

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

Anderson, R. E.¹, Cole, A. B.², Unger, L. D.¹, Armstrong, C.², Arteaga, K.², Hanna, A.¹,

Pomani, S.¹, Morin, E.¹, Cole, R.²

¹ University of North Dakota

² Oklahoma State University

Contributor roles:

Authors REA, ABC, AH, SP, CA, LU, EM contributed to conceptualizations, to RA, LU data curation, REA, KA to formal analysis, REA, ABC to funding acquisition, LU, CA to investigation, REA, CA, LU, AH, ABC to methodology, REA, ABC, CA, LU, RC, EM to project administration, REA, ABC to resources, REA, ABC to supervision, REA, ABC, KA to original writing, REA, ABC, CA, KA, LA to review and editing.

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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

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Sexual violence victimization encompasses a range of nonconsensual sexual experiences from unwanted touching to penetration by physical force (Basile et al., 2022). The experience of sexual victimization is common in the United States (U.S.), where an estimated 50% of 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 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). 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; it is unclear if they have similar 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 U.S. 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 2018; Lucchesi & Echo-Hawk, 2018). The many negative mental health outcomes of violence, beginning in childhood, including increased substance use (Evans-Campbell et al., 2006; Landen et al., 2014) may interfere with effective participation in traditional SVRRIs (Pumphrey-Gordon & Gross, 2007).

Current Sexual Victimization Risk Reduction Interventions

Recent years have seen a boom in available, effective, risk reduction interventions for sexual violence for college students (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, 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). Other efficacious models include bystander approaches which emphasize increasing community members’ ability to recognize risky situations and intervene to protect one another. Bystander interventions can be several hours or a brief 90 minutes. Brief, one-time, alcohol use reduction interventions, often including components of motivational interviewing, have also been tested and found efficacious both in person and online modalities. Yet, few SVRRI studies have included Indigenous Peoples, much less brought a cultural lens to their

participation. Thus, we chose to examine acceptability of FTS with EAAA specifically and related SVRRIs, among Indigenous college students.

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 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 intervention, showing that interventions that are culturally adapted (Marsh et al., 2016), provided by Indigenous Peoples (Freeman et al., 2016), and provided in Indigenous settings are preferable (Belone et al., 2017) and efficacious (Edwards et al., 2021).

We are not aware of any available research on the comparative acceptability of SVRRIs, much less acceptability specific to Indigenous Peoples. However, available research provides

some clues. 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 an important community issue (Edwards et al., 2022ab). 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. Indigenous led, local, self-defense programs are historically common and remain popular across the US (Tercek, 2019; Walters, 2020). 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) and on college campuses (Gilmore et al., 2015), including a substance use component may be important. Finally, given the high value of community in Indigenous cultures, bystander intervention, which relies on changing community norms and practices rather than targeting individual behavior change may be preferred. Thus, the four empirically supported SVRRIs that we examined 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 and other empirically supported SVRRIs among Indigenous college students. We recruited a national sample of Indigenous college students from both Tribal College and Universities (TCUs) as well as Predominantly White Institutions (PWIs) and across different settings (e.g., urban, reserve/reservations) to be able to examine how students attending PWIs, where they may feel

disconnected from community bonds may experience different risks (Fish et al., 2017). We also recruited a national sample to embrace the vast heterogeneity of the current 574+ recognized tribes in the US, who exist and thrive as unique cultural groups (Anguksuar, 1997; Pruden & Salway, 2020). We included Indigenous students of all gender identities and sexual orientations given the minimal gender differences in prevalence rates (Rosay, 2016), and Indigenous values which are often gender-expansive (Anguksuar, 1997; Pruden & Salway, 2020). We centered self-defense given the efficacy (Edwards et al., 2021; Gidycz & Dardis, 2014) and popularity of it, including in our local communities (Masked).

We first hypothesized that interventions 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. At this point in time, there is no empirical support to suggest which form of acceptability is most related to actual participation. Further, examining acceptability multiple ways allows us to represent the complex, “if-then”, contextual nature behind making the decision to participate in an SVRRI. For example, a participant might rate an intervention as acceptable but be unwilling to actually do it; in the abstract the intervention is a good idea but perhaps they feel they do not have the time to commit at this point in their lives. Similarly, an intervention may be highly acceptable, but not ranked as the first choice because it is a group intervention and that particular person has concerns about remaining anonymous at this point in their life. We also examined perceived community acceptability by asking participants about their willingness to recommend each intervention (e.g., Flip the Script); we asked about provider and intervention setting preferences to facilitate future cultural adaptation. We 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 of intervention components and rated more highly than average (H3).

Method

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 (5.2%) individuals¹ and trans and related gender identities (2.8%). Most participants identified as heterosexual (79.8%), some as Two-Spirit (5.2%) or bisexual (5.2%), 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. 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

¹ Two-Spiritedness can be a gender identity or a sexual orientation, depending on the participant's tribe and context (Purden & Salway, 2020).

(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 on a socioeconomic status ladder ($M = 5.8$ rungs/10; $SD = 1.9$; Adler et al., 2000).

Procedures

Our study team was majority Indigenous Peoples, 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, followed by conducting qualitative interviews to complement the survey data. The current study focuses on quantitative acceptability ratings. Data focused on resiliency has been published (masked citation). All study procedures were approved by the Masked Institutional Review Board (masked IRB #s). After consenting, participants completed the acceptability questionnaire and then the rest of the survey elements were administered in a randomly assigned order.

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. 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: <https://tinyurl.com/SDIP-osf>).

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). 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; for example, “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), reliability was ($\alpha = .84$) in the current sample.

Cultural context of intervention. 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. Sexual victimization is not a latent construct because there is no internal characteristic that individuals possess that causes their victimization; rather, victimization is directly caused by another person. Thus, measures of sexual victimization are indexes of experiences and reliability would be best measured by test-retest rather than internal consistency (Koss et al., in press; Hulme, 2007).

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; Pearson et al., 2015).

Prior Participation with SVRRIs

As part of the demographics questionnaire, participants 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 initiated by 1281 respondents. We used a hierarchical series of data cleaning strategies to have confidence in the validity of the data. All respondents who did not report an Indigenous racial identity were deleted, as well as those who did not score .6+ on a Captcha. We deleted responses where participants had completed less than 40% of the survey. Due to the acceptability block accounting for approximately 30% of the overall survey and survey element randomization after that, participants completing less than 40% would be unlikely they would have completed the demographics form as one of the 12 randomized elements to confirm eligibility. Next, we looked for suspicious IP addresses (repeated IPs, IPs outside North America) in combination with extremely short survey durations or strange demographic response patterns. Finally, we examined open-ended responses from the optional NDSVIAM items about what might make a person likely to attend the intervention. Responses

that were duplicative or non-sensical were deleted, such as responses of “Everything is going well” or “Without the”. This resulted in our final sample of 401.

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. We tested for lifetime sexual victimization history effects dichotomously (yes/no). To examine differences in component ratings, we used a p value of .01. We report 95% confidence intervals (CI).

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 #1 significantly more often than any of the other three interventions (Table 1). There was a significant effect of victimization history on rankings ($\chi^2(3) = 8.59, p = .035, \phi = .15, d = .30$), such that participants with victimization ranked FTS first more frequently than those without victimization history ($p > .05$). Additionally, there was an effect of TCU attendance on rankings ($\chi^2(6) = 17.27, p = .008, \phi = .22, d = .45$), such that participants currently enrolled in a TCU ranked BDI first more frequently than participants who never enrolled in a TCU or were enrolled in the past ($p < .05$). There were no gender or sexual identity differences in which intervention was ranked first most frequently ($p > .05$).

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 with victimization histories were more willing to try SAARR than those without, 68.5 vs. 55.8%, $\chi^2(1) = 4.46, p = .035, \phi = .11, d = .21$. 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. Additionally, participants who only attended PWIs were more willing to try BITB ($\chi^2(2) = 15.90, p < .001, \phi = .21, d = .43$), FTS ($\chi^2(2) = 21.58, p < .001, \phi = .24, d = .50$), and SAARR ($\chi^2(2) = 12.23, p = .002, \phi = .18, d = .37$), $p > .05$. TCU attendance was not significantly associated with willingness to try BDI ($p > .05$).

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%, $\chi^2(1) = 220.54, p < .001, \phi = .23, d = .47$. For SAARR, more individuals without victimization histories reported being unwilling to try SAARR than those with victimization histories, 39.0% vs 25.6%, $\chi^2(1) = 5.47, p = .019, \phi = -.12, d = .24$. This is the logical inverse of the above finding that those with victimization histories are more willing to try SAARR, especially in the context that so few participants had no victimization history. Additionally, those who attended a TCU were more often unwilling to try BITB ($\chi^2(2) = 18.74, p < .001, \phi = .23, d = .47$), FTS ($\chi^2(2) = 20.28, p$

< .001, $\phi = .24$ $d = .49$), and SAARR ($\chi^2(2) = 9.11, p = .011, \phi = .16, d = .32$), $p > .05$. TCU attendance was not significantly associated with unwillingness to try BDI ($p > .05$).

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, $F(3) = 7.75, p < .001, d = .48$, CI: .02, .10. FTS had significantly higher scores than BITB (Tukey's, $p < .001$, CI: 5.0, 16.6, $d = .73$, CI: -1.04, -0.41) and SAARR (Tukey's, $p = .016$, CI: 0.87, 11.90, $d = .54$, CI: 0.24, 0.83). BDI was also more acceptable than BITB (Tukey's, $p = .050$, CI: .01, 10.93, $d = .32$, 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% CI: .02, .11. Specifically, cisgender heterosexual women (Dunnett T3, $p = .013$, CI: .48, 6.96, $d = .58$, CI: .29, .86) and Two-Spirit individuals (Dunnett T3, $p < .001$, CI: 2.26, 9.42, $d = .90$, CI: 0.44, 1.36) found FTS more acceptable than cisgender heterosexual men. BDI was more acceptable to those with a victimization history, $t(103) = 2.418$, CI: 1.98, 20.36), $p = .018$, Cohen's $d = .78$; there were no other significant differences in acceptability scores by victimization history. Individuals who had attended TCUs also found FTS more acceptable than those who had not, $t(399) = 2.25, p = .025$, CI: .19, 2.72, $d = .23$, CI: .03, .43. Similarly, those who had spent more time growing up on a reservation had higher FTS acceptability scores, $r(186) = .173, p = .018$, 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, the remainder of the sample was neither for nor against. 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, $\chi^2(5) = 24.90, p < .001, \phi = .251, d = .52$. There were no gender differences in recommendations for survivors. Participants with a history of sexual victimization were more likely to recommend FTS to a friend than those without, 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 ($\chi^2(1) =$

22.17.36, $p < .001$, $d = .50$). Notedly, 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 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. This resulted in a significant model, $F(6, 387) = 3.77$, $p = .001$, $R^2 = .06$, see Table 2. The only significant predictors was time spent on a reservation, $B = .20$, $p < .001$, 95% CI (.39, 1.21), $d = .52$.

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% CI: $-.02$, $.17$, but was significantly different from learning physical self-defense, $t(399) = 5.04$, $p < .001$, CI: $.13$, $.29$, $d = .25$, 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 specifically. 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 in personal decision-making. For example, an intervention may be acceptable, but because of personal contextual factors like, lack of childcare or, a desire for private, confidential counseling, and the same person might say they are unwilling to participate in that same intervention or rank it lower. Considering this complexity, the percentage of the sample that rated each intervention acceptable was high for every single intervention examined in this study using a standardized methodology to facilitate cross-intervention comparison. 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 and 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. Notably, SAARR is also the briefest intervention in terms of time

commitment which may be a primary factor in driving these preferences. BITB was least preferred considering overall willingness and unwillingness and individuals with a victimization history's willingness, though again, this is in the context of overall good acceptability ratings. Those with a victimization history rated the BDI more highly. It may be that those with a victimization history prefer interventions that focus more on self-related needs and action.

Focusing on FTS, men were less likely to find FTS acceptable both in overall scores and willingness compared to women and Two-Spirit individuals. Notably, those without a victimization history were more willing to try FTS than those with such history. Yet, when examining components, women and people with victimization histories valued learning self-defense skills and research support even more than men and those without victimization histories. 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. It may be that the group, public, or longer time commitment of FTS tempers commitment to actually completing FTS for some. 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 FTS should take place, there was a moderate

preference for at a college/university (75.8%). Nearly half the sample also preferred FTS being offered on tribal lands/in their community (63.1%).

Considering TCU attendance as a proxy of enculturation, we found that TCU attendance and time on the reservation related to higher acceptability scores for FTS and BDI ranking, suggesting that FTS and BDI may hold more promise with highly enculturated Indigenous individuals. Time spent on reservation, another proxy of enculturation, was also predictive of FTS acceptability scores. Yet, Indigenous students who attended TCUs were more unwilling to try BITB, FTS, and SAARR reflecting the complexity of acceptability; it may be that if these interventions were offered by an Indigenous provider TCU students would be more willing.

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. There were many gender differences in the perceived importance of various components, and we wish to emphasize the relatively small size of these gender differences; suggesting Indigenous men see the value of SVRRI, in contrast to findings with non-Hispanic White college men (Spikes & Sternadori, 2018). 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. 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 SVRRIs are likely still acceptable among Indigenous Peoples.

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. Relatedly, a measure of cultural identity was not included within the study's measures. This is an important consideration for future research to better understand how interventions may or may not need to be culturally adapted. 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. Related to this, some of the numbers describing the efficacy of FTS were under-estimates which could have tempered FTS acceptability. Length of intervention may be confounded with intervention.

Future Research Directions

Considering the present findings, this study identifies promising avenues for prospective research. First, 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. Second, future investigations may incorporate an assessment of cultural identity, values, and practices to provide insight for how specific interventions may need to be culturally adapted and in relation to specific values or practices. For example, there may be some cultural values that are salient to SVRRI across Indigenous cultures like resistance to colonization whereas others, like gender roles, may be highly variable. Culturally-adapted treatments for mental health (e.g., CBT) generally outperform standard treatments with minoritized groups in efficacy (Marsh et al., 2016).; however uptake (willingness to participate) is also an important consideration that should be examined. Additionally, while our results indicated small gender differences in sexual violence

intervention preferences, we recommend future research recruit larger samples of Indigenous Two-Spirit and non-binary individuals to improve generalizability. Finally, it is unclear from an empirical perspective which aspect of acceptability (ratings, rankings, willingness) is most related to actual participation in intervention.

Clinical and Policy Implications

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 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. Our findings also support policy interventions, such as continued support by the CDC for direct grant access and programming for tribal groups, Indigenous scientists, Indigenous community-engaged and Indigenous-led projects.

Conclusions

Indigenous college students understand on a personal level that sexual violence is a serious problem 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 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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Tables

Table 1
Acceptability of Each Intervention

	FTS, n = 401	BITB	BDI	SAARR
% Ranked 1	16.7 ^a	26.2 ^{a, n = 105}	20.9 ^{a, n = 84}	36.2 ^{b, n = 145}
% Willing	56.6	55.9	55.9	66.1
% Not Willing	36.7	39.2	37.2	28.2
% Found Acceptable	95.3	71.4	81.0	85.5
<i>M, SD</i> Acceptability Score	39.43, 5.39	28.63, 18.52, ^{n = 105}	34.10, 14.70, ^{n = 84}	33.04, 13.83, ^{n = 145}

Note. FTS = Flip the Script, BITB = Bringing in the Bystander, DBI = Brief Drinking Intervention, SAARR = Sexual Assault and Alcohol Risk Reduction. Data reported with superscripted n's for BITB, BDI, and SAARR are based on the subsample of respondents who chose to complete the NDSVIAM for that intervention or ranking. FTS data and other data is from the entire sample.

Table 2
Predictors of Overall Acceptability of FTS

Predictor	<i>B</i>	SE	95% CI		<i>p</i>
			LL	UL	
Hours of self defense training	.02	.38	-.60	.88	.711
Hours of bystander training	.01	.35	-.64	.75	.878
Hours of other sexual assault prevention education	-.04	.35	-.96	.43	.460
Time on reservation	.20	.21	.39	1.21	<.001
Feelings of safety growing up	-.04	.20	-.43	.34	.818
Feelings of safety in home	.16	.21	-.22	.59	.361

Note. Total *N* = 394. FTS = Flip the Script; CI = confidence interval; *LL* = lower limit; *UL* =

upper limit.