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DOI: 10.58809/JVSZ9093

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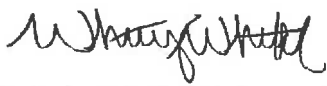
EXAMINING SELF-ESTEEM AS A MODERATOR OF ATTACHMENT AND MULTIPLE
SEXUAL PARTNERS


A Thesis Presented to the Graduate Faculty
of the Fort Hays State University in
Partial Fulfillment of the Requirements for
the Degree of Master of Science

by

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Abstract

The purpose of this study was to examine self-esteem as a moderator of attachment styles (i.e., avoidant, anxious, or secure) and its associated impact on the number of sexual partners an individual has had in their lifetime. Previous literature has found that an individual's level of self-esteem affects a person's number of sexual partners. Studies have also been conducted examining the correlation between attachment styles and number of sexual partners, finding that those with an insecure attachment style, namely anxious or avoidant attachment, tend to have more sexual partners. While previous literature has examined these factors separately, this study aimed to examine self-esteem as a moderator of attachment style on the number of sexual partners an individual has. In doing so, we may determine if self-esteem may predict when attachment styles influence decisions regarding the number of sexual partners. The sample for this work consisted of 300 participants who completed surveys assessing levels of self-esteem (Rosenberg Self-Esteem Scale) and attachment style (Revised Adult Attachment Scale - Close Relationships Version). Participants were also asked to respond to a question pertaining to the number of sexual partners they have had in their lifetime. We hypothesized that: (1) avoidantly attached individuals would report a higher number of sexual partners when self-esteem is low, (2) anxiously attached individuals would report a higher number of sexual partners when self-esteem is low, and (3) securely attached individuals would report a lower number of sexual partners when self-esteem is high. Using a moderation analysis, hypotheses one and three were not supported while hypothesis two was partially supported. These results can be used to further understand variables pertaining to hookup culture, as well as provide clinicians with information to help them further create treatment plans pertaining to self-esteem and/or attachment.

Keywords: self-esteem, attachment style, sexual partners, attachment theory

ACKNOWLEDGMENTS

This thesis was made possible through the help, advice, and support of many individuals. I owe my thesis advisor, Dr. Whitney Whitaker, a huge thank you as she guided me through this project. My success is a result of her consistent words of encouragement and affirmations. I would also like to thank the members of my graduate thesis committee, Dr. Carol Patrick, Dr. Brooke Mann, and Dr. Chirsty Craig for taking the time to review my thesis, offering feedback, and supporting me throughout this journey.

I would also like to thank my parents, Connie and Terry Kinderknecht, and my lovely little sister, Lexi, for the constant support they give me. Your love and encouragement have pushed me to become the person I am today!

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INTRODUCTION

Over 50% of men and women in the United States will have more than one sexual partner throughout their lifetime (Netting & Reynolds, 2018). According to the Center for Disease Control and Prevention (2021), the median number of opposite-sex sexual partners in the United States was 4.3 for women and 6.3 for men, aged 25-49. The CDC defined sex as vaginal, oral, or anal sex. Only 11.2% of men had one partner, while 28.3% of men had 15 or more partners. Women typically had less partners, with 17.7% of women having one partner, and 29.2% having two to four partners (CDC, 2021). Statistics are provided for heterosexual men and women. However, there is a lack of information pertaining to individuals identifying differently than man or woman. Furthermore, studies pertaining to individuals who have same-sex sexual partners are limited. Thus, one goal of this proposed study would aim to eliminate this dichotomy by including participants of all genders and sexualities.

Important for the current work, research indicates that emerging adults have begun to take a new, less serious approach to relationships and sexual intimacy, resulting in less commitment and the rise of hookup culture (James-Kangal et al., 2018). A hookup culture accepts and encourages casual sex encounters, including one-night stands and other related activities, without necessarily including emotional intimacy, bonding, or a committed relationship (Paul, 2022). Thus, hookup culture may emphasize a self-focused nature of emerging adulthood (i.e., individuals are focused in the now, and what will benefit them in the present, as opposed to focusing on a committed relationship in the future; Wade, 2021). Due to the rise of hookup culture, as well as the high percentage of individuals that will have more than one sexual partner during their lifetime, discovering and understanding variables that both correlate with, and predict, sexual partners is important. The study of this topic may elucidate

beneficial information regarding factors that influence relational decisions. Therefore, the current research focused on two main variables of interest, self-esteem and attachment, as important factors that may influence the number of sexual partners. In the sections that follow, a review of previous literature on this topic will be discussed. Gaps in this literature as well as the need for more research on this topic will also be outlined in detail.

Review of Previous Literature and Theory

Rise of Hookup Culture and Number of Sexual Partners

Most individuals will have at least one sexual partner in their lifetime. However, due to the rise of hookup culture, many individuals will have more than one partner throughout their lifetime (Netting & Reynolds, 2018). Having multiple partners may result in a higher chance of sexually transmitted infections (STI), as well as unprotected sex. To examine the relationship between interactions, relationship status, and trajectory groups (i.e., multiple, single, or rare number of sexual partners) as predictors of pregnancy protection and STI's Ashenhurst et al. (2017) conducted a longitudinal study. This study lasted six years and consisted of 10 waves of assessment. Results found that participants in the Multiple Class had the greatest chance of engaging in sex without protection, followed by the Single Class, and then the Rare Class. Rossi et al. (2017) also found that the multiple-partners trajectory group consisted of increased participants when social competence was apparent (i.e., feeling comfortable in crowds or around strangers).

To further understand sexual behavior, McMahan and Olmstead (2020) conducted a study to examine the relationship between self-reported sexual behavior, motivations against sex, and emerging adults (ages 18-25 years old). Two studies occurred to examine these variables: (1)

three motivations against sex (i.e., *value*, *health*, and *not feeling ready*) and demographic variables as well as (2) number of sexual partners and motivations against sex.

The first study measured the three motivations above. *Value* motives included reasonings such as, “it is against my personal beliefs;” *health* motives included things like, “I have a fear of getting an STI;” *not feeling ready* motives included items such as, “I don’t feel old enough.” Results indicate that men, and those that have experienced penetrative or oral sex, reported lower *value* and *not ready* motives when compared to women with no sexual experiences (McMahan & Olmstead, 2020). White participants reported less *health* motivations than racially diverse individuals. Lastly for study one, all three motives against sex were associated with casual sex, with *not ready* and *value* motives having a strong association. Study two results found that participants with more *value* and *not ready* motivations against sex reported fewer sexual partners (McMahan & Olmstead, 2020). However, those with more *health* motivations reported a greater number of sexual partners.

The work cited above provides beneficial information regarding the importance of motivation in one’s decisions about sexual behaviors. Important for the current work, *value* motivations appeared to be a strong reasoning with respect to the decision to either engage in sexual behaviors or not. The authors of this work recommend that future research extend on *value* motives to include elements that not only speak to moral and ethical values, but also relate to values of the self. As such, the current work seeks to expand on the literature known about motives for predicting sexual behaviors by focusing on an aspect of self-value, or more specifically, self-esteem and its potential connection to sexual decision making.

Self-Esteem and Number of Sexual Partners

Self-esteem is formed at a young age and lasts throughout one's lifetime. Researchers have long theorized that self-esteem, commonly defined as a trait or individual difference, influences our social relationships (Harris & Orth, 2020). Given research suggesting that trait-like self-esteem impacts relational outcomes, the current study will conceptualize and operationalize self-esteem as more of a trait (or personality attribute) that describes an individual's personal and lifelong perspectives of worth based on social inclusion and isolation (Harris & Orth, 2020; Leary et al., 1995).

Importantly, low self-esteem may lead a person on a certain path, while high self-esteem may lead them on a different path. One of the paths that self-esteem leads people on is their decision-making processes toward sexual partners. Fielder et al. (2013) studied the relationship between first-year female college students and their sexual behavior. They used a longitudinal method design to identify possible predictors that may affect first-year female's sexual behavior. Participants completed a baseline survey, as well as this same survey every month for nine months, to assess the number of times they had engaged in vaginal sex and oral sex (receiving or performing). Results showed that 20% of women engaged in receiving oral sex at least once, 25% of women engaged in performing oral sex at least once, and 25% of women engaged in vaginal sex at least once during the duration of the study. Fielder et al. (2013) also found that self-esteem served as a protective factor, meaning those that scored highly on levels of self-esteem were likely to have a lower number of sexual partners than those with low levels of self-esteem.

Although Fielder et al. (2013) research studied only first-year female college students, further research was completed by Townsend et al. (2020) to understand sexual behaviors among

both male and female college students. Townsend et al. (2020) conducted a study to examine the relationship between motives for sex (i.e., autonomous and non-autonomous), casual sex, well-being, and sexual victimization. One measure of sexual victimization, two measures of well-being (i.e., self-esteem and depression), and two measures of casual sex were discussed. Results showed that autonomous motives (i.e., wanting to have sex) were positively associated with casual sex, whereas non-autonomous motives (i.e., not wanting or feeling forced to have sex) were negatively associated with casual sex. Autonomous motives were also associated with sexual victimization in women. Furthermore, Townsend et al. (2020) found that negative levels of well-being were associated with higher levels of depression, lower levels of self-esteem, and a higher number of sexual partners. Although this research studied both men and women, the sample still consisted of western, educated, industrialized, rich, and democratic (WEIRD) college students.

To address previous limitations of Townsend et al., (2020) study, research was conducted by Wang et al. (2018). They studied the association between having multiple sexual partners and psychosocial problems in men that have sex with men. Psychosocial problems were defined using measures of involuntary subordination, depression, sexual compulsivity, loneliness, and self-esteem. Wang et al. (2018) found that men with psychosocial problems engaged in casual sex, as well as showing greater odds of having had multiple sexual partners in the past six months. More specifically, men with low self-esteem showed a higher likelihood of engaging in casual sex, as well as having more than one sexual partner during the previous six months. Although this study does eliminate previous limitations of a WEIRD, college-aged sample, generalizability is still small due to their sample consisting of men who have sex with men in China. Further research is needed to address these limitations.

Attachment and Number of Sexual Partners

An individual's attachment style is usually formed before they reach one year of age. Different types of attachment lead to different ways of thinking about, feeling, or behaving toward certain life events. One of those events that has begun being studied is the decision-making process of sexual relationships and the number of partners a person may have in their lifetime. Hackathorn and Malm (2022) conducted a study that aimed to examine attachment styles and parent-child relationships on the development and maintenance of sociosexuality. For the purposes of this study, sociosexuality was defined as comfort with sex outside of a committed relationship. Results found that parental rejection led to insecure attachment styles (Hackathorn & Malm, 2022). These insecure attachment styles were then negatively associated with sex guilt. When an individual has feelings of immorality after having sex and their ability to enjoy it is impeded, sex guilt occurs. In other words, sex guilt was exhibited more amongst individuals with an insecure attachment style. Furthermore, results found that sociosexuality was negatively correlated with attachment. Therefore, individuals with an avoidant or anxious attachment style had a higher tendency to engage in unrestricted sociosexuality (i.e., more comfortably with sex outside of committed relationship, resulting in having multiple sexual partners).

Dunkley et al. (2016) completed a study that pertained to both men and women, unlike Hackathorn and Malm's (2022) research. Examining the relationship between anxious or avoidant attachment on sexual functionality is what Dunkley et al. (2016) study aimed to understand. Results found both similarities and differences between men and women pertaining to their sexual functioning. First, women with an anxious attachment style experienced lower levels of satisfaction, an inability to achieve orgasm, and a decline in arousal. Second, men with an anxious attachment style also experienced multiple characteristics of sexual dysfunction.

Third, women with an avoidant attachment style experienced lower aspects of all sexual functioning. Lastly, men with avoidant attachment did not experience sexual dysfunction, rather a sense of superiority in terms of physiological competence (Dunkley et al., 2016).

These results imply a difference in the number of sexual partners an individual with anxious or avoidant attachment may have based on their satisfaction level with all aspects of sexual functioning. Meaning, women with an anxious attachment style may have more sexual partners due to experiencing less sexual dysfunction than women with an avoidant attachment style. However, men may have more sexual partners if they have an avoidant attachment style as they do not experience any sexual dysfunction, whereas men with an anxious attachment style experience multiple aspects of sexual dysfunction.

To further examine the relationship between attachment style and sexual partners Kim and Miller (2020) conducted a meta-analysis that consisted of 16 studies and 42 effect sizes. The research included in the meta-analysis consisted of examining the relationship between adult attachment styles and risky sexual behavior, defined as having unprotected sex, as well as having multiple sexual partners. Results found a small effect on risky sexual behavior with both anxious and avoidant attachment styles (Kim & Miller, 2020).

To further their own research, Kim and Miller (2020) studied age and type of risk population as moderators. Both avoidant and anxious attachment styles correlated with having multiple sexual partners. Furthermore, as the average age of the participant increased, the number of sexual partners an individual with anxious attachment had also increased. When populations were particularly at-risk, the average number of sexual partners an individual had increased, as well. Kim and Miller (2020) discovered that few studies had been conducted pertaining to attachment style and risky sexual behavior (i.e., having unprotected sex and/or

multiple sexual partners), meaning further research should be done to further understand the relationship between attachment styles and multiple sexual partners. To further understand when and why certain attachment styles develop, it is imperative to understand Attachment Theory.

Attachment Theory

John Bowlby defined the term attachment as a “lasting psychological connectedness between human beings” (McLeod, 2022). Due to his persistent research in attachment, he developed a theory based around attachment. Beginning during infancy, children form relationships with their caregiver (typically the parent), with a critical time period of birth to five years old. In order for infants to form a secure attachment, the caregiver must provide a secure, safe, and loving environment for the infant. This can be accomplished by play and communicating with the infant often. However, if the caregiver does not provide a secure environment for the infant, they may form an insecure attachment style (i.e., anxious, avoidant, or disorganized/fearful-avoidant). McNeil et al. (2018) found that attachment styles formed in infancy can last throughout adulthood, especially when it pertains to communication about problematic sexual experiences. Results showed that avoidant attachment styles related to more of the negative communication aspects, as opposed to the positive. However, results showed that neither positive nor negative communication occurred between those with an anxious attachment style.

Monteoliva et al. (2016) further studied attachment pertaining to the costs and benefits of a romantic relationship. This study discussed aspects of Bowlby’s theory on creating mental schemas for an individual. Results suggested that individuals with an avoidant or anxious attachment style led individuals to perceive a loss of independence caused by a relationship. However, those with secure attachment styles led individuals to believe that relationships led to

greater closeness and intimacy with a partner. Furthermore, Passanisi et al. (2015) found that individuals with secure attachment had higher levels of self-esteem, as well as those with insecure attachments (anxious or avoidant) had lower levels of self-esteem.

Attachment theory aims to explain the effects of parenting on an individual's attachment style lasting throughout their lives. Understanding this theory will help to further understand how one develops high or low levels of self-esteem. Furthermore, drawing developing an understanding on how one's attachment style when combined with low or high self-esteem levels impacts the number of sexual partners they have in their lifetime is crucial to the current study.

Overview of the Present Study

The purpose of this study was to investigate the relationship between self-esteem, attachment styles, and the number of sexual partners an individual has had in their lifetime. This study aimed to investigate secure, avoidant, and anxious attachment styles as an independent variable, as well as self-esteem as a moderator, and the number of sexual partners an individual has had in their lifetime as the main dependent variable.

It is necessary to investigate this relationship to fill a gap in the literature. Although previous research has studied the relationship between self-esteem, attachment styles, and the number of sexual partners, minimal research has been conducted with self-esteem as a moderator of attachment styles and sexual partner amounts. Conducting this study enhanced understanding of the variables that influence when attachment predicts decisions about sexual behavior. The literature also consists of limitations pertaining to the samples being mostly females, Caucasian, or undergraduate students making the generalizability weak (Hackathorn & Malm, 2022; McMahan & Olmstead, 2020; Fielder et al., 2013). This research aimed to mitigate these limitations in order to make the results more generalizable.

Lastly, this research could help practitioners form more knowledge of hookup culture. Having multiple sexual partners has become a prominent phenomenon in today's culture (James-Kangal et al., 2018); therefore, it is important for experts in the field, as well as clients/consumers to understand the factors that may predict such behaviors. This could further help psychologists with treatment plans for their clients with secure, anxious, or avoidant attachment styles and low or high levels of self-esteem. It is important to note that having multiple sexual partners does not mean that individuals need to seek therapy or that there is any underlying issue. Rather, the goal of this work was to develop better understanding about the connection between factors such as self-esteem and attachment in relation to sexual decision making. Doing so may help professionals be more knowledgeable for clients seeking services relevant to self-esteem and/or attachment issues.

Hypotheses

For the present study, three hypotheses were developed, which are as follows

H1: Avoidantly attached individuals will report more sexual partners when self-esteem is low.

Based on prior literature, we generally expect that low self-esteem will predict a higher number of sexual partners in avoidantly attached individuals.

H2: Anxiously attached individuals will report more sexual partners when self-esteem is low..

Similar to hypothesis 1, we assume that low self-esteem will predict a higher number of sexual partners in anxiously attached individuals.

H3: Securely attached individuals will report less sexual partners when self-esteem is high.

Based on prior literature, we generally expect that high self-esteem will predict a lower number of sexual partners in securely attached individuals.

Method

Participants

For the current study, we made efforts to recruit a diverse sample with respect to race and ethnicity, age, and relational experiences. To achieve as diverse a sample as possible, Amazon's Mechanical Turk (MTurk) was used to recruit participants for the current study. To determine how many participants were needed to achieve acceptable levels of statistical power, we calculated a power analysis using the software program G*Power. For the regression analyses (or statistical tests completed for the moderation), using a medium effect size and a p -value set at .05 (~95% statistical power), the target sample size was approximately 250 participants; thus, to account for any attrition or missing data/responses, we recruited 300 total participants.

Of the 300 participants, 155 participants (51.7%) identified as female, while 145 (48.3%) identified as male. The majority of participants identified as White ($n = 267$, 89.3%), while 16 (5.4%) identified as Hispanic/Latino, 13 (4.3%) as Asian, 6 (2%) as American Indian or Alaskan Native, and 6 (2%) as Black or African American. It was required that participants be between the ages of 18 and 65 years old, to minimize sampling from a protected population. The average age of participants was approximately 33 years old ($M = 33.21$; $SD = 9.39$). Most participants had a Bachelor's degree ($n = 122$, 40.7%), made between \$50,000 and \$75,000 ($n = 109$, 36.3%), from the Midwest ($n = 126$, 42.3%), and are married ($n = 215$, 71.7%). Participants were compensated in the form of payment to their Amazon accounts. Participation was both anonymous and voluntary, and the research team followed ethical guidelines outlined by the American Psychological Association (APA), as well as met Institutional Review Board (IRB) standards.

Design

The research design of this study was a moderation, as we studied whether self-esteem serves as a predictor of the number of sexual partners that avoidantly attached, anxiously attached, and securely attached individuals have over the course of their lifetime. Surveys were used to assess current self-esteem and attachment style, as well as a fill-in-the-blank box pertaining to the number of sexual partners, with no groups or experimental manipulations involved. Due to attachment style being treated as a regression, this study aimed to understand attachment style scores as a continuum; therefore, all participants will be included in each attachment style variable, as well as the self-esteem variable and the number of sexual partners. Thus, this study modeled a within-subjects design as all participants responded to the same survey questions.

Materials

Participants completed a survey to measure the variables of interest: self-esteem, attachment style, and number of sexual partners.

Self-Esteem (Moderator)

The *Rosenberg Self-Esteem* (RSE) scale (Rosenberg, 1979) was used to measure levels of self-esteem (see Appendix A for the full scale). This measure assesses self-esteem as a trait or individual difference between individuals. There are 10 items included on the survey, with five of them needing to be reverse-coded. A 4-point Likert scale is used (1 = Strongly Agree; 4 = Strongly Disagree), with lower scores indicating higher levels of self-esteem. An example of a reverse-coded item is “At times I think I am no good at all”, while two examples of positively worded items (i.e., lower scores are indicative of higher levels of self-esteem) consisted of “On the whole, I am satisfied with myself”, and “I feel that I have a number of good qualities.”

Reliability of the RSE reveals correlations of .85 and .88, indicating excellent stability. The RSE also demonstrates excellent internal consistency with a Gutman scale coefficient of reproducibility of .92. Cronbach's alpha for the current study was .84, indicating strong reliability. Further, the RSE correlates in the predicted direction with types of attachment. The RSE also correlates with other self-esteem measures, such as the Coopersmith Self-Esteem Inventory. By demonstrating concurrent, construct, and predictive validity, the RSE shows good validity.

Attachment Styles (Independent Variable)

A close relationships version of the *Revised Adult Attachment Scale* (RAAS; Collins, 1996) was used to measure adult attachment styles (see Appendix B for the full scale). A 5-point Likert scale is used (1 = not at all characteristic of me; 5 = very characteristic of me). This scale consists of items that further measure three types of attachment: secure, avoidant, and anxious. Each type of attachment style has a subscale, rating the individual as having high or low tendencies of that type of attachment.

The secure attachment subscale consisted of four items, with no reverse-coded items. Two examples of positively worded items (i.e., higher scores are indicative of higher levels of secure attachment) consisted of "I find it relatively easy to get close to people" and "I don't worry about people getting too close to me". The anxious attachment subscale consisted of six items, with no reverse-coded items. Two examples of positively worded items (i.e., higher scores are indicative of higher levels of anxious attachment) consisted of "I often worry that other people don't really love me" and "I find that others are reluctant to get as close as I would like". Lastly, the avoidant attachment subscale consisted of eight items, with one item needing reverse-coding. This reverse-coded item was "I am comfortable depending on others". Two examples of

a positively worded item (i.e., higher scores are indicative of higher levels of avoidant attachment) consisted of “I find it difficult to allow myself to depend on others” and “I find that people are never there when you need them”.

Research shows that the RAAS has more reliability than the AAS (an additional attachment scale that could have been used in this study). Cronbach’s alpha for the current study was .68 with the secure attachment measure, indicating acceptable reliability. Furthermore, Cronbach’s alpha was .88 for anxious attachment, and .80 for avoidant attachment, both indicating strong reliabilities. Research also shows that discriminatory validity in secureness, avoidance, and anxiousness is good. Construct-related validity for these three dimensions, however, is high. The RAAS correlates significantly with other measures such as the Experiences in Close Relationships scale.

Number of Sexual Partners – Dependent Variable

To measure the number of sexual partners a person has had, there was a fill-in-the-blank box. Participants were asked “Based on the answer(s) you selected above and your definition of sex, please indicate how many total sexual partners have you had in your lifetime (e.g., 12)? Please enter your total number of sexual partners here:” Due to the different definitions of sex, participants will be asked to select all that apply when they define sex: oral, vaginal, anal, and/or other. Participants were asked to select the answer that corresponds best to the number range of sexual partners they have had in their lifetime: 0-5, 6-10, 11-15, 16-20, 21-25, 26-30, 31-35, 36-40, 41-45, 46-50, more than 50.

In general, the current sample reported an average of 7.58 ($SD = 9.20$) sexual partners in their lifetime. This number aligns with the range of sexual partners that was selected on average (range of 6-10 sexual partners). The breakdown for men and women for the current sample was

similar with men ($n = 145$) reporting an average of 7.46 ($SD = 9.01$) sexual partners and women ($n = 155$) reporting an average of 7.70 ($SD = 9.34$) sexual partners.

Demographic Questions

Participants also responded to a series of basic demographic questions, such as age, race and ethnicity, preferred gender identity, and relationship status (see Appendix C). While these questions were not used in any of the main statistical analyses, they allowed us to learn more about the collected sample and perhaps make comparisons to previous research using a similar (or different) sample.

Procedure

Participants were allowed to take the surveys in whichever setting they please, due to the surveys being online through MTurk. If they chose to click on the link viewed through their MTurk account, they were taken to the survey and a page to read an informed consent form. Participants were informed that their participation was voluntary, anonymous, and that they can skip any questions or exit the survey at any time without penalty. A signature was not required; however, a statement of “By clicking the ‘Next’ button and continuing, I understand that I am not giving up any legal rights and I am between the ages of 18 and 65,” was presented. After clicking “Next,” participants completed the surveys pertaining to self-esteem and attachment, as well as fill in the box for the number of sexual partners they have had in their lifetime. They also filled out information pertaining to basic demographic questions such as age, race, gender, etc. These items were completed in randomized order to reduce potential order effects. Once completed, participants were taken to a debriefing page, where the purpose of the study was described, as well as contact information should they have any additional questions. All participants were treated ethically and in accordance with the IRB guidelines. Participants received compensation

for completing the survey within approximately three-days (the standard/default method used when paying participants via MTurk).

Results

Data Cleaning

The data were screened using the explore function of SPSS. The researchers first assessed for missing data. No missing data were found. Examination of boxplots for each variable indicated the potential presence of some outliers, but all values were within the appropriate measures, thus participants' answers were not removed from the study. Examination of histograms indicated that the distribution shape for self-esteem, attachment style, and number of sexual partners may be normally distributed; however, skewness and kurtosis were examined to further assess these distributions. The skewness and kurtosis values for each variable were within the acceptable range of -1 to 1.

Moderation Analysis Interpretation

A moderation analysis was performed to assess the prediction of sexual partners (Y) from attachment style: secure (X1), anxious (X2) and avoidant (X3), and self-esteem (Z; moderator). It was hypothesized that securely attached individuals will report less sexual partners when self-esteem is high. Furthermore, it was hypothesized that anxiously attached individuals will report more sexual partners when self-esteem is low. Lastly, it was hypothesized that avoidantly attached individuals will report more sexual partners when self-esteem is low. To reduce any possible issues of multicollinearity, attachment styles and self-esteem were standardized, and three interaction terms using these standardized variables were created.

Hypothesis 1: Secure Attachment, Self-Esteem, and Sexual Partners

A hierarchical regression analysis was performed to evaluate whether the interaction of a secure attachment style and self-esteem were predictive of a person's total number of sexual partners. Secure attachment and self-esteem were entered in the first stage of the model and the interaction term was entered in stage two of the model. Overall, the regression model was not significant [$F(3, 295) = .55, p = .65; R = .07; \text{Adjusted } R^2 = .01$]. Together secure attachment and self-esteem accounted for approximately 1% of the variance in sexual partners. In addition, the interaction of secure attachment and self-esteem was not significant indicating that moderation did not occur [$t(295) = 1.21, p = .23; \beta = .07$].

Hypothesis 2: Anxious Attachment, Self-Esteem, and Sexual Partners

A second hierarchical regression analysis was performed to evaluate whether the interaction of an anxious attachment style and self-esteem were predictive of a person's total number of sexual partners. Anxious attachment and self-esteem were entered in the first stage of the model and the interaction term was entered in stage two of the model. Overall, the regression model was not significant [$F(3, 295) = 1.78, p = .15; R = .13; \text{Adjusted } R^2 = .01$]. Together anxious attachment and self-esteem accounted for approximately 1% of the variance in sexual partners. Interestingly, despite the model overall being non-significant, the interaction of anxious attachment and self-esteem was significant [$t(295) = -2.25, p = .03; \beta = -.15$]. As such, we conducted an exploratory simple slopes analysis to determine at which level of self-esteem anxious attachment may predict the number of sexual partners.

Simple slopes were conducted at low and high levels of self-esteem. Results indicate that anxious attachment serves as a significant predictor of multiple sexual partners at low levels of self-esteem (see Figure 1). However, this effect was only marginally significant $t(295) = 1.73, p = .08$. Having an anxious attachment style did not significantly predict multiple sexual partners

at high and average levels of the moderator. This suggests that individuals with lower levels of self-esteem, as well as an anxious attachment style, may have more sexual partners in their lifetime among those sampled. In general, this result is trending in the right direction and pattern of significance to support the researcher's hypothesis that self-esteem may be a significant moderator when individuals with an anxious attachment tend to have more sexual partners. However, this finding should be interpreted with caution because the overall model was not significant and the simple slopes analysis to probe the interaction was only marginally significant ($p = .08$).

Hypothesis 3: Avoidant Attachment, Self-Esteem, and Sexual Partners

A third hierarchical regression analysis was performed to evaluate whether the interaction of an avoidant attachment style and self-esteem was predictive of a person's total number of sexual partners. Avoidant attachment and self-esteem were entered in the first stage of the model and the interaction term was entered in stage two of the model. Overall, the regression model was not significant [$F(3, 295) = .59, p = .62; R = .08; \text{Adjusted } R^2 = .001$]. The interaction of avoidant attachment and self-esteem was not significant indicating that moderation did not occur [$t(295) = 1.26, p = .21; \beta = .08$].¹

Discussion

The purpose of this study was to determine if two different factors, self-esteem and attachment, relate to the number of sexual partners an individual has had in their lifetime. This study was meant to fill a gap in the previous literature. Although there was an abundance of prior

¹ It is important to note that the pattern of results outlined above for the entire sample (i.e., limited significance with self-esteem as a moderator to attachment styles and number of sexual partners) was similar when conducting the moderation analyses for men and women separately. See discussion section for more information.

research (Fielder et al., 2013; Townsend et al., 2020; Wang et al., 2018) conducted pertaining to self-esteem and sexual partner amounts, as well as an abundance of prior research (Dunkley et al., 2016; Hackathorn & Malm, 2022; Kim & Miller, 2020) conducted pertaining to attachment styles and sexual partner amounts, little research has been conducted to study self-esteem as a moderator. Further research is needed to examine how self-esteem acts as a moderator of attachment styles and the number of sexual partners had. Hookup culture has become a prominent aspect of today's society; thus, it is important to further research when this increase may occur. Understanding this information may assist psychologists in creating future treatment plans and interventions, as well as help individuals further understand their actions.

The present study hypothesized that participants who experience low levels of self-esteem, as well as an anxious attachment style, will experience a higher number of sexual partners. The present study also hypothesized that participants who experience low levels of self-esteem, as well as an avoidant attachment style, will experience a higher number of sexual partners. Lastly, it was hypothesized that those with a secure attachment style, as well as high self-esteem, will predict a lower number of sexual partners in an individual's lifetime. Only one of these hypotheses was supported. Results indicated that participants have a higher number of sexual partners in their lifetime when they have low self-esteem and an anxious attachment style.

Low self-esteem and an anxious attachment style may cause an individual to feel as if they need external validation. Due to the rise in hookup culture, this external validation may be easiest to find in a sexual manner; thus, an individual may have a higher number of sexual partners when they have an anxious attachment style and low self-esteem. Fielder et al. (2013) found that self-esteem served as a protective factor for the number of sexual partners an individual may have. Those with low self-esteem tended to have more sexual partners. Another

reason an individual with low self-esteem and an anxious attachment style may have more sexual partners is due to their perception of sociosexuality. Hackathorn and Malm (2022) found that those with an insecure attachment style had more sexual partners because they accepted the concept of sociosexuality (i.e., having sex outside of a committed relationship). Lastly, Dunkley et al. (2016) found that individuals with an anxious attachment tended to have more sexual partners due to dissatisfaction within the sexual relationship. Individuals with low self-esteem may be concerned with their self- and body-image which could heighten concern with how they appear to their partner during the act of sex; this heightened concern of how they may appear to their partner also aligns and is consistent with characteristics of anxious attachment. Overall, this may contribute to sex that is not satisfying; thus, an individual may look to new partners to satisfy their needs.

The results of this study did not find significant results pertaining to those with a secure or avoidant attachment. McNeil et al. (2018) found that those with an avoidant attachment style related more to negative aspects of communication (i.e., they found it more difficult to communicate). This could result in an individual having less sexual partners due to the lack of communication they have with others, especially strangers. Furthermore, those with an avoidant attachment style tend to feel more comfortable being involved in surface level relationships (McLeod, 2022). Those with an avoidant attachment style are comfortable being around people and engaging in social situations, but they fear rejection, thus resulting in them being less likely to engage in deep and meaningful conversations with a partner. However, those with a secure attachment style tend to be the opposite (McLeod, 2022). They often are not wary of having deep conversations and becoming emotionally intimate with others. This could result in an individual having more sexual partners due to their willingness to be forward and outgoing, as well as easy

to talk to and enjoy time with. Furthermore, Passanisi et al. (2015) found that individuals with secure attachment tended to have higher levels of self-esteem. This could mean that an individual feels more confident in, and appreciative of, their body; thus, they may want others to appreciate it, as well.

Although most of the findings were not statistically significant, the results of the current study may help clinicians, as well as other mental health workers, to further create, understand, and implement interventions and treatments for those seeking services pertaining to sexual decision making, as well as possible self-esteem or attachment issues. The findings of this research should be replicated and extended; however, these current results may help practitioners form more knowledge of hookup culture. As stated previously, having multiple sexual partners has become a prominent phenomenon in today's culture (James-Kangal et al., 2018); therefore, it is important for experts in the field, as well as clients/consumers to understand the factors that may predict (or do not predict) such behaviors. This could further help psychologists with treatment plans for their clients with secure, anxious, or avoidant attachment styles and low or high levels of self-esteem. It is important to note that having multiple sexual partners does not mean that individuals need to seek therapy or that there is any underlying issue. Rather, the goal of this work was to develop better understanding about the connection between factors such as self-esteem and attachment in relation to sexual decision making.

Limitations

The limitations of this study must be considered in interpreting the findings. First, caution should be made when generalizing the results to those that are not Caucasian. One of the reasons this study was conducted was to try and diversify the sample for generalizability purposes. It was expected that using Amazon's MTurk would assist in the recruitment of a sample that was more

diverse than a general college or convenience sample. However, that was not the case as most of the participants identified as White and married. This, unfortunately, leads to a continued limitation of using samples that are less generalizable.

Furthermore, most of the participants in this study were married and in their late-20's/early-30's, meaning the results may not be generalizable to other specific populations, such as the typical college-aged population (i.e., single and under the age of 30). A goal of this study was to recruit a more diverse sample with respect to age and relational experiences than a typical college sample; however, there does not seem to be much variability with respect to age and relationship status. Given that most of the sample was married, this could have impacted the findings regarding the number of reported sexual partners; perhaps people in a committed relationship underreported the number of sexual partners. It is important to note that the literature review for this study often used hookup culture as a reference. However, the sample for this study mostly consisted of individuals that may be less likely to participate in hookup culture, due to being involved in marriages or serious relationships. This may explain why the number of sexual partners for men ($M = 7.46$) and women ($M = 7.70$) in this study differed from statistics reported by the Center for Disease Control and Prevention. According to the CDC (2021), men typically have more partners in their lifetime than women and the number of sexual partners in a lifetime is often reported as greater than seven.

In addition, depending on when a participant was married, this may have influenced the number of sexual partners. Future research may benefit from asking more information about the status of the current relationship (e.g., at what age was the participant married) or more details about the sexual encounters (e.g., at what age was the participant when they first had sex). Furthermore, while using Amazon MTurk allowed us to aim for a more diverse population, we

did not recruit individuals that identified as transgender or non-binary. This should be taken into further consideration when generalizing the results of this study beyond men and women.

Another limitation is that when looking at the variance between self-esteem and attachment, the variance was at or below 1% for all models. This limited explanation of variance may suggest that self-esteem may not be the best moderator for understanding why certain attachments have more (or less) sexual partners. It would be beneficial to examine other variables as possible moderators to further understand why some attachment styles have a certain number of sexual partners.

Future Directions and Implications

One future direction for this research would be to address the variance limitation above. Due to the low percent of variance between self-esteem and attachment, other variables should be looked at. Wang et al. (2018) completed a study that examined depression, loneliness, sexual compulsivity, and involuntary subordination as variables relating to casual sex and a higher number of sexual partners that an individual may have. However, they did not study these variables as moderators of attachment. Furthermore, Dunkley et al. (2016) found that the level of satisfaction that an individual experienced within their sexual relationship influenced the number of sexual partners an individual may have. Future research could investigate these variables as possible moderators of attachment styles and number of sexual partners.

Another future direction for this research consists of investigating the differences between men and women to further understand the variable as predictors. Including sex as a variable in the analyses may produce further information; however, it should be noted that for the current sample, when looking at the moderators separately for men and women, a similar pattern of non-significant results emerged. We also saw for the current sample that on average, men and

women reported a very similar number of sexual partners in their lifetime (i.e., ~7-8 on average for both men and women). This result may not be surprising as prior research has found that men and women both equally engage in hook-ups or casual sex encounters. For example, Netting and Reynolds (2018) found that both men and women participated in a casual hookup, a friend with benefits situation, or both. The research suggests that there is a high likelihood of both men and women to engage in some form of hookup culture, and because of this, perhaps that is why we did not see a different pattern of results when separating the moderation analyses by sex. Future research should be conducted to replicate the current study's findings and it may be beneficial to not only continue to examine sex, but also the other variables listed above as potential predictors of sexual partners.

Overall, although this research did not find support for low or high self-esteem moderating secure or avoidant attachment styles and the number of sexual partners an individual may have, it is important to understand the clinical implications of the present study. If an individual is seeking therapeutic services pertaining to their current or future relationship, the therapist could use this research to help direct the therapeutic goals. For example, the therapist may aim to help the client reduce their relationship anxiety. Furthermore, if a client is trying to further understand their sexual behavior, the therapist could use this research to help the client understand how their level of self-esteem may influence how they view and act upon their sexual behaviors. Enhancing self-esteem may help the client feel more in control of their relational and sexual decision making.

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Appendix A

The Rosenberg Self-Esteem scale (RSE)

Instructions: Using the rating scale below, please respond to the questions provided.

1 = Strongly disagree

2 = disagree

3 = Neutral

4 = Agree

5 = Strongly agree

- 1) On the whole, I am satisfied with myself. _____
- 2) At times I think I am no good at all. _____
- 3) I feel that I have a number of good qualities. _____
- 4) I am able to do things as well as most other people. _____
- 5) I feel I do not have much to be proud of. _____
- 6) I certainly feel useless at times. _____
- 7) I feel that I'm a person of worth. _____
- 8) I wish I could have more respect for myself. _____
- 9) All in all, I am inclined to think that I am a failure. _____
- 10) I take a positive attitude toward myself. _____

Appendix B

Revised Adult Attachment Scale - Close Relationships Version (RAAS)

Instructions: The following questions concern how you *generally* feel in *important close relationships in your life*. Think about your past and present relationships with people who have been especially important to you, such as family members, romantic partners, and close friends. Respond to each statement in terms of how you *generally* feel in these relationships. Please use the scale below by placing a number between 1 and 5 in the space provided to the right of each statement.

1-----2-----3-----4-----5

Not at all

Very

characteristic

characteristic

of me

of me

- 1) I find it relatively easy to get close to people. _____
- 2) I find it difficult to allow myself to depend on others. _____
- 3) I often worry that other people don't really love me. _____
- 4) I find that others are reluctant to get as close as I would like. _____
- 5) I am comfortable depending on others. _____
- 6) I don't worry about people getting too close to me. _____
- 7) I find that people are never there when you need them. _____
- 8) I am somewhat uncomfortable being close to others. _____
- 9) I often worry that other people won't want to stay with me. _____
- 10) When I show my feelings for others, I'm afraid they will not feel the same about me. _____
- 11) I often wonder whether other people really care about me. _____

- 12) I am comfortable developing close relationships with others. _____
- 13) I am uncomfortable when anyone gets too emotionally close to me. _____
- 14) I know that people will be there when I need them. _____
- 15) I want to get close to people, but I worry about being hurt. _____
- 16) I find it difficult to trust others completely. _____
- 17) People often want me to be emotionally closer than I feel comfortable being. _____
- 18) I am not sure that I can always depend on people to be there when I need them. _____

Appendix C
Demographic Questions

1. Age (e.g., 30) _____
2. What is your preferred gender identity?
 - a. Male
 - b. Female
 - c. Transgender male
 - d. Transgender female
 - e. Gender variant/non-conforming
 - f. Other: Please Specify _____
3. Which racial group or groups do you consider yourself to be in? You may choose more than one option.
 - a. White
 - b. Black or African American
 - c. American Indian or Alaska Native
 - d. Asian
 - e. Native Hawaiian or Pacific Islander
 - f. Hispanic/Latino
 - g. Other, please specify: _____
4. What is your highest level of education? Select one.
 - a. High school
 - b. Associates degree
 - c. B.A./B.S.
 - d. Some graduate studies
 - e. MBA/MA/MS degree
 - f. J.D./Ph.D./Ed.D/M.D.
 - g. Other, please specify: _____
5. Which category includes your total annual household annual income in 2021 before taxes and withholdings (i.e., total gross income)?
 - a. Under \$10,000
 - b. \$10,000 to \$24,999
 - c. \$25,000 to \$34,999
 - d. \$35,000 to \$49,999
 - e. \$50,000 to \$74,999
 - f. \$75,000 to \$99,999
 - g. \$100,000 to \$149,999
 - h. \$150,000 or more

- i. Unsure
 - j. Prefer to not answer
6. How would you describe your political ideology?
- 1- very liberal
 - 2 - liberal
 - 3 - somewhat liberal
 - 4 - somewhat conservative
 - 5 - conservative
 - 6 - very conservative
 - 7 – unaffiliated (no answer above fits my political ideology)
7. Which region of the country do you live in?
- a. Midwest - IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI
 - b. Northeast - CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT
 - c. Southeast - AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV
 - d. Southwest - AZ, NM, OK, TX
 - e. West - AK, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY
8. Out of the options below, what best describes your current relationship status?
- a. Single
 - b. Dating
 - c. Engaged
 - d. Married
 - e. Divorced
 - f. Widowed

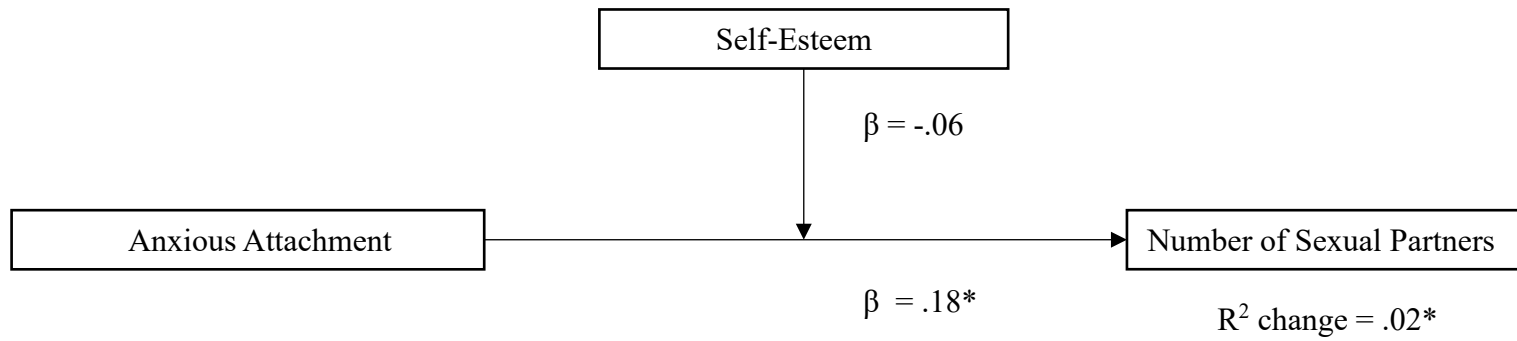


Figure 1. Moderation diagram with beta weights and R^2 change for lower levels of self-esteem (low levels of the moderator). $*p = .08$.

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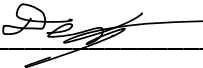
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