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Assessment of Sexual and Protective Behavioral Strategies: Development of the Sexual and Negative Dating Inventory

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ASSESSMENT OF SEXUAL PROTECTIVE BEHAVIORAL STRATEGIES:
DEVELOPMENT OF THE SEXUAL AND NEGATIVE DATING INVENTORY (SANDI)

by

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ABSTRACT

Adverse sexual outcomes (ASOs) including sexual violence, risky sex, and sexual regret are highly prevalent among college students, with 20-25% of female undergraduates experiencing sexual assault, at least 60% of undergraduates engaging in risky sex, and lifetime rate of regretted sexual experiences as high as 72%. ASOs are associated with increased psychological problems, increased alcohol use, and decreased protective behavioral strategies (PBS). The most recent measure of dating and sexual PBS was published over a decade ago. The current study is the development and validation of an updated measure of dating and sexual PBS; the Sexual and Negative Dating Inventory (SANDI). Data was examined from n=1,298 participants at baseline and N=336 at one-month follow-up. Participants were 19.59 (2.90 SD) years old, 67.51%, female, and 71.42% white. Exploratory Structural Equation Modeling (ESEM) identified a five-factor structure with good fit to the data including: Location Sharing, Assertiveness, Self-Protection, Risk Reduction and Privacy. Of sixty original items, a CFA identified a final measure of 24-items. Factors functioned differently across demographic groups, primarily for sexual and gender minorities. Convergent validity was observed with previous dating and sexual PBS measures. Divergent validity was analyzed using the PBSS-20 and accounted for 15-20% shared variance across the five SANDI factors. Test-retest reliability revealed acceptable reliability of 0.74. Logistic regression revealed significant concurrent predictive validity of ASOs at baseline with SANDI total score, Location Sharing, and Risk Reduction factors. History of risky sex and sexual regret revealed significant associations with the Assertiveness factor at baseline. At one-month follow-up, logistic regression revealed significant associations with Risk Reduction for victimization and risky sex; risky sex was also associated with total SANDI score at follow-up. Overall, the SANDI is a comprehensive

measure that assesses dating and sexual PBS, validated within a college student population, and

provides specific prevention and intervention targets.

Author's note:

Sexual violence occurs because a perpetrator initiated the event, not because the survivor of the sexual violence did anything to provoke them. Being the survivor of a sexual assault is never the fault of the survivor.

For my parents, Dale and Kelly Peterson

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CHAPTER 1: INTRODUCTION

Definition of Adverse Sexual Outcomes

Sexual violence, risky sex, and regretted sexual experiences all fall under the umbrella of adverse sexual outcomes and are distinct constructs that overlap with one another. Adverse sexual outcomes are sexual experiences that often leave an individual feeling violated, and frequently result in negative emotional experiences (Brahms et al., 2011; National Center for Post Traumatic Stress Disorder, 2005; Peterson et al., 2021). Adverse sexual outcomes put individuals at risk for potential future health and psychological problems (Brahms et al., 2011; National Center for Post Traumatic Stress Disorder, 2005; Peterson et al., 2021). Sexual violence is a range of any unwanted, nonconsensual advance of a sexual or intimate nature perpetrated by another person (Fisher et al., 2000; World Health Organization, 2014b). Being the survivor of sexual assault is never the fault of the survivor. Risky sex can include engaging in unplanned sexual behaviors, such as not using a condom and increased substance use, that places individuals at risk of contracting sexually transmitted infections (STIs) and possible unwanted pregnancy. Risky sex also includes other behaviors such as drinking prior to engaging in sexual behaviors, having multiple sexual partners and engaging in casual sex (Buhi et al., 2010; Cerwonka et al., 2000; Dermen & Thomas, 2011; Grello et al., 2006; Leigh et al., 2008; Perkins, 2002; Wechsler & Kuo, 2000). Regretted sexual experiences are defined as responses to sexual experiences that an individual later regrets engaging (regrets of commission) or not engaging (regrets of omission) in, which can lead to increased negative emotional and psychological sequalae (Oswalt et al., 2005; Peterson et al., 2021).

Adverse sexual outcomes are considered to be stressful life events experienced on the basis of a sexual, intimate relationship with another person. This dissertation discusses the current state of adverse sexual outcomes among college students in the United States (U.S.) and offers a newly developed measure to assess safe dating and sexual protective behavioral strategies (PBS); the Sexual and Negative Dating Inventory (SANDI).

Adverse Sexual Outcomes Among College Students

Adverse sexual outcomes such as sexual violence, risky sex, and regretted sexual experiences are highly prevalent in U.S. college populations. It was first reported by Koss, Gidycz, and Wisniewski in 1987 that one in four college undergraduate women in the United States experience sexual assault (Koss et al., 1987). More recently, a 2019 Campus Climate Survey on Sexual Assault and Misconduct prepared for the Association of American Universities found instances of sexual assault and misconduct in almost one in four undergraduate women at 33 of the nation's major universities (Westat, 2019). During their time in college, 20-25% of females and 15% of males reported forced sex, with an estimated 90% of sexual assault survivors not reporting the assault (Cullen et al., 2000). Furthermore, 27% of women on college campus experience some form of unwanted sexual contact (Gross et al., 2006), with two thirds of students on college campuses experiencing sexual harassment (Hill & Silva, 2005). Thus, the prevalence of adverse sexual outcomes on college campuses is rampant throughout the United States, with no signs of slowing down.

Sexual Violence and Sexual Assault

Sexual violence includes a range of any unwanted advance of a sexual or intimate nature perpetrated by someone other than the victim. This includes sexual activity when consent is either not obtained or not given freely (Center for Disease Control and Prevention, January 17, 2020). The term 'Sexual Assault' is used to describe forced sexual acts, with rape is defined as

forced vaginal, anal, or oral penetration (World Health Organization, 2014b). Lifetime

prevalence of sexual assault in the U.S. is 29.7% (Kilpatrick et al., 2013), with approximately

18.3% of women and 1.4% of men experiencing rape in their lifetime (Black et al., 2010). The

self-reported incidence of rape or sexual assault doubled from 2017 to 2018, with 1.4

victimizations per 1,000 persons age 12 or older in 2017 to 2.7 in 2018 (Morgan & Oudekerk,

2019). Based on data from that survey, it is estimated that 734,630 people were raped

(threatened, attempted, or completed) in the United States in 2018 (Morgan & Oudekerk, 2019).

For college undergraduates, between 20-25% of females and 6.25% of males experience sexual

assault (Krebs et al., 2007), with 7% of college undergraduate women experiencing completed or

attempted rape (National Union of Students, 2011). Since the onset of the #metoo movement in

2017, individuals are more likely to conceptualize their experiences as "sexual assault," which

highlights the importance of social contexts (Jaffe et al., 2021).

Engaging in dating and sexual behaviors is a universal experience across cultures and is

often complex with both positive and negative experiences. While positive experiences promote

engagement in healthy dating and sexual behaviors, negative experiences can lead to dire

consequences and psychological sequalae (e.g., negative mental health symptoms) for all types

of demographic groups. Psychological consequences such as PTSD are common after sexual

assault, with 94% of women reporting trauma symptoms during the first two weeks post-sexual

assault (National Center for Post Traumatic Stress Disorder, 2005). Lifetime prevalence of PTSD

for women who have experienced sexual assault is 50% (Creamer et al., 2001). Importantly, past

research has found sexual assault can lead to a variety of adverse psychological sequalae (e.g.,

poorer mental health in general and less use of responsible drinking behaviors) for college

students in the U.S. (Brahms et al., 2011). Furthermore, a breadth of research has found that past

experiences of sexual assault can put individuals at risk for future revictimization (Littleton et al., 2009). Previous research has noted that treatment protocols for sexual assault survivors should ensure applicability to sexual and racial minorities (Sigurvinsdottir & Ullman, 2016).

A previous study by Coulter & Rankin, (2020) focused on comparing sexual assault outcomes for sexual and gender minority individuals and cisgender undergraduate students. It was found that sexual assault is significantly more prevalent among transgender, gay/lesbian and bisexual undergraduates students compared to cis undergraduate students; with bisexual women reporting greater difficulty recovering post-sexual assault (Coulter & Rankin, 2020). Specifically, sexual minorities reported more sexual violence on three of four subscales (digital sexual harassment, sexual aggression and/or coercion, and gender/sexuality-based harassment), and transgender/nonbinary students are significantly more likely to report sexual violence in athletic contexts and during volunteering activities compared to their cisgender peers (Coulter & Rankin, 2020). Treatment protocols for sexual assault survivors need to be inclusive of and applicable to individuals who identify as a sexual and gender minority (Coulter & Rankin, 2020).

Of importance, sexual assault often occurs at the intersection of intergenerational trauma, sexism, racism, and poverty (Bryant-Davis et al., 2009). One study by Wahab & Olson (2004) notes that Native American women experience the highest rate of violence of any racial group in the United States (Wahab & Olson, 2004). Another study confirmed this, and added that American Indian and African American women are particularly vulnerable to sexual assault (Bryant-Davis et al., 2009). Specifically, women who identified as Black and/or Bisexual report greater difficulty recovering post-sexual assault (Sigurvinsdottir & Ullman, 2016). In addition, higher rates of PTSD, depression, problematic substance use, suicidality, lowered self-esteem, and somatic symptoms are experienced by racial minority women compared to their counterparts

who have not been sexually assaulted (Bryant-Davis et al., 2009). Therefore, individuals who are not in the majority demographic group are often faced with numerous barriers to obtaining protection and assistance.

Risky Sex

Sexual behaviors that are considered risky include sex that occurs without having planned beforehand to protect against unwanted pregnancy, HIV, and other sexually transmitted infections (Buhi et al., 2010; Cerwonka et al., 2000; Leigh et al., 2008; Perkins, 2002; Wechsler & Kuo, 2000), having multiple casual sex partners (Grello et al., 2006), and the use of substances prior to sex, which can lead to less likelihood of using a condom during sex (Kaly et al., 2002). It should be noted that not all sex is considered risky (e.g., consensual sex that includes having discussed beforehand whether or not protection will be used). Risky sex is common among college students (Dermen & Thomas, 2011), with one study finding 4 in 10 students to always use a condom during vaginal sex, and fewer using a condom during anal sex (Buhi et al., 2010). Risky sex is often associated with risk-related health behaviors (e.g., STIs, unwanted pregnancies; Brown & Vanable, 2007; MacDonald et al., 1996).

Roughly half (53%) of college students endorse engaging in casual sex, that is, sex with a partner with whom they were not involved in a romantic relationship (Grello et al., 2006). One study found that almost 9% of students reported having 4 or more sex partners within the last school year (Buhi et al., 2010). In addition, greater symptoms of mental health, specifically depression, were endorsed by females after casual sex experiences (Grello et al., 2006). Regarding use of substances, 74% disagreed or strongly disagreed with the statement "Drugs and/or alcohol are often part of my sexual experiences." Thus, 26% agreed or were neutral in responding to this statement, indicating substance use is often a part of sexual experiences for this group (Cerwonka et al., 2000). Given how common alcohol use is among college students,

when alcohol is used prior to engaging in sexual behaviors, there is a strong association with a lower likelihood of using a condom during sex (Kaly et al., 2002).

A study by the Youth Risk Behavior Survey (YRBS) conducted by the CDC, that examined six sexual risk behaviors, revealed higher instances of risky sexual behaviors (e.g., "had drank alcohol or used drugs before last sexual intercourse") among gay, lesbian, and bisexual students, compared to heterosexual students (Center for Disease Control and Prevention (CDC), 2019). In addition, a systematic review by Rosenkrantz et al., (2017), found a high prevalence of inconsistent condom use to be common among LGBT identifying individuals. Multiple sex partners, engaging in anal sex, using the Internet to find sexual partners, and sexual activity while under the influence of alcohol and/or drugs were other risky behaviors identified in the research of rural LGBT populations that indicated risky sex (Rosenkrantz et al., 2017).

When comparing different demographic groups experiences with risky sexual behaviors, one study of $N = 44{,}165$ nonmarried undergraduate college students found that a greater percentage of black students reported condom use for all 3 sexual behaviors (oral, vaginal, and anal) overall and in the last 30 days, compared to white students (Buhi et al., 2010), indicating more protective behaviors among non-white students in regard to condom use. Almost twice as many Black men reported having 4 or more sex partners compared to white men (19% compared with 11%, respectively). No statistical differences were observed in the number of sexual partners among Black and white women (Buhi et al., 2010). Black students reported seeking out HIV and STI testing more than their white counterparts, and although very few students in the sample reported this outcome (3.9%), a greater percentage of Black students in all 3 groups (total sample, men only, and women only) reported having an STI in the last school year (Buhi et al.,

2010). These rates indicate differential outcomes for different demographic groups in regard to protecting against negative consequences of risky sex.

Regretted Sexual Experiences

Regret is a negative emotional construct that often involves self-blame linked to past experiences and behaviors (Connolly & Zeelenberg, 2002; Gilovich & Medvec, 1995). Regret is often connected to repeated thoughts of how one might change a past action or have achieved a better outcome than what resulted (Roese et al., 2009). According to a meta-analytic review by Morrison, Epstude, and Roese, (2012), adults and college students alike endorsed regrets of love (romance and family) higher than any other regretted aspect of life (e.g., career and education), and with a higher intensity rating (Morrison et al., 2012; Ordonez & Connolly, 2000; Zeelenberg et al., 1998).

Lifetime rates of regretted sexual experiences (RSE) for college students is as high as 71.9%, with 31.8% endorsing past year RSE (Merrill et al., 2018; Oswalt et al., 2005). More recent research has found that roughly 40% of college students experience an RSE in their lifetime, and roughly 26% experience a history of sexual assault (Peterson et al., 2021). This same study found that RSEs are associated with more depressive symptoms, trauma symptoms, higher levels of anxiety, a greater likelihood of suicidal ideation, heightened alcohol use, and decreased engagement in PBS (Peterson et al., 2021). Sexual regret differs from the previous two adverse sexual outcomes in that no single behavior or event can be universally considered "regretted," therefore the definition of sexual regret is more subjective, leaving the individual to discern whether their experience was regretted or not. In addition, very little research exists on how regretted sex impacts different demographic groups with one study on sexual regret prevalence having only a quarter of the participants identify as a racial minority (Peterson et al., 2021). Clearly, more research in this area is needed.

Adverse Sexual Outcomes and Alcohol Use

Alcohol use is widespread throughout college campuses across the U.S., leading to a culture of drinking that leads to greater problematic alcohol use among college students (Dvorak et al., 2020). Previous research has reported 1,825 fatalities occur each year in the U.S. from alcohol use on college campus, as well as 696,000 physical assaults and 97,000 sexual assaults annually (Hingson et al., 2005; Hingson et al., 2009). Sixty percent of college students ages 18 to 22 have consumed alcohol in the past month, 39% endorse at least one heavy episodic drinking event in the past month (i.e., binge drinking episode), and 13.2% use alcohol heavily on a regular basis (Lipari & Jean-Francois, 2013). Compared to their same-aged peers not enrolled in college, undergraduates enrolled full-time tend to be more likely to drink alcohol in the past month (59.8%), versus those who are not enrolled in college full-time (51.5%; Lipari & Jean-Francois, 2013). Students often arrive to college expecting to consume large amounts of alcohol due to perceived drinking behaviors on university campuses and approval of drinking by their peers (Borsari & Carey, 2001, 2003). This perception of social norms tends to create a culture on university campuses that accepts and even encourages alcohol consumption, with a prominent expected feature of college-life being heavy episodic drinking (Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism, 2002).

Alcohol use is commonly associated with adverse sexual outcomes on college campuses. Alcohol is consumed by both the victim (43%) and perpetrator (69%) during sexual assault (Fisher et al., 2003). Half (50%) of all college sexual assaults involve alcohol (Abbey, 2002; Fisher et al., 2003; National Institute on Alcohol Abuse and Alcoholism (DHHS), 2002; Testa & Parks, 1996). Similarly, alcohol use plays a central role in risky sex among college students, with as many as 400,000 college students reporting not using a condom after drinking alcohol,

according to a 2002 study (Hingson et al., 2002). Additionally, of the nearly 72% of regretted sexual experiences endorsed by college students, 31.7% stated alcohol negatively influenced their decision making (Oswalt et al., 2005), with those who have a history of regretted sex engaging in significantly more problematic alcohol use in the past month, compared to students without a history of sexual regret (Peterson et al., 2021).

Current State of Prevention against Adverse Sexual Outcomes

The Centers for Disease Control (CDC) have recently implemented prevention/intervention programs in an effort to reduce sexual violence. This includes bystander interventions, educating individuals on when to stand up and speak out, creating safe spaces, and encouraging healthy consensual relationships (Center for Disease Control and Prevention, January 17, 2020). Specifically, the CDC has created the Rape Prevention and Education program (Center for Disease Control and Prevention, January 28, 2020). The Rape Prevention and Education program encourages the development of comprehensive prevention strategies using the public health approach and the social-ecological model (SEM) as guiding framework, see Figure 1 (Dahlberg & Krug, 2002). These frameworks impact sexual violence by guiding attendees of the program to implement a range of activities to address individuals, relationships, communities and societal factors. It has been found that the Rape Prevention and Education program is more likely to prevent sexual violence across a lifetime compared to any single intervention, and is likely to benefit the largest number of people and reduce sexual violence (Center for Disease Control and Prevention, January 28, 2020).

Additional prevention efforts include formal bystander interventions such as Green Dot (Alteristic, Last accessed Dec. 31, 2020). Green Dot provides primary prevention strategies to communities, specifically schools and college campuses, and engages individuals across the

lifespan in identifying risk factors as well as protective factors. Green Dot was developed by Alteristic, and trains primarily bystanding individuals to interrupt potentially high-risk situations that may end in violence, increase self-efficacy, and provide skill building and specific strategies to increase the likelihood that individuals will intervene (Alteristic, Last accessed Dec. 31, 2020). Time framed analyses indicated the Green Dot intervention to be effective in increasing bystander behaviors and reducing acceptance of violence, as well as reduced associations with violence perpetration (Bush et al., 2019).

Regarding resources for survivors of sexual violence, the World Health Organization has set forth policies to provide those who have experienced sexual violence with immediate support and care regarding their primary concerns (World Health Organization, 2014a). Help accessing information, resources, and further support are also provided (World Health Organization, 2013). The standard set forth by the WHO is that comprehensive care (including emergency contraception, prophylaxis for HIV and other sexually transmitted infections, and psychological support) is provided to survivors of rape and sexual assault. Unfortunately, only 61% of high-income countries report such services being available, compared to middle- (53%) and low-income countries (38%; World Health Organization, 2014a).

Similar interventions implemented in high schools can reduce the prevalence of health risk behaviors among youth and have a positive effect on academic performance (Center for Disease Control and Prevention, 2017). School-based programs offered by the CDC have proven effective in improving the health and well-being of students (Center for Disease Control and Prevention, September 21, 2020). Through working with education and healthcare agencies, the CDC has effectively reduced HIV, STIs, unintended pregnancy and related risk behaviors and experiences among students. Along these same lines, harm reduction strategies such as protective

behavioral strategies (PBS) have the potential to contribute to the reduction of adverse sexual outcomes among college students.

Previous studies have looked at educating women, specifically, on physically resisting unwanted sexual advances. These include ways an individual can protect themselves from experiencing severe forms of sexual violence, including resistance, such as screaming and physically fighting (Levine-MacCombie & Koss, 1986; Ullman & Knight, 1992). Previous research identifies forms of resistance to include assertiveness (e.g., fighting or running) and verbal resistance (e.g., reasoning), with not resisting being classified as immobility (e.g., freezing; Gidycz et al., 2008). Resistance has reduced the probability of sexual contact, with 75% of those who reported sexual assault attempting to resist their most recent assault verbally (Siegel et al., 1989). Understanding and accurately assessing resistance/protective strategies is vitally important in the fight to end sexual violence.

Theoretical Considerations of Dating and Sexual Behaviors

Protective behavioral strategies (PBS) are defined as "a set of compassionate and pragmatic approaches for reducing harm associated with high-risk behaviors and improved quality of life" (p. 5; Collins et al., 2012). Protective strategies and behaviors utilized by college students, most often associated with alcohol use, are often conceptualized within a *harm reduction* framework (Marlatt & Witkiewitz, 2010). Harm reduction, in relation to alcohol use, can be conceptualized as a continuum between total abstinence and continued substance use, alternative to abstinence-only based models (e.g., alcoholics anonymous). Any step towards reduced severity of harmful consequences is considered an improvement, see Figures 2 and 3 (Dimeff et al., 1999; Larimer & Cronce, 2002). Indeed, most college student drinking interventions focus specifically on reducing, not eliminating, consumption as a mechanism for

reducing harm (Dimeff et al., 1999). Thus, assessing protective behavioral strategy (PBS) use in relation to alcohol consumption allows for the detection of safe drinking behaviors among college students.

The majority of PBS research has been done on negative alcohol-related outcomes (Martens et al., 2005; Pearson et al., 2013). Three subtypes of PBS exist for alcohol use: 1) Manner of Drinking (e.g., avoiding mixing different types of alcohol), 2) Stopping/Limiting Drinking (e.g., stopping drinking at a predetermined time), and 3) Serious Harm Reduction (e.g., knowing where your drink is at all times; Martens et al., 2005; Treloar et al., 2015). Through motivating individuals to increase their use of PBS, negative outcomes associated with alcohol consumption (e.g., DUI, sexual assault) decrease (Marlatt et al., 1995). The notion that PBS use can lead to decreased consequences has been used with a variety of target behaviors including cannabis use (Pedersen et al., 2017; Pedersen et al., 2016), gambling (Lostutter et al., 2014), and even condom use (Lewis et al., 2009). Recent research has examined the association between alcohol PBS and regretted sexual experiences, with individuals who have a history of sexual regret engaging in fewer alcohol PBS (Peterson et al., 2021), and weaker associations between alcohol use and regretted sex for females, when alcohol PBS are utilized (Peterson et al., 2020). Thus, alcohol-related PBS serve as importat factors in reducing adverse sexual outcomes. However, these behaviors specifically target alcohol-outcomes, not adverse sexual outcomes. A focus on protective behaviors that are directly linked to adverse sexual outcomes, versus indirectly via alcohol, allows for more direct and comprehensive behavioral targets for prevention/intervention efforts, especially for instances in which alcohol is not involved. These are often referred to as "sexual and dating PBS."

Previous Measurement of Sexual and Dating PBS

Previous assessment of PBS for dating and sexual behaviors include; the Safer-Sex Protective Behavioral Strategies Survey (SSPBSS; Lewis et al., 2010; Lewis et al., 2009), the Risky Sex Scale (RSS; O'Hare, 2001), the Dating Self-Protection against Rape Scale (DSPARS; Moore & Waterman, 1999) and the Dating Behavior Survey (DBS; Hanson & Gidycz, 1993). The most recent, the SSPBSS, was created over a decade ago, and identifies behaviors primarily related to birth control and condom use in order to assess safer-sexual behaviors. The RSS was created two decades ago and identifies sexual behaviors in relation to alcohol use. The DSPARS and DBS were created in 1999 and 1993, respectively, prior to the development of social media (2003) and location sharing services (early 2000's), and around the same time online dating was becoming popular (mid 1990's). Taken together, while these measures of dating and sexual behaviors promote safe dating, they lack contemporary vocabulary and specifics that capture present-day modern dating, including the use of social media, online dating apps, and location sharing services. Furthermore, none of these measures provide broad coverage of protective strategies across a variety of dating risk domains, which may account for discrepancies in the sexual PBS literature. Conversely, a measure of PBS for sexual aggression and risky sexual behaviors exists. A study of undergraduate men identified cognitive behavioral approaches to be used to intervene with sexual aggression and risky sexual behaviors (Treat et al., 2020). Given that the current study is focusing on individuals who are more likely to be at risk of victimization, the measure by Treat et al., 2020 focused on reducing risk behaviors of perpetrators was not included in the current study.

While the previous measures of dating and sexual behaviors promote safe dating, they lack contemporary vocabulary and specifics that capture the milieu of modern dating, including the use of social media, online dating apps, and location sharing services via smart technology.

Furthermore, none of these measures provide broad coverage of protective strategies across a variety of dating risk domains, which may account for discrepancies in the sexual PBS literature. The primary focus of this study was to develop and validate a comprehensive measure to assess dating and sexual protective behavioral strategies, the Sexual and Negative Dating Inventory (SANDI).

A Note on Differential Functioning

Differential item functioning is the process of identifying how items function differently across groups (e.g., gender, race, sexual orientation, biological sex, education, Hispanic origin, GPA, Greek status, sexual activity, relationship status, dating frequency). Since we are often interested in comparing groups, an item is labeled as having DIF when people with the same ability but from different demographic groups have an unequal probability of giving a response (Population Health Methods). It is possible that individuals differ in a variety of ways, including: Age, Developmental Disability, Acquired Disability, Religion, Ethnicity, Sexual orientation, Socioeconomic status, Indigenous group membership, Nationality and Gender (Hays, 2009). Anyone is vulnerable to experiencing adverse sexual outcomes, however the primary predictor of sexual assault remains to be gender, with 99% of all persons arrested for rape being men (Koss et al., 1994; Rozee & Koss, 2001). Women are more likely to experience dating-app facilitated sexual violence compared to men (Anderson et al., 2020; Echevarria et al., In press). Specifically, 11% of women (vs. 6% of men) reported that someone threatened to physically harm them, and 33% of women (vs. 22% of men) were called an offensive name. Several other studies indicate that these experiences are common among sexual minority populations and that such experiences are associated with negative mental health symptoms such as depression and anxiety symptoms (Hess & Flores, 2018; Lauckner et al., 2019; Thompson, 2018).

However, an important distinction between "*benign*" and "*adverse*" differential item functioning exists (DIF; Breslau et al., 2008). *Benign* DIF occurs when groups differ in their probabilities of endorsing an item because the item corresponds with an underlying trait or attribute measured in the scale that has different meaning between groups. *Adverse* DIF is when responses differ due to endorsing an item because of artifactual elements in the measurement process, such as different understandings of a word or phrase used in the item. *Adverse* DIF is a form of measurement error and reflects biases in the measurement process. *Benign* DIF reflects real-group differences and is not a product of measurement error. Thus, given the nature of sexual health research, which includes that sex can be experienced between individuals of any gender and that women are more likely to experience adverse sexual outcomes than men, it is expected that *benign* DIF will innately exist in the current study across gender and sexual orientation.

Summary of the Current Study

To summarize thus far, this dissertation has defined the three types of adverse sexual outcomes being examined in the current study (i.e., sexual victimization, risky sexual behaviors, and regretted sexual experiences). It has been established that each of these three outcomes are experienced by college students and can lead to future health and psychological problems (Brahms et al., 2011; National Center for Post Traumatic Stress Disorder, 2005; Peterson et al., 2021). It has also been noted that adverse sexual outcomes are highly prevalent among non-white individuals, as well as sexual and gender minority individuals (Buhi et al., 2010; Center for Disease Control and Prevention (CDC), 2019; Rosenkrantz et al., 2017). While prevention efforts and resources exist, such as the Rape Prevention and Education program, World Health Organization policies to provide those who have experienced sexual violence with immediate

support and care, the Green Dot program, and other interventions that teach refusal skills, further assessment of dating and sexual protective behaviors is warranted (Center for Disease Control and Prevention, January 17, 2020, January 28, 2020; Gidycz et al., 2008; World Health Organization, 2013, 2014a). And while previous measures of dating and sexual behaviors have utilized the theoretical framework of harm reduction (similar to the theoretical framework for research on substance use), previous dating and sexual protective behavior measures such as the DBS, DSPARS, SSPBSS, and RSS lack contemporary vocabulary and specifics that capture the milieu of modern dating, including the use of social media, online dating apps, and location sharing services via smart technology. In addition, knowing that individuals may respond to items differently depending on their demographic background, and given the nature of sexual health research (with the fact that sex can be experienced between individuals of any gender), it is expected that benign DIF will innately exist in the current study. This dissertation is the development and validation of a new measure to assess safe dating and sexual protective behavioral strategies (PBS); the Sexual and Negative Dating Inventory (SANDI).

Proposed Research and Aims

Participants responded to an online survey of the measures listed in Table 1 via Qualtrics at baseline and one-month follow-up. Participants received class-credit for completing the baseline survey and a $10 amazon gift card at completion of follow-up.

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Table 1: Measures and Instrumentation

Baseline	
Demographics	Age, Gender, Biological sex, Race, Sexual orientation, Relationship status, Sexual activity, Others
Adverse Sexual Outcomes	Sexual Experiences Survey Short Form Victimization (SES-SFV)
	Risky Sexual Behaviors
	Single Item Regretted Sexual Experiences
Dating and Sexual Behaviors	Dating Behavior Survey (DBS)
	Dating Self-Protection against Rape Scale (DSPARS)
	Risky Sex Scale (RSS)
	Safer-Sex Protective Behavioral Strategies Survey (SSPBSS)
	Sexual and Negative Dating Inventory (SANDI)
Social Desirability	Marlowe-Crowne Social Desirability measure
One-month Follow-up	
Adverse Sexual Outcomes	Sexual Experiences Survey Short Form Victimization (SES-SFV)
	Risky Sexual Behaviors
	Single Item Regretted Sexual Experiences
Dating and Sexual Behaviors	Dating Behavior Survey (DBS)
	Dating Self-Protection against Rape Scale (DSPARS)
	Risky Sex Scale (RSS)
	Safer-Sex Protective Behavioral Strategies Survey (SSPBSS)
	Sexual and Negative Dating Inventory (SANDI)

Aim 1A. It was proposed that the SANDI would have construct validity and be a valid measure of safe dating and sexual behaviors. The preliminary Sexual and Negative Dating Inventory (SANDI) included a total of 60 questions.

Aim 1B. It was initially proposed that the factors would fall into the following categories: Reduction of Serious Consequences, Manner of Behaving, Limited Substance Use and Relationship Dynamics. These factor constructs were based off other current measures of dating and sexual protective behaviors.

Aim 2. It was proposed that items would function differently across different demographic groups (e.g., gender, race, sexual orientation, biological sex, education, Hispanic origin, GPA, Greek status, sexual activity, relationship status, dating frequency).

Aim 3A. It was proposed that the SANDI would be strongly correlated with measures linked to safe dating and sexual behaviors such as the Safer-Sex PBS Survey (Lewis et al.,

2009a), Risky Sex Scale (RSS; O'Hare, 2001), Dating Self-Protection against Rape Scale (DSPARS; Moore & Waterman, 1999), and the Dating Behavior Survey (DBS; Hanson & Gidycz, 1993).

Aim 3B. It was proposed that the SANDI would have weaker correlations, establishing discriminant validity with measures of purely alcohol PBS such as the Protective Behavioral Strategies Survey (PBSS-20).

Aim 3C. It was proposed that the SANDI would have adequate internal consistency across all factors, as well as the measure as a whole, using Cronbach's alpha.

Aim 4. It was proposed that correlations would reveal sufficient test-retest reliability of the SANDI by administering the measure to individuals one-month after baseline.

Aim 5A. It was proposed that the SANDI would have concurrent predictive associations with the Sexual Experiences Survey Short Form Victimization (SES-SFV) survey, as well as measures of regretted sexual experiences and risky sexual behaviors.

Aim 5B. It was proposed that the SANDI would have prospective predictive validity with the Sexual Experiences Survey Short Form Victimization (SES-SFV) survey, as well as measures of regretted sexual experiences and risky sexual behaviors at the one-month follow-up.

CHAPTER 2: METHODS

Approach

Participants were recruited primarily through the University of Central Florida Sona research pool. Participants responded to an online survey of the measures listed in Table 1 via Qualtrics at baseline and one-month follow-up. Participants received class-credit for completing the baseline survey and a $10 amazon gift card at completion of follow-up.

Measures

Demographics Characteristics

Demographics. Participants reported age, biological sex, gender, Hispanic origin, race, Greek status, sexual orientation, sexual activity, relationship status, education, GPA and dating frequency.

Adverse Sexual Outcomes

Sexual Experiences Survey Short Form Victimization (SES-SFV). The Sexual Experiences Survey-Short Form Victimization (SES-SFV) assesses lifetime sexual victimization (Koss et al., 2007). Participants were asked to respond to each question with either "yes" or "no" to whether they had experienced any of the scenarios of victimization either "In the past 12 months" and "From age 14 until 1 year ago." Typically, the SES-SFV is coded ordinally by six mutually exclusive groups: nonvictim, unwanted sexual contact, attempted coercion, coercion, attempted rape and rape. The SES is one of the most commonly used and accepted measures of adult sexual victimization (Koss et al., 2007). Overall internal consistency in the current study for the SES-SFV was excellent at baseline ($\alpha = .95$) and follow-up ($\alpha = .95$).

Risky Sexual Behaviors. A total of six single-item 'yes' or 'no' questions were asked and summed to assess sexual risk: "Was alcohol involved in your most recent sexual

experience?" "Is alcohol involved in the majority of your sexual experiences?" "Do you wish you had used a condom but did not during your most recent sexual experience?" "Do you wish you had used a condom but did not during the majority of your sexual experiences?" "Have you become unintentionally pregnant as a result of a sexual experience?" and "Have you contracted a sexually transmitted infection as a result of a sexual experience?" These items represent previous constructs used to assess sexual risk (Buhi et al., 2010; Cerwonka et al., 2000; Dermen & Thomas, 2011; Grello et al., 2006; Kaly et al., 2002; Leigh et al., 2008; Perkins, 2002; Wechsler & Kuo, 2000). This outcome was heavily skewed, thus it was dichotomized for analysis. Overall internal consistency in the current study for these items was $\alpha = .62$ at baseline and $\alpha = .57$ at follow-up.

Regretted Sexual Experiences. At baseline, regretted sexual experiences were assessed using a single 'yes' or 'no' question, "Have you ever had a sexual experience that you later regretted?" At one-month follow-up, the question asked, "Have you had a regretted sexual experience that occurred in the last month?" These items were adapted from the Young Adult Alcohol Consequences Questionnaire (YAACQ; Read et al., 2006) and a modified version of the sex-related alcohol negative consequences subscale (e.g., Larimer et al., 1999; Lewis et al., 2010; Wood et al., 2001) of the Young Adult Alchol Problem Screening Test (YAAPST; Hurlbut & Sher, 1992). This single consequence item has been utilized in past research to analyze previous regretted sexual experiences (Peterson et al., 2020; Simons et al., 2010). The YAACQ and the YAAPST have been validated for use with college populations (Hurlbut & Sher, 1992; Read et al., 2006).

Alcohol Protective Behavioral Strategies

Protective Behavioral Strategies Survey (PBSS-20). The Protective Behavioral

Strategy Survey-20 (PBSS-20) assesses three subtypes of PBS strategies used to drink less

and/or to mitigate negative consequences from drinking alcohol: Manner of Drinking,

Stopping/Limiting Drinking, and Serious Harm Reduction (Martens et al., 2005; Treloar et al.,

2015). PBS use in the past month was assessed on a six-point scale (1 = Never, 6 = Always) and

begins with the heading "Please indicate the degree to which you engage in the following

behaviors when using alcohol or partying." Questions include, "How often do you use a

designated driver" and "How often do you leave the bar/party at a predetermined time?"

Previous research supports the reliability and validity of the PBSS-20 in a general population

(Richards et al., 2018), including college students, as well as test-retest reliability and criterion

validity, with improved content validity for the SHR scale (Treloar et al., 2015). Overall internal

consistency in the current study for the PBSS-20 at baseline was excellent (α = .94).

Dating and Sexual Behaviors

Dating Behavior Survey (DBS). The Dating Behavior Survey (DBS; Hanson & Gidycz,

1993), asks about behaviors participants may or may not use to protect themselves from possible

adverse sexual outcomes. Response options range from 1 (Never) to 6 (Always), with a total of

N = 15 questions. Previous research supports convergent validity the DBS; with DBS scores

being positively correlated with delayed risk perception and history of sexual victimization and

negatively correlated with dating behaviors (Breitenbecher, 2008). Overall internal consistency

in the current study for the DBS was good at baseline (α = .81) and follow-up (α = .85).

Dating Self-Protection against Rape Scale (DSPARS). The Dating Self-Protection

against Rape Scale (DSPARS; Moore & Waterman, 1999) assesses 15 sexual protective

behavioral strategies. Response options range from 1 (Never) to 6 (Always). Participants were

asked how often they perform a number of behaviors to protect themselves from possible sexual assault when with a date. Previous research supports convergent validity of the DSPARS; with DSPARS scores being negatively correlated with risk-related dating behaviors, delayed risk perception, and history of sexual victimization (Breitenbecher, 2008). Overall internal consistency in the current study for the DSPARS was excellent at baseline ($\alpha = .90$) and good at follow-up ($\alpha = .89$).

Risky Sex Scale (RSS). The Risky Sex Scale (RSSO; O'Hare, 2001) was created in 2001 and identifies sexual behaviors in relation to alcohol use. The Risky Sex Scale is a brief screening tool developed and validated for use with college students (RSSO; O'Hare, 2001). The RSS assesses three domains of sexual risk behavior: (a) expectancies for sexual arousal and performance following alcohol use, (b) sexual risk behaviors while intoxicated, and (c) perceptions of gender-related risk for sexual violence following alcohol use. Questions on the RSS include, "I am more likely to have unplanned sex if I have been drinking or using other substances" and "Women seem more inclined to have sex if they have been drinking, than if they have not been drinking." Response options for the RSS include a scale from 1 'Strongly Agree' to 5 'Strongly Disagree.' Overall internal consistency in the current study for the RSS was excellent at baseline ($\alpha = .91$) and follow-up ($\alpha = .92$).

Safer-Sex Protective Behavioral Strategies' Survey (SSPBSS). The SSPBSS is a measure of safer-sex behaviors and consists of questions regarding condom use (Lewis et al., 2009). The measure consists of 14 questions on a 1 (Never) to 5 (Always) scale. Questions include, "How often have you talked about condom use with partner prior to sex" and "How often have you talked about partner's history of safe sex behaviors prior to sex." A brief version of this measure was use under a previous name, Condom-Related PBS, and showed excellent

internal consistency within the sample of college students (Lewis et al., 2010). Overall internal consistency in the current study for the SSPBSS was excellent at baseline (α = .92) and follow-up (α = .93).

Sexual and Negative Dating Inventory (SANDI). The aim for this dissertation study is to develop a measure that assesses dating and sexual protective behavioral strategies using contemporary vocabulary and specifics that capture the milieu of modern dating, including the use of social media, online dating apps, and location sharing services via smart technology. The preliminary Sexual and Negative Dating Inventory (SANDI) included a total of 60 questions that, based on previous measures, would fall into the following categories: Reduction of Serious Consequences, Manner of Behaving, Limited Substance Use and Relationship Dynamics. Items were initially generated from adapting previous measures of dating and sexual behaviors: the Safer-Sex PBS Scale (SSPBSS; Lewis et al., 2010; Lewis et al., 2009), the Risky Sex Scale (RSS; O'Hare, 2001), the Dating Self-Protection against Rape Scale (DSPARS; Moore & Waterman, 1999) and the Dating Behavior Survey (DBS; Hanson & Gidycz, 1993). Research assistants from different demographic backgrounds provided feedback on the 60 items, in order to target potential changes needed to make items more equitable and inclusive, specifically in regard to gender identity and sexual orientation.

Instructions of the SANDI are as follows: *Below is a list of general statements in regard to dating and sexual behaviors. Rate each statement using the below response ranges (0 = Never to 5 = Always). Indicate how true each statement is, according to what really reflects your experiences. Remember there are no right or wrong answers.* Responses ranged from: 0 = Never, 1 = Rarely, 2 = Occasionally, 3 = Sometime, 4 = Usually, and 5 = Always.

Because the SANDI is in its early stages of development, further evaluation will be needed with a diverse group of students, as well as other populations such as community samples

and veterans. Overall internal consistency in the current study for the SANDI was excellent at baseline ($\alpha = .95$) and follow-up ($\alpha = .95$).

Social Desirability

Marlowe-Crowne Social Desirability measure. The Marlow-Crowne Social Desirability measure was created by Leite & Nazari, (2017) and consists of 13 items. This measure is included to control for social desirability bias. Controlling for social desirability bias is becoming increasingly important and recognized as step in self-report scale development (King & Bruner, 2000; Van de Mortel, 2008). Therefore, the SANDI will be tested for social desirability response bias by assessing the correlation between dating and sexual protective behaviors and participants' scores on the Marlow-Crowne scale (Leite & Nazari, 2017). The Marlow-Crowne is a measure of social desirability. Presumably, individuals who respond in a less socially desirable way may be indicating lower scores due to viewing themselves as less desirably, indicating a potential dimension self-deprecation. Response options include 'True' or 'False.' Example questions of the Marlowe-Crowne include, "I have never been irked when people expressed ideas very different from my own" and "I am sometimes irritated by people who ask favors of me" (Leite & Nazari, 2017). This measure will be used to bring awareness to potential faulty data in the study sample. Overall alpha for this measure at baseline was $\alpha = .64$

Data Analysis Plan

The sample consists of $n = 1,298$ participants at baseline, and $n = 336$ at one-month follow-up. Exclusion criteria included removing participants who completed the survey in less than ten minutes and more than two hours, in accordance with previous research (Mitchell et al., 2015; Salgari et al., 2022). This removed 448 individuals from the baseline survey and 98 from the follow-up survey. Given the prevalence rates of adverse sexual outcomes outlined in the

beginning of this proposal and Table 2, sufficient statistical power to run the proposed analyses

was reached.

Table 2: Description of Frequency of Adverse Sexual Outcomes in College Student Samples/Sample Size

	Previous Literature	Current Study
Sexual Victimization (unwanted sexual contact, attempted coercion, coercion, attempted rape and rape)	- 20-25% undergraduate females experience sexual assault - 6-15% undergraduate males experience sexual assault (Cullen, 2000; Krebs, 2007)	- 10.16% self-reported rape lifetime - 3.13% self-reported rape past month - 42% unwanted sexual experience lifetime - 10% unwanted sexual experience past month
Risky Sexual Behaviors	- 4 in 10 college students report using condoms (Buhi, 2010) - 53% report casual sex (Dermen, 2011)	- 13.48% endorsed yes - Was alcohol involved in your most recent sexual experience? - 8.86% endorsed yes - Is alcohol involved in the majority of your sexual experiences? - 15.46% endorsed yes - Do you wish you had used a condom but did not during your most recent sexual experience? - 18.34% endorsed yes - Do you wish you had used a condom but did not during the majority of your sexual experiences? - 4.07% endorsed yes - Have you become unintentionally pregnant as a result of a sexual experience? - 6.65% endorsed yes - Have you contracted a sexually transmitted infection as a result of a sexual experience?
Regretted Sexual Experiences	- 71.9% lifetime - 31.8% past month (Merril, 2018; Oswalt, 2005; Peterson, 2021)	- 54.5% lifetime - 10% one-month follow-up

Aim 1: Confirm the factor structure

Data was randomly split in half prior to analyses in order to validate findings later in the

other half and full sample. To understand the factor structure, an Exploratory Factor Analysis

(EFA) was conducted in Mplus version 8.6 (Muthén & Muthén, 2017). Eigen values of factors

greater than 1, scree plots, and overall model fit were assessed. The factors were iteratively

tested against one another, and inter-correlations determined amongst items.

To assess model fit, the Hu and Bentler (1999) standards of SRMR ≤ .08, RMSEA ≤ .06, and CFI ≥ .96 were utilized (Hu & Bentler, 1999). Consistent with previous studies of measure development, items were considered for deletion through analyzing factor loadings, content of items, and residuals (Freeman et al., 2021; Martens et al., 2005). In addition, recommendations to drop shared factor loadings of .35 and higher for two factors and .20 and higher for three factors were utilized (Yong & Pearce, 2013). Cross-loadings were identified on multiple factors loading on any factors. Essentially, these items share too much variance with other items. Once a remaining pool of "good" items was identified, a Confirmatory Factor Analysis (CFA) was conducted to a) identify the factor structure already identified in the ESEM **(H1A)** and b) compare the CFA (**H1B**). Then, all data was combined, and analyzed using the final set of "good" items on the full sample as well as follow-up, see Table 4.

Aim 2: Differential Functioning

Aim 2 examines whether items on the SANDI function differently across demographic groups (e.g., gender, race, sexual orientation, biological sex, education, Hispanic origin, GPA, Greek status, sexual activity, relationship status, dating frequency). One-way ANOVAs were run for nominal variables with discrete groups that cannot be ordered in some hierarchical way (i.e., gender, sexual orientation, race). One-sample t-tests were run for nominal variables with two parameters that cannot be ordered in some hierarchical way (i.e., biological sex, sexual activity, relationship status, Greek status and Hispanic origin). Correlations were examined for ordinal variables that can be ordered in a discrete way (i.e., education, dating frequency, and GPA). Given previous findings that individuals who identify as women, individuals who identify as a sexual or gender minority, and individuals who identify as a racial minority are historically at

greater risk of experiencing adverse sexual outcomes, it was proposed items will function differently across different demographic groups.

Aim 3: Convergent and Discriminant Validity and Internal Consistency

It was predicted that correlations would reveal convergent validity of the SANDI with other measures of dating and sexual behaviors including the SSPBSS, RSS, DSPARS and DBS (**H3A**). It was also proposed that correlations would reveal discriminant validity of the SANDI with the alcohol PBS measure, the PBSS-20 (**H3B**). Correlation analysis were utilized to examine internal consistency across the measure as a whole and within each factor (**H3C**).

Aim 4: Test-retest reliability

Validity of the SANDI was confirmed using correlations of test-retest reliability by administering the SANDI one month after baseline (**H4**). Cut-off scores for test-retest reliability were considered acceptable above 0.70 (Statistics How To).

Aim 5: Predictive Validity

It was proposed that logistic regression would reveal the SANDI to have concurrent predictive associations with adverse sexual outcomes including the SES-SFV, risky sexual behaviors, and regretted sexual experiences. It was projected that predictive validity would include whether scores on the SANDI have concurrent predictive validity for those with a history of adverse sexual outcomes (**H5A**), as well as prospective validity for those who may experience an adverse sexual outcome within the one-month follow-up timeframe (**H5B**).

CHAPTER 3: RESULTS

Study Participants

Data was examined for $n = 1,298$ individuals at baseline and $n = 336$ at one-month

follow-up. Individuals were on average 19.59 (2.90 SD) years old, 67.51% female, White

(71.42%), Black (8.88%), Asian (8.80%), Multiple Races (5.52%), an unlisted race (4.36%),

Native Hawaiian/Pacific Islander (0.47%), or American Indian/Alaska Native (0.55%).

Regarding gender, participants identified as women (64.28%), men (32.26%), genderqueer or

gender non-conforming (2.16%), transgender men (0.54%), questioning (0.46%), transgender

women (0.15%) and other (0.15%). Regarding sexual orientation, participants identified as

heterosexual/straight (76.06%), bisexual (14.70%), lesbian (2.54%), pansexual (1.92%), other

(1.77%), gay (1.62%) and asexual (1.39%).

Regarding rates of adverse sexual outcomes, the following rates were observed at

baseline, indicating a history of adverse sexual outcomes: self-reported rape (10.16%), unwanted

sexual experience (42.03%), risky sexual behaviors (26.39%), and regretted sexual experiences

(54.44%). The following rates were observed at one-month follow-up in regard to adverse sexual

outcomes: self-reported rape (3.13%), unwanted sexual experience (10.98%), risky sexual

behaviors (5.03%), and regretted sexual experiences (10.73%).

Aim 1A: Identifying the Factor Structure

Responses were categorial, thus the Weighted Least Square Mean & Variance (WLSMV)

adjusted errors estimator was used to estimate the models. An exploratory factor analysis was

first conducted in Mplus version 8.6 comparing factors one through six, however the model

failed to converge for factors five and six (Muthen & Muthen). Therefore, exploratory structural

equation modeling (ESEM) was utilized to compare factors four through six. A four-factor

model fit reasonably well: $\chi^2(1536) = 7302.629$, $p < .001$, CFI [Comparative Fit Index] = .889, RMSEA [Root Mean Square Error of Approximation] = .054 (90% CI = .053, .055), SRMR [Standardized Root Mean Squared Residual] = .044. However, the ESEM of a five-factor model showed better fit to the data: $\chi^2(1480) = 6003.294$, $p < .001$, CFI = .913, RMSEA = .049 (90% CI = .047, .050), SRMR = .038. The six-factor model fit the data well also: $\chi^2(1425) = 5019.407$, $p < .001$, CFI = .931, RMSEA = .044 (90% CI = .043, .046), SRMR = .033. However, the sixth model was not correlated with any other factors and only one item loaded on that factor 'I only use one substance when on a date,' which provided further evidence for a five-factor model. A Satorra-Bentler χ^2 difference test compared the five-factor model with the four-factor model and revealed the five-factor model fit the data better than the four-factor model, $\chi^2(56) = 1028.201$, $p < .001$.

Across the five-factors, the ESEM revealed 27 discrete loading items. Of the other items, there were nine items with multiple high cross-loadings, eight items with low factor loadings, nine items with cross-loading across two-factors, six items that did not load on any factor, and one item with strong conceptual item overlap; the items were subsequently dropped. The five-factors were then analyzed in a CFA using a random sample of half the participants. This model showed good fit to the data, $\chi^2(242) = 892.521$, $p < .001$, CFI = .94, RMSEA = .065 (90% CI = .060, .069), SRMR = .047. However, after conducting the CFA, in comparison to the ESEM, two items were removed due to high correlations with other items and one item was removed for redundancy, resulting in a final measure consisting of 24 items. A CFA was then conducted with the other half of the sample. The five-factor model, with 24 items, showed good fit to the data, $\chi^2(242) = 837.385$, $p < .001$, CFI = .95, RMSEA = .062 (90% CI = .057, .066), SRMR = .045. Finally, all the data was combined and a CFA was conducted using the full sample to examine

the five-factor structure. This showed good fit to the data, $\chi^2(242) = 2115.52$, $p < .001$, CFI = .977, RMSEA = .077 (90% CI = .074, .080), SRMR = .043.

Aim 1B: The Five-Factor Model

It was initially proposed that the measure would load onto a four-factor model however, a five-factor model showed better fit to the data (as outlined in the results for Aim 1A, above). The five-factors are listed with their respective items in Table 3, that is: 1) Location Sharing, 2) Assertiveness, 3) Self-Protection, 4) Risk Reduction, and 5) Privacy, see Figure 4 for individual item loadings within each factor.

Table 3: Factor Loadings from the Five-Factor Exploratory Structural Equation Model

Factor 1: Location Sharing (N = 6)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
When I go out on a first date, I tell another person where I will be and when.	**0.681**	0.174	0.016	-0.038	-0.084
I always keep my location 'on' and shared with another person when I am on a date.	**0.852**	0.025	0.08	0.009	-0.185
I share my transportation information (e.g., Uber, trains, subway) with a friend when going on a date.	**0.64**	-0.056	0.318	-0.001	0
I send another person the details of what is planned for a date so they are aware of where I will be and approximately when.	**0.711**	0.043	0.231	-0.057	0.025
I send a friend updates in the middle of the date to let them know how it is going.	**0.641**	-0.042	0.249	-0.114	0.042
I have another person (e.g., friend) who is willing to interrupt my date (e.g., with a phone call) or pick me up if I feel uncomfortable.	**0.667**	0.109	0.15	-0.061	0.029

Factor 2: Assertiveness (N = 4)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I make sure I have a say in the plans/collaborate with my date on plans for a first date.	-0.015	**0.832**	0.042	-0.104	0.028
I choose my own food/drink to order during a date.	0.215	**0.631**	-0.134	0.152	0.036
My date and I both play an active collaborative role in making plans for a date.	-0.087	**0.742**	0.098	-0.057	0.031
I make sure I have a say in plans (e.g., sexual behaviors we engage in).	0.221	**0.671**	-0.016	-0.011	0.002

Factor 3: Self-protection (N = 5)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I have a plan for what self-protective measures I will take if my date becomes violent or sexually aggressive.	0.129	0.092	**0.576**	0.04	0.05
I have learned self-defense skills to protect myself from someone who becomes violent or sexually aggressive.	-0.069	-0.019	**0.66**	0.007	-0.004
I try to be aware of other people around [for the duration of the date] who may be able to help me in case of an emergency.	0.186	0.027	**0.653**	0.012	0.068
I discuss with my date the concept of equality to prevent any potential power dynamics.	-0.179	0.255	**0.662**	0.007	-0.095
I am aware of objects nearby that could be used as weapons in case my date becomes violent or sexually aggressive (e.g., lamps, keys), for self-protection.	0.062	-0.018	**0.813**	-0.009	0.006

Factor 4: Risk Reduction (N = 5)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I do not drink or use any substances on first dates.	0.007	0.294	-0.066	**0.586**	0.065
I do not have sex on the first date.	0.115	0.042	0.039	**0.709**	0.09
I do not kiss on the first date.	-0.137	-0.04	0.153	**0.558**	0.222
I do not engage in taking shots of alcohol on the first date.	-0.009	0.3	-0.024	**0.499**	0.228
I go on a first date with intentions of not having sex on the first date.	0.229	0.13	0.065	**0.598**	0.018

Factor 5: Privacy (N = 4)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I do not meet my date at my home or their home.	0.305	0.026	0.001	0.252	**0.454**
I make sure to arrive to the date on my own rather than rely on my date, so I can leave at any time.	0.018	0.219	0.136	-0.073	**0.528**
I do not let my date drive me home.	-0.014	0.049	0.039	-0.064	**0.757**
I do not tell my date specifics on where I live.	0.329	-0.047	0.058	0.045	**0.634**

Below are factor loadings for each of the samples: the ESEM, reduced sample CFA, remaining

sample CFA, full sample CFA, and follow-up.

Table 4: Factor loadings from the ESEM, Reduced Sample CFA, Remaining Sample CFA, and Follow-up

	ESEM (N=1,298)	Reduced Sample CFA (n=649)	Remaining Sample CFA (n=649)	Full Sample CFA (n=1,298)	Follow up (n=336)
Factor 1: Location Sharing (n = 6 items)					
When I go out on a first date, I tell another person where I will be and when.	0.681	0.72	0.732	0.726	0.832
I always keep my location 'on' and shared with another person when I am on a date.	0.852	0.749	0.774	0.761	0.79
I share my transportation information (e.g., Uber, trains, subway) with a friend when going on a date.	0.64	0.827	0.847	0.836	0.898
I send another person the details of what is planned for a date so they are aware of where I will be and approximately when.	0.711	0.91	0.898	0.903	0.929
I send a friend updates in the middle of the date to let them know how it is going.	0.641	0.769	0.769	0.769	0.776
I have another person (e.g., friend) who is willing to interrupt my date (e.g., with a phone call) or pick me up if I feel uncomfortable.	0.667	0.839	0.858	0.847	0.802
	ESEM	Reduced Sample CFA	Remaining Sample CFA	Full Sample CFA	Follow up
Factor 2: Assertiveness (n = 4 items)					
I make sure I have a say in the plans/collaborate with my date on plans for a first date.	0.832	0.755	0.826	0.79	0.776
I choose my own food/drink to order during a date.	0.631	0.779	0.815	0.797	0.795
My date and I both play an active collaborative role in making plans for a date.	0.742	0.729	0.735	0.731	0.719
I make sure I have a say in plans (e.g., sexual behaviors we engage in).	0.671	0.86	0.807	0.831	0.813
	ESEM	Reduced Sample CFA	Remaining Sample CFA	Full Sample CFA	Follow up
Factor 3: Self-protection (n = 5 items)					
I have a plan for what self-protective measures I will take if my date becomes violent or sexually aggressive.	0.576	0.8	0.795	0.798	0.844
I have learned self-defense skills to protect myself from someone who becomes violent or sexually aggressive.	0.66	0.515	0.611	0.565	0.652
I try to be aware of other people around [for the duration of the date] who may be able to help me in case of an emergency.	0.653	0.862	0.869	0.866	0.895
I discuss with my date the concept of equality to prevent any potential power dynamics.	0.662	0.535	0.603	0.571	0.615
I am aware of objects nearby that could be used as weapons in case my date becomes violent or sexually aggressive (e.g., lamps, keys), for self-protection.	0.813	0.788	0.866	0.829	0.868
	ESEM	Reduced Sample CFA	Remaining Sample CFA	Full Sample CFA	Follow up
Factor 4: Risk Reduction (n = 5 items)					
I do not drink or use any substances on first dates.	0.586	0.719	0.682	0.699	0.793

I do not have sex on the first date.	0.709	0.77	0.751	0.759	0.845
I do not kiss on the first date.	0.558	0.564	0.558	0.56	0.702
I do not engage in taking shots of alcohol on the first date.	0.499	0.818	0.822	0.821	0.852
I go on a first date with intentions of not having sex on the first date.	0.598	0.815	0.847	0.833	0.833

	ESEM	Reduced Sample CFA	Remaining Sample CFA	Full Sample CFA	Follow up
Factor 5: Privacy *(n* = 4 items)					
I do not meet my date at my home or their home.	0.454	0.792	0.749	0.77	0.834
I make sure to arrive to the date on my own rather than rely on my date, so I can leave at any time.	0.528	0.695	0.757	0.726	0.779
I do not let my date drive me home.	0.757	0.624	0.638	0.63	0.72
I do not tell my date specifics on where I live.	0.634	0.834	0.784	0.809	0.806

Note. Model fit for each column is as follows.

Column 1: $\chi^2(1480) = 6003.294$, $p < .001$, CFI = .913, RMSEA = .049 (90% CI = .047, .05), SRMR = .038.

Column 2: $\chi^2(242) = 892.521$, $p < .001$, CFI = .94, RMSEA = .065 (90% CI = .060, .069), SRMR = .047.

Column 3: $\chi^2(242) = 837.385$, $p < .001$, CFI = .95, RMSEA = .062 (90% CI = .057, .066), SRMR = .045.

Column 4: $\chi^2(242) = 2115.52$, $p < .001$, CFI = .977, RMSEA = .077 (90% CI = .074, .080), SRMR = .043.

Column 5: $\chi^2(242) = 570.822$, $p < .001$, CFI = .96, RMSEA = .06 (90% CI = .06, .07), SRMR = .05.

Aim 2: Differential Functioning

Items functioned differently across different demographic groups. For variables analyzed using one-way ANOVAs (with discrete groups that cannot be ordered in some hierarchical way; i.e., gender, sexual orientation, race), significant differences were found among the following factors. Cisgender women ($M = 5.15$, $SD = 0.92$), transgender men ($M = 4.76$, SD = 1.37), and genderqueer ($M = 5.26$, $SD = 0.88$) individuals endorsed significantly higher rates of Location Sharing relative to cisgender men ($M = 3.48$, $SD = 1.22$). Cisgender women ($M = 5.33$, $SD = 0.75$) and genderqueer ($M = 5.63$, $SD = 0.46$) individuals endorsed significantly higher rates of Assertiveness relative to cisgender men ($M = 4.87$, $SD = 1.10$). Cisgender women ($M = 4.26$, $SD = 1.20$) and genderqueer ($M = 4.46$, $SD = 1.20$) individuals endorsed significantly higher rates of Self-Protection relative to cisgender men ($M = 3.33$, $SD = 1.35$). Cisgender women ($M = 4.82$, $SD = 1.05$) endorsed significantly higher rates of Risk Reduction relative to cisgender men ($M = 4.33$, $SD = 1.22$). Cisgender women ($M = 4.75$, $SD = 1.01$), transgender men ($M = 5.32$, $SD = 0.28$), and genderqueer ($M = 5.16$, $SD = 0.83$) individuals endorsed significantly higher rates of Privacy relative to cisgender men ($M = 3.47$, $SD = 1.08$).

Table 5: Differential Functioning – One Way ANOVA

	Gender	Sexual Orientation
F1: Location Sharing	Cis. women-Cis. Men: 1.67, < .001 Transgender men-Cis. Men: 1.29, .023 Genderqueer-Cis. Men: 1.79, < .001	Bisexual-Heterosexual: 0.48, < .001
F2: Assertiveness	Cis. Women-Cis. Men: 0.46, < .001 Genderqueer-Cis. Men: 0,77, < .001	Bisexual-Heterosexual: 0.27, .004
F3: Self-Protection	Cis. Women-Cis. Men: 0.93, < .001 Genderqueer-Cis. Men: 1.13, < .001	Bisexual-Heterosexual: 0.44, < .001
F4: Risk Reduction	Cis. Women-Cis. Men: 0.50, < .001	No differences observed
F5: Privacy	Cis. Women-Cis. Men: 0.88, < .001 Transgender men-Cis. Men: 1.45, .005 Genderqueer-Cis. Men: 1.29, < .001	Lesbian-Heterosexual: 0.62, .032 Bisexual-Heterosexual: 0.41, < .001

Note. One-way ANOVAs were run for nominal variables with discrete groups that cannot be ordered in some hierarchical way (i.e., gender, sexual orientation, race). Findings presented in this table are only for comparisons that revealed significance for the respective demographic (e.g., no significance was observed for gay individuals).

As shown in Table 5 above, one-way ANOVAs revealed significant differences for bisexual individuals ($M = 4.99$, $SD = 1.12$), who endorsed significantly higher rates of Location Sharing relative to heterosexual individuals ($M = 4.51$, $SD = 1.31$). Bisexual individuals ($M = 5.39$, $SD = 0.58$) endorsed significantly higher rates of Assertiveness relative to heterosexual individuals ($M = 5.13$, $SD = 0.94$). Bisexual individuals ($M = 4.30$, $SD = 1.25$) endorsed significantly higher rates of Self-Protection relative to heterosexual individuals ($M = 3.86$, $SD = 1.33$). In addition, lesbian individuals ($M = 5.00$, $SD = 1.09$) and bisexual individuals ($M = 4.79$, $SD = 0.98$) endorsed significantly higher rates of Privacy relative to heterosexual individuals ($M = 4.28$, $SD = 1.12$). No differences were observed across any of the five-factors for race (i.e., White, Black, American Indian/Alaskan Native, Asian, Native Hawaiian Pacific Islander, Multi-race or other).

For variables analyzed using a one-sample t-test (indicating two parameters that cannot be ordered in some hierarchical way), the following differences were found among factors, see Table 6. Regarding biological sex, females ($M = 5.14$, $SD = 0.93$) endorsed significantly higher rates of Location Sharing relative to males ($M = 3.47$, $SD = 1.22$). Females ($M = 5.34$, $SD = 0.73$) endorsed significantly higher rates of Assertiveness relative to males ($M = 4.87$, $SD = 1.10$). Females ($M = 4.27$, $SD = 1.20$) endorsed significantly higher rates of Self-Protection relative to males ($M = 3.33$, $SD = 1.35$). Females ($M = 4.83$, $SD = 1.04$) endorsed significantly higher rates of Risk Reduction relative to males ($M = 4.33$, $SD = 1.22$). Females ($M = 4.77$, $SD = 1.01$) endorsed significantly higher rates of Privacy relative to males ($M = 3.87$, $SD = 1.08$).

Table 6: Differential Functioning – One-sample t-tests

	Biological Sex		Sexual Activity		Relationship Status		Greek		Hispanic	
	t	*p*	*t*	*p*	*t*	*p*	*t*	*p*	*t*	*p*
F1: Location Sharing	27.17, < .001*		-0.73, 0.47		-1.17, 0.24		-1.39, 0.17		-0.25, 0.80	
F2: Assertiveness	9.21, < .001*		-3.13, .0018*		-3.53, .0004*		-0.20, 0.85		-0.18, 0.86	
F3: Self-Protection	12.68, < .001*		0.15, 0.88		-1.15, 0.25		0.41, 0.69		0.84, 0.40	
F4: Risk Reduction	7.59, < .001*		8.72, < .001*		-0.24, 0.81		3.35, .0008*		0.10, 0.92	
F5: Privacy	14.68, < .001*		1.36, 0.18		-1.15, 0.25		0.94, 0.35		0.68, 0.50	

Note. One-sample t-tests were run for nominal variables with two parameters that cannot be ordered in some hierarchical way (i.e., biological sex, sexual activity, relationship status, Greek status and Hispanic origin). Sexual Activity was defined as: Are you currently sexually active? (That is, do you engage in sexual relations with one (or more) individuals on a regular basis (e.g., at least once per semester). Relationship Status was defined as: Are you currently in a committed relationship (that is, are you currently romantically committed to another person who you call your partner/spouse and do not seek out relationships/dates with other individuals)? Variables were coded as follows: Biological Sex: female = 0, male = 1; Sexual activity: no = 0, yes = 1; Relationship status: no = 0, yes = 1; Greek: no = 0, yes = 1; Hispanic: Non-Hispanic = 0, Hispanic = 1.
* $p < .001$

Sexual Activity was defined as: Are you currently sexually active? (That is, do you engage in sexual relations with one (or more) individuals on a regular basis (e.g., at least once per semester). Relationship Status was defined as: Are you currently in a committed relationship (that is, are you currently romantically committed to another person who you call your partner/spouse and do not seek out relationships/dates with other individuals)? Individuals who self-reported being sexually active ($M = 5.26$, $SD = 0.81$) endorsed significantly higher rates of Assertiveness relative to individuals who are not sexually active ($M = 5.10$, $SD = 0.99$). Individuals who are not sexually active ($M = 4.96$, $SD = 1.09$) endorsed significantly higher rates of Risk Reduction relative to individuals who are sexually active ($M = 4.43$, $SD = 1.09$). Individuals who self-reported being in a committed relationship ($M = 5.30$, $SD = 0.80$) endorsed significantly higher rates of Assertiveness relative to individuals who are not in a committed relationship ($M = 5.11$, $SD = 0.95$). Individuals who are not in a fraternity/sorority ($M = 4.70$, $SD = 1.12$) endorsed significantly higher rates of Risk Reduction PBS relative to individuals who are in a fraternity/sorority ($M = 4.33$, $SD = 1.09$).

Correlations were run for ordinal variables that can be ordered in a discrete way (i.e., education, dating frequency, and GPA). For education, a positive correlation was observed for Assertiveness ($r(1284) = 0.08$, $p < .001$) and a negative correlation was observed for Risk Reduction ($r(1288) = -0.10$, $p < .001$). For dating frequency, negative correlations were observed for Assertiveness ($r(1163) = -0.06$, $p = .048$), Risk Reduction ($r(1166) = -0.23$, $p < .001$), and Privacy ($r(1164) = -0.09$, $p = .002$). No differential functioning was observed for GPA.

Aim 3A: Convergent Validity

Overall, scores on the SANDI at baseline were not highly correlated with previous measures linked to safe dating and sexual behaviors such as the Safer-Sex PBS Survey ($r = 0.12$), Risky Sex Scale ($r = 0.09$), and the Dating Behavior Survey ($r = 0.24$), indicating measurement of different constructs. The Dating Self-Protection against Rape Scale revealed a moderate correlation with the SANDI ($r = 0.62$). Due to relatively low correlations overall, history of victimization was used to analyze whether stronger associations were observed across baseline scores on the SANDI, DSPARS, DBS, RSS and SSPBSS.

A logistic regression revealed scores on the SANDI to have strong associations with past victimization when compared to the DSPARS, DBS, RSS and SSPBSS, see Table 7.

Table 7: Logistic Regression of Victimization and Measures of Dating and Sexual Behaviors

	Odds Ratio	S. E.	z	p	95% C. I.	
SANDI	2.04	0.20	7.19	< .001	1.68	2.48
DSPARS	0.78	0.07	-2.88	.004	0.66	0.92
DBS	1.45	0.15	3.64	< .001	1.19	1.77
RSS	0.56	0.05	6.84	< .001	0.47	0.66
SSPBS	1.21	0.07	3.39	.001	1.08	1.34
Constant	0.09	0.04	-4.82	< .001	0.03	0.24

Baseline SANDI scores are strongly associated with history of victimization in that higher scores are strongly associated with past victimization compared to the DSPARS, DBS, RSS, and SSPBS. The highest association, other than the SANDI ($z = 7.19$), was the RSS ($z = 6.84$). This led to a content analysis of items within each measure. The RSS measures self-perceptions after having drank alcohol (e.g., "I often feel sexier after I've had a couple of drinks"). The DSPARS measures classic behaviors individuals engage in when dating (e.g., "Let a friend or family member know where you are and whom you are with?"), however not necessarily when engaging in sexual behaviors (higher scores on the DSPARS are associated with lower victimization history). The DBS measures behaviors engaged on first dates (e.g., "Partners that I go out with initiate the first few dates (ask me out)"), whereas the SSPBS describes behaviors specific to plans for when engaging in sexual behaviors (e.g., "Used/carried a method of birth control, other than a condom"). Thus, the SANDI appears to be a better assessment of both dating and sexual protective behaviors.

Aim 3B: Discriminant Validity

The PBSS-20 had low correlations with the SANDI overall, as well as individual factors within the SANDI, establishing discriminant validity, see Table 8. Correlations of 0.3 to 0.4 yield 15-20% shared variance. While the SANDI and PBSS-20 are weakly correlated, they measure distinct constructs/strategies (alcohol versus dating and sexual behaviors).

Table 8: Discriminant Validity of the SANDI and PBSS-20

	Correlation w/ PBSS-20	p
SANDI Total	0.43	< .001
Factor 1 Location Sharing	0.32	< .001
Factor 2 Assertiveness	0.34	< .001
Factor 3 Self-Protection	0.35	< .001
Factor 4 Risk Reduction	0.37	< .001
Factor 5 Privacy	0.33	< .001

Aim 3C: Internal Consistency

For the 24 items on the SANDI, an overall alpha of $\alpha = 0.91$ was observed at baseline.

Individual item internal consistency can be seen below in Table 9.

Table 9: Internal Consistency SANDI at Baseline, (α = 0.91)

Item	Obs	Sign	Item-Test Correlation	Item-Rest Correlation	Average Interitem Covariance	Alpha
t1s2	1290	+	0.5751	0.524	0.740586	0.9086
t1s7	1284	+	0.6082	0.5498	0.722396	0.9082
t1s26	1282	+	0.6887	0.6383	0.7079967	0.9061
t1s39	1281	+	0.7311	0.6928	0.712743	0.9051
t1s50	1279	+	0.6289	0.5779	0.7249811	0.9075
t1s56	1284	+	0.684	0.6409	0.7204082	0.9062
t1s27	1280	+	0.5848	0.5462	0.7497585	0.9086
t1s31	1284	+	0.5622	0.5312	0.7624538	0.9094
t1s37	1283	+	0.5537	0.5136	0.7534829	0.9091
t1s52	1278	+	0.5997	0.5642	0.7509969	0.9085
t1s14	1281	+	0.6611	0.6136	0.7210154	0.9068
t1s23	1283	+	0.4742	0.3997	0.7405415	0.912
t1s32	1282	+	0.6895	0.646	0.7176839	0.9061
t1s35	1282	+	0.4907	0.424	0.7427328	0.911
t1s36	1284	+	0.6628	0.6108	0.7138236	0.9068
t1s8	1280	+	0.4595	0.3939	0.7509829	0.9112
t1s18	1283	+	0.4847	0.4255	0.7487457	0.9106
t1s22	1281	+	0.3723	0.3068	0.763711	0.9129
t1s30	1285	+	0.531	0.4751	0.742517	0.9096
t1s60	1284	+	0.5381	0.491	0.7494183	0.9093
t1s20	1281	+	0.6243	0.5784	0.7323174	0.9076
t1s29	1283	+	0.5767	0.5296	0.7414895	0.9086
t1s49	1279	+	0.5124	0.4575	0.746604	0.9099
t1s58	1282	+	0.6503	0.6065	0.7287913	0.907

Within each SANDI factor, the following alphas were observed at baseline: 1) Location Sharing $\alpha = 0.88$, 2) Assertiveness $\alpha = 0.81$, 3) Self-Protection $\alpha = 0.80$, 4) Risk Reduction $\alpha = 0.78$ and 5) Privacy $\alpha = 0.78$, see Table 10.

Table 10: Internal Consistency SANDI Factors at Baseline

F1 Location Sharing α = 0.88	Item	Obs	Sign	Item-Test Correlation	Item-Rest Correlation	Average Interitem Covariance	Alpha
2. When I go out on a first date, I tell another person where I will be and when.	t1s2	1284	+	0.7853	0.6676	1.524437	0.8622
7. I always keep my location 'on' and shared with another person when I am on a date.	t1s7	1282	+	0.811	0.7006	1.474455	0.8567
26. I share my transportation information (e.g., Uber, trains, subway) with a friend when going on a date.	t1s26	1281	+	0.8559	0.7831	1.486775	0.8424
39. I send another person the details of what is planned for a date so they are aware of where I will be and approximately when.	t1s39	1279	+	0.775	0.6658	1.577151	0.8618
50. I send a friend updates in the middle of the date to let them know how it is going.	t1s50	1284	+	0.7943	0.6971	1.574385	0.8566
56. I have another person (e.g., friend) who is willing to interrupt my date (e.g., with a phone call) or pick me up if I feel uncomfortable.	t1s56	1284	+	0.7853	0.6676	1.524437	0.8622

F2 Assertiveness α = 0.81	Item	Obs	Sign	Item-Test Correlation	Item-Rest Correlation	Average Interitem Covariance	Alpha
27. I make sure I have a say in the plans/collaborate with my date on plans for a first date.	t1s27	1280	+	0.8299	0.6624	0.5957209	0.7496
31. I choose my own food/drink to order during a date.	t1s31	1284	+	0.7634	0.6125	0.7425638	0.7777
37. My date and I both play an active collaborative role in making plans for a date.	t1s37	1283	+	0.8206	0.6493	0.6101976	0.7559
52. I make sure I have a say in plans (e.g., sexual behaviors we engage in).	t1s52	1278	+	0.7935	0.6154	0.6590025	0.7722

F3 Self-Protection α = 0.80	Item	Obs	Sign	Item-Test Correlation	Item-Rest Correlation	Average Interitem Covariance	Alpha
14. I have a plan for what self-protective measures I will take if my date becomes violent or sexually aggressive.	t1s14	1281	+	0.769	0.6279	1.393921	0.7518
23. I have learned self-defense skills to protect myself from someone who becomes violent or sexually aggressive.	t1s23	1283	+	0.7034	0.4992	1.468112	0.794
32. I try to be aware of other people around [for the duration of the date] who may be able to help me in case of an emergency.	t1s32	1282	+	0.7763	0.6414	1.384682	0.7476
35. I discuss with my date the concept of equality to prevent any potential power dynamics.	t1s35	1282	+	0.6583	0.4598	1.581907	0.8014
36. I am aware of objects nearby that could be used as weapons in case my date becomes violent or sexually	t1s36	1284	+	0.8397	0.7198	1.20731	0.7186

aggressive (e.g., lamps, keys), for self-protection.

F4 Risk Reduction α = 0.78	Item	Obs	Sign	Item-Test Correlation	Item-Rest Correlation	Average Interitem Covariance	Alpha
8. I do not drink or use any substances on first dates.	t1s8	1280	+	0.7248	0.5344	0.9851188	0.7487
18. I do not have sex on the first date.	t1s18	1283	+	0.7798	0.6229	0.9059956	0.7174
22. I do not kiss on the first date.	t1s22	1281	+	0.6911	0.4938	1.035766	0.7612
30. I do not engage in taking shots of alcohol on the first date.	t1s30	1285	+	0.7455	0.5711	0.9576179	0.7357
60. I go on a first date with intentions of not having sex on the first date.	t1s60	1284	+	0.7179	0.565	1.037608	0.7391

F5 Privacy α = 0.78	Item Obs	Sign	Item-Test Correlation	Item-Rest Correlation	Average Interitem Covariance	Alpha
20. I do not meet my date at my home or their home.	t1s20 1281	+	0.7625	0.5586	1.076031	0.7376
29. I make sure to arrive to the date on my own rather than rely on my date, so I can leave at any time.	t1s29 1283	+	0.7535	0.559	1.112149	0.7369
49. I do not let my date drive me home.	t1s49 1279	+	0.774	0.576	1.044524	0.7269
58. I do not tell my date specifics on where I live.	t1s58 1282	+	0.8102	0.6356	0.9627056	0.6965

Aim 4: Test-Retest Reliability

The SANDI had sufficient test-retest reliability as evidenced by correlations of scores at baseline and one month later at follow-up. Overall scores on the SANDI correlated at 0.74 one month after baseline, indicating acceptable reliability (Statistics How To). By factors, correlations over one month included: Location Sharing = 0.80, Assertiveness = 0.57, Self-Protection = 0.76, Risk Reduction = 0.69, and Privacy = 0.64, see Table 11.

Table 11: Test-Retest reliability

SANDI Total	0.74
Factor 1 Location Sharing	0.80
Factor 2 Assertiveness	0.57
Factor 3 Self-Protection	0.76
Factor 4 Risk Reduction	0.69
Factor 5 Privacy	0.64

Aim 5A: Concurrent Predictive Validity

Sexual Victimization: Concurrent Predictive Validity. When analyzing history of victimization at baseline, logistic regression revealed the SANDI overall is associated with history of victimization, z = 5.91, *p* < 0.001, 95% CI = 0.27, 0.54. When looking at the specific factors within the SANDI, Location Sharing is positively associated with a history of victimization. Risk Reduction is inversely associated with victimization history, these are people who make sure they do not engage in risky behaviors (e.g., "I do not drink or use any substances on first date, I do not have sex on the first date, I do not kiss on the first date, I do not engage in taking shots of alcohol on the first date, I go on a first date with intentions of not having sex on the first date"). Baseline scores of Assertiveness, Self-Protection, and Privacy do not have an association with a history of victimization, see Table 12.

Table 12: Logistic Regression of Victimization History and Baseline SANDI Factors

	Odds Ratio	S. E.	z	*p*	95% C. I.	
Factor 1 Location Sharing	1.88	0.14	8.30	< .001*	1.62	2.18
Factor 2 Assertiveness	1.13	0.10	1.33	0.184	0.94	1.35
Factor 3 Self-Protection	0.94	0.06	-0.99	0.321	0.84	1.06
Factor 4 Risk Reduction	0.65	0.04	-6.45	< .001*	0.57	0.74
Factor 5 Privacy	1.04	0.09	0.48	0.634	0.89	1.22
Constant	0.17	0.06	-4.61	< .001	0.08	0.35

History of Risky Sexual Behaviors: Concurrent Predictive Validity. At baseline, complimentary logistic regression analysis revealed a significant association between history of risky sexual behavior and baseline SANDI total score, indicating individuals with a history of risky sexual behaviors engage in more dating and sexual protective behaviors than individuals without a history of risky sexual behaviors, see Table 13.

Table 13: Complimentary Log of Risky Sexual Behaviors at Baseline SANDI Total

	Coef.	S. E.	z	p	95% C. I.	
Time 1 SANDI	-0.11	0.05	-2.07	0.039*	-0.21	-0.01
Constant	-0.67	0.25	-2.70	0.007	-1.15	-0.18

Additionally, at baseline, individuals with a history of risky sexual behaviors endorse significantly more use Location Sharing, Assertiveness, and Risk Reduction factors of the SANDI at baseline, as seen in Table 14, via complimentary logistic regression.

Table 14: Complimentary Logistic Regression of History of Risky Sexual Behaviors and Baseline SANDI Factors

	Coef	S. E.	z	p	95% C. I.	
Factor 1 Location Sharing	0.29	0.07	4.10	< .001*	0.15	0.43
Factor 2 Assertiveness	0.20	0.07	2.63	0.008*	0.05	0.34
Factor 3 Self-Protection	-0.06	0.05	-1.10	0.271	-0.16	0.05
Factor 4 Risk Reduction	-0.53	0.05	-9.77	< .001*	-0.64	-0.42
Factor 5 Privacy	-0.05	0.07	-0.65	0.517	-0.19	0.09
Constant	-0.69	0.28	-2.47	0.014	-1.23	-0.14

History of Regretted Sexual Experiences: Concurrent Predictive Validity. At baseline, complimentary logistic regression analysis revealed a significant association between history of regretted sexual experiences and baseline SANDI total score, indicating individuals with a history of sexual regret engage in more dating and sexual protective behaviors than individuals without a history of sexual regret, see Table 15.

Table 15: Logistic Regression of Regretted Sexual Experiences and Baseline SANDI Total

	Coef.	S. E.	z	p	95% C. I.	
Time 1 SANDI	0.16	0.06	2.50	0.012*	0.03	0.29
Constant	-0.55	0.30	-1.85	0.064	-1.14	0.03

Similarly, at baseline, individuals with a history of regretted sexual experiences endorse significantly more use of Location Sharing, Assertiveness, and Risk Reduction factors of the SANDI at baseline, as seen in Table 16, via complimentary logistic regression.

Table 16: Logistic Regression of History of Regretted Sexual Experiences and Baseline SANDI Factors

	Coef	S. E.	z	p	95% C. I.	
Factor 1 Location Sharing	0.26	0.07	3.90	$< .001^*$	0.13	0.40
Factor 2 Assertiveness	0.35	0.09	4.03	$< .001^*$	0.18	0.51
Factor 3 Self-Protection	-0.04	0.06	-0.67	0.505	-0.16	0.08
Factor 4 Risk Reduction	-0.46	0.07	-6.97	$< .001^*$	-0.60	-0.33
Factor 5 Privacy	0.03	0.08	0.36	0.718	-0.13	0.18
Constant	-0.61	0.36	-1.69	0.091	-1.31	0.10

Aim 5B: Prospective Predictive Validity

Sexual Victimization: Prospective Predictive Validity. To examine prospective unwanted sexual experiences at follow up (one month after baseline), a logistic regression model was originally conducted, controlling for biological sex and victimization history. However, victimization history was removed due to high multicollinearity with victimization at one-month follow-up.

When it comes to prospective victimization within one month, the Risk Reduction factor of the SANDI had the strongest association. The more individuals protected against risky behaviors (e.g., not drinking or using any substances on first dates, not having sex on the first date, not kissing on the first date, not engaging in taking shots of alcohol on the first date and going on a first date with intentions of not having sex on the first date), the lower likelihood they had of experiencing an unwanted sexual experience within that month. These findings hold true regardless of whether or not robust standard errors are utilized, see Table 17.

Table 17: Logistic Regression of Unwanted Sexual Experiences at 1-Month and Baseline SANDI Factors

	Coef	S. E.	z	p	95% C. I.	
Biological Sex	-1.38	0.40	-3.45	.001	-2.16	-0.59
Factor 1 Location Sharing	0.12	0.16	0.75	0.451	-0.19	0.43
Factor 2 Assertiveness	0.11	0.18	0.33	0.744	-0.29	0.41
Factor 3 Self-Protection	0.06	0.12	-0.13	0.900	-0.24	0.21
Factor 4 Risk Reduction	-0.36	0.13	-2.80	0.005*	-0.60	-0.11
Factor 5 Privacy	0.22	0.17	1.29	0.196	-0.11	0.54
Constant	-0.16	0.90	-0.17	0.861	-1.93	1.61

Collectively, while controlling for biological sex, the SANDI is not associated with victimization over the following thirty days from baseline, see Table 18. Having more time to assess (e.g., 6 months to a year) would give a fuller picture of how protective the SANDI really is. However, in the short-term, utilization of Risk Reduction is protective over 30-days.

Table 18: Logistic Regression of Unwanted Sexual Experiences at 1-Month and total SANDI

	Odds Ratio	S. E.	z	p	95% C. I.	
Biological Sex	-1.47	0.37	-4.01	< .001	-2.18	-0.75
Time 1 SANDI	0.03	0.16	0.21	0.833	-0.28	0.35
Constant	-0.20	0.79	-0.25	0.805	-1.74	1.35

Risky Sexual Behaviors: Prospective Predictive Validity. Complimentary logistic models account for skewed distribution in the logit due to low base rate ($n = 65$) of nonzero outcomes (20% of the $n = 333$ sample of participants who completed time 2). In general, the SANDI total score is associated with a decreased likelihood of engaging in risky sexual behaviors.

Table 19: Complimentary Log of Risky Sexual Behaviors at 1-Month SANDI Total

	Coef.	S. E.	z	p	95% C. I.	
Time 1 SANDI	-0.22	0.11	-2.00	.045*	-0.44	-0.01
Constant	-0.50	0.52	-0.95	.343	-1.52	0.53

This model is driven primarily by the Risk Reduction factor. Self-protection had a modest effect.

Table 20: Complimentary Log of Risky Sexual Behaviors at 1-Month by Factors

	Coef.	S. E.	z	p	95% C. I.	
Factor 1 Location Sharing	0.12	0.15	0.76	.447	-0.18	0.42
Factor 2 Assertiveness	0.22	0.16	1.35	.176	-0.10	0.54
Factor 3 Self-Protection	-0.22	0.13	-1.79	.074	-0.47	0.02
Factor 4 Risk Reduction	-0.42	0.11	-3.71	< .001*	-0.64	-0.20
Factor 5 Privacy	0.12	0.17	0.69	.490	-0.21	0.44
Constant	-0.92	0.64	-1.44	.149	-2.17	0.33

Regretted Sexual Experiences: Prospective Predictive Validity. By looking at this model logistically, whether or not individuals had a regretted sexual experience in the past month was examined. Complimentary logistic models account for skewed distribution in the logit due to few nonzero outcomes (10% of the $n = 333$ sample of participants who completed time 2). No significant associations were observed between sexual regret and total SANDI score at one-month follow-up.

Table 21: Skewed Logistic Regression of Regretted Sexual Experiences at 1-Month SANDI Total

	Coef.	S. E.	z	p	95% C. I.	
Time 1 SANDI	-0.91	3.40	-0.27	.789	-7.57	5.76
Constant	5.74	28.1	0.20	.838	-49.33	60.82

No significant differences were observed for sexual regret across the five factors either at one-month follow-up.

Table 22: Complimentary Log of Regretted Sexual Experiences at 1-Month by Factors

	Coef.	S. E.	z	p	95% C. I.	
Factor 1 Location Sharing	-0.01	0.22	-0.01	.991	-0.44	0.44
Factor 2 Assertiveness	0.35	0.25	1.36	.174	-0.15	0.84
Factor 3 Self-Protection	0.05	0.26	0.18	.858	-0.47	0.56
Factor 4 Risk Reduction	-0.18	0.21	-0.84	.398	-0.58	0.23
Factor 5 Privacy	-0.44	0.31	-1.41	.158	-1.05	0.17
Constant	-1.40	1.43	-0.98	.326	-4.21	1.40

Social Desirability

A small correlation at baseline exists with mean social desirability scores and baseline Factor 4, Risk Reduction ($r(1143) = 0.07$, $p = 0.022$). While this is statistically significant, the effect is quite low. This may be expected when talking about risky behaviors. There are some social desirability effects with risky behaviors which indicates some under-reporting of risky behavior PBS.

CHAPTER 4: DISCUSSION

The Sexual and Negative Dating Inventory (SANDI) is a new measure of dating and sexual protective behaviors. This measure provides a five-factor structure of protective behaviors that can serve as targets for future intervention research: 1) Location Sharing, 2) Assertiveness, 3) Self-Protection, 4) Risk Reduction, and 5) Privacy.

Psychometric Properties of the SANDI

Regarding psychometric properties of the SANDI, ESEM of a five-factor model showed adequate fit to the data. Through analyzing convergent and divergent validity, the SANDI revealed itself to be a better assessment of both dating and sexual protective behaviors due to low correlations with the previous measures of dating and sexual PBS and alcohol PBS. While the SANDI and PBSS-20 are weakly correlated, they measure distinct constructs/strategies (alcohol versus dating/sexual behaviors). Overall scores on the SANDI correlated at 0.74 one month after baseline, indicating acceptable reliability (Statistics How To).

Discussion on Differential Functioning: Considerations on Issues of Diversity

In line with the innate differences across gender and sexual orientation that come with sexual health research, items functioned differently across different demographic groups. Broadly, individuals who do not identify as heterosexual, male, or as men endorsed higher use of dating and sexual protective behaviors. The current study found gender and sexual minority respond differently to certain items. For example, questions regarding relationship dynamics such as, "I make it a point to verbally express what my expectations are to my date (regarding money, transportation, intimacy), with the goal of reducing potential power dynamics," and "I discuss with my date the concept of equality to prevent any potential power dynamics" assess and take into consideration power dynamics within the relationship. Individuals who identify as a

sexual or gender minority may respond differently to items such as these on the SANDI, given the potential differences (or equilibrium) in *power* experienced in gender and sexual minority relationships. Given the nature of sexual health research (with the fact that sex can be experienced with individuals of any gender) it is expected that *benign* DIF will innately exist when responding to protective behaviors related to dating and sex.

While no differences were observed for race (i.e., White, Black, American Indian/Alaskan Native, Asian, Native Hawaiian Pacific Islander, Multi-race or other), potential differences still need to be considered for individuals from racially diverse backgrounds. As an example, for an interracial couple, the item "I discuss my personal values with my date," needs to be considered, since it is possible the individuals have different experiences of values and intergenerational histories. In addition, individuals from lower socioeconomic status should be considered for particular items such as "I ensure that I have the resources (e.g., money) to get out of a situation quickly (e.g., order a car-share service, public transportation)" and "I give a friend a key to my house/car so that they can access it if necessary." Overall, these findings highlight the importance of 1) including underrepresented populations in research studies and 2) understanding how diverse populations differ across dimensions of gender, sexual orientation, and race. These considerations should be made when giving individuals this measure in a clinical setting, especially in regard to age, developmental disability, acquired disability, religion, ethnicity, sexual orientation, socioeconomic status, indigenous group membership, nationality and gender (Hays, 2009).

It needs to be considered that cultural values impact and shape individual's conceptualizations of sex, and therefore responses to sexual assault. This includes considering cultural beliefs regarding individual's sexuality and appropriate behaviors for individuals such as drinking alcohol and engaging in casual sexual behavior (Bryant-Davis et al., 2009). Thus, race

plays a large role in individual's perceptions of and responses to sex, which in turn has a large influence over potential health risk behaviors.

It has been highlighted that a careful assessment of health risk behaviors among victims of sexual assault needs to be conducted by practitioners, and that they need to be made aware of differences in risk factors and motives of individuals of various racial backgrounds (Littleton et al., 2013). Educating oneself on the nuances across cultures is important but is very rarely enough to fully understand what an individual may be experiencing. Thus, the importance of education, advocacy, and policy change is crucial in situations where individuals experience injustice, either sexually, or in any form.

Discussion on Associations with Adverse Sexual Outcomes

Regarding retrospective associations with adverse sexual outcomes, total baseline SANDI scores are associated with history of sexual victimization, history of risky sexual behavior, and history of regretted sexual experiences. Individuals with a history of risky sexual behaviors engage in more dating and sexual protective behaviors than individuals without a history of risky sexual behaviors. At baseline, the Risk Reduction and Location Sharing factors had the strongest association for history of all three adverse sexual outcomes. Therefore, individuals with this history endorsed more use of both Risk Reduction, (e.g., not drinking or using any substances on first dates, not having sex on the first date, not kissing on the first date, not engaging in taking shots of alcohol on the first date and going on a first date with intentions of not having sex on the first date), and Location Sharing, (e.g., keeping my location 'on' and shared with another person when on a date) dating and sexual protective behaviors at baseline. For history of both risky sexual behaviors and sexual regret, the assertiveness factor was also significantly higher, (e.g., having a say in the plans/collaborate with a date on plans for a first date).

Regarding one-month associations with adverse sexual outcomes, the SANDI total score is not associated with victimization over the following thirty days from baseline. The strongest outcome for prospective victimization was the Risk Reduction factor. The more individuals protected against risky behaviors, the lower likelihood they had of experiencing an unwanted sexual experience within that month. Regarding risky sexual behaviors, the SANDI total score was associated with a decreased likelihood of engaging in risky sexual behaviors at one-month follow-up. No significant associations were observed between sexual regret and total SANDI score at one-month follow-up. Having more time to assess (e.g., 6 months to a year) would give a fuller picture of how protective the SANDI really is. However, in the short-term, utilization of Risk Reduction is protective over 30-days.

Previous research on the relationship between sexual PBS and sexual violence is mixed. One study found that individuals with histories of sexual assault were less likely to use PBS than those without sexual assault histories (Breitenbecher, 2008). Studies conducted prior to that found no relationship between sexual PBS and sexual assault (Hickman & Muehlenhard, 1997; Moore & Waterman, 1999). These studies were, however, largely cross-sectional in nature. In addition, the definition of sexual assault (forced or incapacitated oral, anal or vaginal intercourse) varied across studies, which excluded those who experienced unwanted sexual contact and sexual coercion. The measure of sexual assault severity did not account for multiple victimizations through multiple tactics (Davis et al., 2014).

One study examined use of sexual PBS, which was negatively correlated with incapacitated, attempted, or completed rape, use of alcohol before sex, and sexual assault severity (Gilmore et al., 2015). In a subsequent study, use of sexual PBS at baseline was correlated with less severe sexual assault victimization after a three-month follow-up (Gilmore et

al., 2018). Another study found that, as participants drink more, they engage in more sexual PBS, which is notable considering heavy drinking is a risk factor for sexual assault in college women (Abbey et al., 2012; Abbey et al., 2004; Sell et al., 2018). Despite promising findings, further research is needed to fully understand the possibility of sexual and dating PBS as effective protective behaviors, and how to integrate these strategies within adverse sexual outcome prevention programs. In fact, Gilmore et al., (2018) put forth a call for future research to create a revised DSPARS with more college-specific sexual assault PBS items.

Ethical Considerations

Being asked to provide information on adverse sexual outcomes and engagement in behaviors such as risky sexual and substance use behaviors can be distressing for individuals. For the purposes of the current study, crisis intervention resources were provided to participants in real time while the survey was being completed. The University of Central Florida IRB approved the current study (STUDY00002621) to utilize the following language when resources were provided to participants: *"ATTENTION: This survey contains questions about alcohol and drug use, and personal questions about dating and sexual behaviors. Due to the sensitivity of the subject, if at any time during the survey you feel uncomfortable please stop and close the survey. If you are experiencing negative emotions and would like to talk to someone about these issues, you are encouraged to contact the UCF Counseling and Psychological Services Crisis Line and office 407-823-2811; Press #5 to be immediately connected to a licensed therapist) or UCF CARES program 407-823-5607. You may also contact the National Suicide Prevention Lifeline at 1-800-273-8255 (http://suicidepreventionlifeline.org/) or the National Sexual Assault Hotline at 1-800-656-4673 (http://www.rainn.org/get-help/national-sexual-assault-hotline). If you*

choose to seek treatment from a provider who charges for their services, it is your responsibility

to pay for these services."

While all individuals have the right to decide what is and is not distressing to them, previous research has found that surveys on trauma and sex pose minimal risk to participants (Yeater et al., 2012). What Yeater et al., (2012) found was that many IRB committees have potentially underestimated the maturity and resilience of current day college students in the United States. Considering college students have grown up watching distressing media including TV personalities (e.g., daytime talk show hosts) that discuss sexual abuse, rape, and mental illness, and watch TV shows that depict graphic levels of sex, violence, and trauma (e.g., *Criminal Minds*), questionnaires that inquire about "sensitive" topics such as sexual behaviors indeed pose minimal risk to college student participants of research (Yeater et al., 2012).

Limitations

The current study is not without its limitations. Because the SANDI is in its early stages of development and findings of the current study cannot be generalized, further evaluation will be needed with a diverse group of students, as well as other populations such as community samples and veterans. Analysis of findings in this study should be conducted among various groups including individuals who identify as racial, sexual, and gender minorities. While the number of participants in the current sample was sufficient, given the low base rate of adverse sexual outcomes, a much larger sample would provide more opportunity to observe impact of dating and sexual protective behaviors on negative outcomes.

While a follow-up time-frame of four weeks allowed for temporal analyses of the relationship between protective behaviors and adverse outcomes, and is appropriate for measurement development including test-retest analyses, it remains unclear if the SANDI has

incremental validity above other measures of sexual and dating PBS. In addition, a greater timeframe (more than one-month) would allow for potentially more opportunity of capturing adverse outcomes. However, the SANDI outperformed most other dating and sexual PBS measures in the prediction of victimization history, proving this inventory is a necessary update to other protective behavioral strategy measures in the field.

Areas for Future Research

Further research is needed to identify clinical cut-off scores for the SANDI. Instructions of the SANDI are as follows: *Below is a list of general statements in regard to dating and sexual behaviors. Rate each statement using the below response ranges (0 = Never to 5 = Always). Indicate how true each statement is, according to what really reflects your experiences. Remember there are no right or wrong answers.* With 24 items, the total score of the SANDI could range from '0' to '120.' Response descriptors include: 0 = Never, 1 = Rarely, 2 = Occasionally, 3 = Sometime, 4 = Usually, and 5 = Always. Thus, it can be posited that a score of '120' indicates *always* using PBS when engaging in dating and sexual behaviors. Further research on what a score signifies or indicates, clinically and behaviorally, is needed.

Implementation work needs to be done to assess college student interest in engaging in a dating and sexual PBS intervention as well as their receptivity to in-person and app-administered intervention approaches to address dating and sexual PBS. Interest in daily feedback pertaining to PBS would provide valuable information that could provide information on the feasibility of using Ecological Momentary Assessment and daily feedback to deliver daily intervention on dating and sexual PBS. This would provide information on how dating and sexual protective behaviors can be taught in an intervention for college students designed to mitigate risk for sexual assault, sexual risk, and regretted sex.

Clinical Implications and Conclusion

The Sexual and Negative Dating Inventory (SANDI) is an acceptable measure of sexual and dating protective behaviors that incorporates contemporary language and components of modern dating, including the use of social media, online dating apps, and location sharing services via smart technology. The five-factors of the SANDI include: 1) Location Sharing, 2) Assertiveness, 3) Self-Protection, 4) Risk Reduction, and 5) Privacy. These factors provide specific details that inform treatment targets for individuals who either have a history of or are at risk of experiencing adverse sexual outcomes. A great need exists to evaluate the assault experiences of racially diverse individuals, as well as the impact of the assault on their post-assault experiences including health risk behaviors and psychological adjustment (Littleton et al., 2013). Sexual violence occurs because a perpetrator initiated the event, not because the survivor of the sexual violence did anything to provoke them. Being the survivor of a sexual assault is never the fault of the survivor. All individuals who experience adverse sexual outcomes deserve to be treated with compassion and empathy.

APPENDIX A: FIGURES
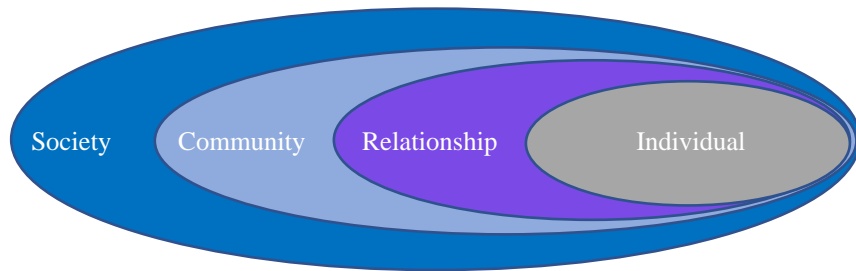
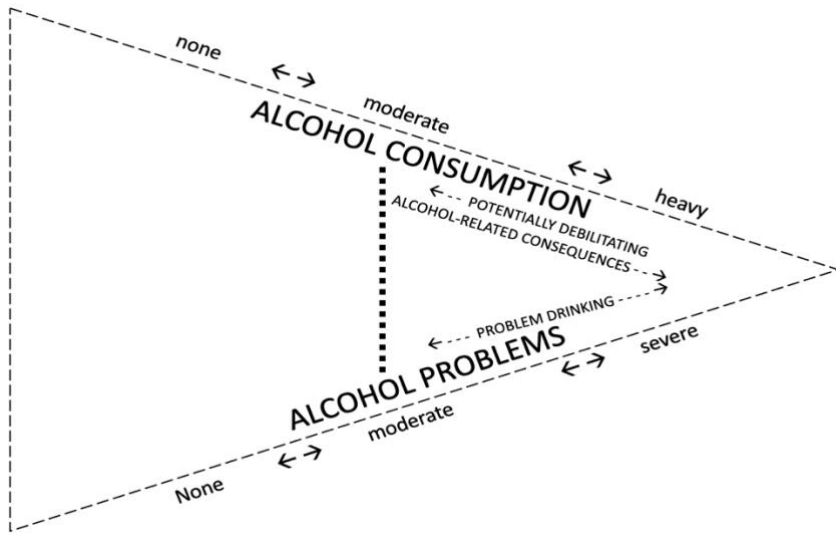*Figure 1* The Social-Ecological Model: A Framework for Prevention

Figure 2 Original Harm Reduction Framework

Adapted from *Marlatt, G. A. (1998). Harm reduction: Pragmatic strategies for managing high-risk behaviors. New York, NY, USA: Guilford Press*
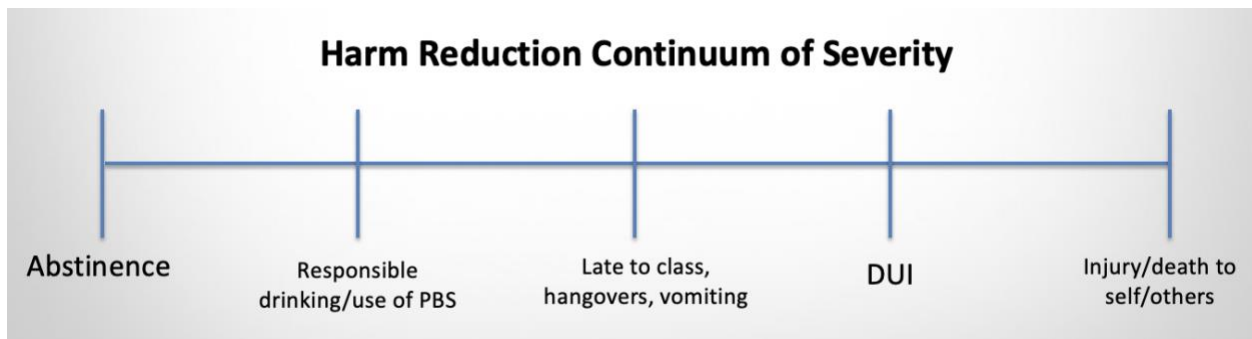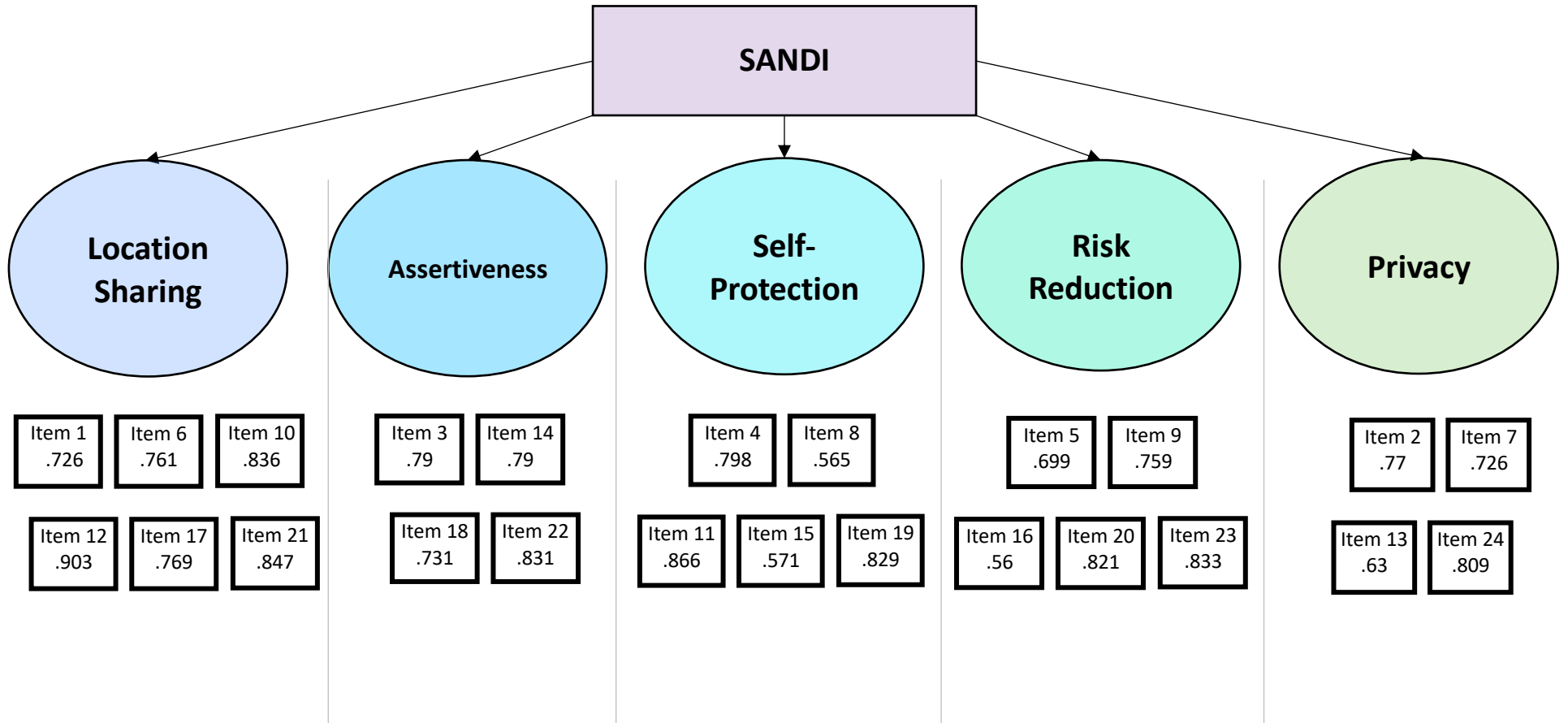

Figure 3 Harm Reduction Continuum of Severity

Figure 4 SANDI Factors Full Sample CFA

APPENDIX B: IRB APPROVAL

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

<u>EXEMPTION DETERMINATION</u>

January 8, 2021

Dear Roselyn Peterson:

On 1/8/2021, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Initial Study
Title:	Assessment of Sexual Protective Behavioral Strategies: Development of the Sexual and Negative Dating Inventory (SANDI)
Investigator:	Roselyn Peterson
IRB ID:	STUDY00002621
Funding:	Name: University of Central Florida Research Foundation, Inc.
Grant ID:	
Documents Reviewed:	• RosieDiss FacultyAdvisorReview form, Category: Faculty Research Approval; • Clarification Requested 1.7.2021 RP responses, Category: Other; • Notice of UCFDocResearchAward 12.18.20, Category: Sponsor Attachment; • RosieDiss Explanation of Research Phase 1 V2, Category: Consent Form; • RosieDiss Explanation of Research Phase 2 V2, Category: Consent Form; • RosieDiss MassEmailScript 1.7.21 V3, Category: Recruitment Materials; • RosieDiss Phase2 EmailScript 1.7.21 V2, Category: Recruitment Materials; • RosieDiss Physical Flyer 1.7.21 V3, Category: Recruitment Materials; • RosieDiss RequestForExemption 1.7.21 V3, Category: IRB Protocol; • RosieDiss SocialMedia Blurb 1.7.21 V2, Category: Recruitment Materials; • RosieDissertationQualtricsPhase1 V2, Category: Survey / Questionnaire; • RosieDissertationQualtricsPhase2 V2, Category: Survey / Questionnaire; • Standard Operating Procedures for Studies with Personally Identifiable Information, Category: Other

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Katie Kilgore
Designated Reviewer

Appendix 2: IRB Approval

REFERENCES

Abbey, A. (2002). Alcohol-related sexual assault: a common problem among college students. *Journal of Studies on Alcohol and Drugs Supplement*(14), 118-128. https://doi.org/10.15288/jsas.2002.s14.118

Abbey, A., Wegner, R., Pierce, J., & Jacques-Tiura, A. J. (2012). Patterns of Sexual Aggression in a Community Sample of Young Men: Risk Factors Associated with Persistence, Desistance, and Initiation Over a One Year Interval. *Psychology of Violence*, *2*(1), 1-15. https://doi.org/10.1037/a0026346

Abbey, A., Zawacki, T., Buck, P. O., Clinton, A. M., & McAuslan, P. (2004). Sexual assault and alcohol consumption: what do we know about their relationship and what types of research are still needed? *Aggressive & Violent Behaviors*, *9*(3), 271-303. https://doi.org/10.1016/S1359-1789(03)00011-9

Alteristic. (Last accessed Dec. 31, 2020). *Green Dot*. https://alteristic.org/services/green-dot/

Anderson, M., A., V. E., & Turner, E. (2020). The Virtues and Downsides of Online Dating. *Pew Research Center*. https://doi.org/https://www.pewresearch.org/internet/2020/02/06/users-of-online-dating-platforms-experience-both-positive-and-negative-aspects-of-courtship-on-the-web/

Black, M. C., Basile, K. C., Breiding, M. J., Smith, S. G., Walters, M. L., Merrick, M. T., Chen, J., & Stevens, M. R. (2010). *The National Intimate Partner and Sexual Violence Survey (NISVS)*.

Borsari, B., & Carey, K. B. (2001). Peer influences on college drinking: a review of the research. *Journal of Substance Abuse*, *13*(4), 391-424. https://doi.org/10.1016/s0899-3289(01)00098-0

Borsari, B., & Carey, K. B. (2003). Descriptive and injunctive norms in college drinking: a meta-
analytic integration. *Journal of Studies on Alcohol*, *64*(3), 331-341.
https://doi.org/10.15288/jsa.2003.64.331

Brahms, E., Ahl, M., Reed, E., & Amaro, H. (2011). Effects of an alcohol intervention on
drinking among female college students with and without a recent history of sexual
violence. *Addictive Behaviors*, *36*(12), 1325-1328.
https://doi.org/10.1016/j.addbeh.2011.07.018

Breitenbecher, K. H. (2008). The convergent validities of two measures of dating behaviors
related to risk for sexual victimization. *Journal of Interpersonal Violence*, *23*(8), 1095-
1107. https://doi.org/10.1177/0886260507313974

Breslau, J., Lane, M., Sampson, N., & Kessler, R. C. (2008). Mental disorders and subsequent
educational attainment in a US national sample. *Journal of Psychiatric Research*, *42*(9),
708-716. https://doi.org/10.1016/j.jpsychires.2008.01.016

Brown, J. L., & Vanable, P. A. (2007). Alcohol use, partner type, and risky sexual behavior
among college students: Findings from an event-level study. *Addictive Behaviors*, *32*(12),
2940-2952. https://doi.org/10.1016/j.addbeh.2007.06.011

Bryant-Davis, T., Chung, H., & Tillman, S. (2009). FROM THE MARGINS TO THE CENTER:
Ethnic Minority Women and the Mental Health Effects of Sexual Assault. *Trauma,
Violence, & Abuse*, *10*(4), 330-357. https://doi.org/10.1177/1524838009339755

Buhi, E. R., Marhefka, S. L., & Hoban, M. T. (2010). The State of the union: sexual health
disparities in a national sample of US college students. *Journal of American College
Health*, *58*(4), 337-346. https://doi.org/10.1080/07448480903501780

Bush, H. M., Coker, A. L., DeGue, S., Clear, E. R., Brancato, C. J., & Fisher, B. S. (2019). Do

Violence Acceptance and Bystander Actions Explain the Effects of Green Dot on

Reducing Violence Perpetration in High Schools? *Journal of Interpersonal Violence*,

36(21-22). https://doi.org/https://doi.org/10.1177/0886260519888206

Center for Disease Control and Prevention. (2017). *Health-related behaviors and academic

achievement among high school students*.

Center for Disease Control and Prevention. (January 17, 2020). *Sexual Violence*.

https://www.cdc.gov/violenceprevention/sexualviolence/index.html

Center for Disease Control and Prevention. (January 28, 2020). *Rape Prevention and Education*.

https://www.cdc.gov/violenceprevention/sexualviolence/rpe/index.html

Center for Disease Control and Prevention. (September 21, 2020). *Why Schools? Schools: The

Right Place for a Healthy Start. Division of Adolescent and School Health, National

Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention*.

https://www.cdc.gov/healthyyouth/about/why_schools.htm

Center for Disease Control and Prevention (CDC). (2019). *Morbidity and Mortality Weekly

Report Youth Risk Behavior Surveillance*.

https://www.cdc.gov/healthyyouth/data/yrbs/pdf/2019/su6901-H.pdf

Cerwonka, E. R., Isbell, T. R., & Hansen, C. E. (2000). Psychosocial factors as predictors of

unsafe sexual practices among young adults. *AIDS Education and Prevention*, *12*(2), 141-

153. https://www.ncbi.nlm.nih.gov/pubmed/10833039

Collins, S. E., Clifasefi, S. L., Logan, D. E., Samples, L. S., Somers, J. M., & Marlatt, G. A.

(2012). Current status, historical highlights, and basic principles of harm reduction. In G.

A. Marlatt (Ed.), *Harm reduction: Pragmatic strategies for managing high-risk behaviors* (2nd ed., pp. 3-35). Guilford Press.

Connolly, T., & Zeelenberg, M. (2002). Regret in decision making. *Current Directions in Psychological Science*, *11*(6), 212-216. https://doi.org/https://doi.org/10.1111/1467-8721.00203

Coulter, R. W. S., & Rankin, S. R. (2020). College Sexual Assault and Campus Climate for Sexual- and Gender-Minority Undergraduate Students. *Journal of Interpersonal Violence*, *35*(5-6), 1351-1366. https://doi.org/10.1177/0886260517696870

Creamer, M., Burgess, P., & McFarlane, A. C. (2001). Post-traumatic stress disorder: findings from the Australian National Survey of Mental Health and Well-being. *Psychological Medicine*, *31*(7), 1237-1247. https://doi.org/10.1017/s0033291701004287

Cullen, F., Fisher, B., & Turner, M. (2000). *The sexual victimization of college women (NCJ 182369)*. https://www.ncjrs.gov/pdffiles1/nij/182369.pdf

Dahlberg, L. L., & Krug, E. G. (2002). Violence-a global public health problem. In M. J. D. L. Krug E, Zwi AB, Lozano R (Ed.), *World Report on Violence and Health (pp. 1–56.)*. World Health Organization.

Davis, K. C., Gilmore, A. K., Stappenbeck, C. A., Balsan, M. J., George, W. H., & Norris, J. (2014). How to score the Sexual Experiences Survey? A comparison of nine methods. *Psychology of Violence*, *4*(4), 445–461. https://doi.org/https://doi.org/https://doi.org/10.1037/a0037494

Dermen, K. H., & Thomas, S. N. (2011). Randomized controlled trial of brief interventions to reduce college students' drinking and risky sex. *Psychology of Addictive Behaviors*, *25*(4), 583-594. https://doi.org/10.1037/a0025472

Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1999). *Brief alcohol screening and intervention for college students (BASICS): A harm reduction approach*. The Guilford Press.

Dvorak, R. D., Leary, A. V., Peterson, R., Kramer, M. P., Pinto, D., & Dunn, M. E. (2020). Prevention of alcohol-related harms among college students: Past issues and future directions. In B. Fielder (Ed.), *Three Facets of Public Health and Paths to Improvements*. Elsevier Academic Press.

Echevarria, S. G., Peterson, R., & Woerner, J. (In press). College students' experiences of dating app facilitated sexual violence and associations with mental health symptoms and well-being. *Journal of Sex Research*. https://doi.org/http://dx.doi.org/10.31234/osf.io/y6uka

Fisher, B. S., Cullen, F. T., & Turner, M. G. (2000). *The sexual victimization of college women*. https://www.ncjrs.gov/pdffiles1/nij/182369.pdf

Fisher, B. S., Daigle, L. E., Cullen, F. T., & Turner, M. G. (2003). Reporting sexual victimization to the police and others - Results from a national-level study of college women. *Criminal Justice and Behavior*, *30*(1), 6-38. https://doi.org/https://doi.org/http://dx.doi.org/10.1177/0093854802239161

Freeman, D., Loe, B. S., Kingdon, D., Startup, H., Molodynski, A., Rosebrock, L., Brown, P., Sheaves, B., Waite, F., & Bird, J. C. (2021). The revised Green et al., Paranoid Thoughts Scale (R-GPTS): psychometric properties, severity ranges, and clinical cut-offs. *Psychological Medicine*, *51*(2), 244–253. https://doi.org/http://dx.doi.org/10.1017/S0033291719003155

Gidycz, C. A., Van Wynsberghe, A., & Edwards, K. M. (2008). Prediction of women's utilization of resistance strategies in a sexual assault situation: a prospective study.

Journal of Interpersonal Violence, *23*(5), 571-588.

https://doi.org/10.1177/0886260507313531

Gilmore, A. K., Lewis, M. A., & George, W. H. (2015). A randomized controlled trial targeting

alcohol use and sexual assault risk among college women at high risk for victimization.

Behaviour Research and Therapy, *74*, 38-49. https://doi.org/10.1016/j.brat.2015.08.007

Gilmore, A. K., Maples-Keller, J. L., Pinsky, H. T., Shepard, M. E., Lewis, M. A., & George, W.

H. (2018). Is the use of protective behavioral strategies associated with college sexual

assault victimization? A prospective examination. *Journal of Interpersonal Violence*,

33(17), 2664–2681.

https://doi.org/https://doi.org/https://doi.org/10.1177/0886260516628808

Gilovich, T., & Medvec, V. H. (1995). The experience of regret: what, when, and why.

Psychological Review, *102*(2), 379-395.

https://doi.org/https://doi.org/http://dx.doi.org/10.1037/0033-295x.102.2.379

Grello, C. M., Welsh, D. P., & Harper, M. S. (2006). No strings attached: the nature of casual sex

in college students. *Journal of Sex Research*, *43*(3), 255-267.

https://doi.org/10.1080/00224490609552324

Gross, A. M., Winslett, A., Roberts, M., & Gohm, C. L. (2006). An examination of sexual

violence against college women. *Violence Against Women*, *12*(3), 288-300.

https://doi.org/10.1177/1077801205277358

Hanson, K. A., & Gidycz, C. A. (1993). Evaluation of a sexual assault prevention program.

Journal of Consulting and Clinical Psychology, *61*(6), 1046-1052.

https://doi.org/10.1037//0022-006x.61.6.1046

Hays, P. A. (2009). Integrating evidence-based practice, cognitive–behavior therapy, and

multicultural therapy: Ten steps for culturally competent practice. *Professional

Psychology: Research and Practice*, *40*(4), 354–360.

https://doi.org/https://doi.org/10.1037/a0016250

Hess, A., & Flores, C. (2018). Simply more than swiping left: A critical analysis of toxic

masculine performances on Tinder nightmares. *New Media & Society*, *20*(3), 1085–1102.

https://doi.org/https://doi.org/10.1177/1461444816681540

Hickman, S. E., & Muehlenhard, C. L. (1997). College women's fears and precautionary

behaviors relating to acquaintance rape and stranger rape. *Psychology of Women

Quarterly*, *21*(4), 527–547. https://doi.org/https://doi.org/10.1111/j.1471-

6402.1997.tb00129.x

Hill, C., & Silva, E. (2005). *Drawing the line: Sexual harassment on campus*.

http://www.aauw.org/files/2013/02/drawing-the-line-sexual-harassment-on-campus.pdf

Hingson, R., Heeren, T., Winter, M., & Wechsler, H. (2005). Magnitude of alcohol-related

mortality and morbidity among U.S. college students ages 18-24: changes from 1998 to

2001. *Annual Review of Public Health*, *26*, 259-279.

https://doi.org/10.1146/annurev.publhealth.26.021304.144652

Hingson, R. W., Heeren, T., Zakocs, R. C., Kopstein, A., & Wechsler, H. (2002). Magnitude of

alcohol-related mortality and morbidity among U.S. college students ages 18-24. *Journal

of Studies on Alcohol*, *63*(2), 136-144. https://doi.org/10.15288/jsa.2002.63.136

Hingson, R. W., Zha, W., & Weitzman, E. R. (2009). Magnitude of and trends in alcohol-related

mortality and morbidity among U.S. college students ages 18-24, 1998-2005. *Journal of

Studies on Alcohol Supplement*(16), 12-20. https://doi.org/10.15288/jsads.2009.s16.12

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55. https://doi.org/http://dx.doi.org/10.1080/10705519909540118

Hurlbut, S. C., & Sher, K. J. (1992). Assessing alcohol problems in college students. *Journal of American College Health*, *41*(2), 49–58. https://doi.org/https://doi.org/10.1080/07448481.1992.10392818

Jaffe, A. E., Cero, I., & DiLillo, D. (2021). The #MeToo Movement and Perceptions of Sexual Assault: College Students' Recognition of Sexual Assault Experiences Over Time. *Psychological Violence*, *11*(2), 209-218. https://doi.org/10.1037/vio0000363

Kaly, P. W., Heesacker, M., & Frost, H. M. (2002). Collegiate alcohol use and high-risk sexual behavior: A literature review. *Journal of College Student Development*, *43*(6), 838–850.

Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *Journal of Traumatic Stress*, *26*(5), 537-547. https://doi.org/10.1002/jts.21848

King, M. F., & Bruner, G. C. (2000). Social desirability bias: A neglected aspect of validity testing. *Psychology & Marketing*, *17*(2), 79-103.

Koss, M. P., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, C., Ullman, S., West, C., & White, J. (2007). Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. *Psychology of Women Quarterly*, *31*, 357–370. https://doi.org/https://doi.org/10.1111/j.1471-6402.2007.00385.x

Koss, M. P., Gidycz, C. A., & Wisniewski, N. (1987). The scope of rape: incidence and prevalence of sexual aggression and victimization in a national sample of higher

education students. *Journal of Consulting and Clinical Psychology*, *55*(2), 162-170.

https://doi.org/https://doi.org/10.1037//0022-006x.55.2.162

Koss, M. P., Goodman, L. A., Browne, A., Fitzgerald, L. F., Keita, G. P., & Russo, N. G. (1994).

United all women: The fear of rape. In *No safe haven: Male violence against women at*

home, at work, and in the community (pp. 157–176). American Psychological

Association.

Krebs, C. P., Lindquist, C. H., Warner, T. D., Fisher, B. S., & Martin, S. L. (2007). *The Campus*

Sexual Assault (CSA) Study: Final Report.

https://www.ncjrs.gov/pdffiles1/nij/grants/221153.pdf

Larimer, M. E., & Cronce, J. M. (2002). Identification, prevention and treatment: a review of

individual-focused strategies to reduce problematic alcohol consumption by college

students. *Journal of Studies on Alcohol Supplement*(14), 148-163.

https://doi.org/10.15288/jsas.2002.s14.148

Larimer, M. E., Lydum, A. R., Anderson, B. K., & Turner, A. P. (1999). Male and female

recipients of unwanted sexual contact in a college student sample: Prevalence rates,

alcohol use, and depression symptoms. *Sex Roles*, *40*(3-4), 295–308.

https://doi.org/https://doi.org/10.1023/A:1018807223378

Lauckner, C., Truszczynski, N., Lambert, D., Kottamasu, V., Meherally, S., Schipani

McLaughlin, A. M., Taylor, E., & Hansen, N. (2019). "Catfishing," cyberbullying, and

coercion: An exploration of the risks associated with dating app use among rural sexual

minority males. *Journal of Gay & Lesbian Mental Health*, *23*(3), 289–306.

https://doi.org/https://doi.org/10.1080/19359705.2019.1587729

Leigh, B. C., Vanslyke, J. G., Hoppe, M. J., Rainey, D. T., Morrison, D. M., & Gillmore, M. R.

(2008). Drinking and condom use: results from an event-based daily diary. *AIDS and*

Behavior, *12*(1), 104-112. https://doi.org/10.1007/s10461-007-9216-9

Leite, W. L., & Nazari, S. (2017). Marlowe-Crowne Social Desirability Scale. In S. T. Z.-H. V

(Ed.), *Encyclopedia of Personality and Individual Differences*. Springer, Cham.

https://doi.org/https://doi.org/10.1007/978-3-319-28099-8_45-1

Levine-MacCombie, J., & Koss, M. P. (1986). Acquaintance rape: Effective avoidance

strategies. *Psychology of Women Quarterly*, *10*, 311–320.

Lewis, M. A., Kaysen, D. L., Rees, M., & Woods, B. A. (2010). The relationship between

condom-related protective behavioral strategies and condom use among college students:

global- and event-level evaluations. *Journal of Sex Research*, *47*(5), 471-478.

https://doi.org/10.1080/00224490903132069

Lewis, M. A., Logan, D. E., & Neighbors, C. (2009). Examining the Role of Gender in the

Relationship Between Use of Condom-Related Protective Behavioral Strategies when

Drinking and Alcohol-Related Sexual Behavior. *Sex Roles*, *61*(9-10), 727-735.

https://doi.org/10.1007/s11199-009-9661-1

Lipari, R., & Jean-Francois, B. (2013). Trends in Perception of Risk and Availability of

Substance Use Among Full-Time College Students. In *The CBHSQ Report* (pp. 1-12).

https://www.ncbi.nlm.nih.gov/pubmed/27854410

Littleton, H., Axsom, D., & Grills-Taquechel, A. (2009). Sexual assault victims'

acknowledgment status and revictimization risk. *Psychology of Women Quarterly*, *33*(1),

34-42. https://doi.org/https://doi.org/https://doi.org/10.1111/j.1471-6402.2008.01472.x

Littleton, H. L., Grills-Taquechel, A. E., Buck, K. S., Rosman, L., & Dodd, J. C. (2013). Health Risk Behavior and Sexual Assault Among Ethnically Diverse Women. *Psychol Women Q*, *37*(1), 7-21. https://doi.org/10.1177/0361684312451842

Lostutter, T. W., Lewis, M. A., Cronce, J. M., Neighbors, C., & Larimer, M. E. (2014). The use of protective behaviors in relation to gambling among college students. *Journal of Gambling Studies*, *30*(1), 27-46.
https://doi.org/https://doi.org/http://dx.doi.org/10.1007/s10899-012-9343-8

MacDonald, T. K., Zanna, M. P., & Fong, G. T. (1996). Why common sense goes out the window: Effects of alcohol on intentions to use condoms. *Personality and Social Psychology Bulletin*, *22*(8), 763-775.
https://doi.org/https://doi.org/https://doi.org/10.1177/0146167296228001

Marlatt, G. A., Baer, J. S., & Larimer, M. (1995). Preventing alcohol abuse in college students: A harm-reduction approach. In J. H. G. M. B. R. A. Zucker (Ed.), *Alcohol problems among adolescents: Current directions in prevention research* (pp. 147–172). Lawrence Erlbaum.

Marlatt, G. A., & Witkiewitz, K. (2010). Update on harm-reduction policy and intervention research. *Annu Rev Clin Psychol*, *6*, 591-606.
https://doi.org/10.1146/annurev.clinpsy.121208.131438

Martens, M. P., Ferrier, A. G., Sheehy, M. J., Corbett, K., Anderson, D. A., & Simmons, A. (2005). Development of the Protective Behavioral Strategies Survey. *Journal of Studies on Alcohol*, *66*(5), 698-705. https://doi.org/10.15288/jsa.2005.66.698

Merrill, J. E., Rosen, R. K., Boyle, H. K., & Carey, K. B. (2018). The influence of context in the subjective evaluation of "negative" alcohol-related consequences. *Psychology of Addictive Behaviors*, *32*(3), 350-357. https://doi.org/10.1037/adb0000361

Mitchell, J. C., Ragsdale, K. A., Bedwell, J. S., Beidel, D. C., & Cassisi, J. E. (2015). Sex Differences in Affective Expression Among Individuals with Psychometrically Defined Schizotypy: Diagnostic Implications. *Applied psychophysiology and biofeedback*, *40*(3), 173-181. https://doi.org/10.1007/s10484-015-9283-z

Moore, C. D., & Waterman, C. K. (1999). Predicting self-protection against sexual assault in dating relationships among heterosexual men and women, gay men, lesbians, and bisexuals. *Journal of College Student Development*, *40*(2), 132-140.

Morgan, R. E., & Oudekerk, B. A. (2019). *Criminal Victimization*.

Morrison, M., Epstude, K., & Roese, N. J. (2012). Life Regrets and the Need to Belong. *Social Psychological and Personality Science*, *3*(6), 675-681. https://doi.org/https://doi.org/http://dx.doi.org/10.1177/1948550611435137

Muthén, L. K., & Muthén, B. O. (2017). Mplus Statistical Modeling Software: Release 8.0. Los Angeles, CA: Muthén & Muthén.

National Center for Post Traumatic Stress Disorder. (2005). *Epidemiological Facts About PTSD - A National Center for PTSD Fact Sheet*.

National Institute on Alcohol Abuse and Alcoholism (DHHS). (2002). *High-Risk Drinking in College: What We Know and What We Need To Learn. Final Report of the Panel on Contexts and Consequences*.

O'Hare, T. O. (2001). Substance abuse and risky sex in young people: The development and

   validation of the risky sex scale. *The Journal of Primary Prevention*, *22*(2), 89-101.

   https://doi.org/https://doi.org/http://dx.doi.org/0278-095X/01/1200-0089$19.50/0

Ordonez, L. D., & Connolly, T. (2000). Regret and Responsibility: A Reply to Zeelenberg et al.

   (1998). *Organ Behav Hum Decis Process*, *81*(1), 132-142.

   https://doi.org/10.1006/obhd.1999.2834

Oswalt, S. B., Cameron, K. A., & Koob, J. J. (2005). Sexual regret in college students. *Archives

   of Sexual Behavior*, *34*(6), 663-669. https://doi.org/10.1007/s10508-005-7920-y

Pearson, M. R., Kite, B. A., & Henson, J. M. (2013). Predictive effects of good self-control and

   poor regulation on alcohol-related outcomes: do protective behavioral strategies mediate?

   Psychology of Addictive Behaviors, *27*(1), 81-89. https://doi.org/10.1037/a0028818

Pedersen, E. R., Huang, W., Dvorak, R. D., Prince, M. A., & Hummer, J. F. (2017). The

   Protective Behavioral Strategies for Marijuana Scale: Further examination using item

   response theory. *Psychology of Addictive Behaviors*, *31*(5), 548-559.

   https://doi.org/https://doi.org/https://doi.org/10.1037/adb0000271

Pedersen, E. R., Hummer, J. F., Rinker, D. V., Traylor, Z. K., & Neighbors, C. (2016).

   Measuring Protective Behavioral Strategies for Marijuana Use Among Young Adults.

   Journal of Studies on Alcohol and Drugs, *77*(3), 441-450.

   https://doi.org/10.15288/jsad.2016.77.441

Perkins, H. W. (2002). Surveying the damage: a review of research on consequences of alcohol

   misuse in college populations. *Journal of Studies on Alcohol Supplement*(14), 91-100.

   https://doi.org/10.15288/jsas.2002.s14.91

Peterson, R., Dvorak, R. D., Woerner, J., & Lewis, M. A. (2021). Internalizing Symptoms,

    Alcohol Use, and Protective Behavioral Strategies: Associations with Regretted Sexual

    Experiences of College Students. *Journal of Affective Disorders*, *283*, 363-372.

    https://doi.org/10.1016/j.jad.2021.01.077

Peterson, R. S., Dvorak, R. D., Stevenson, B. L., Kramer, M. P., Pinto, D. A., Mora, E. T., &

    Leary, A. V. (2020). Protective behavioral strategies and alcohol-related regretted sex

    among college students. *Experimental and Clinical Psychopharmacology*, *28*(1), 6-12.

    https://doi.org/10.1037/pha0000291

Population Health Methods. *Differential Item Functioning*.

    https://www.publichealth.columbia.edu/research/population-health-methods/differential-

    item-functioning)

Read, J. P., Kahler, C. W., Strong, D. R., & Colder, C. R. (2006). Development and preliminary

    validation of the young adult alcohol consequences questionnaire. *Journal of Studies on

    Alcohol*, *67*(1), 169-177. https://doi.org/10.15288/jsa.2006.67.169

Richards, D. K., Puentes, R. P., Gonzales, R., Cardoso Smith, J., Field, C. A., & Morera, O. F.

    (2018). A psychometric evaluation of the Protective Behavioral Strategies Scale-20

    among internet samples of adult drinkers. *Addictive Behaviors*, *8*, 71–78.

    https://doi.org/http://dx.doi.org/10.1016/j.abrep.2018.08.002

Roese, N. J., Epstude, K., Fessel, F., Morrison, M., Smallman, R., Summerville, A., Galinsky, A.

    D., & Segerstrom, S. (2009). Repetitive Regret, Depression, and Anxiety: Findings from

    a Nationally Representative Survey. *Journal of Social and Clinical Psychology*, *28*(6),

    671-688. https://doi.org/https://doi.org/http://dx.doi.org/10.1521/jscp.2009.28.6.671

Rosenkrantz, D. E., Black, W. W., Abreu, R. L., Aleshire, M. E., & Fallin-Bennett, K. (2017).

    Health and health care of rural sexual and gender minorities: A systematic review. *Stigma*

    and Health, *2*(3), 229 –243. https://doi.org/http://dx.doi.org/10.1037/sah0000055

Rozee, P. D., & Koss, M. P. (2001). Rape: A cenutry of resistance. *Psychology of Women*

    Quarterly, *25*, 295-311. https://doi.org/https://doi.org/10.1111/1471-6402.00030

Salgari, G. C., Kramer, M. P., Spencer, C. C., Dvorak, R. D., Bohil, C., O'Donnell, J. P., &

    Bedwell, J. S. (2022). Psychometric psychopathy: Relationships with indices of

    reinforcement sensitivity theory factors. *Personality and individual differences*, *195*,

    111669. https://doi.org/10.1016/j.paid.2022.111669

Sell, N. M., Turrisi, R., Scaglione, N. M., Cleveland, M. J., & Mallett, K. A. (2018). Alcohol

    Consumption and Use of Sexual Assault and Drinking Protective Behavioral Strategies:

    A Diary Study. *Psychology of Women Quarterly*, *42*(1), 62-71.

    https://doi.org/10.1177/0361684317744198

Siegel, J. M., Sorenson, S. B., Golding, J. M., Burnam, M. A., & Stein, J. A. (1989). Resistance

    to sexual assault: who resists and what happens? *American Journal of Public Health*,

    79(1), 27-31. https://doi.org/10.2105/ajph.79.1.27

Sigurvinsdottir, R., & Ullman, S. E. (2016). Sexual Assault in Bisexual and Heterosexual

    Women Survivors. *J Bisex*, *16*(2), 163-180.

    https://doi.org/10.1080/15299716.2015.1136254

Simons, J. S., Maisto, S. A., & Wray, T. B. (2010). Sexual risk taking among young adult dual

    alcohol and marijuana users. *Addictive Behaviors*, *35*(5), 533–536.

    https://doi.org/https://doi.org/10.1016/j.addbeh.2009.12.026

Statistics How To. (Accessed 2022). *Test-Retest Reliability / Repeatability*.

    https://www.statisticshowto.com/test-retest-reliability/

Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism. (2002). *A call*

    to action: Changing the culture of drinking at U.S. colleges.

Testa, M., & Parks, K. A. (1996). The role of women's alcohol consumption in sexual

    victimization. *Aggression and Violent Behavior*, *1*(3), 217-234.

    https://doi.org/https://doi.org/https://doi.org/10.1016/1359-1789(95)00017-8

Thompson, L. (2018). "I can be your Tinder nightmare": Harassment and misogyny in the online

    sexual marketplace. *Feminism & Psychology*, *28*(1), 69–89.

    https://doi.org/https://doi.org/10.1177/0959353517720226

Treat, T. A., Corbin, W. R., & Viken, R. J. (2020). Protective behavioral strategies for sexual

    aggression and risky sexual behavior. *Aggressive Behavior*, 1-12.

    https://doi.org/10.1002/ab.21949

Treloar, H., Martens, M. P., & McCarthy, D. M. (2015). The Protective Behavioral Strategies

    Scale-20: improved content validity of the Serious Harm Reduction subscale.

    Psychological Assessment, *27*(1), 340-346. https://doi.org/10.1037/pas0000071

Ullman, S. E., & Knight, R. A. (1992). Fighting back: Women's resistance to rape. *Journal of*

    Interpersonal Violence, *7*, 31–43.

Van de Mortel, T. F. (2008). Faking it: Social desirability response bias in self-report research.

    Australian Journal of Advanced Nursing, *25*(4), 40.

Wahab, S., & Olson, L. (2004). Intimate partner violence and sexual assault in Native American

    communities. *Trauma Violence Abuse*, *5*(4), 353-366.

    https://doi.org/10.1177/1524838004269489

Wechsler, H., & Kuo, M. (2000). College students define binge drinking and estimate its
    prevalence: results of a national survey. *Journal of American College of Health*, *49*(2),
    57-64. https://doi.org/10.1080/07448480009596285

Westat. (2019). *Report on the AAU Campus Climate Survey on Sexual Assault and Misconduct*.

Wood, M. D., Read, J. P., Palfai, T. P., & Stenvenson, J. F. (2001). Social influence processes
    and college student drinking: The mediational role of alcohol outcome expectancies.
    Journal of Studies on Alcohol and Drugs, *62*, 32–43.
    https://doi.org/https://doi.org/10.15288/jsa.2001.62.32

World Health Organization. (2013). *Responding to intimate partner violence and sexual violence
    against women: WHO clinical and policy guidelines*.

World Health Organization. (2014a). *Global status report on violence prevention 2014*.

World Health Organization. (2014b). *World Report on Violence and Health (WRVH)*.

Yeater, E., Miller, G., Rinehart, J., & Nason, E. (2012). Trauma and sex surveys meet minimal
    risk standards: implications for institutional review boards. *Psychological Science*, *23*(7),
    780-787. https://doi.org/10.1177/0956797611435131

Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory
    factor analysis. *Tutorials in Quantitative Methods for Psychology*, *9*, 79-94.
    https://doi.org/https://doi.org/10.20982/tqmp.09.2.p079

Zeelenberg, M., van Dijk, W. W., & Manstead, A. S. R. (1998). Reconsidering the Relation
    between Regret and Responsibility. *Organizational Behavior and Human Decision
    Processes*, *74*(3), 254-272. https://doi.org/10.1006/obhd.1998.2780