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**A PERSON-CENTERED APPROACH TO IDENTIFYING PREDICTORS OF
SEXUAL VIOLENCE RISK RECOGNITION AMONG WOMEN DURING
ALCOHOL INTOXICATION USING A LABORATORY PARADIGM**

by

Ebru Yucel

A Dissertation

Submitted to the
Psychology Department
College of Science and Mathematics
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at
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Dedications

This dissertation is dedicated to my loved ones, as it would not have existed without their unwavering support.

To my beloved husband, Eyup, who wrangled our toddler day in and day out as I typed away at my laptop. Thank you for being the light of my life, and motivating me through the tough times. I don't know how I got so lucky.

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To my late brother, Ali Osman, who I miss dearly every single day. I love you, and I wish you were here to see just how much I've accomplished.

And last but not least, to my faith in Allah, Celle Celaluhu. Elhamdulillah, for His blessings of strength, wisdom, support, and knowledge, and for the guidance in helping me push through the challenges that I encountered throughout my academic journey.

“Read! in the name of thy Lord and Cherisher, Who created – Created man, out of a (mere) clot of congealed blood: Read! And thy Lord is Most Bountiful, He Who taught (the use of) the pen, Taught man that which he knew not” (The Holy Qur'an, 96:1-5).

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Abstract

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2023

Meredith C. Jones, Ph.D.

Doctor of Philosophy in Clinical Psychology

This study employs a person-centered approach to identifying predictors of sexual violence risk recognition among women during alcohol intoxication, utilizing a laboratory paradigm. Sexual violence remains a pervasive social issue with significant implications for individuals and society at large. Alcohol intoxication has been consistently associated with increased vulnerability to sexual violence; however, little is known about the factors that contribute to women's ability to recognize and assess risk in such situations. This study aims to fill this gap by employing a person-centered approach to understand the impact of individual and situational factors on women's risk recognition. In summary, the findings of this study indicate the presence of distinct subgroups among women exhibiting variations in risk recognition. Utilizing a Classification and Regression Trees (CART) analysis, the results highlight age and endorsement of sexist attitudes as predictors of group membership. The findings of this study are expected to contribute to the current understanding of risk recognition in the context of sexual violence victimization. This information can inform prevention and intervention strategies tailored to specific subgroups of women at higher risk for experiencing sexual violence.

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Chapter 1

Introduction

Sexual violence is defined as any form of unwanted sexual contact, ranging from verbal harassment to rape (CDC, 2012). Approximately one in five women report experiencing some form of sexual violence (SV) within their lifetime (Black et al., 2011). There are many consequences associated with experiencing SV, including emotion dysregulation (Messman-Moore et al., 2015), increased alcohol use (Bedard-Gilligan et al., 2011), post-traumatic stress (Brown et al., 2009; Lorenz & Ullman, 2016), and revictimization (Classen et al., 2005). Despite decades of considerable efforts to decrease the occurrence of SV, prevalence rates among women have remained relatively stable (Breiding et al., 2014; Sinozich & Langton, 2014).

Interventions have primarily focused on men, as men perpetrate the vast majority of SV against women (Black et al., 2011). The impact of these interventions is unclear, as some exhibit an increased occurrence of SV perpetration after intervention (Malamuth et al., 2018), while others report a positive change in attitudes and intentions, without evidence of a reduction in SV perpetration (Wright et al., 2020). Given these results, it is important that interventions are targeted towards both men and women in an effort to reduce the occurrence of SV. Providing women with the skills and empowerment to recognize and respond to risky situations could lower their vulnerability to SV. If women are able to recognize risk early in a social encounter, they may have more options available to leave that potentially risky situation (DePrince & Gagnon, 2018). However, this does not, under any circumstance, imply that women are in any way responsible for

SV perpetrated against them. Perpetrators are the only responsible party in any SV, and victims should never be blamed for any aspect of their victimization. Thus, interventions should be designed to help women understand that they do not carry any blame in SV victimization, while empowering them with the knowledge and skills they need to identify and reduce risk. This process begins with identifying the factors that increase risk. It is important to note that SV risk recognition is different from SV victimization risk. Rather, it is a potential mechanism by which SV victimization occurs, and can be hindered by alcohol intoxication as well as other factors. While sexual victimization and risk recognition differ, there is overlap between the two concepts. Understanding the dynamics of sexual victimization is crucial for effective risk recognition and prevention strategies. Knowledge gained from sexual victimization research informs the study of risk recognition by identifying common patterns, risk factors, and vulnerable populations. For instance, research on the contexts in which victimization occurs, and the cognitive processes of victims can inform educational efforts to enhance risk recognition skills. By examining how individuals perceive and respond to potential risks, this research can identify barriers to effective risk recognition and inform interventions to mitigate those barriers.

Alcohol use has been studied as a potential risk factor for experiencing SV, as most occurrences of SV involve alcohol (Abbey et al., 2004; Ullman et al., 1999; Zawacki et al., 2003), with more than half of SV victims reporting consumption of alcohol prior to being victimized. Victims also report increased severity of SV when alcohol consumption is involved (Testa & Livingston, 1999). Alcohol also affects cognitive processes that may be relevant for the dating process. For instance, results from

one study indicated that alcohol consumption increases attractiveness ratings of opposite-sex faces (Jones et al., 2003). Yet, women are likely to underestimate the influence of alcohol in increasing their risk for experiencing SV (Breitenbecher, 1999). Again, it is important to note that this does not imply that women are responsible for their experiences with SV; rather, research can assist in understanding the context of SV to aid prevention efforts.

The relationship between alcohol use and SV victimization among women is well-established (Abbey et al., 1994; Cowley, 2013; Davis et al., 2007; Lorenz & Ullman, 2016; Testa & Livingston, 1999). One potential explanation for this relationship is alcohol myopia theory (Davis et al., 2007; Flowe et al., 2011; MacDonald et al., 2000; Steele & Josephs, 1990). Alcohol myopia theory posits that alcohol intoxication leads to a reduction in overall cognitive processing ability, which limits an individual's scope of attention (Steele & Josephs, 1990). As a result, an intoxicated individual may only be able to focus on cues that are most salient and tangible in a given situation, (i.e., sexual arousal). This limited scope of attention translates to an inability to identify threatening cues that may pinpoint an individual as someone likely to commit SV. As such, acute alcohol intoxication may limit a woman's SV risk recognition abilities.

Yet, alcohol intoxication alone is not a reliable predictor of SV victimization risk (Dermen & Cooper, 2000; MacDonald et al., 2000). Sexual arousal is a related, but distinct, situational factor that could contribute to decreased SV risk recognition. As previously mentioned, when alcohol myopia occurs, individuals may focus on more salient or disinhibitory cues, such as sexual arousal. Elevated sexual arousal may create a *situation* where a woman is likely to focus on fulfilling that desire due to its saliency. In

fact, women's subjective experience of sexual arousal during intoxication is markedly elevated when compared to their physiological response (Norris, 1994), potentially indicative of hyperfocus on the feeling of sexual arousal. This focus may lead women to pay more attention to positive cues that indicate safety rather than attention to cues that may indicate risk (Pumphrey-Gordon & Gross, 2007).

However, sexual arousal and alcohol intoxication are not the only variables involved in the process of SV risk recognition. In fact, the interaction of situational factors (alcohol intoxication and sexual arousal) with individual factors (such as attitudes and beliefs), provides a better picture of the mechanism of risk recognition within SV victimization (Abbey et al., 2004, 2005; Davis et al., 2007; Norris, 1994). The interaction of individual factors (sometimes referred to as dispositional) and situational factors on behavior has been studied for decades, and is widely known as the 'person-situation debate' (Epstein & O'Brien, 1985; Hogan, 2009). Academics have long debated about how individuals make decisions, and if individual or situational factors have more sway in the decision-making process (Hogan, 2009). More recently, academics have agreed that the decision-making process likely involves the interaction of both (Hogan, 2009; Kenrick & Funder, 1988). Attitudes may impact risk perception by influencing how much an intoxicated individual focuses on risk cues (Abbey 2006).

Individual Predictors of SV Risk Recognition

There are many individual factors associated with SV victimization (Conley et al., 2017; Nydegger et al., 2017). Sexism among both men and women has been widely studied as a catalyst for SV. Endorsing sexist attitudes creates higher risk for SV

victimization (East & Hokoda, 2015; Nydegger et al., 2017). For instance, hostile sexism (antagonism towards women who challenge traditional gender roles) may lead women to be less assertive out of fear that they may challenge gender norms, potentially increasing passivity in sexual encounters (Ramos et al., 2018). This passivity could amplify decreased SV risk recognition. Women who endorse hostile sexist attitudes have a negative perception of women who do not conform to traditional gender roles, and are more likely to support the discrepancy in power between men and women. For instance, women who subscribe to hostile sexist beliefs tend to show opposition towards social changes that empower women (Sibley & Perry, 2010). In fact, women who endorse hostile sexism also endorse that men are in possession of power (e.g., “men should be the king of the family,” “listening to a woman shames a man”; Chen et al., 2009). Thus, women who endorse hostile sexism may be more open to compliance and influence from their partner (Overall et al., 2011), and this compliance may lead to disregard of risk cues, or decreased SV risk recognition overall. Women are traditionally considered gatekeepers of sex, and if they do not feel empowered to end a sexual encounter, it could lead to SV victimization (Jozkowski & Peterson, 2013). It is important to reiterate that this does not imply that women are responsible for their experiences with SV. Rather, studying these relationships can aid in prevention efforts, as attitudes may impact behaviors for both perpetrators and victims (Chaiklin, 2011).

Another form of sexism, benevolent sexism, is a subjectively positive ideology that represents the idea that women need to be protected by men (Glick & Fiske, 1996). Women who endorse benevolent sexism may idealize and objectify themselves for conforming to traditional sex roles (Abrams et al., 2003; Glick & Fiske, 1996). Because

benevolent sexism is subjectively positive, it can disarm a woman's resistance towards a man under the guise that a man will protect them, which could potentially negate any perceived risk cues or lead to decreased risk perception overall (Sibley et al., 2007). Taken together, endorsement of benevolent sexism may predispose women to become more tolerant of SV, as women may be less aware of risk cues as something that can harm them due to the idea that men will protect them (Sibley et al., 2007).

Another relevant individual factor includes previous victimization. Individuals who have previously experienced SV are likely to be revictimized (Katz et al., 2010), and their risk perception can be impacted in multiple ways. First, women who report experiencing SV are more likely to engage in problem drinking, which can lead to perpetrators targeting them more often due to their vulnerability (Kilpatrick et al., 2007; Messman-Moore et al., 2015). This increased incapacitation can also reduce a woman's ability to oppose unwanted sexual advances (Testa et al., 2006). Second, women who have experienced SV are more likely to report deficits in emotion regulation (Messman-Moore et al., 2015). This deficit can lead to impulsive behavior, which may increase the likelihood of entering sexual encounters despite perceiving risk, as they may not be able to distinguish between arousal and fear (Messman-Moore et al., 2015). Further, women who endorsed a severe victimization history tend to use higher thresholds to deem a situation as risky, and are less sensitive to risk overall (Yeater et al., 2010). Women who have previously been victimized may have a deficit in recognizing risk cues, which may impair their ability to avoid risk (Wilson et al., 1999).

Acceptance of rape myths has been widely studied as a predictor of SV risk recognition and SV victimization. Rape myths are cultural beliefs that shift blame from

the perpetrator to the victim (Burt, 1980). For women, rape myths may provide a means to minimize their personal vulnerability (Suarez & Gadalla, 2010). In other words, the endorsement of rape myths may provide women with a false sense of security, as they may believe that they are not engaging in the behaviors that would typically lead to SV victimization, essentially disengaging risk recognition (Suarez & Gadalla, 2010). Greater endorsement of rape myth acceptance has also been predictive of a lower sensitivity to risk cues (Yeater et al., 2010). In fact, results from one study indicate that increased endorsement of rape myths is associated with delays in assessing risk cues, as well as delays in responding to risk cues (Franklin, 2013). Overall, endorsement of rape myths may be associated with decreased ability to recognize risk.

Several researchers have also studied alcohol expectancies in connection with sexual violence victimization. Women who endorse positive alcohol expectancies (e.g., sociability and sexual desire) feel more comfortable engaging in sexual behaviors that they may not otherwise (Norris et al., 1996). Thus, positive expectancies, within the context of alcohol myopia, may bias an individual's attention towards non-risky or positive situational cues rather than the risk cues that would contradict these positive expectancies (Corbin et al., 2001). Furthermore, women who endorsed severe victimization (attempted or completed rape) also endorsed greater expectations of positive effects from alcohol consumption. The magnitude of this relationship was not as strong for those who endorsed moderate victimization or no victimization. This further illustrates the need for person-centered approaches that identify the risk factors for various subgroups.

Age is another important individual factor to consider when exploring the predictors of SV risk recognition, especially within the context of alcohol intoxication. While we know little about SV victimization in middle and older adulthood, there are many studies examining victimization among adolescents (Champion et al., 2004; Trent et al., 2007), and college-aged women (Fedina et al., 2018; Muehlenhard et al., 2017; Stoner & Cramer, 2019). Victimization of college-aged women is a pervasive problem on college campuses, and has recently garnered national attention with the launching of public awareness campaigns from the White House Administration in 2014 (Fedina et al., 2018).

While there are many important factors between age and alcohol, age can also impact other areas of functioning that may contribute to SV risk recognition. For instance, as women gain more experience with alcohol and parties, and the novelty of these environments dissipate, they might become more aware of the processes that contribute to risk (Cranney, 2015). Due to such variation in age-related development, it would be beneficial to utilize a framework that is person-centered in an effort to establish if one's age is important for predicting SV risk recognition. This would likely be achievable with a sample that includes the legal drinking age and early adulthood, as it provides a wide range of ages that could provide information about patterns surrounding the legal drinking age and the novelty of legality thereafter.

Laboratory Analogues

Laboratory analogues have been widely used as an experimental means of studying SV risk recognition in an ethical manner (Abbey & Wegner, 2015; Davis,

George, et al., 2014). While many cross-sectional studies have revealed important information about SV (Tharp et al., 2013), researchers are unable to make causal connections between the variables under study (Shadish et al., 2002). However, creating an environment that would directly expose participants to SV would be unethical (Abbey & Wegner, 2015; American Psychological Association, 2017; Davis, George, et al., 2014). As such, researchers have developed laboratory analogues to mimic the internal states and behavioral responses that would likely occur in real-world situations, without exposing the participant to harm (Abbey & Wegner, 2015). For instance, in the Marx and Gross (1995) analogue used to study SV risk recognition, participants are asked to listen to an audiotape recording of an interaction between a man and a woman. This interaction becomes increasingly assaultive and eventually leads to rape. Participants are asked to decide if and when the man in has “gone too far.” In this analogue, response latency, or the amount of time it takes for the participant to respond, is a direct indicator of SV risk recognition abilities. In the past, laboratory analogues have been criticized for lacking mundane realism and construct validity, however, results from various studies provide compelling evidence for the validity of these paradigms (see Davis, Parrott, et al., 2014 for a review). Given the support for using laboratory analogues to create a situation that mimics the real world, this study will use the Marx & Gross (1995) analogue, coupled with an alcohol administration protocol, to identify the impact of individual and situational factors on SV risk recognition.

The purpose of this study is to utilize a laboratory analogue and alcohol administration to identify the individual and situational factors predictive of SV risk recognition, using a person-centered exploratory approach. We will be utilizing age,

alcohol expectancies, rape myth acceptance, sexism, and history of SV victimization as individual factors, and alcohol intoxication and sexual arousal as situational factors. Results from this study may be helpful in identifying the specific groups that interventions might be tailored for.

Previous findings have generally relied on a *variable-centered* approach to explore the predictors of SV risk recognition. A variable-centered approach operates based on the assumption that a single population has an average parameter for each variable, which is helpful in investigating how one variable impacts another (Laursen & Hoff, 2006). While this may be helpful in synthesizing predictions, these predictions are often limited in that they are not generalizable, as variance is rarely equally distributed across the general population (Laursen & Hoff, 2006). Alternatively, a *person-centered* approach is designed to identify whether there are subgroups within the population, and the pattern of variables that makes these subgroups similar (Howard & Hoffman, 2017). The person-centered approach allows for the ability to identify homogeneity within groups and heterogeneity among groups (Laursen & Hoff, 2006).

Given that previous researchers have proposed focusing on individual differences (Abbey et al., 2005; Davis et al., 2007; Norris, 1994), the current study will apply a person-centered approach to explore predictors of SV risk recognition, to identify potential subgroups that determine risk level. In other words, through studying both situational and individual factors, we may be able to identify the common factors that can determine if a woman has low, medium, or high SV risk recognition. The situational factors are sexual arousal and alcohol intoxication, while individual factors are age, hostile sexism, benevolent sexism, alcohol expectancies, rape myth acceptance, and

victimization history. While this study is exploratory, these results can provide further information for prevention interventions, potentially indicating a need for tailored interventions for various risk-level groups rather than a 'one size fits all' approach to SV risk recognition-based prevention.

Given the literature regarding risk recognition, it is unlikely that alcohol intoxication itself will be a predictive variable. According to alcohol myopia alcohol intoxication is a catalyst for decreased risk recognition, whereas person-situation posits that sexual arousal and individual variables will interact to determine what and when risk is identified. Thus, we hypothesize that sexual arousal and individual variables will be more impactful in determining risk recognition compared to both sexual arousal and alcohol intoxication with individual variables.

Chapter 2

Method

Participants

Study procedures were adapted from previous research that uses alcohol administration and laboratory analogues (Davis, Masters, et al., 2014; George et al., 2013; Gilmore et al., 2013; Norris et al., 2013). Participants were recruited from a suburban community using social media and posted flyers asking for subjects to “take part in several tasks to examine alcohol intoxication and cognitive processing,” and were directed to an online screening form to determine their eligibility. Participants were cisgender women between the ages of 21-30, who are social drinkers (more than one drink but no more than 40 drinks per week; Purdie et al., 2011). Following the NIAAA guidelines, individuals who have a medical condition or take prescription medications that contraindicate alcohol use were excluded (National Institute on Alcohol Abuse and Alcoholism, 2005). In addition, individuals who have a history of problem drinking were also excluded per the NIAAA guidelines (National Institute on Alcohol Abuse and Alcoholism, 2005). Problem drinking was identified using The Brief Michigan Alcohol Screening Test (B-MAST; Pokorny et al., 1972) and the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993). Individuals eligible for the study were instructed to avoid eating or drinking (except water) for 4 hours before the start of the study. Participants in the control condition were compensated with \$20, and participants in the experimental condition were compensated with \$50. All study methods were approved by the Rowan University Institutional Review Board.

Self-Report Measures

Age

Participants were asked to provide their age. All participants were above the legal drinking age of 21. Participant ID's were checked to confirm that they were of legal drinking age.

Sexual Arousal

Sexual arousal was measured on a 5-point scale. Participants were asked to rate their current sexual arousal, with 1 indicating *slightly or not at all* aroused, and 5 indicating *extremely* aroused. Participants were asked to rate their sexual arousal right before the analogue and right after the analogue. An average of the two scores was used in the CART analysis. This was determined to be the best option, as sexual arousal could change throughout the analogue, and this may capture the range of arousal throughout rather than before or after alone.

Hostile Sexism

Hostile sexism was measured using an 11-item subscale from the Ambivalent Sexism Inventory (Glick & Fiske, 1996). This subscale is designed to identify hostility, or an antagonist attitude towards women who violate traditional gender norms. Items use a 6-point Likert scale, ranging from *Strongly Disagree* (1) to *Strongly Agree* (6). Sample items include, "Women seek to gain power by getting control over men," and "Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for 'equality.'" The hostile sexism subscale yields a

Cronbach's alpha coefficient ranging from .80 to .92 (Glick & Fiske, 1996). A mean of the items from this subscale were used in the CART analysis.

Benevolent Sexism

Benevolent sexism was measured using an 11-item subscale from the Ambivalent Sexism Inventory (Glick & Fiske, 1996). This subscale is designed to identify subjectively positive attitudes towards women that are patronizing in nature, and assume that women are inferior, weak, and in need of assistance from men. Items use a 6-point Likert scale, ranging from *Strongly Disagree* (1) to *Strongly Agree* (6). Sample items include, "Women should be cherished and protected by men." The benevolent sexism subscale yields a Cronbach's alpha coefficient ranging from .73 to .85 (Glick & Fiske, 1996). A mean of the items from this subscale were used in the CART analysis.

History of SV Victimization

The Sexual Experiences Survey (SES; Koss et al., 2007) was utilized to identify a history of SV victimization. The SES is a 10-item self-report measure that asks participants if they have experienced specific behaviors, ranging from verbal coercion to forced penetration. The SES also identifies specific tactics that may have been used by perpetrators to carry out those behaviors, such as telling lies or using physical force. One item from the SES asks participants how many times "Someone had oral sex with me or made me have oral sex with them without my consent by threatening to physically harm me or someone close to me." Response options range from *never happened* (0) to *3 or more times* (3). The SES yields a Cronbach's alpha coefficient of .89 (Koss et al., 1987).

For this study, the SES was dichotomized, where participants' responses were coded as (0) *never victimized* or (1) *history of victimization*.

Illinois Rape Myth Acceptance Scale

The Illinois Rape Myth Acceptance (IRMA; Payne et al., 1999) scale consists of 45 items that assess endorsement of rape myths. There are seven subscales with the IRMA that identify various subtypes of rape myths, such as rape myths that posit that the victim "asked for it." An example item from the IRMA includes, "Usually, it is only women who do things like hang out in bars and sleep around that are raped." Response options range from *not at all agree* (1) to *very much agree* (7). The IRMA yields a Cronbach's alpha of .93, with subscales producing alpha's ranging from .54 to .74 (Payne et al., 1999). A sum of all items will be used in the CART analysis.

The Alcohol Expectancy Questionnaire

The Alcohol Expectancy Questionnaire (AEQ-3; George et al., 1995) consists of 40 items that indicate beliefs surrounding the effects of alcohol consumption. There are 8 subscales within the AEQ-3 that identify various subtypes of beliefs, including the belief that alcohol consumption will lead to sexual enhancement, careless unconcern, tension reduction, aggression, social expressiveness, social/physical pleasure, cognitive deficits, and globally positive effects. An example item from the AEQ-3 includes, "After a few drinks, I am more sexually responsive." Response options range from *strongly agree* to *strongly disagree*. Participants are asked to respond according to their own beliefs about the effects of alcohol, regardless of what others may think. The AEQ-3 subscales are

highly correlated, and have a great degree of overlap (George et al., 1995). As such, an aggregate total score of all items in the AEQ-3 was utilized in this study.

Procedure

SV Risk Recognition

The Marx and Gross (1995) analogue refers to a 6.5-minute auditory stimulus that portrays an interaction between a man and a woman, which ends in a rape. The portrayal uses dialogue, as well as breathing and kissing sounds to depict physical intimacy. The man in the encounter becomes gradually more sexually violent, starting with persuasion and threats that eventually lead to physical force to obtain intercourse. The woman in the audiotape initially responds with verbal refusals and resistance at 80 seconds. The dependent variable in this analogue is response latency, which represents SV risk recognition. Participants listened to the audio and pressed a key on the computer if and when they felt the man had “gone too far.” This analogue has been widely used to identify SV risk recognition (Loiselle & Fuqua, 2007; Soler-Baillo et al., 2005) and has been well-validated (Bernat et al., 1997; Davis, George, et al., 2014). For the CART analysis, response latency was reported in seconds.

Preparation

Upon arrival at the laboratory, participants were greeted by a trained female experimenter who obtained informed consent and verified that their blood alcohol concentration (BAC) is 0.00 using a breathalyzer (Alco-Sensor IV, Intoximeters, Inc.). They were asked to leave all belongings in a provided locker in order to prevent any distraction during the study. Participants were asked to take a urine pregnancy test to

ensure that they are not pregnant before receiving alcohol. They were then weighed to calculate the proper alcohol dose to ensure a BAC of .08, with a mixture of 1 part 100-proof alcohol (vodka) and 3 parts orange juice (Fisher et al., 1987). Following these procedures, participants were provided with their information from the screening session to ensure that all questions were answered accurately.

Beverage Administration

Participants were assigned to the control (no alcohol) condition or the experimental (alcohol) condition. To begin beverage administration, participants were escorted to the study space, which is a comfortable space that resembles a college dorm room. They were asked to complete a series of questionnaires about their background, including demographics. Participants were randomized into either a control (no alcohol, 0.00 BAC) condition or alcohol (target BAC = .08) condition. Beverages were divided into 3 equal portions, with each portion being consumed in 3 minutes, for a total of 9 minutes. Individuals were cognizant of whether they are consuming alcohol or not. To ensure that participants engage with the analogue while they are on the ascending limb of the blood alcohol curve, they were breathalyzed every 5 minutes until they reached a BAC of 0.045, then every 2 minutes until they reached a BAC of 0.05, at which point they began the experimental session. Each participant in the control condition (orange juice only) was yoked to a participant in the alcohol condition in order to control for individual variations in alcohol absorption and ensure consistency in the protocol (Schacht et al., 2010). Control participants were breathalyzed at the same frequency and rate as the participant from the alcohol condition that they were yoked with. Once the

participant reached the target BAC (alcohol condition) or reached the end of the yoking period (control condition), they were instructed to begin the analogue.

Detox and Debriefing

Upon completion of the experimental portion of the study, participants were able to obtain their belongings and relax in the study room. They were provided with food and drink to aid in the detox process, as well as movies and reading material for entertainment. Participants were breathalyzed every 5-20 minutes based on their rate of detox, until they reached a BAC of 0.03 or lower per NIAAA guidelines (National Institute on Alcohol Abuse and Alcoholism, 2005), at which point the debriefing process began. During the debriefing session, the experimenter described the purpose of the study and provided the participant with the opportunity to ask questions. In addition, the experimenter asked for feedback about the study in general and provided them with payment.

Chapter 3

Results

Data Analytic Strategy

A classification and regression tree (CART) is a machine learning tool that can identify predictors for a dependent variable (Breiman et al., 1984). Machine learning differs from statistical approaches to modeling (Elith et al., 2008). Statistical approaches begin with assumptions about which modeling approach will fit the data, and produces parameters estimated from the data. Statistical modeling focuses on questions such as what kind of model will be best (e.g., are there main effects or interaction effects?), how the response is distributed, and whether observations are independent (Elith et al., 2008). In contrast, machine learning assumes that the process generating these data (in this case, humans) is complex, and attempts to learn the outcome variable by thoroughly observing the predictors and finding dominant patterns (Breiman, 2001). Machine learning creates and uses an algorithm to learn the relationship between the outcome and its predictors (Elith et al., 2008).

With CART, this type of machine learning analysis allows categorization of the sample into smaller homogenous subgroups. The Gini impurity measure is utilized within CART as a method of identifying splits that maximize the homogeneity produced by child nodes (predictors) with respect to the value of the outcome variable. The Gini Index is the parameter produced for each variation of each split, and ranges from 0-1, with 0 representing disorder, and 1 representing perfect purity of the subgroup (Breiman et al., 1984). In other words, this index quantifies the amount of uncertainty, disorder, or

impurity in each subgroup, with the intention of decreasing the amount of impurity starting with the top node, down to the terminal nodes (subgroups).

Given that the target variable is SV risk recognition, we utilized a CART analysis to determine predictors of SV risk recognition for various subgroups (Lewis, 2000). In other words, this analysis will categorize participants into subgroups based on which constructs are predictive of their ability to recognize risk. Overall, a CART analysis will draw patterns of individual and situational factors that are associated with different levels of SV risk recognition. In addition, the CART analysis will automatically find all interactions in the data and test each one related to the outcome variable (Hayes et al., 2015). The methods utilized in CART can often uncover complex interactions between predictors that might be difficult or impossible to identify using traditional multivariate techniques (Lewis, 2000). This is important to note as it is one reason why some predictors may be left off of the final tree.

One limitation of a CART analysis involves the overproduction of nodes, which can lead to overfitting and terminal nodes that only include a few data points (Strobl et al., 2009). In other words, the CART algorithm will repeatedly partition data into smaller and smaller subsets until they are completely homogenous, which can lead to subsets with only a few participants. This is problematic because the subsets might only differ slightly, which will lead to a model that is not able to predict outcomes well in practice (Strobl et al., 2009). As such, we used Reduced Error Pruning to ensure that the result includes the smallest tree with the lowest error rate (Esposito et al., 1997). Through this process, the decision tree is “pruned” or cut down in complexity when the terminal nodes include very few cases that are homogenous. Reduced-error pruning is utilized to ensure

that the tree does not overfit the data or become overly complex, while also maintaining minimum possible risk. In other words, the optimal tree is chosen through identifying the cost of misclassification errors (risk) in addition to the penalty associated with tree complexity (Hayes et al., 2015).

Missing data was addressed by the CART analysis. The CART algorithm includes sophisticated methods of dealing with missing variables, and typically deals with missing data better than more common methods such as multiple imputation (Hayes et al., 2015; Lewis, 2000). The CART algorithm utilizes a “surrogate” for missing data, which displays the closest pattern within the dataset to the missing variable for that case (Breiman et al., 1984).

Participant Demographics and Precursory Results

Participants were predominantly heterosexual women (85%), who considered themselves “single” (83%) or casually dating (17%). They were predominantly White (64%), with 8% identifying as Latino/a, 5% identifying as Asian American, 4% identifying as African American, and 19% identifying as another race or ethnicity. The mean age of the sample was 22 years, with 92% of the sample between the ages of 21-23 (see Table 1).

Table 1*Demographic Characteristics of Study Participants*

Variable	<i>n</i>	%
Age		
21	45	58.4
22	15	19.5
23	11	14.3
24	2	2.6
25	1	1.3
26	2	2.6
29	1	1.3
Ethnicity		
White	49	63.6
African American	3	3.9
Asian American	4	5.2
Latina	6	7.8
Other	15	19.5
Employment		
Employed	60	77.9
Unemployed	15	19.5
Relationship status		
Single	64	83
Casually dating	13	17
Sexual orientation		
Predominantly Heterosexual	65	84.4
Non-heterosexual	11	14.3

Descriptive statistics for the primary predictor variables included in the analysis are provided in Table 2, and correlations between the variables under study can be seen in Table 3. On average, participants reported feeling that the man had “gone too far” at approximately 2.2 minutes, with responses ranging from 0.5 minutes to 6.3 minutes (Figure 1). Approximately 81% of the sample reported a history of experiencing some

form of sexual violence. Of the 77 total participants, 31 were in the non-alcohol condition and 46 were in the alcohol condition.

Figure 1

Boxplot Representing Response Latency

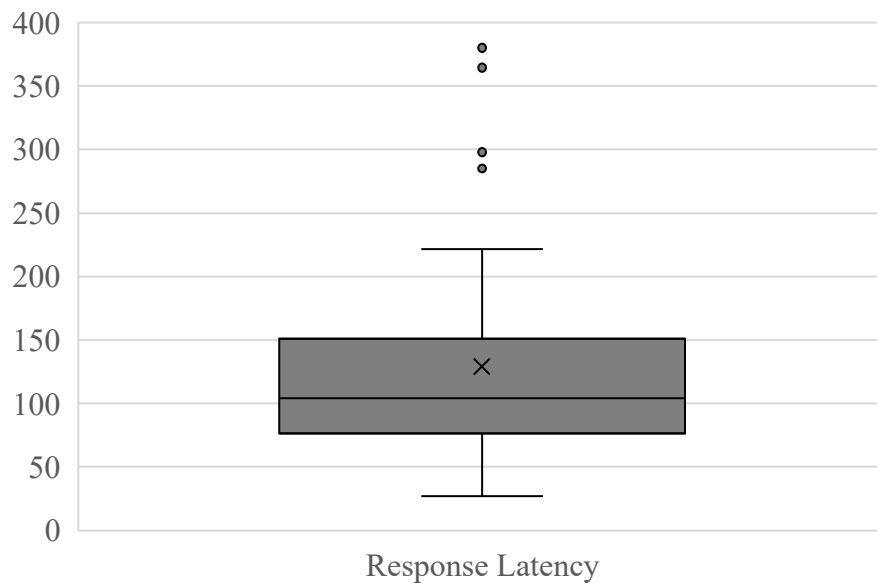


Table 2*Descriptive Statistics for Study Variables*

	<i>n</i>	<i>Minimum</i>	<i>Maximum</i>	<i>M</i>	<i>SD</i>
Response latency	77	27.17	380.83	128.94	81.39
Alcohol condition	77	0	1	.60	.49
Sexual arousal	75	1	4.75	2.46	.93
Hostile sexism	77	.18	4.36	2.23	1.15
Benevolent sexism	77	.36	4.64	2.87	.95
Alcohol expectancies	77	75	183	128.43	21.54
Rape myth acceptance	77	0	91	30.21	22.24
Victimization history	77	0	1	.81	.40

Table 3*Correlations for Study Variables*

	1	2	3	4	5	6	7	8	9
1. Response latency	--								
2. Alcohol condition	-.05	--							
3. Sexual arousal	-.08	-.04	--						
4. Hostile sexism	.23*	-.14	.12	--					
5. Benevolent sexism	.17	.03	.09	.73**	--				
6. Alcohol expectancies	-.06	-.03	.03	.24*	.24*	--			
7. Rape myth acceptance	.08	-.01	.19	.67**	.57**	.34**	--		
8. Victimization history	.01	-.07	.09	-.06	-.06	.18	.02	--	
9. Age	-.16	.069	-.10	.05	.03	.02	-.01	.13	--

* $p < .05$. ** $p < .01$.

Results from the CART Analysis

Figure 2 displays a representation of the results from the CART analysis and Table 4 represents the degree of importance for each independent variable included in the analysis. Overall, the estimated risk of the tree was .17, indicating potential errors of classification approximately 17% of the time.

Table 4

Degree of Importance for Each Independent Variable

Independent Variable	Importance	Normalized Importance
Alcohol condition	9.99	1.10%
Sexual arousal	186.25	20.30%
Hostile sexism	919.68	100%
Benevolent sexism	405.89	44.10%
Alcohol expectancies	116.08	12.60%
Rape myth acceptance	376.95	41%
Age	83.04	9%

First Subgroup – High Risk

The first subgroup (Node 2) included women who reported higher scores on the hostile sexism subscale (>2.2), and this pathway classified 55% (n=42) of the sample. These women were categorized as “high risk,” as this group had the highest average response latency (156.2 seconds), indicating decreased SV risk recognition. Up to this

point in the audiotape paradigm (156.2 seconds), the perpetrator has engaged in nonconsensual fondling and coercion towards the woman, who declines his advances and asks him to refrain from fondling her. The perpetrator apologizes, and the couple continue to kiss. Shortly thereafter, the perpetrator fondles the victim again, and she becomes upset with him. The perpetrator then uses coercion to convince the victim to comply, which she declines.

Second Subgroup – Medium/High Risk

The second subgroup (Node 5) classified about 16% (n=12) of the sample, and included women who endorsed lower hostile sexism scores (≤ 2.2), lower benevolent sexism scores (≤ 2.5), and were ages ≤ 21.5 . These women were categorized as “medium/high risk,” as they had the second highest average response latency (119.4 seconds), indicating decreased SV risk recognition. Up to this point in the audiotape paradigm (119.4 seconds), the perpetrator has engaged in nonconsensual fondling and coercion towards the woman, who declines his advances and asks him to refrain from fondling her. The perpetrator apologizes, and the couple continue to kiss.

Third Subgroup – Medium/Low Risk

The third subgroup (Node 6) included women who endorsed lower hostile sexism scores (≤ 2.2), lower benevolent sexism scores (≤ 2.5), and were ages > 21.5 . This subgroup classified 14% (n=11) of the sample, and was categorized as “medium/low risk,” as they had the second lowest average response latency (95 seconds), indicating increased SV risk recognition. Up to this point in the audiotape paradigm (95 seconds),

the perpetrator has engaged in nonconsensual fondling and coercion towards the woman, who declines his advances and asks him to refrain from fondling her.

Fourth Subgroup – Low Risk

The fourth subgroup (Node 4) classified 16% (n=12) of the sample, and included women who endorsed lower hostile sexism scores (≤ 2.2) and higher benevolent sexism scores (> 2.5). This subgroup was categorized as “low risk,” as they had the lowest response latency (74.2 seconds), indicating increased SV risk recognition. Up to this point in the audiotape paradigm (74.2 seconds), the perpetrator has used suggestive language towards the victim. At 75 seconds, the perpetrator fondles the victim without her consent. Thus, some members of this subgroup expressed that he had “gone too far” right before the fondling, while others initiated this right after the fondling.

Variables of Importance

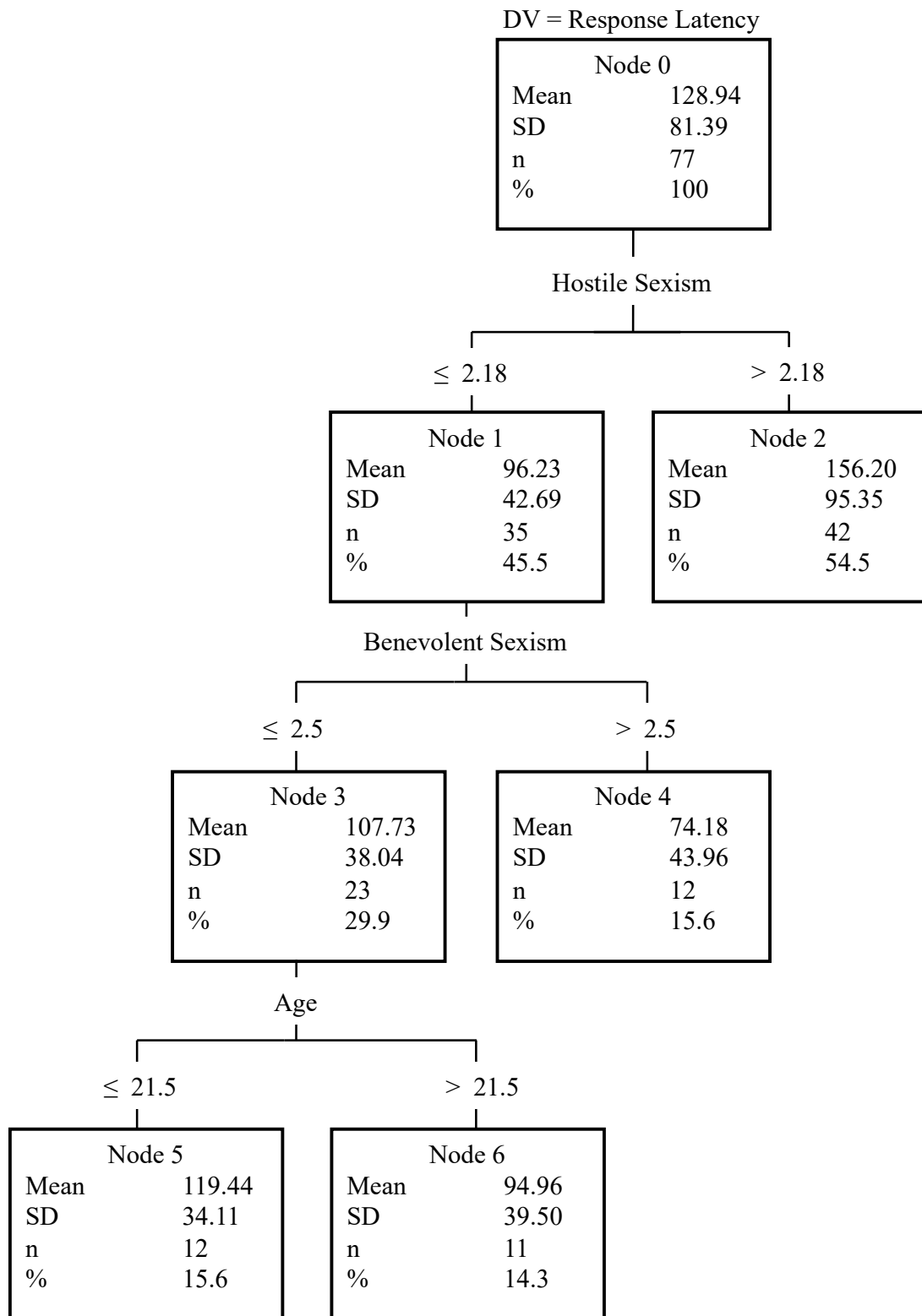
Variables of importance indicate the individual and situational factors that are not used to predict subgroup membership, but are important in that they may interact with other variables, including the dependent variable of risk recognition. As expected given the results from the decision tree, hostile (100%) and benevolent sexism (44.1%) are the independent variables with the highest importance. The variable with the third highest importance is rape myth acceptance, followed by sexual arousal (20.3%). This variable is not included in the decision tree, and thus is not predictive of group membership.

However, sexual arousal is important to the overall prediction of risk recognition as there is likely a confluence occurring with other variables. As discussed earlier, sexual arousal becomes a salient cue due to alcohol myopia, that creates a situation whereby women

may be more focused on the fulfillment of desire rather than on potential risks. Within that context, their sexist beliefs, age, and potential other individual factors may be emphasized. Of note, victimization history did not appear as a variable of importance. Alcohol expectancies was the sixth most important independent variable, followed by age and alcohol condition.

Figure 2

CART Decision Tree



Chapter 4

Discussion

The purpose of this study was to utilize a person-centered approach to identify homogenous groups of women who demonstrated high and low SV risk recognition, and the individual and situational factors that predict their group membership. Our hypothesis was somewhat supported, as several individual factors were found to be predictive of group membership, alongside the influence of alcohol intoxication and sexual arousal, with sexual arousal indicated as an important variable. While some pathways provided unexpected results, this exploratory study includes important information for future confirmatory analyses seeking to model predictors of women's SV risk recognition.

The first subgroup (“high risk”) had the longest average response latency among the four groups at 156.2 seconds. In the Marx and Gross (1995) audiotape, the perpetrator uses suggestive language at 68 seconds, followed by nonconsensual fondling at 75 seconds, opposition from the victim at 77 seconds and 97 seconds, apologies from the perpetrator at 105 seconds, repeated nonconsensual fondling at 145 seconds, and coercion at 149 and 155 seconds. In sum, the members of this subgroup expressed that the perpetrator had gone too far after multiple acts of SV and repeated disregard of the victim’s opposition. Overall, this subgroup indicates that higher hostile sexist attitudes are indicative of lower SV risk recognition abilities. In other words, women who endorse more sexist beliefs are less able to identify cues that might indicate engagement with a potential partner as risky. This result is in line with previous research indicating that endorsement of hostile sexism is a predictor of risk for SV victimization (Ramos et al.,

2018), demonstrating that the mechanism at play may be the impact of hostile sexist attitudes on SV risk recognition. Women who endorse hostile sexism tend to be more passive in sexual encounters out of fear that they will violate gender norms, and tend to view the locus of control as external in sexual situations (Testa & Dermen, 1999). As such, they may be more focused on fears that they will violate gender norms, in addition to the amplification of external pressure due to their preexisting beliefs. It is also important to note that the “high risk” subgroup had the highest variability in response latency compared to other subgroups. In other words, this group may be the least homogenous group within this sample. This could be due to several outliers of response latency found in the sample. Outliers beyond three standard deviations could be removed from the sample per previous research (Marx et al., 1997). However, due to the small sample size in this study, these cases were not removed. A follow-up study with a larger sample size could show this subgroup divided further.

The second subgroup (“medium/high risk”) had the second longest average response latency among the four groups at 119.4 seconds. In the Marx and Gross (1995) audiotape, the perpetrator uses suggestive language at 68 seconds, followed by nonconsensual fondling at 75 seconds, opposition from the victim at 77 seconds and 97 seconds, apologies from the perpetrator at 105 seconds. At 111 seconds, the victim accepts the perpetrator’s apology, to which the perpetrator responds with “anything you say,” and they continue to kiss. It is possible that the members of this subgroup are reacting to the perpetrator’s response, specifically because he says “anything you say” despite having ignored the victim’s previous resistance. Overall, this subgroup indicated

that lower hostile and benevolent sexism scores, as well as lower age are indicative of decreased SV risk recognition.

The third subgroup (“medium/low risk”) had the second shortest average response latency among the four groups at 95 seconds. In the audiotape, the perpetrator uses suggestive language at 68 seconds, followed by nonconsensual fondling at 75 seconds, and opposition from the victim at 77 seconds, disregard for the victim’s opposition at 79 seconds, followed by kissing/moaning sounds, and another instance of opposition from the victim at 97 seconds. It is possible that the members of this subgroup are reacting to the perpetrator’s disregard for the victim’s opposition and his subsequent kissing of the victim. Overall, this subgroup identified that women with lower hostile and benevolent sexism scores, coupled with higher ages, indicated increased SV risk recognition.

The “medium/high risk” and “medium/low risk” subgroups particularly exemplify the importance of age in determining SV risk recognition. Despite low scores on sexism, the “medium/high risk” subgroup had the second highest response latency. The mean age of participants in this subgroup (21-21.5) represents a significant threshold that may contribute to these results: the legal drinking age. Once individuals reach the legal drinking age, alcohol becomes more accessible, as they can now legally purchase alcohol. In addition, the context of their drinking may change, as they are now able to attend bars and nightclubs, and tend to prefer drinking in these settings (O’Hare, 2015). As the novelty of legal drinking and new contexts dissipate, and individuals gain more experience with drinking legally, their SV risk recognition may increase.

The fourth subgroup (“low risk”) had the shortest average response latency among the four groups at 74.2 seconds. In the audiotape, the perpetrator uses suggestive language at 68 seconds, followed by nonconsensual fondling at 75 seconds. It is likely that members of this subgroup are responding to both the suggestive language and the nonconsensual fondling. This subgroup indicated that women who endorsed lower hostile sexism and higher benevolent sexism score were low risk, indicative of increased SV risk recognition. They may endorse the belief that women are innocent and need to protect their innocence, and are potentially reactive or sensitive to actions that may harm their innocence. Women who endorse benevolent sexism also tend to believe that women need to be protected by men. As such, the women in this subgroup could be reactive to this scenario that opposes their belief system. They may endorse the belief that a man should not do anything to harm a woman, and could be better at recognizing this harmful behavior when observing it from a third-person perspective. It may be beneficial to pay particular attention to this potential process in future studies utilizing a first-person analogue, as prior research has indicated a discrepancy between a woman’s awareness of risk when applied to herself versus others (Norris et al., 1996). Of note, while benevolent sexism may seem favorable on the surface, it can contribute to harmful consequences. In fact, benevolent sexism can create an environment where gender inequality is perpetuated, potentially leading to more tolerance of hostile and violent behaviors against women (Glick & Fiske, 2001). Benevolent sexist attitudes often idealize women as pure, fragile, and in need of protection, which can reinforce the notion that women are less capable or deserving of certain rights and responsibilities (Sutton et al., 2011). These attitudes may lead to the justification or trivialization of SV against women. Moreover,

benevolent sexism can foster a sense of ownership over women and reinforce power imbalances in relationships (Durán et al., 2010). This power dynamic can contribute to situations where coercion, control, and acts of SV occur. Benevolent sexist beliefs may also discourage women from reporting incidents of SV or seeking help, as they may feel that their experiences do not align with the idealized image of a victim or that they will not be taken seriously (Becker, 2010). It is important to note that not all individuals who endorse benevolent sexist attitudes will experience SV. However, the potential for a connection between benevolent sexism and the tolerance of sexual violence seems clear (Russell & Trigg, 2004). Challenging and addressing benevolent sexism is crucial in promoting gender equality and preventing violence against women. As such, while the results from this study imply that benevolent sexism may decrease risk of experiencing SV, further replication is needed, and it is crucial to consider the broader societal implications and the long-term negative consequences associated with benevolent sexism. The results from this study do not imply the need to increase benevolent sexism, but rather provide vital information for identifying potential subgroups.

Another interesting finding includes the absence of victimization history as a predictive variable. In fact, victimization history was not reported in the independent variable importance output (Table 5), indicating a lack of contribution to the analysis. As previously discussed, victimization history is well-established in the literature as a predictor of revictimization, although not fully consistent (Breitenbecher, 2001). Perhaps, the results from this study provide insight into this phenomenon, and victimization history may not be related to SV risk recognition. In other words, previous victimization may not impact the process of identifying risk cues when engaging with potential

partners, but may be influence a process that is not the focus of this study. As indicated in the literature, the relationship between prior victimization and SV risk recognition is one that is complex in nature, especially when considering the potential psychopathology and schema reformation that may occur as a result of victimization (Pumphrey-Gordon & Gross, 2007).

Alcohol expectancies were also not identified as a predictor in the decision tree, despite a variable importance of 13% (out of 100%; Table 5). Alcohol expectancies have been studied frequently in the context of SV victimization, and have been found to impair SV risk recognition (Tyler et al., 2015). However, this result is in line with previous research that suggests alcohol expectancies may not be related to SV risk recognition (Pumphrey-Gordon & Gross, 2007). Rather, alcohol expectancies may increase a woman's likelihood to drink, which may increase their risk for victimization. Alcohol expectancies, particularly those related to sex, may also generate less resistant refusals in sexual encounters, which may essentially deactivate SV risk recognition as individuals may not be seeking risk cues.

Endorsement of rape myths was not identified as a predictor in the decision tree, although this was the third-most important independent variable in the analysis (Table 5). This result is unexpected, as rape myths have been identified as a predictor of decreased SV risk recognition within the context of acute alcohol intoxication, as measured by response latency with an audiotaped vignette analogue (Loiselle & Fuqua, 2007). Perhaps, this discrepancy can be explained by the type of analysis in our study. Endorsement of rape myths and endorsement of sexism are highly correlated, and sexism appears to be the driver of endorsement of rape myths (Angelone et al., 2021). In other

words, sexism may be the mechanism that leads to a person endorsing rape myths. Within CART, the algorithm is designed to simplify the tree as much as possible in an effort to decrease error. It is likely that sexism may have been superior in terms of predicting homogenous groups of SV risk recognition, and endorsement of rape myths was removed from the tree as a result. This could also be explained by the method in which CART deals with missing data. Scores on the IRMA may have been utilized as surrogates for those with missing data for sexism scores, which would increase the calculated importance of rape myth acceptance.

Finally, as expected, alcohol condition was not included in the final decision tree. This was found to be the least important independent variable in the analysis (Table 4). As stated previously, alcohol itself is not the mechanism that acts on risk recognition. Rather, alcohol is the catalyst that initiates the mechanism, such as myopic effects and sexual arousal interacting with individual factors. Yet, it is also possible that alcohol condition is deemed the least important variable due to the nature of CART. As mentioned previously, CART automatically detects interactions within the sample, and may drop variables from the decision tree that do not create splits. However, this does not indicate that alcohol is not involved in the analysis. In fact, alcohol intoxication may be interacting with many or most of the variables of prediction. This result may also be related to the dichotomized form of this variable. It may be beneficial for future efforts to focus on other variables indicative of alcohol intoxication that could be utilized in this type of analysis.

One possibility involves examining the individual's subjective level of alcohol intoxication on a broader scale that identifies intoxication both before and after engaging

in the analogue. This variable would likely provide more rich information for the algorithm. For example, if a woman endorses the expectation that alcohol will make her sexually disinhibited, but she feels less intoxicated in general, she may be more likely to identify risk cues. As a result, alcohol intoxication may be more relevant to the model when measured differently. This could also explain why sexual arousal is identified as a variable with 20% importance (Table 4), is not included in the decision tree, but is identified as a variable that is significantly more important than alcohol intoxication. As a situational variable, it is likely interacting with other variables in the analysis. As previously discussed, sexual arousal was measured using the proposed method for future measurement of alcohol intoxication. This subjective sexual arousal score likely provided more nuanced data for the algorithm, and was identified as more important as a result.

Strengths, Limitations, & Future Directions

There are several notable strengths of this study. First, we utilized a person-centered approach and used a laboratory analogue with an alcohol administration protocol to assess SV risk recognition, which provides the ability to assess the outcome variable in real time. It would likely be more difficult to ask participants to provide self-report data on the interactions that occur during intoxication, due to the impact of intoxication on memory (Peterson et al., 1990; White, 2003). In addition, participants are typically unaware of how emotion and salient cues such as arousal can impact their actions in the moment, which would make it difficult to utilize self-report data to identify the variables in this study (Bouffard, 2002). This study also utilized a person-centered approach, and is the first study to do so with respect to examining predictors of SV risk recognition. The person-centered approach allows for more specificity, providing more

richness of data compared to variable-centered approaches, while maintaining relatively sufficient parsimony in otherwise complex situations (Howard & Hoffman, 2017).

Finally, while studies of sexual assault victimization tend to include samples from college populations and veterans (Dworkin et al., 2017), this study utilized a community sample.

Although the results from this study provide insight into important avenues for future inquiry in the SV risk recognition literature, there are several limitations to note. First, there are a limited number of variables that have been identified as predictors in this study. There is a vast literature that also indicates other important predictors of SV victimization that could be relevant for SV risk recognition, such as body image (Campbell & Soeken, 1999) and relationship context (Vanzile-Tamsen et al., 2005). While we have not included these variables within this study, they are important predictors that should be studied in the future. In fact, it may be beneficial to add these variables into an expanded version of this study, in an effort to continue study of both situational and individual factors and their interactions.

The results of this study are also limited in application to mostly white, predominantly heterosexual women between the ages of 21-30, which may be considered a limitation due to the lack of generalizability. In addition, statisticians note that one major limitation of CART is its specificity, and that the algorithm may be very successful in identifying patterns that are specific to the sample under study, but may be difficult to generalize (Hayes et al., 2015; Lewis, 2000). However, these results further emphasize the need to design studies that are substantially tailored to specific groups, rather than continuing the effort to create results that are generalizable to large populations. For example, predictors for the “high risk” group among this sample differed in importance

than the predictors for the “low risk” group. This knowledge is crucial when considering the creation of prevention interventions designed to decrease the risk of SV victimization. As such, future studies should focus on exploring individual and situational predictors of SV risk recognition for groups of women who are underrepresented in this study and in the literature (i.e., bisexual and lesbian women, transgender women, etc.).

Another important area of focus that is not addressed in this study is participant racial and ethnic identity. Unfortunately, due to a small sample size, race and ethnicity were not included in the analysis. However, race/ethnicity has been widely discussed in the literature as an individual factor that can predict SV victimization risk (see Yucel et al., 2019 for a review). In fact, non-White women are most likely to be victimized, with American Indian and Alaskan Native women experiencing the highest risk, followed by mixed race, African-American, and Asian/Pacific Islander women (Tjaden & Thoennes, 2000). This could be related to SV risk recognition, or there may be other processes at play, such as sociopolitical systems of oppression that may impact SV risk recognition. While it is important to explore all individual factors, it is crucial to recognize that there is intersectionality among all facets of identity. For example, Black transgender individuals appear to experience victimization more than any other studied group (Coulter et al., 2017; Yucel et al., 2019). The experience of a cisgender Black woman and a transgender Black woman could vary significantly, even with similarities in SV risk recognition, providing further incentive to utilize person-centered approaches such as that from this study.

While laboratory paradigms have been well-validated (Davis, George, et al., 2014), they are not an exact replica of the various contingencies that are present in the

real world. Future studies can build on the results presented here through use of various other laboratory analogues designed to assess SV risk recognition. One such analogue, called *Edudate*, identifies SV risk recognition through asking participants to engage in “online speed-dating” with a bogus date (Angelone et al., 2009). *Edudate* varies from the Marx analogue, in that it uses a first-person perspective. The participant would be making decisions about their own situation, rather than listening to a third-person audiotape vignette. Using a similar person-centered analysis would provide insight into the individual differences that are relevant for determining risk level membership. In addition, using a first-person analogue could potentially lead to results that would identify alcohol and sexual arousal as a situational variable with a different impact on risk level membership. Alcohol myopia posits that our attention is pulled towards stimuli that are salient, thus, intoxication and sexual arousal may be more impactful when analyzing a situation relevant to the self rather than an observed situation.

Finally, our data are cross-sectional. While these results have promising implications for prevention efforts which could target sexist beliefs and alcohol consumption, for example, longitudinal studies are also needed. These data could help with the identification of development-related patterns (i.e., age-related changes), or could provide insight into whether or not risk level groups can change. For instance, the age of 21-30 includes the typical college graduation age for most women (U.S. Department of Education, 2022). After graduation, individual factors and situations may change, which could potentially impact a woman’s membership level of SV risk recognition. A longitudinal study could provide insight into patterns of change, or other variations that cannot be discerned with cross-sectional data. A larger sample size may

also provide more robust results. In fact, CART analysis typically performs better with samples of over 200 participants (Lewis, 2000). As such, it is important to highlight that the small sample size is a major limitation of this study, and future studies should include significantly larger sample sizes to accommodate the CART analysis.

Overall, these results provide valuable insights for future studies, tailoring prevention interventions, and identifying women who would benefit from these interventions. Person-centered results could initially impact the screening process. Individuals conducting SV victimization risk interventions for women could utilize these results to determine group membership. Subsequently, this information could inform the focus of the intervention. Is this person's reduced SV risk recognition a result of age, or sexism, or both? Detecting deficits and empowering women with the skills they need to identify risky situations, particularly during alcohol intoxication and sexual arousal, could prevent SV victimization from occurring. Researchers should continue to build on these results through further utilization of person-centered approaches that include variables predictive of decreased SV risk recognition abilities. In addition, researchers should utilize various laboratory paradigms, particularly those with a first-person format, in an effort to gauge these concepts with different tools.

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