Hazan and Shaver (1987), participants who scored in the secure attachment range described their love experiences as satisfying and trusting. Participants who scored in the avoidant attachment range appeared to show signs of jealousy and lack of intimacy when involved in romantic relationships. Those who scored in the anxious/ambivalent style of attachment described love as being close to an obsession and described it as being associated with a range of emotions. They also

appeared to show signs of jealousy and reported a high level of sexual attraction to their significant other (Hazan & Shaver, 1987).

Insecurely attached individuals also have different beliefs about romantic experiences in relationships than securely attached individuals (Robles & Kane, 2013). In Hazan and Shaver's (1994) study on adult attachment styles and romantic relationships, it was found that securely attached individuals have romantic feelings that fluctuate throughout the relationship, but the romantic feelings never fully dissipated. In contrast to these findings, individuals with an avoidant attachment style claimed extreme romantic feelings (such as love-at-first-sight) do not exist at the beginning of a romantic relationship and that true love rarely lasts. Anxious/avoidant participants stated the opposite, however, reporting that it was easy for them to fall in love initially, but that they rarely reported ever finding true love in a romantic relationship.

Relationship Satisfaction, Intimacy, and Attachment

There are specific factors that play an important role in the couple's relationship stability and ability to predict relationship satisfaction (Bradbury, Fincham, & Beach, 2000). Relationship satisfaction can be defined as a subjective experience shared between romantic partners, which is characterized by positive or negative dimensions such as conflict or happiness (Troxel, Buysse, & Hall, 2009; Snyder, Heyman, & Haynes, 2005). While these dimensions can contribute to the overall happiness and well-being in couples, they can also lead to dissatisfying relationships as well (Ferreira, Narciso, Novo, & Pereira, 2014).

Relationships in distress are usually characterized by higher rates of negative verbal or non-verbal interactions between members of the couple, and exhibit fewer positive traits such as empathy or positive touch (Snyder, Heyman, & Haynes, 2005). Other factors, such as conflict, can result in negative feelings about the romantic relationship, which can become detrimental to the satisfaction level of the relationship (Hicks & Diamond, 2011). However, factors such as intimacy can increase positive emotions about the relationship, resulting in greater overall relationship satisfaction (Ferreira et al., 2014). Intimacy can be defined as the physical, mental, and emotional closeness shared between two people in a romantic relationship (Yoo, Bartle-Haring, Day, & Gangamma, 2014). Relationships that embrace intimacy are often open and involve couples who enjoy being physically and emotionally close to one another.

Attachment styles in adults can also be related to overall relationship satisfaction (Mikulincer, 1998). Securely attached adults enjoy their partner's company, express warm feelings towards one-another, and share intimate experiences together, which can also contribute to positive health outcomes (Mikulincer, 1998; Pielage et al., 2005). A study by Pielage et al., (2005) found that securely attached couples had higher levels of intimacy in their relationships, and reported fewer psychological problems than insecurely attached couples whose relationships lacked intimacy.

Individuals high in anxious attachment frequently worry about their partner's whereabouts, and are often preoccupied with intimacy in the romantic relationship (Insana, Costello, & Montgomery-Downs, 2011). This constant need for connection

with their romantic partner can contribute to lower levels of relationship satisfaction, as the person is continuously filled with worry. Anxiously attached adults also tend to show higher emotional disruption when faced with conflict in the relationship than do securely attached adults (Mikulincer, 1998; Stanton & Campbell, 2014; Overall, Girme, Lemay, & Hammond, 2014). Insana et al. (2011) found that anxiously attached participants reported higher levels of hurt feelings when conflict or criticism was presented from their partner than participants who were not identified as anxiously attached.

Adults high in avoidant attachment act differently in relationships than those who are high in anxious attachment (Hazan & Shaver, 1987; Mikulincer, 1998; Reizer, Ein-Dor, & Shaver, 2014). Unlike anxious individuals who yearn for overly close relationships, avoidant individuals do not like having a close relationship with their partner, and tend to shy away from relationship factors that bring them close to their romantic partner such as intimacy (Mikulincer, 1998). This may impact the quality of the relationship and lead to a decline in relationship satisfaction for adults who experience avoidant attachment. A meta-analysis by Li and Chan (2012) confirmed that adults who are high in avoidant attachment evaded being close to their partner and tried to avoid interpersonal relationships completely and did not consider relationships to be an important aspect of their life. Although both avoidant and anxious adults reported lower levels of relationship satisfaction, avoidant adults reported even lower relationship satisfaction levels than adults who are high in anxious attachment.

Sleep

Sleep is one of the most important behaviors for proper functioning in humans. According to Chen, Waite, and Lauderdale (2015), sleep is a natural human behavior that is required for physical and mental rejuvenation and, on average, humans spend about one third of the day sleeping. Obtaining an adequate amount of sleep at night can help the human brain replenish from daily mental strain and can prepare the individual to complete necessary activities the following day (Carmichael & Reis, 2005).

Getting an adequate amount of sleep each night can contribute to personal well-being as well as other interpersonal processes in humans (Barber, Munz, Bagsby, & Powell, 2010; Norlander, Johansson, & Bood, 2005). Poor sleep quality has been associated with decline in physical and psychological well-being. A number of studies have found that negative emotional experiences, such as loneliness and stress, can be linked to poor sleep quality (e.g. Carmichael & Reis, 2005; Hicks & Diamond, 2011). A longitudinal study by Jackson, Sztendur, Diamond, Byles, and Bruck (2014) collected data that measured depression and anxiety in participants who reported experiencing sleep difficulties. Results showed that participants who had more sleeping difficulties, such as taking longer to fall asleep or waking up throughout the night, had higher levels of depression and anxiety than participants who obtained better sleep quality characteristics, such as falling sleep faster or waking up less throughout the night. Results showed that participants whose sleeping

difficulties increased over time also showed an increase in depression and anxiety levels.

Barber, Rupprecht, and Munz (2014) examined how poor sleep quality could have an effect on psychological and social well-being. They also examined how poor sleep quality could have an influence on a participant's response to or reaction during negative situations. Three hundred-sixteen participants completed questionnaires assessing sleep behaviors, psychological and social well-being, and how stressors were appraised by the individual. Results showed that participants with better sleep quality scored better on psychological and social well-being than participants with poor sleep quality. Results also demonstrated that participants with better sleep quality at night were able to appropriately handle stressors and did not become as stressed out by them than participants who reported poor levels of sleep quality.

Sleep and Relationship Satisfaction

Although sleep is very important for humans, limited research has been done identifying the relationship between social processes and sleep. Relationship satisfaction is an important aspect of romantic relationships and may be related to poor sleep quality. The ideal environment to obtain an adequate amount of sleep involves lack of any disturbances. This then means that there should be no emotional arousal before bedtime, and the individual should feel a presence of comfort and security (Dahl, 1996). Therefore, the emotions that are involved with romantic relationships and affect relationship satisfaction may also have an effect on the

quality of sleep obtained during the night (Insana et al., 2011; Kane et al., 2014; Hicks & Diamond, 2011).

High levels of worry or stress before bedtime can contribute to difficulty falling asleep and poor sleep quality. Conflict between couples before bedtime can contribute to higher levels of stress, which can then make it difficult to sleep (Chen et al., 2015). Hicks and Diamond (2005) found that couples who experienced conflict with each other before bedtime had a more difficult time falling and staying asleep that night than couples who did not experience conflict before bedtime. Participants also reported feeling more tired the morning after conflict with their partner than those who did not experience conflict before bed.

Limited research has been done on the relationship between marital satisfaction and sleep quality. Troxel, Buysse, Hall, and Matthews (2009) explored how marital satisfaction is associated with sleep disturbances in a group of women. In this study, a group of women completed self-report assessments providing researchers with information about their marriage satisfaction and their typical sleep habits. Four main areas of sleep were measured: how quickly participants were able to fall asleep, the difficulty they usually had staying asleep, waking up too early without being able to fall back asleep, and their typical overall sleep quality. Results of the study showed women who reported higher relationship satisfaction with their marriage also reported having fewer sleep disturbances than those who reported lower marital satisfaction, indicating there is a negative correlation between relationship satisfaction and sleep disturbances.

Sleep and Attachment

Emotional disturbances throughout the day may affect a person's sleep quality at night (Chen et al., 2015). People with insecure attachment styles struggle with certain emotional experiences, such as intimacy and connection with a partner. Therefore, insecure attachment may be associated with poor sleep quality in adults involved in a romantic relationship (Carmichael & Reis, 2005). For example, adults with an anxious attachment style may find themselves worrying about the availability of their partner before bedtime (Carmichael & Reis, 2005). Furthermore, a study by Carmichael and Reis (2005) found that sleep quality was lower in married couples who reported high levels of anxious attachment, than it was in the group of securely attached adults.

Adults high in avoidant attachment tend to resist intimacy and connection in romantic relationships (Mikulincer, 1998; Stanton & Campbell, 2014). Being close to another person may cause stress for a person high in avoidant attachment, especially if the person sleeps in the same bed with their partner. For those high in avoidant attachment, feeling close to another person can cause distress before bedtime, which can then contribute to disruption in sleep quality (Carmichael & Reis, 2005).

Both the amount of sleep obtained each night and attachment style can have an effect on a person's ability to handle emotions (Hicks & Diamond, 2011; Carmichael & Reis, 2005). Hicks & Diamond (2011) explored how conflict before bedtime influenced overall sleep quality in avoidant and anxious participants. Results showed that all participants who reported conflict with their partner before bed had

lower overall sleep quality. Participants who scored high in avoidant attachment were able to better dismiss negative emotions experienced during conflict than those who scored high in anxious attachment. Although all participants had poor sleep quality the night they experienced conflict, avoidant participants showed lower levels of sleep disruption. This suggests that avoidant individuals might have a different way of expressing emotions rather than sleep loss after experiencing conflict with their significant other. In contrast, participants who scored high in attachment anxiety had a more difficult time falling asleep and experienced more sleep disruptions throughout the night after partner conflict than the avoidant participants.

This finding suggests that partner conflict may cause a hyper-vigilant response for anxiously attached individuals. This then means that anxiously attached adults may have a more difficult time controlling their emotions than avoidant individuals.

Hypotheses

Past research has shown how attachment styles can impact relationship satisfaction in romantic relationships. Limited research has been done to evaluate attachment style and relationship satisfaction in predicting sleep quality. The present study will examine the relationships between attachment, relationship satisfaction, and sleep quality in individuals who are currently involved in romantic relationships. The hypotheses of this study are as follows:

H1: Anxious attachment scores will be positively correlated with sleep quality scores while controlling for relationship satisfaction and avoidant attachment, indicating that the more anxious a participant is, the worse sleep quality will be.

H2: Avoidant attachment scores will be positively correlated with sleep quality scores while controlling for relationship satisfaction and anxious attachment, indicating that the more avoidant participants are, the worse sleep quality will be.

CHAPTER II

METHODS

Participants

A sample of 778 participants were recruited through Amazon Mechanical Turk (MTurk). The study was available to any participant who was at least 18 years or older and who lived in the United States. Participants were also required to be in a relationship for at least three months at the time of the study. All participants who completed the study were rewarded with $.50 through MTurk's payment system. One hundred and twenty-seven participants were excluded from the study because they were not currently in a relationship, and 41 participants were excluded for not meeting the relationship requirement of 3 months. An additional 75 participants were excluded for not finishing the survey, and another 52 were excluded for completing the survey twice. This left a final subject pool of 483 participants.

Participants were both males (37.3%) and females (62.7%) between the ages of 19 and 73 years (M = 36.5, SD = 10.7). Majority of the participants were under the age of 50 (86.9%), while 10.4% of the participants were 50 years or older.

The length of participant's relationships ranged from 3 months to 46 years, and participants were either in a relationship (44.1%), married (54.7%), or married but separated at the time of the study (1.2%). The majority of the population was white (73.9%), however, 7.9% were Hispanic/Latino, 8.7% identified as Black or African American, 7.5% identified as Asian/Pacific Islander, .4% identified as Native American or Indian, and 1.7% identified as bi-racial or "other".

Materials

Demographics questionnaire. A 9-item demographic survey was provided to participants to collect information about the participant's age, relationship status, length of current relationship, ethnicity, gender, location of residency, whether cohabiting with their partner or not, occupation, and shift worked, if currently employed (Appendix A).

Pittsburgh Sleep Quality Index (PSQI). The PSQI was developed by Buysse, Reynolds, Monk, Berman, and Kupfer (1989) and is used to measure participants' sleep quality (Appendix B). The PSQI measures subjective sleep quality during the past 30 days. The questionnaire has 19 self-report items about sleep behaviors, and five questions that are then rated by the participant's roommate or bed partner. These last five questions are for clinical reasons only, and were not used in this study. The 19 scored items on the PSQI are used to form seven component scales, and the seven component scales are added together to compute the final sleep quality score. For the current study, only the total PSQI score was used for analyses.

The seven component scales are as follows: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The subjective sleep quality scale score is found by using the response to question 6. Sleep latency is found by examining question 2, and assigning a score as follows: <15 minutes = 0, 16-30 minutes = 1, 31-60 minutes = 2, > 60 minutes =3. Then, the answer from question #5 is added together with scores from #2 to determine the final sleep latency score. Sleep duration

score is found by using the score on question #4. Sleep efficiency is calculated by dividing the number of hours slept (question 4) by the amount of time spent in bed, and then multiplying by 100 to get the percentage: >85% = 0, 75-84% = 1, 65-74% = 2, <65% = 3. Sleep disturbances scores can be calculated by examining questions #5b-5j. Add the scores together and assign as follows: 0 = 0, 1-9 = 1, 10-18 = 2, 19-27 = 3. Use of sleeping medication can be calculated by using the score from question 7. Daytime dysfunction can be calculated by adding the scores from questions 8 and 9, and assigning scores as follows: 0 = 0, 1-2 = 1, 3-4 = 2, 5-6 = 3. Each scale has a range of 0-3 points, with 0 meaning no difficulty, and 3 indicating severe difficulty. Then, the 7 component scores are added together to obtain the total PSQI score. The minimum score is 0 (better sleep quality) and the maximum score is 21 (worse sleep quality). A score of "5" or more indicates poor sleep quality. Initial examination of the total PSQI scale shows it to have adequate internal consistency (α = .70; Buysse et al., 1989). Reliability analyses conducted for the current study also showed adequate internal consistency for the total PSQI scale (α = .74).

Experiences in Close Relationships-Revised. The Experiences in Close Relationships-Revised questionnaire created by Fraley, Waller, and Brennan (2000) was used to measure attachment styles in participants (Appendix C). The ECR-R is a 36-item self-report questionnaire with two subscales, each containing 18 items. The first 18 items on the scale comprise the anxious attachment subscale, while items 19-36 make up the avoidant attachment subscale. Each item is rated on a 7-point scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Total scores for each scale

can be computed by taking the average of all 18 items. On the anxiety subscale, high numbers on items 1-8, 10, and 12-18 indicate high anxiety, while low numbers indicate low anxiety. Items 9 and 11 were reverse scored. On the attachment-related avoidance scale, high scores on each item indicate high avoidance while low scores indicate low levels of avoidance. Items 20, 22, 26, 27, 28, 29, 30, 31, 33, 34, 35, and 36 were reverse scored.

A study by Sibley, Fischer, and Liu (2004) examined the reliability and validity of the ECR-R. Internal consistency, indicated by Cronbach's coefficient alpha was .94 for the attachment-related avoidance scale, and .93 for the attachment-related anxiety scale. This study found Cronbach's alpha .94 for the attachment-related anxiety scale, and Cronbach's alpha .95 for the attachment-related avoidance scale.

Investment Model Scale (IMS). The IMS, developed by Rusbult, Martz, and Agnew (1998) will be used to measure relationship satisfaction in participants (Appendix D). The IMS is a 37-item scale that measures four aspects of relationships: commitment level, relationship satisfaction, quality of alternatives, and investment size. To test the hypotheses of the study, the relationship satisfaction sub-scale will be used. For exploration purposes, the entire scale will be administered to participants. The relationship satisfaction scale, the quality of alternatives scale, and the investment size scale have 5 facet items, followed by 5 global items for participants to complete. The commitment level scale has 7 global questions, and no facet questions. The facet questions are used to prepare the participants for the global

questions, and are therefore not scored. The global questions for the satisfaction scale are rated on a nine-point scale (0 = do not agree at all, 8 = agree completely), with lower scores indicating lower satisfaction, and higher scores indicating greater satisfaction. The mean of the five items can be computed to obtain the participant's score on this scale.

Rusbult et al. (1998) conducted three studies to determine the reliability of the IMS. All three studies found the measure to have high internal consistency among the four scales, indicating the measure has good reliability. Cronbach's Alpha for the global items on each scale ranged from .91 to.95 for the overall commitment scale, .92 to .95 for the satisfaction scale, .82 to .88 for the quality of alternatives scale, and .82 to.84 for the investment size scale. When used in the current study, the relationship satisfaction sub-scale had high internal consistency (α = .95).

Design

The current study was a correlational study that examined the relationship between the predictor variables and the outcome variables. The predictor variables for this study were anxious attachment, avoidant attachment, and relationship satisfaction. The outcome variable for this study was sleep quality. The Experiences in Close Relationships - Revised scale was used to measure attachment style scores for participants. Higher scores on the anxiety scale and the avoidant scale indicate higher levels of insecure attachment. Lower scores indicate lower levels of anxious or avoidant attachment. The Investment Model (IMS) was used to measure relationship satisfaction. Higher scores on the relationship satisfaction scale indicate higher levels

of relationship satisfaction, while lower scores indicate lower levels of relationship satisfaction. Scores from the Pittsburgh Sleep Quality Index (PSQI) were be used to measure participant's sleep quality. Higher scores on the PSQI indicate poor sleep quality, while lower scores indicate better sleep quality.

Procedure

The entire study was completed online. Volunteer participants completed the study through the Amazon Mechanical Turk website. Participants first read the informed consent, which provided information about the study (Appendix E). If participants did not agree to the consent form, they were directed to the final page of the study and thanked for their time. Once participants provided electronic consent to the consent form, they were then provided with the demographics questionnaire (Appendix B). Next, they were then directed to complete the Pittsburgh Sleep Quality Index, the Experiences in Close Relationships-Revised scale, and the Investment Model Scale in randomized order. Once participants completed all of the scales, they were presented with the debriefing screen (Appendix F) and thanked for their participation in the study. Participants were paid their incentive of $.50 through Amazon's payment system.

CHAPTER III

RESULTS

For each participant, anxious attachment, avoidant attachment, relationship satisfaction, and sleep quality scores were obtained. Table 1 displays the descriptive statistics for each of these variables. 68.7% of the sample scored 5 or more on the Pittsburgh Sleep Quality Index, while 31.3% of participants scored lower than 5., indicating that the majority of the participants experience poor sleep quality. Bivariate correlations between study variables are shown in Table 2.

Table 1
Descriptive Statistics for Variables

	Anxious Attachment	Avoidant Attachment	Relationship Satisfaction	Sleep Quality
M	2.92	2.62	6.06	6.49
SD	1.31	1.17	1.64	3.69
Minimum	1	1	1	0
Maximum	6.83	6.5	7.6	18
N	483	483	483	476

Note: Minimum and maximum values are the lowest and highest scores obtained

Table 2
Bivariate Correlations between Study Variables

Variables	1	2	3	4
1. Sleep Quality	1			
2. Anxious Attachment	.39*	1		
3. Avoidant Attachment	.23*	.64*	1	
4. Relationship Satisfaction	-.28*	-.52*	-.65*	1

Note: $N = 476$

*$p < .001$

A hierarchical multiple regression analysis was conducted to determine if anxious attachment and avoidant attachment predicted sleep quality while controlling for relationship satisfaction. The regression analysis showed that relationship satisfaction was a statistically significant predictor of sleep quality, F (1,474) = 39.74, p <.001, and accounted for 7.5% of the variance in sleep quality. The full model was statistically significant, (F (3,472) = 30.83, p < .001). Together, relationship satisfaction, anxious attachment, and avoidant attachment accounted for approximately 16% of the variance in sleep quality. Anxious attachment had a statistically significant association with sleep quality, b = .38, p < .001. Although the bivariate correlation between avoidant attachment and sleep quality was statistically significant (r = .23, p < .001), when included in the model with relationship satisfaction the relationship was no longer statistically significant, b = -.12, p = .057.

Table 3
Hierarchical Regression Model of Sleep Quality

	R	R^2	R^2 *Change*	*B*	*SE*	*β*	*t*
Step 1	.28	.077	.075				
Relationship Satisfaction				-.63	.10	-.28**	-6.30
Step 2	.41	.164	.159				
Relationship Satisfaction				-.36	.13	-.16*	-2.85
Anxious Attachment				1.07	.16	.38**	6.84
Avoidant Attachment				-.38	.20	-.12	-1.91

Note: Statistical significance *p < .01; **p < .001

CHAPTER IV

DISCUSSION

The purpose of this study was to examine the relationship between adult attachment style, relationship satisfaction, and sleep quality. It was predicted that (a) anxious attachment scores would be positively correlated with sleep quality scores while controlling for relationship satisfaction and for avoidant attachment and (b) avoidant attachment scores would be positively correlated with sleep quality scores while controlling for relationship satisfaction and anxious attachment. The first hypothesis was confirmed through this study, meaning that anxious attachment was a significant predictor variable for sleep quality while controlling for relationship satisfaction. The second hypothesis was not confirmed, demonstrating that avoidant attachment is not a significant predictor for sleep quality when controlling for relationship satisfaction.

In order to test the hypotheses, a hierarchical multiple regression analysis was conducted to determine if insecure adult attachment styles were a significant predictor variable of sleep quality while controlling for relationship satisfaction. The first model of the hierarchical multiple regression analysis found relationship satisfaction to be a significant predictor variable for sleep quality. The second model found that anxious attachment was also a significant predictor of sleep quality while controlling for relationship satisfaction and avoidant attachment. The second model also showed that avoidant attachment was a significant predictor variable for sleep quality, but

only by itself and not when controlling for relationship satisfaction and anxious attachment.

There were several important findings in this study. The first finding being that relationship satisfaction was a significant predictor variable for sleep quality. Participants who experienced high satisfaction with their relationship also experience better sleep quality than those who have lower levels of satisfaction in their relationship. This finding was consistent with several other studies that evaluated the effects of relationship satisfaction on sleep quality (Kane et al., 2014; Insana et al., 2011; Troxel et al., 2009; Hicks & Diamond, 2011). While this finding was congruent with past research, the current study did not identify possible underlying reasons why participants with higher relationship satisfaction scores had lower scores on the Pittsburgh Sleep Quality Index, indicating better sleep quality. Another study by Hicks and Diamond (2005) found that couples who experience conflict with each other prior to bedtime have lower overall sleep quality than couples who do not experience conflict before bedtime. The findings of these two studies may indicate that emotional processes such as self-disclosure or conflict may be a reason why relationship satisfaction is a significant predictor for sleep quality.

The second important finding of this study was that anxious attachment was a significant predictor variable of sleep quality. The model remained significant while controlling for relationship satisfaction, indicating that anxious attachment is a significant predictor of sleep quality over and above relationship satisfaction and avoidant attachment. This finding supports the first hypothesis of the current study

indicating that participants who experience higher levels of anxious attachment will have higher levels of disruption in sleep quality. A similar correlation was found by Carmichael and Reis (2005) when examining anxious attachment and the effects on sleep quality, finding that individuals high in anxious attachment had worse sleep quality than participants with secure attachment. Individuals with high levels of anxious attachment tend to worry about losing their partner which can lead to high levels of emotional distress and lower levels of satisfaction in their relationship (Insana et al., 2011). Excessive worry and emotional arousal can have a negative effect on sleep quality, resulting in a difficult time falling asleep or staying asleep throughout the night. The findings from past research suggest that anxiously attached individuals allow emotional processes such as stress and worry to affect their relationship satisfaction, which may then result in poor sleep quality. While the findings from the current study also found a significant relationship between anxious attachment, relationship satisfaction, and sleep quality, further research is needed to better understand the nature of the relationship.

Another important finding of the current study was that avoidant attachment was significantly correlated with sleep quality, but not while controlling for relationship satisfaction and anxious attachment. This finding did not support the second hypothesis of the study that predicted higher levels of anxious attachment would predict higher levels of disruption in sleep quality when relationship satisfaction was controlled for. This finding suggests that participants with high avoidant attachment experience lower levels of sleep quality than participants with

secure attachment, but not necessarily beyond the effect of relationship satisfaction. Past research has shown that individuals high in avoidant attachment experience lower satisfaction in their relationships than secure individuals (Li & Chan, 2012). One possible reason is that adults who are high in avoidant attachment tend to distance themselves emotionally from their partner and shy away from intimacy. Avoidant individuals do not desire to be close to their partner physically or emotionally, and do not seek comfort from their significant other (Mikulincer, 1998). Therefore, it is possible that individuals with avoidant attachment may experience such low satisfaction with their relationship that it does not affect their sleep quality as much as secure or anxious individuals.

Hicks and Diamond (2011) explored how attachment style had an effect on sleep quality, and found that both anxious and avoidant participants experienced lower levels of sleep quality than participants with secure attachment after experiencing conflict with their partner before bed. While this was the case, participants with avoidant attachment showed better levels of sleep quality than participants with anxious attachment. Perhaps adults who are high in avoidant attachment are able to separate their negative emotions about their relationship at bedtime, meaning that they have fewer sleep disturbances and better sleep quality than anxiously attached individuals.

Limitations and Implications for Future Research

There were several limitations in the current study. One limitation of the study was the ethnic background of the participants. Majority of the participants in this

study were Caucasian (73.9%). A more diverse population may be needed to evaluate how different cultural beliefs may impact the results of the study. Future researchers may be interested in obtaining a more diverse sample to better understand cultural differences in relationship satisfaction and attachment. Also, the majority of the participants in this study were female (62.7%). Females may respond to relationship factors differently than males. Obtaining more men in a future study may help researchers gain insight to gender differences in relationship satisfaction. Therefore, future researchers may want to use a different way of collecting participants in order to obtain a more diverse population.

The instrument used to determine participant's sleep quality was potentially another limitation of the current study. The Pittsburgh Sleep Quality Index is a subjective measure of sleep, and requires participants to recall their sleep patterns over a one month interval. It may be difficult for participants to be able to recall their sleep quality for an entire month. Future researchers should consider using another instrument to measure sleep quality along with the PSQI, such as a sleep log. The data from the sleep log can be compared with the data from the PSQI to determine if the self-reported data is reliable. In addition, due to the instrument being self-administered, several questions were skipped or misinterpreted by participants. For example, the first question of the instrument was labeled "bed-time." Several participants skipped the question or did not use units such as AM or PM. This instrument may be used better in a setting where researchers can review the questionnaire for completion. Also, future researchers may want to require

participants to answer time related questions in military time to avoid confusion if a unit is left out.

A final limitation of the current study was the method that data was collected through Amazon's Mechanical Turk. As with any self-report survey, it is unclear if participants were paying close attention to answers throughout the study. Multiple participants were able to complete the survey much faster than the time estimated for completion. Future researchers may consider inserting questions throughout the survey that tests the participant's attention.

Clinical Implications

The findings from the current study may have clinical implications for those working in the mental health field. Relationships are an important aspect in our society. Many people value healthy and rewarding romantic relationships, and struggle mentally when satisfaction is low. Clients often seek professional help when experiencing problems with a romantic relationship. Clinicians who practice relationship counseling should be aware of several factors that may play a role in how people act in relationships. Individuals with an insecure attachment style may have ineffective coping strategies and emotional struggles in relationships. A clinician should be able to identify how attachment styles of two members in a couple can play a role on the level of satisfaction in a relationship and other important aspects of the couple's lives.

Sleep is also an important aspect to mental health. Several mental health illnesses, such as major depressive disorder, can either be triggered by lack of sleep or

can be related to sleep pattern disruptions. In addition, clients who suffer from disruption in sleep quality may have lower psychological and social well-being (Barber et al., 2014). Clinicians should pay close attention to a client's sleep quality, and whether there have been any significant changes in sleep patterns or not throughout treatment. Evaluating sleep quality may not be relevant for just individual psychotherapy. Clinicians may not think of evaluating sleep patterns in psychotherapy with couples. The results of the current study show that clinicians should be aware that attachment and relationship satisfaction may have an impact on poor sleep quality for individuals, leading to other emotional and mental health problems.

Conclusion

The purpose of the current study was to examine if insecure adult attachment styles were predictor variables for sleep quality while controlling for relationship satisfaction. Results of the study found that anxious attachment is a significant predictor variable for sleep quality, while avoidant attachment is not. Participants high in anxious attachment reported more disturbances in their sleep quality than participants with lower scores on the anxious attachment subscale. In addition, participants who scored high on the avoidant attachment subscale also experienced lower sleep quality, however, the correlation was not significant when controlling for relationship satisfaction. With this information, mental health clinicians may be able to understand different coping skills for individuals with insecure attachment styles, and how they relate to their current relationship. Future research should focus on

examining other reasons participants with avoidant attachment may experience poor sleep quality.

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APPENDICES

APPENDIX A

DEMOGRAPHICS QUESTIONNAIRE

Instructions: Please complete the following questions:

1. What is your gender?

    a. Male

    b. Female

    c. Other:

    d. Decline to state

2. What is your race/ethnicity?

    a. Hispanic or Latino

    b. White

    c. Black or African-American

    d. Native American or American Indian

    e. Asian/Pacific Islander

    f. Other:

    g. Decline to state

3. Enter your age in years:

4. What is your current relationship status?

    a. Single/never married

    b. In a relationship (not married)

    c. Married

d. Married but separated

e. Divorced

f. Widowed

5. How long have you been in your current relationship?

6. What is your current living situation?

a. Living together with partner (cohabiting)

b. Living separate from partner

7. Do you currently live in the United States?

a. Yes

b. No

8. What is your occupation status?

a. Work full-time

b. Work Part-time

c. Not currently working

9. If currently working, what shift do you work?

a. Day shift

b. Night shift

c. Swing shift

d. Other:

APPENDIX B

PITTSBURGH SLEEP QUALITY INDEX (PSQI)

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night?

2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?

3. During the past month, what time have you usually gotten up in the morning?

4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)

For each of the remaining questions, check the one best response. Please answer all questions.

5. During the past month, how often have you had trouble sleep because you…

a) Cannot get to sleep within 30 minutes

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

b) Wake up in the middle of the night or early morning

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

c) Have to get up to use the bathroom

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

d) Cannot breathe comfortably

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

e) Cough or snore loudly

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

f) Feel too cold

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

g) Feel too hot

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

h) Had bad dreams

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

i) Have pain

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

j) Other reason(s), please describe

How often during the past month have you had trouble sleeping because of this?

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

6. During the past month, how would you rate your sleep quality overall?

0. Very good

1. Fairly good

2. Fairly bad

3. Very bad

7. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

0. Not during the past month

1. Less than once a week

2. Once or twice a week

3. Three or more times a week

9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

0. No problem at all

1. Only a very slight problem

2. Somewhat of a problem

3. A very big problem

10. Do you have a bed partner or roommate?

0. No bed partner or room mate

1. Partner/roommate in other room

2. Partner in same room, but not same bed

3. Partner in same bed

APPENDIX C

THE EXPERIENCES IN CLOSE RELATIONSHIPS-REVISED (ECR-R)

The statements below concern how you feel in emotionally intimate relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by clicking on the number to indicate how much you agree or disagree with the statement. Response format: 1 = Strongly Disagree, 7 = Strongly Agree

1. I'm afraid that I will lose my partner's love
2. I often worry that my partner will not want to stay with me
3. I often worry that my partner doesn't really love me
4. I worry that romantic partners won't care about me as much as I care about them
5. I often wish that my partner's feelings for me were as strong as my feelings for him/he
6. I worry a lot about my relationships
7. When my partner is out of sight, I worry that he or she might become interested in someone else
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me
9. I rarely worry about my partner leaving me
10. My romantic partner makes me doubt myself

11. I do not often worry about being abandoned

12. I find that my partner(s) don't want to get as close as I would like

13. Sometimes romantic partners change their feelings about me for no apparent reason

14. My desire to be very close sometimes scares people away

15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am

16. It makes me mad that I don't get the affection and support I need from my partner

17. I worry that I won't measure up to other people

18. My partner only seems to notice me when I'm angry

19. I prefer not to show a partner how I feel deep down

20. I feel comfortable sharing my private thoughts and feelings with my partner

21. I find it difficult to allow myself to depend on romantic partners

22. I am very comfortable opening up to romantic partners

23. I don't feel comfortable opening up to romantic partners

24. I prefer not to be too close to romantic partners

25. I get uncomfortable when a romantic partner wants to be very close

26. I find it relatively easy to get close to my partner

27. It's not difficult for me to get close to my partner

28. I usually discuss my problems and concerns with my partner

29. It helps to turn to my romantic partner in times of need

30. I tell my partner just about everything

31. I talk things over with my partner

32. I am nervous when partners get too close to me

33. I feel comfortable depending on romantic partners

34. I find it easy to depend on romantic partners

35. It's easy for me to be affectionate with my partner

36. My partner really understands me and my needs

APPENDIX D

THE INVESTMENT MODEL SCALE (IMS)

Part I. Please indicate the degree to which you agree with each of the following statements regarding your current relationship.

a. My partner fulfills my needs for intimacy (sharing personal thoughts, secrets, etc.)

1. Don't agree at all
2. Agree slightly
3. Agree moderately
4. Agree completely.

b. My partner fulfills my needs for companionship (doing things together, enjoying each other's company, etc)

1. Don't agree at all
2. Agree slightly
3. Agree moderately
4. Agree completely.

c. My partner fulfills my sexual needs (holding hands, kissing, etc)

1. Don't agree at all
2. Agree slightly
3. Agree moderately
4. Agree completely.

d. My partner fulfills my needs for security (feeling trusting, comfortable in a stable relationship, etc)

1. Don't agree at all

2. Agree slightly

3. Agree moderately

4. Agree completely.

e. My partner fulfills my needs for emotional involvement (feeling emotionally attached, feeling good when another feels good, etc)

1. Don't agree at all

2. Agree slightly

3. Agree moderately

4. Agree completely

Part II. Please indicate the degree to which you agree with each of the following statements regarding your current relationship. Response format: 1 = Strongly Disagree, 8 = Strongly Agree

2. I feel satisfied with our relationship

3. My relationship is much better than other's relationships

4. My relationship is close to ideal

5. Our relationship makes me very happy

6. Our relationship does a good job of fulling my needs for intimacy, companionship, etc.

APPENDIX E

CONSENT FORM

You are being asked to participate in a research study exploring certain factors that may contribute to better sleep quality. If you agree to participate, you will be asked to answer survey questions that ask about how you act in relationships. The study will take approximately 20 minutes to complete, and you will be compensated for your participation with $.50 through MTURK's payment system.

Taking part in this questionnaire is completely voluntary, and you may choose to withdraw from this study at any time without penalty. Even if you choose to withdraw, you will still be compensated the promised amount. Participation in this research study does not guarantee any other benefits.

Your responses will be kept strictly confidential, and your MTURK ID number will not be associated with your responses. All data from this study will be kept safe from any inappropriate disclosure, and will only be accessible to the researcher and research advisor.

This research is being completed by Courtney Wohld. The faculty advisor is Dr. Gary Williams, Department of Psychology, California State University, Stanislaus. If you have questions or concerns about your participation in this study, you can contact the researcher through Dr. Williams' email, gwilliams1@csustan.edu.

The present research is designed to reduce the possibility of any negative experiences as a result of participation. Risks to participants are kept to a minimum. However, if your participation in this study causes you any concerns, anxiety, or distress, please contact your local mental health services.

Clicking the "Yes" button below indicates that you are 18 years of age or older, and indicates your voluntary consent to participate in this survey.

APPENDIX F

DEBRIEFING FORM

Thank you for participating in our study. We are interested in understanding the relationship between adult attachment styles, relationship satisfaction, and sleep quality. Results from other studies have shown that adults who experience certain attachment styles may have lower relationship satisfaction with their partner. Results also show that adults with these attachment styles may experience poor sleep quality at night. We expect to find similar results with our study. We predict that adults with certain attachment styles will experience lower relationship satisfaction and sleep quality than adults who do not have these attachment styles.

All data collected from the study will be kept in a safe location to maintain confidentiality. In addition, there will be no way to identify personal information through this dataset. The researchers are not interested in individual responses, but are interested in the overall pattern from all participant's responses. We ask that you do not discuss the content of this study in order to maintain the quality of our research.

If you have any questions about the study, or would like to obtain information about results, you may contact me at cthomas14@csustan.edu or my research supervisor, Dr. Williams at gwilliams1@csustan.edu. If you have questions about your rights as a research participant, you may contact the Chair of the Psychology Institutional Review Board of California State University Stanislaus, Dr. Jessica Lambert, at PsychologyIRB@csustan.edu or (209) 667-3934. If you experience any psychological distress after completion of this study, we encourage you to locate your local mental health care services.