

## Abstract

**Objective:** The goal of this study is to understand what type of sexual violence risk reduction intervention programs and elements are acceptable to Indigenous college students via quantitative survey research methods.

**Method:** 401 Indigenous college students (77.1% women, 19.7% men, 3.0% trans or Two Spirit) from across North America were recruited. Students read standardized descriptions of four different sexual victimization risk reduction interventions (SVRRIs) that ranged in characteristics and ranked the interventions. All students provided acceptability ratings for Flip the Script with Enhanced Assess, Acknowledge, Act (EAAA) and a program of their choice. Participants also rated the importance of specific intervention elements, including cultural content.

**Results:** Most participants had a history of sexual victimization; 80.8% had been sexually victimized at some point in their life. The combined sexual violence and substance use reduction intervention (Sexual Assault Risk and Alcohol Use Reduction Program [SAARR]) was most frequently ranked as the first choice by 36.2% of the sample,  $p < 0.1$ . Considering acceptability ratings, all four SVRRIs were considered acceptable by most of the sample, with Flip the Script with EAAA rated highest of acceptability at 95.3% and Bringing in the Bystander having the lowest rate of acceptability at 71.4%. Cultural content was rated as a moderately important intervention element.

**Conclusions:** Indigenous college students are open to many different forms of sexual violence risk reduction interventions. Our findings suggest that simple cultural adaptations would be welcomed and scientifically supported to increase access and acceptability to violence interventions for Indigenous college students.

*Keywords:* sexual assault, Native American, Indigenous, acceptability, intervention

Sovereignty For Your Body: Acceptability of Sexual Victimization Risk Reduction Interventions  
among Indigenous College Students

Sexual violence victimization encompasses a range of nonconsensual sexual experiences from unwanted touching to penetration by physical force (Basile et al., 2014). The experience of sexual victimization is common in the U.S., where an estimated 50% of American women experience sexual victimization of some type in their lifetime (Basile et al., 2022). This number rises to approximately 80% of Indigenous women (Rosay, 2016). Experiencing a rape, the most violent form of sexual victimization, is associated with a wide range of physical and emotional health problems, including hypertension, chronic pain, depression, suicidality, posttraumatic stress disorder, and substance misuse (Caceres et al., 2021; Dworkin et al., 2017; Koss, 1993). Indigenous women have the highest risk of rape or sexual victimization among all ethnic/racial groups in the U.S. (Lucchesi & Echo-Hawk, 2018). Although there are effective risk reduction programs for college women to reduce their risk of rape (e.g., Senn et al., 2015); these programs have been largely developed with cisgender, heterosexual, non-Hispanic White college women, and it is unclear if they have similar efficacy or acceptability among other college populations. We use the term risk reduction to underscore the fact that those at risk of being harmed should not bear the burden of eliminating rape. Thus, the goal of this study is to examine what types of sexual violence risk reduction interventions Indigenous college students find acceptable. These formative findings will inform the future development of a culturally relevant rape reduction intervention for Indigenous Peoples.

### **Context of Rape against Indigenous Peoples**

There are unique patterns within the experience of sexual victimization among Indigenous Peoples. Men are almost equally likely as women to be affected (Rosay, 2016), and

Indigenous Peoples are the only ethnic/racial group in the US more likely to be assaulted by someone *outside* their ethnic/racial group (Bachman et al., 2010). This pattern of outsider perpetrators is consistent with ongoing colonization and outsider-imposed limits to tribal sovereignty (Deer, 2015). In addition to sexual violence, Indigenous Peoples are more likely to experience childhood abuse (Cole et al., 2022), intimate partner violence (Rosay, 2016), and murder. CDC data related to the Missing and Murdered Indigenous Women and Girls/Relatives (MMIWG/MMIR) movement indicates that murder is the third-leading cause of death among Indigenous women (Bachman et al., 2008; Dominguez, 2016; Lucchesi & Echo-Hawk, 2018), whereas murder is not listed as one of the top ten causes of death for the general US population (Centers for Disease Control and Prevention, 2018). The burden of violence, combined with a long history of Indigenous resistance to genocide and colonization, may be related to the popularity of self-defense programs (Dwyer, 2023; Tercek, 2019; Tweedy, 2011; Walters, 2020). The burden of violence, beginning in childhood, is also associated with many negative mental health outcomes, including increased substance use (Evans-Campbell et al., 2006; Hawkins et al., 2004; Landen et al., 2014; Lujan et al., 1989) which may interfere with participation in self-defense and related programs. For example, alcohol intoxication reduces effective self-defense (Pumphrey-Gordon & Gross, 2007). Collectively, post-trauma mental health symptoms and alcohol misuse increase risk for experiencing future traumas as barriers to effective resistance (Dardis et al., 2021). Thus, while needs are extraordinarily high and potentially more complex, Indigenous Peoples have rarely been included in research on sexual violence.

### **Current Sexual Victimization Risk Reduction Interventions**

Recent years have seen a boom in available, effective, risk reduction interventions for sexual violence (Gilmore et al., 2015; Orchowski et al., 2018; Senn et al., 2015). The vast

majority of these interventions were developed and tested with college women, who are a high-risk group for sexual violence, in part, due to their age and the campus context (Basile et al., 2022; Mellins et al., 2017). The most effective and well-studied sexual victimization risk reduction intervention (SVRRI), is the Enhanced Assess, Acknowledge, Act model (EAAA; Senn et al., 2015; in public promotions, called “Flip the Script with EAAA”), which incorporates a component of feminist-self-defense (Hollander, 2018) as does one of the few SVRRIs tested with Indigenous youth (Edwards et al., 2021). Yet, with the exception of Edwards and colleagues’ (2021) study, few SVRRI studies have included Indigenous Peoples, much less brought a cultural lens to their participation. Thus, we chose to examine acceptability of EAAA specifically and related SVRRIs, among Indigenous college students. We chose to focus on Indigenous college students given their greater possible opportunity to participate in SVRRIs compared to other Indigenous populations, because of Title IX mandates that campuses provide violence prevention programming (Walker, 2010).

### **Acceptability and Cultural Adaptation**

Acceptability is the participant’s or patient’s cognitive and affective perceptions of a given intervention or procedure (Sekhon et al., 2017). Until recently, acceptability has not been a priority in sexual violence research; rather, given the lack of efficacious interventions, developing *something* efficacious was the foremost consideration. However, now that at least some initial, effective components of SVRRIs have been identified, science can shift to answering Gordon Paul’s question, “what treatment, by whom, is most effective for this individual with that specific problem and under which set of circumstances?” (Paul, 1967, p. 111). We suggest that acceptability is a critical consideration for understanding SVRRIs, especially with Indigenous Peoples.

The mental health literature suggests a cultural acceptability framework can potentially help resolve, or at least offset, existing inequities (Marsh et al., 2016). Further, and as in the case of Indigenous Peoples, often the nature of the problem is quite different for minoritized groups. Because minoritized groups, including Indigenous Peoples, have been and continue to be excluded from research, many minoritized populations feel that available interventions do not apply to their needs. The larger literature on Indigenous health provides a strong basis for examining the acceptability of any health-related intervention, showing that interventions that are culturally adapted (Marsh et al., 2016), provided by Indigenous Peoples for Indigenous Peoples (Freeman et al., 2016), and interventions provided in Indigenous settings (e.g., Indigenous lands) are preferable (Belone et al., 2017) and efficacious (Edwards et al., 2021).

In the case of SVRRIs, interventions have largely been developed with cisgender, heterosexual, non-Hispanic White college women, and thus, may not be seen as relevant or acceptable to Indigenous Peoples whose sexual violence experiences are distinct. Therefore, including cultural values and needs should lead to more efficacious SVRRIs. We are not aware of any available research on the comparative acceptability of SVRRIs, much less acceptability specific to Indigenous Peoples. A series of articles documenting the development and testing of a childhood sexual abuse prevention program for Native American youth, suggests that Indigenous communities find childhood sexual abuse prevention culturally acceptable and perceive violence to be an important community issue (Edwards, Herrington, Charge, et al., 2022; Edwards, Herrington, Edwards, et al., 2022). Self-defense appears to be an SVRRI component that is culturally acceptable in multiple Indigenous Great Plains communities (Edwards et al., 2022; Walters, 2020) and is a primary component of the EAAA model. However, the acceptability of the EAAA model itself nor other multi-component SVRRIs have been examined to date. Given

the elevated rates of substance use for many Indigenous populations (Richer & Roddy, 2023), we also tested SVRRIs that included a substance use component. Finally, given the high value of community in Indigenous cultures, we also tested a bystander intervention, which relies on changing community norms and practices rather than targeting individual behavior change. Thus, the four empirically supported SVRRIs that we examined the acceptability of include: 1) Flip the Script with EAAA (FTS: Senn et al., 2015), 2) Bringing in the Bystander (BITB: Edwards et al., 2019); 3) Brief Drinking Intervention (BDI: Clinton-Sherrod et al., 2011), and 4) Sexual Assault Risk and Alcohol Use Reduction Program (SAARR: Gilmore et al., 2015).

### **Current Study**

The current study sought to examine the acceptability of self-defense in comparison to a range of SVRRIs and the acceptability of common SVRRI components among Indigenous college students. We focused on Indigenous individuals who were currently or recently (i.e., in the past 5 years) enrolled in college, as Indigenous college students experience elevated risk for sexual violence, particularly those who attend predominantly White institutions (PWIs) where they may feel disconnected from community bonds (Fish et al., 2017). We recruited a national sample of Indigenous college students from both Tribal College and Universities (TCUs) as well as PWIs and across different settings (e.g., urban, reserve/reservations) to increase representation broadly given the vast heterogeneity of the current 574 federally recognized tribes, tribes with only state recognition, and other tribes without federal or state recognition who continue to exist and thrive as unique cultural groups (Anguksuar, 1997; National Congress of American Indians, 2020; Saenz, 2020). We included Indigenous students of all gender identities and sexual orientations given the minimal gender differences in overall prevalence rates (Rosay, 2016), and considering Indigenous relational values and worldviews, which are often gender-expansive and

-inclusive (Anguksuar, 1997; Balsam et al., 2004). We centered self-defense given the popularity of multiple, Indigenous-led self-defense programs in the U.S., including in our local communities (Name Masked) and the efficacy of this intervention component generally (Gidycz & Dardis, 2014) and with Plains-based Indigenous youth (Edwards et al., 2021).

Using standardized descriptions of the four different empirically supported SVRRIs mentioned above, which interventions do Indigenous college students find acceptable? We first hypothesized that the intervention including self-defense, such as FTS, would be acceptable (H1; Edwards et al., 2021) but no other intervention specific hypotheses were proffered given the lack of prior data. We analyzed acceptability in multiple ways considering rankings, willingness, and overall scores. We also examined perceived community acceptability by asking participants about their willingness to recommend each intervention (e.g., Flip the Script) to a friend. We also asked about provider and intervention setting preferences to facilitate future cultural adaptation. We also explored predictors of acceptability scores, such as prior experience or time spent growing up on a reservation, which might make the salience of self-defense higher. Consistent with prior research (Kuhn, 2022), we hypothesized that those with previous experience of self-defense would rate the acceptability of Flip the Script more highly (H2). Lastly, we hypothesized that certain treatment components would be rated more highly than others; namely, that an intervention specifically designed for Indigenous Peoples and self-defense would be ranked in the top quarter and rated more highly than average (H3).

## **Method**

### **Procedures**

Our study team was majority Indigenous Peoples, including individuals from multiple federally recognized tribes in the Great Plains regions of the U.S. This study used a multi-

method design by conducting an initial online quantitative survey to assess acceptability ratings and mental health needs and strengths, followed by conducting in-depth qualitative interviews with Indigenous students to complement the survey data. The current study focuses on the quantitative acceptability ratings, and coding for the qualitative interviews is ongoing. Some data focused on resiliency have been published (masked citation). All participants consented to this study electronically via Qualtrics. All study procedures were approved by the Masked Institutional Review Board (masked IRB #s) as the IRB of record.

Data were collected from March-August 2021 with grant support from a foundation (masked NAME) and a state organization (masked NAME). Inclusion criteria for the quantitative survey were that participants must: 1) self-identify as Indigenous alone or in combination with one or more races/ethnicities, 2) be at least 18-years-old, and 3) be currently enrolled, or have been enrolled, in college within the past 5 years. Informed consent was obtained from all participants prior to participation. We contacted all 8 tribal colleges and universities (TCUs) in the MASKED STATES, as well as two large PWIs in states with large Indigenous populations (UNIVERSITY 1 and UNIVERSITY 2). Four tribal colleges approved the study and forwarded our materials to student listservs. One tribal college rejected the study and three did not reply. We advertised the study as “Self-Defense for Indigenous Peoples: Sovereignty for Your Body” with Indigenous-created, compensated art, that depicted an Indigenous woman in a ribbon skirt doing a high kick (see ad here: <https://tinyurl.com/SDIP-osf>).

### **Participants**

Participants were 401 Indigenous Peoples recently (i.e., within the past 5 years) or currently enrolled in college in North America. Canadian students were not excluded as the current national boundaries do not reflect traditional Indigenous boundaries. All participants self-



identified as Indigenous although 3.0% included another ethnicity as their primary identity. The sample was mostly women (77.1%), with significant subsamples of men (19.7%) and Two-Spirit or trans individuals (3.0%). Most participants identified as heterosexual (79.8%), with the next largest self-identified sexual orientation group being Two-Spirit or bisexual (10.4%), 3.0% identified as asexual, 2.0% identified as gay or lesbian, and the remaining sample (3.8%) identified as queer, fluid, questioning or another sexual orientation identity. Notably, Two-Spiritness can be a gender identity or a sexual orientation, depending on the participant's tribe and context (Purden & Salway, 2020); for our participants all but one identified Two-Spirit as their gender. The average age was 24.4 years (SD = 4.8, range = 18-52 years). Participants reported their relationship status as in a relationship with one partner (31.2%), single (29.2%), cohabitating or engaged (27.9%), married (10.2%), and polyamorous (1.2%). Most were currently enrolled in college (83.5%), and approximately half of participants were currently (25.2%) or previously (31.7%) enrolled at a TCU. Nearly half (47.1%) of the sample lived on or within 30 miles of a reservation, and the average amount of time spent growing up on the reservation was between 25-49%. Most considered themselves middle-class according to the MacArthur socioeconomic status ladder (M = 5.8 rungs/10; SD = 1.9; Adler et al., 2000).

## **Materials**

### ***Standardized descriptions of SVRRIs.***

For this study, we provided participants with descriptions of four empirically supported SSRVIs in this order: FTS, BITB, BDI, and SAARR. In selecting interventions, we sought to present a wide range of intervention characteristics, ensuring that we included individual (BDI) and group-format (FTS, BITB) programs; online (SAARR) as well as in-person (BITB, FTS) modalities; programs that varied in length from very brief (SAARR, one hour or less) to longer

(FTS, 12 hours); and variable targets including ones that focused largely on the role of alcohol (BDI), and one that focused on community (BITB) rather than individual behavior change. Intervention descriptions were 306-315 words and standardized for mention of 24 possible intervention characteristics drawn from theoretical and advertorial descriptions of the interventions. Characteristics included but not limited to: research support, target population, gender of facilitators, topic inclusion, types of self-defense taught (verbal, physical), and modality (in person vs. online). The full list of 24 characteristics is available here: <https://tinyurl.com/SDIP-osf>. Given the focus on self-defense, all participants rated the acceptability of Flip the Script, and among participants for whom Flip the Script was not their first ranked choice, they rated their first-choice intervention.

### ***Acceptability of Sexual Victimization Risk Reduction Interventions (SVRRIs)***

Acceptability of SVRRIs was evaluated using the North Dakota Sexual Violence Intervention Acceptability Measure (NDSVIAM; Anderson et al., 2022). Participants began the battery of acceptability questions by first reading standardized descriptions. Second, they were asked to note which interventions they would be willing or not willing to participate in. Third, they were asked to rank the interventions in terms of their willingness to participate, then rated the intervention they ranked first on the NDSVIAM. Finally, participants rated FTS if it was not the number one ranked intervention.

**The NDSVIAM.** The NDSVIAM contains 14 items assessing each component of Sekhon's theoretical acceptability framework (Sekhon et al., 2017) and barriers/facilitators of participation (open-ended). The 12 quantitative items were rated on a five-point Likert scale of "strongly disagree" to "strongly agree." The first nine items plus the mean of the three opportunity cost items were added to create a total acceptability score, which ranged from 10 to

50. Acceptability scores were dichotomized as acceptable/not acceptable if the total quantitative score was equivalent to rating every item as neutral or greater (e.g., 30). The NDSVIAM is designed to be given anchored to a particular intervention; an example FTS item is, “How positively or negatively do you feel about Flip the Script?” The NDSVIAM demonstrated initial evidence of validity, as noted by high intervention ratings in a sample of college students enrolled in a self-defense class (Anderson et al., 2022). The NDSVIAM for FTS demonstrated good internal consistency reliability ( $\alpha = .838$ ) in the current sample.

**Cultural context of intervention.** Because of our focus on FTS, we also asked some questions about basic elements of the implementation of FTS that can aid future cultural adaptation and implementation studies. These items were administered with the NDSVIAM. We asked whether participants would ever recommend Flip the Script to a friend, a survivor of sexual assault, or an Indigenous survivor of sexual assault as a proxy for perceived community acceptability. We also asked participants about their preferred gender and racial/ethnic identity of providers, with a “select all that apply” response format. Finally, we asked participants, “Where would you prefer this program [Flip the Script] be provided? with a “select all that apply” response format: On my tribal lands, within my community etc./ In traditional research setting or hospital/at my school/other.

**Intervention elements.** Each of the 24 intervention components from the list created to standardize intervention descriptions was rated on a five-point Likert scale from 1 (not at all important) to 5 (very important). Intervention elements were rated after the NDSVIAM. Participants were given the instruction, “How important are the below aspects for you in any program that you might participate in which helps to **reduce your risk of sexual violence**?”

### *History of Sexual Victimization*

**The Sexual Experiences Survey-Short Form Victimization (SES-SFV).** The SES-SFV contains seven compounded, behaviorally-specific items. Items are compound form or “grid” items in that they start with a main item stem that describes a sexual experience such as, “A man put his penis into my butt, or someone inserted fingers or objects without my consent by:” which is followed by five sub-items that described the tactic that was used to coerce the corresponding sexual behavior such as, “threatening to physically harm me or someone close to me.” Items are rated on a scale of 0, 1, 2, 3+ times for the time period of “How many times since age 14?” SES-SFV items have adequate reliability for college men and women when scored dichotomously (Anderson et al., 2018; Johnson et al., 2017) and evidence of validity by correlations with psychological symptoms (Johnson et al., 2017) and with intimate partner victimization (Anderson et al., 2018). All participants were administered all items.

**The Childhood Trauma Questionnaire – Childhood Sexual Abuse subscale (CTQ-CSA).** The five item CTQ-CSA items briefly describe sexual experiences “I was made to do sexual things” and are rated on a scaled response from “never true” to “very often true”. The CTQ-CSA items are correlated with clinical ratings and demonstrated high intraclass correlations over a two-week interval indicating evidence of validity and reliability in a sample of substance use treatment seekers (Bernstein et al., 1994). The CTQ-CSA has been used repeatedly with Indigenous populations across North America to examine the relationship between childhood maltreatment and health (Koss et al., 2003; Lehavot et al., 2009; Pearson et al., 2015).

### *Prior Participation with SVRRIs*

As part of the demographics questionnaire, participants were asked three questions regarding prior participation in SVRRIs. Specifically, they were asked, “Have you ever learned

self-defense or taken a self-defense class?”, “Have you ever participated in a sexual assault bystander training program such as Bringing in the Bystander or GreenDot?”, and “Have you ever participated in any other type of sexual assault prevention education or training?” For affirmative responses, a five-level follow-up item asking how many hours of training they had completed for that intervention type was administered.

### **Data Cleaning**

Our survey link was opened by 1281 respondents; many of which were clearly fraudulent or bots, as determined by a hierarchical series of data cleaning strategies. First, all respondents with non-North American IP addresses were deleted (for example, Kenya). All respondents who did not report an Indigenous racial identity were deleted for not meeting study eligibility inclusion, as well as those who failed a Captcha (.6+). We also deleted responses where participants had completed less than 40% of the survey. Next, we looked for suspicious IP addresses (repeated IPs) in combination with extremely short survey durations or strange demographic response patterns. Finally, we examined open-ended responses from an optional item at the end of the NDSVIAM; responses that were duplicative or non-sensical were deleted. This resulted in our final sample of 401 Indigenous college student participants.

### **Analytic Strategy**

We used chi-squares to examine whether there were differences in demographic characteristics and acceptability rates considered dichotomously. We used ANOVAs to compare continuous acceptability scores between interventions and regressions to examine potential predictors of acceptability scores. To test for gender and sexuality differences, we created a six-level gender x sexual identity variable that includes all groups larger than  $n = 10$  (cisgender heterosexual women = 277, cisgender heterosexual men = 57, Two-Spirit = 30, bisexual

cisgender women = 11, bisexual cisgender men = 10, asexual cisgender individuals = 11). We used these categories to detect possible gender effects and completed follow-up tests with simplified variables (gender, three levels; sexuality, dichotomous) to clarify findings with greater statistical power. We tested for lifetime sexual victimization history effects dichotomously (yes/no). To examine differences in component ratings, we used a  $p$  value of .01.

### **Power Analysis**

Our goal was to recruit as large a sample as possible given the heterogenous nature of Indigenous populations in North America. Prior research by Kuhn (2022) reported medium to large effect sizes using the same methodology to examine bisexual women's preferences for SVRRIs. For example, in assuming a null hypothesis ratio of 50/50 odds of finding an intervention acceptable or unacceptable, she found Cohen's  $d = .69$  favoring FTS. Examining differences between interventions via rankings using chi-square, Kuhn (2022) found Cohen's  $d$  of .65 favoring FTS in comparison to other interventions. Thus, in computing *a priori* power analyses, we examined the range of effect sizes from small to medium with the effect size  $w$  in GPower. At a small effect size ( $w = .1$ ) a sample size of 401, a B/alpha ratio of 16,  $df = 2$ , Power would be .376. However, at a medium effect size ( $w = .3$ ) with the same parameters, Power would be .989. Thus, our study is well-powered for the expected medium effect sizes.

## **Results**

### **Descriptive Statistics**

Considering childhood, adolescent, or adulthood sexual victimization, 80.8% of the sample experienced sexual victimization in their lifetime. Most participants reported both childhood and adolescent or adulthood victimization (e.g., developmental revictimization); 63.1% of the entire sample. Many participants reported previously participating in some type of

self-defense (any: 39.7%,  $M$  hours = 1.5), some bystander training (any: 24.2%,  $M$  hours = 2.3), and other types of sexual assault prevention education or training (any: 22.7%,  $M$  hours = 2.3).

### **Acceptability of Available Interventions**

#### ***Rankings***

Considering the entire sample, the intervention most frequently ranked as first choice was SAARR, which was ranked significantly more often than any of the other three interventions when comparing #1 ranking proportions (Table 1). There were no gender ( $\chi^2(6) = 4.95, p = .550, \phi = .11, d = .22$ ) or sexual identity ( $\chi^2(3) = 2.22, p = .529, \phi = .07, d = .15$ ) differences in which intervention was ranked first most frequently. Additionally, there was no effect for victimization history on rankings, ( $\chi^2(3) = 8.59, p = .035, \phi = .15, d = .30$ ).

#### ***Willingness***

SAARR was also the intervention participants were most willing to try and the intervention the least number of participants were not willing to try (Table 1). Men were less willing to try FTS than women or Two-Spirit individuals, ( $\chi^2(2) = 11.70, p = .003, \phi = .17, d = .35$ ). Specifically, 61.2% of women and 58.3% of Two-Spirit individuals were willing to try FTS compared to 39.2% of men. There were also differences based on victimization history. Those without victimization histories were more willing to try BITB and FTS than those with victimization histories, (79.2 vs. 50.3%,  $\chi^2(1) = 21.09, p < .001, \phi = -.23, d = .47$ ) and (80.5 vs. 50.9%,  $\chi^2(1) = 22.18, p < .001, \phi = -.24, d = .48$ ), respectively. Those with victimization histories were more willing to try SAARR than those without, 68.5 vs. 55.8%,  $\chi^2(1) = 4.46, p = .035, \phi = .11, d = .21$ .

Findings regarding *unwillingness* mirrored these willingness findings. For example, more individuals with victimization histories reported being unwilling to try BITB, 43.8% vs. 19.5%,  $\chi^2(1) = 15.48, p < .001, \phi = .20, d = .40$ ; or FTS, 42.0% vs, 14.3%,  $\chi^2(1) = 220.54, p < .001, \phi = .23, d = .47$ . One finding was somewhat contradictory for SAARR, with more individuals without victimization histories reporting being unwilling to try SAARR than those with victimization histories, 39.0% vs 25.6%,  $\chi^2(1) = 5.47, p = .019, \phi = -.12, d = .24$ .

### ***Acceptability Scores***

Table 1 lists cut-off (all items rated neutral+) and mean total NDSVIAM acceptability scores for each intervention. All interventions were rated as highly acceptable. Consistent with the willingness and lack of willingness decision points, there were some differences in overall acceptability scores,  $F(3) = 7.75, p < .001, d = .48, 95\% \text{ CI: } .02, .10$ . FTS had significantly higher scores than BITB (Tukey's,  $p < .001, 95\% \text{ CI: } 5.0, 16.6, d = .73, 95\% \text{ CI: } -1.04, -0.41$ ) and SAARR (Tukey's,  $p = .016, 95\% \text{ CI: } 0.87, 11.90, d = .54, 95\% \text{ CI: } 0.24, 0.83$ ). BDI was also more acceptable than BITB (Tukey's,  $p = .050, 95\% \text{ CI: } .01, 10.93, d = .32, 95\% \text{ CI: } .03, .61$ ).

Because the entire sample rated FTS as acceptable, we also tested for differences in acceptability scores by demographics for FTS. Results suggested a significant difference based on the six-level combined gender and sexual identity variable,  $F(5) = 5.97, p < .001, d = .55, 95\% \text{ CI: } .02, .11$ . Specifically, cisgender heterosexual women (Dunnett T3,  $p = .013, 95\% \text{ CI: } .48, 6.96, d = .58, 95\% \text{ CI: } .29, .86$ ) and Two-Spirit individuals (Dunnett T3,  $p < .001, 95\% \text{ CI: } 2.26, 9.42, d = .90, 95\% \text{ CI: } 0.44, 1.36$ ) found FTS more acceptable than cisgender heterosexual men. Individuals who had attended TCUs also found FTS more acceptable than those who had not,  $t(399) = 2.25, p = .025, 95\% \text{ CI: } .19, 2.72, d = .23, 95\% \text{ CI: } .03, .43$ . Similarly, those who had



spent more time growing up on a reservation had higher FTS acceptability scores,  $r(186) = .173$ ,  $p = .018$ , 95% CI: .03, .31,  $d = .35$ .

### ***Cultural Context of Acceptability***

***Perceived community acceptability.*** A large number of participants noted they would recommend FTS to a friend (74.3%), including to an Indigenous survivor of sexual violence (69.3%), and to a friend who had experienced sexual assault (64.6%), suggesting the perceived community acceptability of FTS would be high. There was only one participant who said they would *not* recommend FTS to a friend, indicating the remainder of the sample was neither for nor against a recommendation. Cisgender men were less likely to recommend FTS to a friend compared to cisgender women and Two-Spirit and transgender individuals, 52.6 % vs. 78.3% vs. 83.3%, respectively,  $\chi^2(5) = 24.90$ ,  $p < .001$ ,  $\phi = .251$ ,  $d = .52$ . However, there were no gender differences in recommendations for survivors. Participants with a history of sexual victimization were actually more likely to recommend FTS to a friend compared to those without a sexual victimization history, 77.2 vs. 62.3%,  $\chi^2(1) = 7.16$ ,  $p = .007$ ,  $\phi = .134$ ,  $d = .27$ .

***Identity of provider.*** Most participants preferred a provider of the same gender identity; however, many noted they would be open to providers of other genders. For example, most women participants preferred women providers (86.5%), but over a quarter (29.7%) preferred men and a few (13.5%) preferred Two-Spirit/nonbinary providers. Cisgender men did not indicate as strong of a preference for gender congruent providers as women ( $\chi^2(1) = 27.24$ ,  $p < .001$ ,  $d = .566$ ), with 59.7% of male participants preferring men, 51.4% preferring women, and 13.9% preferring Two-Spirit/nonbinary providers. Among Two-Spirit individuals, they also did not evince a strong preference for gender congruent providers, with most Two-Spirit participants preferring men (53.13%) and women (62.5%) intervention providers, and 9.38% preferred a

Two-Spirit/nonbinary provider. However, due to the small sample of Two-Spirit individuals who indicated a preference for gender congruent providers ( $n=3$ ), between-group comparisons were not examined. Among those with victimization history, women indicated a stronger preference for gender congruent providers than both men and Two-Spirit/nonbinary individuals ( $\chi^2(1) = 22.1736, p < .001, d = .50$ ). Notably, while women with victimization history did not differ from women without victimization history in strength of preference for gender congruent providers ( $\chi^2(1) = .941, p = .332$ ), men with victimization history indicated a stronger preference for gender congruent providers than men without victimization history ( $\chi^2(1) = 5.93, p = .015, d = .60$ ).

Regarding racial/ethnicity of providers, most participants (66.1%) preferred an Indigenous provider. Men preferred this less strongly than cisgender women or Two-Spirit participants (75.4% vs. 87.8% and 87.5%,  $\chi^2(4) = 9.92, p = .042, \phi = .16, d = .32$ ). Participants who had attended a TCU indicated a higher preference for an Indigenous provider compared to those who did not attend a TCU (91.2% vs. 78.2%,  $\chi^2(2) = 16.63, p < .001, \phi = .21, d = .42$ ). Additionally, there was no difference in provider preference victimization history.

**Setting of intervention.** The most popular setting for FTS was at participant's college/school (75.8%), followed closely by tribal lands/within their community (63.1%), and lastly, within a traditional research or hospital setting (51.6%). People *without* a history of sexual victimization were less likely to prefer FTS be provided on tribal lands/within the community (59.9% vs. 76.6%,  $\chi^2(1) = 7.49, p = .006, \phi = -.137, d = .28$ ). People who attended a TCU were more likely to prefer FTS be offered on tribal lands (67.5 vs. 57.2%,  $\chi^2(1) = 4.50, p = .034, \phi = .11, d = .21$ ).

### **Predictors of Acceptability**

We conducted regressions to analyze whether prior experience of SVRRIs influenced FTS acceptability scores given prior research suggesting this might be the case (Kuhn, 2022). We also tested whether time spent on reservation, feeling safe at home, and feeling safe while growing up related to FTS acceptability scores. There were no significant predictors of FTS acceptability scores in this analysis,  $F(6) = 1.41, p = .249$ ; see Table 2.

### **Intervention Components**

Most components were rated as *somewhat important* or *very important*, on average, suggesting that participants found all components reasonably important. The components considered most important are presented as follows in descending order ( $M, SD$ ): guaranteed privacy and confidentiality ( $M = 4.41, SD = .74$ ), physical self-defense, ( $M = 4.30, SD = .84$ ), evidence of effectiveness/research support ( $M = 4.28, SD = .96$ ), and understanding risky situations ( $M = 4.28, SD = .81$ ). The component considered least important was information on the number of hook-ups, rated 3.72 or on average, “neutral/unsure.” The average rating for culturally adapted SVRRIs created for Indigenous Peoples was ( $M = 4.16, SD = .93$ ), the seventh most highly rated component. The overall mean for any component was 4.09; this was not significantly different than the rating for culturally adapted SVRRIs created for Indigenous Peoples,  $t(395) = 1.637, p = .102, 95\% \text{ CI: } -.02, .17$ , but was significantly different from learning physical self-defense,  $t(399) = 5.04, p < .001, 95\% \text{ CI: } .13, .29, d = .25, 95\% \text{ CI: } .15, .35$ .

There were demographic differences in how important components were considered (Table 3). Women tended to rate some components more highly, though there were few differences in interpretation; that is, all genders still considered the components important just to varying degrees, Cohen’s  $d = .25 - .58$ . Similarly, those with victimization histories rated some

items more highly, such as online format, individual counseling, guaranteed privacy and confidentiality, alcohol content, and research support, Cohen's  $d = .29 - .70$ .

### **Discussion**

While Indigenous individuals are among the racial/ethnic groups most likely to experience rape (Rosay, 2016), very little research has examined the acceptability of existing SVRRIs using standardized methods at all, much less for Indigenous Peoples. This study sought to explore acceptability of SVRRIs with Indigenous college students, a highly vulnerable group. Using a large national survey, we found Indigenous college students are willing to engage in many strategies to reduce sexual violence for themselves and their communities.

We examined acceptability in several ways to capture the complexity that goes into personal decision-making. Considering scores obtained via standardized methods, the percentage of the sample that rated each intervention acceptable was high for every single intervention examined in this study. At the lowest end, 71.4% of the sample found a brief drinking intervention (BDI) acceptable and at the highest end, 95.3% found Flip the Script with EAAA (FTS) acceptable (consistent with H1). Given the very high rates of sexual victimization in this sample - 80.8% of the sample reported a lifetime history of sexual violence - it seems Indigenous college students view sexual violence as a very personally/community relevant problem they want to solve, and they are willing to try many different strategies to solve it.

We did find some preference for particular interventions and approaches. A combined sexual violence and substance use intervention (SAARR: Gilmore et al., 2015) was the intervention most frequently ranked as first choice. This was also the intervention that the largest number of people said they were most willing to try, and the smallest number said they were least willing to try. We also found sexual victimization history effects for SAARR – it was the

intervention individuals with a victimization history were more willing to try compared to those without this history. BITB was least preferred considering willingness and unwillingness, though again, this is in the context of overall high acceptability ratings.

We also found that some personal characteristics were related to acceptability. Men were less likely to find FTS acceptable both in overall scores and willingness compared to women and Two-Spirit individuals. Individuals with victimization histories were less willing to try BITB and FTS. We also found that individuals who had attended TCUs and spent more time on the reservation had higher acceptability scores for FTS, suggesting that FTS may hold more promise with highly enculturated Indigenous folks. We were somewhat surprised that prior experience with self-defense did not predict acceptability scores which was inconsistent with H2; this perhaps reflects a ceiling effect in that self-defense was so favored.

We asked participants whether they would recommend Flip the Script to a friend as an indicator of perceived community acceptability. The vast majority of participants indicated they would recommend FTS to a friend (73.3%), including recommending to an Indigenous survivor of sexual violence (69.3%). Interestingly, individuals with a history of sexual victimization were more likely to recommend Flip the Script to a friend. Cisgender women and men generally exhibited preference for gender congruent providers, though many participants were open to non-congruent providers. Gender congruence was a stronger preference for individuals with victimization histories. Finally, considering where Flip the Script should take place, there was a moderate preference for offering the intervention at a college/university (75.8%). Nearly half the sample also preferred FTS being offered on tribal lands/in their community (63.1%).

Findings considering specific intervention components mirrored findings specific to particular SVRRIs. As rated by the overall sample, the most important intervention components

in descending order were: guaranteed privacy and confidentiality, learning physical self-defense skills, research support for effectiveness, and understanding risky situations. Women and people with victimization histories valued learning self-defense skills and research support even more than men and those without victimization histories. Although these gender preferences are worth noting, we wish to emphasize the relatively small size of these gender differences and the small number of gender differences overall, suggesting Indigenous men see the value of SVRRI, in contrast to findings with non-Hispanic White college men (Spikes & Sternadori, 2018).

Individuals with victimization histories additionally indicated preference for online interventions, expert providers, guaranteed privacy and confidentiality, and understanding risks; these effect sizes were of small to moderate size. Our hypotheses (H3) regarding the importance of self-defense and Indigenous-specific cultural content were partially supported. Self-defense was rated more highly than average, but Indigenous cultural content was not, suggesting non-culturally adapted SVRRI are likely still acceptable among Indigenous Peoples.

### **Implications for Policy and Clinical Practice**

Our findings suggest a wide range of interventions and approaches would be appropriate for Indigenous college students and provide specific, actionable foci for preferred programs and intervention components. This suggests that offering existing intervention packages to Indigenous college students whether they are enrolled at PWIs or TCUs is appropriate, especially, if they are offered with basic cultural adaptations, such as in an Indigenous-specific space, by Indigenous facilitators, and with Indigenous community-specific statistics, given this component was positively rated. Given the high rate of victimization in the sample, we recommend future research investigate the integration of mental health intervention components and screening to promote recovery and access to care simultaneously with prevention. Our

findings also support policy interventions, such as continued support by National Institutes of Health and Center for Disease Control, for direct grant access and programming for tribal groups, Indigenous scientists, and Indigenous community engaged and Indigenous-led projects.

### **Limitations**

Given the great diversity of Indigenous Peoples, we were unable to examine how holding multiple tribal identities, specific tribal or group memberships, or multi-racial identity was related to acceptability of particular interventions or components. Another limitation is that the study was advertised as “Self Defense for Indigenous Peoples” which may have created a self-selection bias for FTS and self-defense components, as well as participation in this study more generally. Although our overall sample was large, our sub-samples who rated interventions of choice were too small to conduct analyses within comparison interventions.

### **Conclusions**

Indigenous college students understand on a personal level that sexual violence is relevant and are willing to try a wide range of interventions and techniques to reduce their risk. We found moderate preference for particular programs, such as SAARR, which was especially appealing to Indigenous individuals with sexual victimization histories. We also found a preference for interventions that include self-defense including, but not limited to, interventions like FTS with EAAA. We found relatively small gender differences, suggesting the inclusion of men and Two-Spirit/non-binary individuals are strengths for Indigenous sexual violence interventions. We found that Indigenous cultural elements were highly rated, as was research support, suggesting relatively simple efforts to Indigenize existing effective interventions would be welcomed and scientifically supportable.

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