

THE INFLUENCE OF DATING APPS ON THE COMPREHENSION OF SEXUAL
CONSENT

by

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DEDICATION

To my family,

Each of you have comforted me in your own way, and for that I am appreciative of every single one of you. I love you all.

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LIST OF ABBREVIATIONS

Abbreviation	Description
RNCG	Recognized No Consent Group
MCG	Misperceived Consent Group

ABSTRACT

The purpose of this study was to explore the demographic and psychosocial factors most associated with dating app users and to investigate their comprehension of sexual consent through text message exchanges. A total of one hundred and forty-nine male dating app users were recruited from mTurk for the study. Participants were asked to take a survey in which they responded to questions about demographics, dating app use motivation, and questions from a set of validated personality and psychosocial instruments. They were also asked to read 10 different vignettes and determine whether the text-based conversations indicated sexual consent. The participants were then placed into two comparison groups: misperceived consent group (MCG) and recognized no consent group (RNCG), based on their responses to the flirtatious vignettes. The groups were defined in this study based on the number of “B” group vignettes they answered correctly. No consent was given in the “B” group of vignettes, so two or more incorrect answers put participants in the MCG and three or more correct answers put them in the RNCG. Based on the final regression model, rape myth acceptance was found to be a significant predictor of misperceived consent. Personality subscales including extraversion and consciousness were also found to be significant indicators of perceived consent. The results from this study suggest that future research should be done in examining predictors of consent misperception on male dating app users in order to gain a better understanding of the growing number of sexual assaults on women.

I. INTRODUCTION

In 2017, the University of Texas system released a report detailing the prevalence of student self-reported incidences of sexual assault and sexual misconduct. The data for this report was taken from the Cultivating Learning and Safe Environments survey, that was given to 13 University of Texas (UT) institutions across Texas (The University of Texas at Austin Office of the President, 2017). This report found that 15 percent of undergraduate women at UT's main campus in Austin reported that they had been raped. This includes rape through force, threat of force, incapacitation, or coercion. Furthermore, 87 percent of unwanted sexual touching incidents were reported by students which occurred outside of the UT Austin campus. As Allyson Dir and colleagues (2018) explained, college women are four times more likely to be victims of rape and sexual assault than any other group. Since the use of dating applications (apps) as a way to meet new potential partners has become increasingly prevalent amongst emerging adults, including college students (Sumter & Vandenbosch, 2019), it is necessary to examine the link between the increased use of dating apps with the increased prevalence of off-campus sexual assaults.

II. LITERATURE REVIEW

Sexual consent is typically not explicit, and individuals often perceive situations differently. Some research has been conducted on various demographic and personality factors that influence sexual coercion and perceived sexual consent. However, very little research has been conducted specifically on the perception of sexual consent through mobile dating apps. The present literature review will focus on the background of dating apps, including and the differences in the current available apps, and dating app use motivation. Additionally, research on specific known personality and psychological factors associated with sexual assault perpetrators, user characteristics, and gender differences will also be reviewed.

Online Dating vs. Mobile Dating Apps

Although research is lacking regarding dating apps and sexual consent in particular, there is a large body of research on online dating. However, it should be noted that there is a difference between online dating and mobile app dating. For example, online dating is favored more by older adults, while dating apps are typically used by younger generations. Research has shown that older adults ages 30-50 are more likely to engage in online dating than younger adults (Valkenburg & Peter 2007). Online dating sites like OkCupid, Eharmony, and Match.com use algorithms to match users by location, personality, hobbies, education, etc. Whereas with mobile dating apps, the users do most of the work themselves by evaluating profiles. Another important difference is that users have to pay to use online dating sites, so there is more emphasis in finding a long-term partner; however, mobile dating apps are free to use.

Dating apps can be downloaded at no cost from any app store. Once downloaded,

a profile is created by the user which consists of their name, date of birth, pictures, work/school affiliation, and a 500-character biography. Users also have the choice to synchronize their profile with Spotify, a music streaming app, so that potential matches can see what type of music each person listens to. As individuals view potential matches, they will swipe left on a profile to indicate that they are not interested in that person, but if they are interested in someone's profile, then they will swipe right indicating that they would like to have further contact with that person. If both individuals have swiped right on each other, then they have "matched," and they are then allowed to message one another. At that point, through the messaging system, they are able to communicate directly in order to learn more about one another, and possibly schedule an in-person date.

Popular Dating Apps

In order to get a better understanding of dating apps, it is important to explain the differences in the most popular dating apps currently available. Starting with Tinder, this app focuses primarily on face-value or appearances (Corpuz, 2020). As previously explained, this app is mainly about swiping left (uninterested) or right (interested) on potential matches, based on a short biography and a handful of pictures and looping videos. As of early 2020, Tinder introduced a Safety Center feature that ties into the Noonlight app (a safety platform and mobile app that can request emergency services) that provides a panic button if the user feels unsafe (Corpuz, 2020).

The next most popular app is Bumble (created by a female ex-CEO of Tinder). This app aims to match with not only potential partners, but also can match with best friends. The key feature of this app is that if there is a match, only the female is allowed

to message the other person within a 24-hour period (Corpuz, 2020). However, aside from the women only being able to message first, this app has the same functionality as the Tinder app. A profile is filled out including gender, location, and a Spotify link. In 2019, Bumble introduced a voice chatting feature where you can leave voice recording messages.

Another popular dating app is Hinge (the sister app of Bumble). This app costs \$10.99 each month, and is more relationship driven than Tinder (Corpuz, 2020). Instead of focusing on swipes, Hinge is more focused on detailed profiles. It allows you to fill your profile with pictures and stories. Users can then choose to comment or like others' profiles, and every day, new recommendations are sent to the user by the app, as well as notifications on who has liked the user's profile. There are many other dating apps that involve playing games with matches, like XO, same sex matching apps, like Her and Grindr, professional networking apps, like Raya, or including friends in the match-making processes, like Wingman.

Personality Characteristics and Sexual Assault

While most users of dating apps have intentions to find short-term or long-term romantic partners, according to Scannell (2019), sexual predators will use online dating as a way to meet potential victims, who are usually trusting and vulnerable. The following sections will take a deeper look at the personality characteristics of sexual assault perpetrators.

Big Five Personality and Sexual Assault

The Big Five is a five-factor trait theory of personality that includes, extraversion, agreeableness, openness, conscientiousness, and neuroticism (Costa & McCrae, 1985).

Extraversion refers to individuals who exhibit outgoing, sociable, and assertive characteristics. Agreeableness can be defined as those who are more tolerant and trusting. Openness is displayed as being curious and open to new ideas and experiences. Conscientiousness refers to organized and achievement-oriented individuals. Finally, neuroticism is displayed as being anxious and temperamental. Although there has not been research on the link between Big Five personality traits and perceived sexual consent, there has been research done on the relationship between personality and sexual assault/rape perpetration by college men. It has shown that rape perpetrators have low levels of agreeableness and conscientious compared to non-perpetrators, in a study conducted with 521 college men (Voller & Long, 2009).

Research has also shown that sexual assault/rape perpetrators reported lower levels of extraversion when compared to nonperpetrators (Voller & Long, 2009). However, when studying the link between personality and risky sexual behavior, researchers found that individuals scoring high on the extraversion scale are more likely to engage in risky sexual behavior like coercion and engaging in sexual activity after the use of drugs or alcohol (Lobell et al., 2016).

Narcissism and Self-Perceived Attractiveness

According to Slicner (2007), people who commit sexual assaults are people who are experts in rationalizing behavior. This includes those with Narcissistic Personality Disorder. Narcissism and self-perceived attractiveness are key features in perceived sexual interest and consent. Narcissism is a personality trait that involves excessive self-love with a lack of empathy for others (Raskin & Terry, 1988). Lee et. al, 2020 also found that participants who perceived themselves as highly attractive, rated their partners

perceived sexual interest as very high. This may show that males who believe they are very attractive might assume their partner wants to have sexual relations with them without explicitly asking.

The Dark Triad and Rape Myth Acceptance

The dark triad is a collection of “dark” personality traits including, narcissism, Machiavellianism, and psychopathy. There is also an extension of the dark triad called the dark tetrad that includes sadism. High scoring on the dark triad has been associated with impulsivity (Malesza & Ostaszewski, 2016), aggression (Jones & Neria, 2015), poor self-control (Jonason & Tost, 2010), low empathy (Jonason et al., 2013), and promiscuous mating (Koladich & Atkinson, 2016). Although the dark triad is not a new concept (first appearing in psychology in 1998), there is little research in relation to sexual consent. However, there is similar literature on the relationship between the dark triad personality traits and sexual coercion. Research has found the dark triad of personality is an important predictor of sexual coercion in men more than women (Lyons, et al., 2020). Sexual coercion can be defined as using force, pressure, alcohol or drugs to have sex with someone against their will (Stuckman et al., 2003). It can be inferred that individuals who score high on the dark triad may have already engaged in sexual coercion, in turn influencing how they perceive sexual consent.

Research has also found that there is a positive relationship between the dark triad and rape myth acceptance (Jonason et al., 2017), as well as the dark tetrad and each category of rape myth acceptance (Grace, 2018). Rape myths are commonly defined as attitudes and false beliefs about rape that are widely held and persistent and are used to deny and justify sexual aggression by men against women (Losway & Fitzgerald, 1994).

These categories include, she asked for it (SA), it wasn't really rape (NR), he didn't mean to (MT), she wanted it (WI), she lied (LI), rape is a trivial event (TE), and rape is a deviant event (DE) (Payne et. al., 1999). There have been many significant findings of gender differences in relation to rape myth acceptance. It has been shown that more men accept rape myths compared to women (Hayes et al., 2016; Hayes et al., 2013). Heavy drinking, high social status, and equality beliefs (aka the belief that women are not equal to men) have been correlated with rape myth acceptance as well (Chapleau & Oswald, 2013). If an individual concludes that rape is a myth, then they will have a hard time comprehending (or caring) when someone is not consenting to sex.

Dating Apps and Sexual Consent

The prior section highlighted research conducted on psychological and personality factors related to sexual assault. Currently, little research has been conducted on the perception of sexual consent through messaging via dating apps. First, it is important to address the dating app user motivation, how self-presentation on dating apps differs based on gender, and how factors such as impulsivity and sensation-seeking affect user motivation on dating apps. Then, from what is known about dating app use and known factors related to sexual assault, a more comprehensive approach can be devised to studying perceived sexual consent within dating app messaging.

Anxiety of Users

Dating anxiety is especially common among young adults (Sumter & Vandenbosch, 2019). This includes anxiety about appearance, conversation topics, and first date nerves among other things. In a study that surveyed 1,3017 undergraduate students at the University of North Texas, researchers found that Tinder app users

reported lower levels of self-esteem and self-worth as compared to non-users (Strubel & Petrie 2016). While it may seem like dating apps are an easier way to find potential partners because users are able to avoid potentially awkward face-to-face interactions, it can actually make dating anxiety worse over time (Sumter & Vandenberg, 2019).

This may have something to do with the importance of physical attractiveness stated above. It may be inferred that for many millennials, dating apps are the solution to curing loneliness. However, research has shown that students who are both lonely and suffer from social anxiety are more likely to engage in compulsive dating app behaviors that can lead to negative outcomes like lack of sleep, poor grades, and loss of employment because they were spending so much time on dating apps (Coduto et al., 2019).

Gender and Dating App Use Motivation

Gender differences in dating app use motivations and behaviors are to be expected. As Welch & Morgan, (2018) pointed out, there is the double standard among men and women that has a lot to do with how they use dating apps. Historically, women have been shamed for having too many sexual partners. Because of this, women may tend to use dating apps mainly for the purpose of seeking committed relationships. Men, however, have been socially rewarded for being able to have as many sexual partners as they want. This double standard may lead to women perceiving dating apps, like Tinder, as a way to find relationships, while men perceive it as an outlet to find casual sex partners.

Another factor relating to gender is the importance of physical attractiveness. Men place physical attractiveness higher when looking for a partner than women, and, in-turn,

women are more likely to post overly attractive photos in their profile than men (Langlois et al., 2000; Toma & Hancock, 2010). This may influence misunderstandings among user intentions. According an eye-tracking study conducted by AnswerLab on online dating apps, sixty-five percent of men spent more time looking at photos, and not reading the biography, than women (Danko, 2014). A college-aged woman putting her most attractive pictures on her profile may encourage a male viewing it to think that it means she is on the app to “hook up” as well, rather than establish a long-term relationship, which may cause him to act more sexually aggressive during the first date.

Since the beginning of 2020, new research has been conducted showing that there are gender differences in misperceptions of sexual interest (Lee et. al, 2020). The results of this speed-dating study indicated that men and women’s different perceptions of sexual interests might stem from men being both more oriented toward short-term relationships, and more interested in their partners. Meaning, when a male participant was more sexually interested in their partner than the female was, they perceived that their partner was also as sexually interested as they were. The accuracy of sexual interest can relate to one’s ability in perceiving sexual consent.

Sensation Seeking of Dating App Users

Sensation seeking is defined as a “need for varied, complex, and intense sensations” (Charnigo et al., 2013, pg. 482). The success of dating apps like Tinder stem from their unique features like geolocation functionality, and push notifications. Geolocation functionality enables you to search for partners by location. You can limit your search to within a mile of you, or on the other side of the world. Push notifications are small pop-up messages sent to users when they are not on the app or using their

phones. These features have created an ease of access for young singles and have increased their likelihood of dating (Sumter & Vandenberg, 2019). Previous research has found that Tinder users seeking hookups (i.e., people who want to engage in sex without the commitment of a relationship) from the app were more likely to have casual sex with Tinder matches (Welch & Morgan, 2018).

Although research on dating apps is limited, there is an abundance of research with respect to the relationship between sensation-seeking and risky sexual behaviors. Previous research has found positive associations between sensation seeking and impulsive decision making with a variety of negative outcome variables representing risk factors for HIV/STD transmission, such as unprotected sex, drug use with a partner during sex, and alcohol use with a partner during sex (Charnigo et al., 2013).

Since dating apps are more common among college students, it can be inferred that the “party” habits of most students will transfer over into their dating app habits. This includes, but is not limited to, binge drinking, drug use, and risky sexual behaviors like sexting, casual sex seeking, and unprotected sex with strangers. Allyson Dir and colleagues (2018) found that sexting, the exchange of sexual pictures, videos, and conversations through text messages, and alcohol consumption increased the risk of sexual assault among college women. Furthermore, Peter & Valkenburg (2016), found that college students scoring higher on sensation seeking correlated positively in the engagement of casual sex, and had more sex with people they met online.

‘Yes Means Yes’ Law and Sexual Education

The ‘Yes Means Yes’ law is a policy that requires colleges to change their sexual assault policies to include consent as receiving an affirmative “yes” before sex, and

understanding that consent can be verbal or non-verbal, intoxication of any kind does not count as affirmative consent, being previous partners does not count as consent, and consent can be revoked at any time (Chappell, 2014). There is also a ‘Yes Means Yes’ curriculum that has been adapted for high school students. So far, these teachings have only been included in high school sex education classes in California. Research has shown that sexual consent in a large majority of K-12 has not been discussed in sexual education classes (Willis et al., 2018). This research included four themes as making implicit reference to sexual consent: communication skills, decision making, personal space and interpersonal relationships, were found to also not be discussed in these sexual education classes.

Research has also found that a majority of states that emphasize abstinence only (meaning abstaining from sexual behavior until marriage) sex education, did not require education about contraceptive and barrier methods to prevent pregnancy and sexually transmitted infections (Hall et al. 2019). Abstinence only education also does not educate students on issues of relationships, like healthy relationships, sexual decision-making, and sexual violence. This shows a major education difference between sexual consent health education and abstinence only health education that may hinder future sexual consent comprehension when these children reach college age.

Group Membership and Sexual Assault

As young men enter college, like many other students, they will start making friendships and connections. One way to enter a friend group may include joining organizations on campus. Much literature has been written and studied about the relationship between male group membership, like athletics or a fraternity, and sexual

assault. Research has been conducted since the 90's showing that participants in either athletics or a fraternity were associated with greater rates of rape supportive attitudes, sexually aggressive behavior, sexual assault, and sexual coercion (Akers, 1991; Schaeffer & Nelson, 1993; Murnen & Kohlman, 2007; Boeringer, 1996; Boeringer et al., 1991). Data has also shown that men in fraternities have more traditional attitudes toward women (Schaeffer & Nelson, 1993). These attitudes include, women are inferior to men, traditional household roles of women, etc. These common themes in data toward male group membership could stem from a number of places. Theorist have argued that this may be due to men already coming into college with these attitudes already and surrounding themselves with other men who have the same view that might remain unchallenged (Bleecker & Murnen 2005).

In one specific study, researchers concluded that these attitudes may also stem from the number of degrading images of women (Bleecker & Murnen, 2005). In this study, the researchers compared the rooms 30 fraternity members and 30 non-fraternity members. They looked at the number of posters, computer screensavers, pin-ups, and advertisements. They found that fraternity members had more degrading images of women in their rooms compared to non-fraternity members. They also found a positive correlation between the number of degrading images in rooms and rape supportive attitude scores.

Conclusion

The current literature on dating app use is limited, particularly as it relates to sexual motivations. Prior research has shown that males are more likely to use dating apps for the intent of "hookups," whereas females are more likely motivated to find long-

term relationships. Other personality factors have also been assessed to determine sexual intent motivations and rape-myth acceptance, including narcissism, impulsivity, and the dark triad. It is necessary to bridge this gap in the literature by investigating how demographic and personality factors affect perceptions of sexual consent in mobile dating app messaging. It is important to understand how sexual consent is given in app-based messages, and, moreover, it is important to identify the characteristics of individuals who are likely to misinterpret sexual consent within these app-based messages.

In relation to my current thesis, this information will help me explain how gender and personality-based characteristics of dating apps users influence the comprehension of sexual consent. Research questions including “how is sexual consent given/asked in messages?” “who is more likely to use dating apps for sex?” and “who is more likely to misinterpret consent?” will be answered in the upcoming project. Further research is needed on the relationship between dating apps and sexual consent to provide more knowledge to young women before making the decision to download a dating app.

The Current Study

The purpose of the current study is to investigate participant interpretations of sexual consent via a dating app text message. The primary goal of this project is to determine how sexual consent is expressed and understood in dating applications. It is important to understand how sexual consent is given or asked during text message exchanges via a dating app to see if there is a link between the rise in dating app use and the increase of sexual assaults. Being that a majority of dating app users are millennials (Welch & Morgan, 2018), it is important to study the realm of dating apps as a whole, which includes user motivations, user behavior, and characteristics. Therefore, this was a

comprehensive study evaluating demographics and personality factors which were assessed as correlates for misperceived messages of sexual consent using a series of app-based message vignettes.

Hypotheses

The following hypotheses were proposed:

Hypothesis I: Participants with low levels of agreeableness will have greater likelihood of misperceived sexual consent ratings.

Hypothesis II: Participants with low levels of conscientiousness will have greater likelihood of misperceived sexual consent ratings

Hypothesis III: Participants with high levels of extraversion will have greater likelihood of misperceived sexual consent ratings.

Hypothesis IV: Participants with high levels on each subscale of the dark triad will have greater likelihood of misperceived sexual consent ratings.

Hypothesis V: Participants with higher levels of self-perceived attractiveness will have greater likelihood of misperceived sexual consent ratings.

Hypothesis VI: Participants with high levels of rape myth acceptance will have greater likelihood of misperceived sexual consent ratings.

Hypothesis VII: Participants scoring high on casual sex seeking as motivation for dating app, compared to those seeking relationships from dating apps, will have greater likelihood of misperceived sexual consent ratings.

Hypothesis VIII: Participants having an abstinent only high school sex education will have greater likelihood of misperceived sexual consent ratings.

Hypothesis IX: Participants who are/were members of group organizations (i.e., sports,

student council) will have greater likelihood of misperceived sexual consent ratings.

III. RESEARCH DESIGN AND METHOD

Participants

Participants in this study included one hundred and forty-nine (149) males ages 18 and older. Recruitment was done via mTurk by Amazon. Users of mTurk were paid \$2 upon completion of the study. Exclusion criteria included anyone not identifying as male, and individuals who have never used a dating app.

Procedure

Participants had the opportunity to take the survey via their own device, either a desktop computer or a mobile device (smartphone, tablet, etc.). The survey took approximately 15 to 20 minutes to complete. All survey information remained anonymous and participant information remained confidential. At the start of the survey, participants were asked to provide consent within the Qualtrics online survey system, followed by a short demographic questionnaire. After participants provided consent and answered the demographic questions, they were presented with ten randomized text message vignettes and were asked to answer the questions regarding whether sexual consent was implied within the text of the vignette. This was followed by several online validated personality measurements. Participants were allowed to leave any questions blank if they were not comfortable answering them.

Measures

Demographic Questionnaire

The demographic questionnaire included questions regarding age, gender identification, race/ethnicity, political affiliation, education level, religion, sexual orientation, organization membership, parents' marital status, and high school sexual education.

Sexual Consent Comprehension

Perceived sexual consent was measured using ten randomized text message dating application vignettes. The ten vignettes used for this study were developed and evaluated by two focus groups. The first focus group, which consisted of five men and women ages 23-30 who were dating app users, evaluated 70 real text message exchanges from Tinder and Bumble users and combined those messages into 20 vignettes. The second focus group consisted of ten female dating app users who evaluated the 20 example vignettes and chose ten for the final study which met the following criteria. The ten vignettes were classified into three categories: 3 platonic (no consent), 4 flirting (no consent), and 3 sexting (with consent). These categories are also referred to as group “A” which is the platonic group, group “B” which is the flirting group, and group “C” which was the sexting group.

The gender of the characters in the vignettes were not mentioned to the participants. The vignettes in the platonic group included messages that are very light in nature, such as conversations talking about someone’s day, or discussing favorite hobbies. Vignettes in the flirting group included messages of a more flirtatious nature (but not providing sexual consent). This included talking about someone’s looks/appearance, dirty jokes, etc. Lastly, the vignettes in the sexting group included conversations that involve talking about future sex, intimate details of one’s sex life, and all-around dirty talk. Out of these three groups, the vignettes in the platonic and flirtatious groups involved no sexual consent given. The sexting group, however, did involve explicit sexual consent given.

The vignettes were randomized and presented to each participant. The participants

read each vignette and decide if sexual consent was given using a 4-point Likert scale. Their choices will include, “definitely not” “probably not” “probably yes.” and “definitely yes.”

Personality

Personality was assessed using the Ten-Item Personality inventory (Gosling, et. al., 2003). Previously, this scale has shown a moderate Cronbach's alpha of 0.68, a typical finding in short scales (Ziegler et al., 2014), but has a high temporal stability of 0.77. With only two items per subscale, the reliability was not recorded for this sample. The reliabilities would most likely be extremely low. This shortened version of the Big 5 Personality inventory consists of five personality types: extraversion, agreeableness, openness to experience, conscientiousness, and emotional stability. This scale asked participants to rate the level to which they agree with ten statements from 1 being “disagree strongly” to 7 which is “agree strongly.” Some characteristic examples include “Critical, quarrelsome” and “Disorganized, careless.”

Narcissism

The dark triad (Jonason & Webster, 2010) was used to measure narcissism and other dark personality traits. There has been some research on how the dark triad traits relate to dating and relationship preferences (Jonason & Luevano, 2012). This questionnaire not only measured narcissism, but it also measured psychopathy and Machiavellianism. This scale previously has had an acceptable Cronbach's alpha of 0.83 (Jonason & Webster, 2010). For this sample, the total scale achieved an alpha reliability of 0.95. Participants were asked to rate their level of agreement to 12 items, using a 5-point scale of 1 being “strongly disagree” to 5 being “Strongly agree.” Some example

questions include, “I tend to manipulate others to get my way.” and “I tend to expect special favors from others.”

Self-perceived Attractiveness

For ratings on self-perceived attractiveness, this was a self-report measure where participants rated themselves on their physical attractiveness on a sliding scale from one to ten. With one being the less attractive and ten being the most attractive. This rating was only one question in the survey.

Rape Myth Acceptance

Rape myth acceptance was included in order to get a clearer picture of how perceived sexual consent may be influenced. A short-form version of the Illinois Rape Myth Acceptance Scale was used (Hust et al., 2013). This scale contains 10 items on a 7-point Likert scale, with 1 being “strongly disagree” to 7 being “strongly agree.” This scale has previously reached an acceptable Cronbach’s alpha of 0.76 (Hust et al., 2013). For this sample, an alpha reliability of 0.97 was achieved. Some examples of question include “If a woman is raped while she is drunk, she is at least somewhat responsible for letting things get out of control.” And “A woman who goes to the home or apartment of a man on the first date is implying that she wants to have sex.”

Dating App Use Motivation

Dating app use motivation was assessed using the Dating App Motivation Scale (DAMS) (Sumter & Vandenbosch, 2019), which is based on the Tinder Motivation Scale that has previously demonstrated a marginal **reliability**, Cronbach's alpha = 0.65 (Sumter et al., 2017). This scale contained 12 items that were rated from 1 “totally disagree” to 5 “totally agree.” The DAMS assess motivations for multiple dating apps, including Tinder.

Examples include “Dating apps are a good form of entertainment” and “People download Tinder because they want to find casual sex partners”

Statistical Analysis

Participants will be classified into two groups based on their responses to the Sexual Consent Comprehension for the Flirtatious Group Vignette Text Messages. Those who identified all four of the flirtatious messages as non-consent will be placed into the “A” group, indicating correct identification of non-consent and those who identified any of the 4 vignettes of the flirtatious group messages as consent will be placed in the “B” group, indicating incorrect identification of non-consent.

Univariate analyses will be conducted to determine demographic and personality factors that differ between the two comparison groups using Chi-Square tests of Independence for categorical comparisons and Independent t-Tests for continuous variables. A binary multivariate logistic regression analysis will be conducted to determine the key demographic and personality factors associated with the Incorrect Interpreter group. Only variables significant at the univariate level will be included in the multivariate analysis. The significance level will be set at $\alpha = .05$ for all comparisons. All analyses will be conducted using SPSS version 26 (IBM Corp).

IV. RESULTS

One hundred and forty-nine (149) participants completed the survey assessing the relationship between sexual consent interpretation and several psychosocial and demographic factors, as well as dating app use motivation. All of the 149 participants were male. The participants' mean age was 31.41 (SD = 6.78). Of the participants who reported their ethnicity, 67 (45%) were White/Caucasian, 70 (47%) were Asian, and 38 (25.5%) were Latino/Hispanic.

Participants were placed into two comparison groups based on the number of “B” or “Flirting” vignettes that were correctly identified as “no-consent.” Participants who misperceived sexual consent on 2 or more of the 4 “B” group vignettes were placed in to the Misperceived Consent Group (MCG) and participants who correctly recognized there was no sexual consent given in 3 or 4 of the “B” group vignettes were placed in the Recognized No-Consent Group (RNCG). Univariate comparisons were conducted to determine if participants in the MCG group differ from those in the RNCG group on demographic and psychosocial factors and dating app use motivation. Then, a multivariate binary logistic regression model was run to determine which factors are most associated with the MCG group.

As previously stated, the ten vignettes were classified into three categories: 3 platonic (no consent), 4 flirting (no consent), and 3 sexting (with consent). Also referred to as group “A” which is the platonic group, group “B” which is the flirting group, and group “C” which was the sexting group. Percentages for these groups were as followed: the “A” group had three vignettes in this category. The first vignette in this group had an incorrect rating percentage of 24.8%, the second vignette had an incorrect rating

percentage of 36.2% and, the last vignette in this category had an incorrect rating percentage of 27.5%.

For the “B” group, there were four vignettes in this category. The first vignette in this group had an incorrect rating percentage of 46.3%, the second vignette in this group had an incorrect rating percentage of 65.8%, the third vignette in this group had an incorrect rating percentage of 28.2%, and the fourth vignette in this category had an incorrect rating percentage of 45.0%.

Finally, the “C” group was also had three vignettes in this category. The first one had an incorrect rating percentage of 37.6%, the second vignette had an incorrect rating percentage of 11.4%, and the third vignette in this group had an incorrect rating percentage of 18.1% These results show that the “B” group was found to be the “trickier” group for participants, with the percentage of incorrect ratings being much higher when compared to groups “A” and “C.” The percentage of correct ratings in group “B” were also found to be much lower when compared to the other two groups. See Table 5 for a correlation matrix of all predictor variables.

Univariate Analyses

Demographic Variables

Significant differences were found regarding age and sexual consent interpretations, such as those in the RNCG ($M = 33.01$, $SD = 7.31$) were older compared to those males in the MCG ($M = 29.95$, $SD = 5.92$); $t(149) = 2.81$, $p = .006$. There was also a significant difference in race, where there was higher percentage of Asian participants in the MCG compared to those in the RNCG ($\chi^2(5) = 13.06$, $p = .023$). Organization membership was also found to be significant. A higher proportion of those

in the MCG (n = 56, 71.8%) were members of a sports team as compared to those in the RNCG (n = 40, 56.3%); ($\chi^2(1) = 3.88, p = .049$). Another organization, student council, was found to be significant, where those in the MCG (n = 33, 42.3%) made up a higher number of participants than those in the RNCG (n = 33, 19.7%); ($\chi^2(1) = 8.78, p = .003$). Additionally, no significant difference was found regarding high school sex education, whether it was safe sex or sexual consent, between the two comparison groups (see Table 1).

Dating App Use Motivation

When examining participant motives for using dating apps, including Tinder, there were no significant differences found when comparing the two groups. The motivations were split into four categories: entertainment, validation, casual sex, and long-term relationship/meeting new people (see Table 2).

Psychosocial Factors

Several psychosocial factors were assessed, including impulsivity, self-esteem, level of attractiveness, rape myth acceptance, and personality. To start, level of attractiveness was found to be significant, such as those in the MCG (M = 2.95, SD = .719) rated themselves higher in attractiveness when compared to those in RNCG (M = 2.55, SD = .938); $t(149) = -2.91, p = .004$. This variable has a moderate effect size of $d = 0.48$. When measuring rape myth acceptance, a significant difference was found showing that those in the MCG (M = 46.88, SD = 14.99) were more likely to accept that rape is a myth when compared to those in the RNCG (M = 31.66, SD = 18.31); $t(147) = -5.485, p < .001$. This variable had a large effect size of $d = 0.91$.

When examining personality factors, specifically elements of the big five, two of

the five subscales showed a significant difference between the two comparison groups. Conscientiousness was significantly different between the MCG ($M = 12.22$, $SD = 7.22$) and the RNCG ($M = 14.81$, $SD = 6.81$); $t(149) = 2.241$, $p = 0.027$, $d = 0.37$. Individuals who recognized that there was no consent given in the “B” group vignettes were found to be more conscientious than those who misperceived sexual consent. There was also a marginal significant difference between the two comparison groups in relation to extraversion. Participants in the MCG ($M = 8.29$, $SD = 6.34$) were slightly more extraverted than those in the RNCG ($M = 6.39$, $SD = 6.58$); $t(149) = -1.79$, $p = .075$, $d = 0.31$. No significant differences were found between the comparison groups for the other big five subscales (openness to experience, agreeableness, and emotional stability).

Finally, the other personality factor examined was the dark triad. This variable breaks down into three traits: Machiavellianism, psychopathy, and narcissism. All three traits were found to be significantly related to incorrectly recognizing consent. First, there was a significant difference in the Machiavellianism personality trait where the MCG ($M = 13.12$, $SD = 4.63$) had higher levels when compared to the RNCG ($M = 10.07$, $SD = 4.75$); $t(146) = -3.93$, $p < .001$, $d = 0.71$. Second, there was a significant difference in the psychopathy trait, such that the MCG ($M = 12.28$, $SD = 4.85$) had higher levels of psychopathy when compared to the RNCG ($M = 9.35$, $SD = 4.85$); $t(149) = -3.68$, $p < .001$, $d = 0.60$. Lastly, when comparing the two groups, the MCG ($M = 13.83$, $SD = 4.01$) had higher levels of narcissism than the RNCG ($M = 10.45$, $SD = 4.36$); $t(148) = -4.91$, $p < .001$, $d = 0.81$ (see Table 3).

Multivariate Analyses

A simultaneous binary logistic regression was conducted to determine the psychosocial factors most significantly associated with misperceived consent group (MCG). Variables significant at the univariate level were included in the model, except for Race (as it caused the model not to converge). The overall model was significant, $X^2(10) = 46.717$, $p < .001$, with the -2 Log Likelihood = 149.884 and Nagelkerke $R^2 = .374$. The variables significant in the final model included higher scores on the Rape Myth Acceptance scale ($B = 0.050$, $X^2 = 6.908$, $p = .009$), higher ratings of Extraversion on the Big 5 Personality Scale ($B = 0.089$, $X^2 = 5.405$, $p = .020$), lower ratings of Conscientiousness on the Big 5 Personality Scale ($B = -0.078$, $X^2 = 4.446$, $p = .035$). The overall classification for the model was 76.8% with the sensitivity of 82.4% (ability to correctly identify individuals who misperceive consent) and specificity of 70.6% (ability to correctly identify individuals who can recognize consent) (see Table 4).

V. DISCUSSION

The current study was an exploratory examination of dating app users, and their ability to recognize sexual consent in a text-based conversation. Studies have shown that certain psychosocial factors in men have been associated with sexual assault, such as rape myth acceptance (Mouilso & Calhoun, 2013). Because of the limited research on dating app users and sexual consent specifically, the hypotheses for this study were developed based on the previous research related to sexual assault and dating app user motivation/characteristics.

The experimental design for this study used vignettes with hypothetical text-based discussions between two individuals meeting on a dating app. Four of the ten vignettes, designed and tested by focus groups, were considered to be “flirtatious” but *did not* give sexual consent in the text-based conversation. The participants in the study who indicated that consent was given in two or more of the four vignettes, were classified in the “misperceived consent” group. The purpose of this study was to identify key demographics, dating app user motivation, and psychosocial factors related to these participants who failed to recognize the flirtatious nature of the conversations and misperceived that sexual consent was given.

Considering the personality factors first, the Ten Item Personality Inventory was used to examine Big 5 traits of participants, which for this study only included agreeableness, conscientiousness, and extraversion. Results showed that there was no significant difference between the comparison groups in rates of agreeableness. This does not support the hypothesis that participants with low levels of agreeableness would be more likely to misperceive consent. This does not align with previous research that

participants with low levels of agreeableness are more likely to be sexual assault perpetrators than non-perpetrators (Voller & Long, 2010). It should be noted however, that research on agreeableness and sexual assault was conducted on university students of a younger age. Our study looked at those who were not just in college, and the mean age of the participants in our sample was 31 years old.

Conscientiousness was also another Big 5 trait that was examined in our study. This was significant at both the univariate and multivariate levels. This supported the hypothesis that participants with low rates of conscientiousness would misperceive consent. On the contrary, participants with high rates of conscientiousness recognized no consent at a higher rate. This aligns with previous research on sexual assault perpetrators having lower levels of conscientiousness compared to non-perpetrators (Voller & Long, 2010). This finding shows that less conscientious dating app users will be more likely to misperceive sexual consent when exchanging messages with their potential partner.

Lastly, the multivariate analysis showed that the hypothesis regarding extraversion was supported. Participants with high levels of extraversion would be more likely to misperceive consent. This aligns with previous research that individuals who score high on the extraversion scale are more likely to engage in risky sexual behavior like coercion and engaging in sexual activity after the use of drugs or alcohol (Lobell et al., 2016). It has been stated by researchers that women are more likely to be sexually assaulted when the use of drugs or alcohol has occurred (Dir et al., 2018). It is important for dating app users to consider all these factors when meeting a partner in person. An extraverted, or outgoing individual at a party or a bar may be more likely to engage in these behaviors of coercion and risky sexual behavior.

The dark triad of personality was used to study specific factors including, Machiavellianism, psychopathy, and narcissism. Univariate analysis found that all three traits were significantly associated with misperceiving sexual consent in text-based conversations. This finding at the univariate level supports the hypothesis that participants scoring high on any of the three dark triad traits would have greater likelihood of misperceived consent. Previous research has shown that the dark triad of personality is an important predictor of sexual coercion particularly in men (Lyons, et al., 2020). When considering Machiavellianism, psychopathy, and narcissism, as it relates to interpreting sexual consent in dating app message exchanges, these individuals may not even care if sexual consent was explicitly stated or not. The dark triad of personality has also been positively related to rape myth acceptance (Jonason et al., 2017).

The Rape Myth Acceptance Scale was used to measure participants' attitudes toward rape. This construct was found to be significantly associated with greater likelihood of misperceiving sexual consent in both the univariate and multivariate analyses for this study, which supports our hypothesis. This aligns with a many published studies showing that rape myth acceptance is related to sexual assault perpetrators, sexual aggression, dark triad traits, and are accepted more by men (Mouilso & Calhoun, 2013; Jonason et al., 2017; Hayes et al., 2016; Hayes et al., 2013). Our finding shows that men who do not believe that rape exists might have a hard time recognizing when consent has or has not been given when engaging in text-based communication with potential partners on dating apps.

Dating app user motivation was assessed using the Dating App Motivation Scale, which was adopted from the Tinder Motivation Scale (Sumter et al., 2017). The

comparisons on dating app motivation were found to be nonsignificant and did not support the hypothesis that participants who used dating apps to find casual sex partners differed in consent interpretations from those who use dating apps to find long term relationships. This does not align with previous research that men are more likely to use dating apps to find casual sex partners (Welch & Morgan, 2018; Timmermans & De Caluwe, 2017). Although both scales were found to be psychometrically sound assessments, these are both fairly new scales that may need to be tested more, especially on male samples. Both scale developments had limitations such as data consisting of a sample that included more women than men, and both being self-report measures where men may be less likely to admit that they are in search on a true romantic partner.

Demographic variables such as prior or current group membership and sexual education background were taken into consideration for this study. When considering group membership, participants were asked about their affiliations with Greek organizations (i.e., fraternities), sports teams, and clubs like Student Council. While the results were found to be significant for the comparisons on affiliations with Greek organizations, they were excluded from the results because of low participant numbers ($n = 9$; 6.0% of sample). Sports team membership and participation in Student Council were both found to be significant at the univariate level. It was found that those on a sports team or in Student Council were more likely to misperceive sexual consent than those who were not a part of those organizations. This aligns with previous research showing that male group membership is related to sexual assault, sexual aggression, and coercion (Akers, 1991; Schaeffer & Nelson, 1993; Murnen & Kohlman, 2007; Boeringer, 1996; Boeringer et al., 1991). This finding also aligns with theorist arguments that group

polarization and group think may contribute to why men in these groups have traditional attitudes towards women that go unchallenged, especially when looking at attitudes of rape myth acceptance (Bleecker & Murnen 2005). It should be noted that all previous research on athletic teams or Greek organizations was conducted on male samples. In the present study, we decided to include all types of organizations, not just those specific two. Since our findings showed that Student Council membership was significant, future research should look at the relationship between sexual assault, sexual consent, and men in “leadership” organizations and their need for power and control. This may yield important findings, as the number of male political and religious leaders continue to be exposed for sexual assault and sexual misconduct.

When examining sexual education, because of a researcher error, the abstinence sexual education variable had to be taken out of the final results. There was a misspelling in the survey question on abstinence that might have confused the participants into answering in a different way than they would have. Because of that error, the hypothesis that participants with an abstinence only high school sexual education background would be more likely to misperceive consent more than those with a safe sex and sexual consent sexual education was removed from the analyses.

Limitations

Although the model used for this study did identify demographic and psychosocial factors related to sexual consent interpretations, there are limitations. One limitation is that the participants in the study were pooled from mTurk, which may not always yield the best data. Since individuals are getting paid to take surveys on mTurk, it is possible that the participants do not take the time to think about the questions being

asked in order to finish this study quickly and get to the next one in order to make as much money as possible. One way that we countered this was by using two manipulation checks within the survey. Only data from mTurk respondents who accurately answered the manipulation questions were downloaded for use in this study. Another limitation is that we do not know where the participants are from. Geographic location was not a question asked in the demographics, and there may have been participants in this sample from other countries whose cultural differences may have skewed the results compared to a sample only from the United States. For example, sex and sex education might be looked at in a different way in other countries and cultures. The participant racial demographic data showed a large number of Asian individuals. It is unclear if those who indicated Asian race are from Asian countries, or are from parts of the United States, like San Francisco or New York which have large Asian populations. The sample of participants in this study were not very reflective of the population. Another potential limitation was that the survey was a self-report measure, also allowing for possible dishonesty.

Conclusion

The purpose of this study was to investigate dating app users' interpretations of sexual consent through text message exchanges. The findings show that there are demographic and psychosocial factors related to having a higher likelihood of misperceiving sexual consent in flirtatious text-based messages. The information gained from this study is vital to understand the "type" of individual who is likely to misinterpret flirting as sexual consent in a text-based conversation. Further, it provides the first step in developing prevention and intervention strategies to reduce sexual assault stemming from

dating app interactions.

This was the first comprehensive study to evaluate psychosocial factors in a male, non-college-student sample, relating to the misperception of sexual consent in text-based conversations on dating apps. Future studies should replicate and expand this study.

Further, based on the findings from the male team membership, more research should be conducted on the association between power/control-based leadership roles (i.e., in areas such as politics and religion) with the misperception of sexual consent and sexual assault.

APPENDIX SECTION

Table 1.

Demographics

		Recognized No-Consent	Misperceived Consent	Statistical Significance
		n = 71	n = 78	
Age				
Mean (Std. Dev)		33.01 (7.31)	29.95 (5.92)	p = .006
Race				
%				
	White/Caucasian	57.7%	33.3%	p = .023
	Black	2.8%	6.4%	
	Asian	35.2%	57.7%	
	Additional Races	4.2%	2.6%	
Ethnicity				
%				
	Hispanic or Latino	20.6%	30.8%	NS
Organization Membership				
% (not mutually exclusive)				
	Sports	56.3%	71.8%	p = .049
	Student Council	19.7%	42.3%	p = .003
Sexual Education				
% (not mutually exclusive)				
	Safe Sex	54.9%	55.1%	NS
	Sexual Consent	31.0%	38.5%	NS

Table 2.

Sexual Consent Interpretations and Dating App Use Motivation

		Recognized No-Consent	Misperceived Consent	Statistical Significance
		n = 71	n = 78	
Motivations				
Mean (Std. Dev)				
	Entertainment	12.37 (2.24)	12.44 (1.83)	NS
	Validation	12.37 (2.41)	12.60 (1.72)	NS
	Casual Sex	3.18 (0.68)	3.24 (0.72)	NS
	Long-term Relation/Meeting New People	8.93 (1.83)	9.36 (1.34)	NS

Table 3.

Sexual Consent Interpretations and Specific Psychosocial Factors

	Recognized No-Consent	Misperceived Consent	Statistical Significance
	n = 71	n = 78	
The Dark Triad Mean (Std. Dev)			
Machiavellianism	10.07 (4.75)	13.12 (4.63)	p < .001
Psychopathy	9.35 (4.85)	12.28 (4.85)	p < .001
Narcissism	10.45 (4.36)	13.83 (4.01)	p < .001
Big Five Personality Mean (Std. Dev)			
Extraversion	6.39 (6.58)	8.29 (6.34)	p = .075
Agreeableness	12.17 (7.11)	11.27 (6.55)	NS
Conscientiousness	14.81 (6.81)	12.22 (7.22)	p = .027
Emotional Stability	11.92 (7.19)	11.24 (6.46)	NS
Openness	12.25 (6.48)	11.09 (6.86)	NS
Level of Attractiveness Mean (Std. Dev)	2.55 (.938)	2.95 (.719)	p = .004
n (%)			
Not Very Attractive	8 (11.3%)	1 (1.3%)	
Somewhat Attractive	30 (42.3%)	19 (24.4%)	
Moderately Attractive	19 (26.8%)	41 (52.6%)	
Very Attractive	14 (19.7%)	17 (21.8%)	
Rape Myth Acceptance Mean (Std. Dev)	31.66 (18.31)	46.88 (14.98)	p < .001

Table 4.

Multivariate Binary Logistic Regression Analysis Predicting Factors Most Associated with the Misperceived Consent Group

	B	S.E.	Wald	Sig.	Odds Ratio/95% CI
Age	-.054	.034	2.410	.121	0.948 (0.886, 1.014)
Organization: Sport	.791	.455	3.019	.082	2.206 (0.904, 5.387)
Organization: Student Council	.808	.483	2.799	.094	2.244 (0.871, 5.785)
Rape Myth Acceptance	.050	.019	6.908	.009	1.052 (1.013, 1.092)
Dark Triad: Machiavellianism	.005	.078	.004	.952	1.005 (0.863, 1.170)
Dark Triad: Psychopathy	-.114	.085	1.795	.180	0.892 (0.755, 1.054)
Dark Triad: Narcissism	.090	.074	1.478	.224	1.095 (0.946, 1.266)
Big 5: Extraversion	.089	.038	5.045	.020	1.093 (1.014, 1.177)
Big 5: Conscientiousness	-.078	.037	4.446	.035	0.925 (0.861, 0.995)
Level of Attractiveness	-.256	.295	.753	.385	0.774 (0.434, 1.380)
Constant	.164	1.379	.014	.905	

Table 5.

Correlations for Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Extraversion	-											
2. Agreeableness	.266*	-										
3. Conscientiousness	.396*	.487**	-									
4. Emotional Stability	.372*	.385**	.644**	-								
5. Openness to Experience	.365*	.424**	.519**	.432**	-							
6. Machiavellianism	0.091	.551**	.286**	0.136	.399**	-						
7. Psychopathy	0.137	.590**	.435**	.300**	.419**	.820*	-					
8. Narcissism	0.076	.344**	.216**	0.156	.323**	.736*	.728*	-				
9. Level of attractiveness	0.142	0.092	0.046	0.158	0.031	.378*	.300*	.367*	-			
10. Rape Myth	0.003	.481**	.266**	-0.13	.396**	.735*	.759*	.695*	.508*	-		
11. Casual Sex	0.055	0.089	0.084	0.006	0.003	0.025	0.077	0.056	0.138	0.054	-	
12. Find Relationships	0.03	0.025	0.109	-0.14	0.034	.279*	.222*	.296*	.187*	.200*	0.11	-

** p < 0.01 (2-tailed); * p < 0.05.

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