



# A pilot study of virtual Harm Reduction Talking Circles for American Indian and Alaska Native adults with alcohol use disorder

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## Abstract

Prior research suggests that culturally aligned, accessible and lower-barrier interventions are well-placed to align with the needs of American Indian and Alaska Native (AI/AN) people with alcohol use disorder (AUD). Taking into account community members' suggestions and the need for physical distancing during the COVID-19 pandemic, our team developed a protocol for virtual Harm Reduction Talking Circles (HaRTC) to incorporate these points. The aims of this 8-week, single-arm pilot were to initially document feasibility, acceptability, and outcomes associated with attendance at virtual HaRTC, which integrates the accessibility of virtual connection, a lower-barrier harm-reduction approach, and a culturally aligned intervention. Participants ( $N = 51$ ) were AI/AN people with AUD (current or in remission) across 41 Tribal affiliations and 25 US states. After a baseline interview, participants were

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Indian Health Board; Kalispel Tribe of Indians;  
The United Keetoowah Band of Cherokee  
Indians

invited to attend 8, weekly virtual HaRTC sessions. At the baseline, midpoint and post-test assessments, we collected data on virtual HaRTC acceptability, cultural connectedness, quality of life, and alcohol outcomes. Of the 123 people approached, 63% were interested in and consented to participation. Participants attended an average of 2.1 (SD = 2.02) virtual HaRTC sessions, with 64% of participants attending at least one. On a scale from 1 to 10, participants rated the virtual HaRTC as highly acceptable ( $M = 9.3$ ,  $SD = 1.9$ ), effective ( $M = 8.4$ ,  $SD = 2.9$ ), culturally aligned ( $M = 9.2$ ,  $SD = 1.5$ ), helpful ( $M = 8.8$ ,  $SD = 1.9$ ), and conducted in a good way ( $M = 9.8$ ,  $SD = 0.5$ ). Although the single-arm study design precludes causal inferences, participants evinced statistically significant decreases in days of alcohol use and alcohol-related harm over the three timepoints. Additionally, both sense of spirituality, which is a factor of cultural connectedness, and health-related quality of life increased over time as a function of the number of HaRTC sessions attended. Virtual HaRTC shows initial feasibility and acceptability as a culturally aligned intervention for AI/AN people with AUD. Future randomized controlled trials will provide a test of the efficacy of this approach.

#### KEYWORDS

alcohol use disorder, American Indian/Alaska Native, harm reduction, talking circle

## 1 | INTRODUCTION

The 2021 National Survey on Drug Use and Health indicated that approximately 280,000 American Indian and Alaska Native (AI/AN) people met criteria for alcohol use disorder (AUD), but only about 33,000 received AUD treatment (Center for Behavioral Health Statistics and Quality, 2022). AI/AN people have reported experiencing structural (e.g., lack of time and transportation) and motivational (e.g., not wanting to stop drinking) barriers to treatment (Haeny et al., 2021; Venner et al., 2012). Research has also highlighted concerns about the cultural acceptability of directive, Western, abstinence-based approaches and the corresponding need for more research on lower-barrier, patient-centered and culturally grounded (i.e., derived from the beliefs and values of a specific culture) AUD treatments (Blume, 2021; Donovan, 2015; Nelson, Collins, et al., 2023; Venner et al., 2019).

### 1.1 | Introducing the integration of harm reduction and talking circle approaches

One relevant lower-barrier and patient-centered approach is harm reduction, which refers to compassionate and pragmatic interventions that aim to reduce substance-related harm and improve health-related quality of life

(HRQoL) for people who use alcohol and drugs without requiring abstinence or use reduction (Marlatt et al., 2011). The first empirically supported harm-reduction treatment approach, which members of the current research team codeloped with community members with AUD, has shown itself to be efficacious in reducing alcohol use and alcohol-related harm and in improving HRQoL (Collins et al., 2019, 2021).

One patient-preferred, culturally grounded approach is the Talking Circle, which is a gathering of people with a common concern who respectfully share perspectives and “listen with their hearts” while each participant speaks (Mehl-Madrona & Mainguy, 2014; Umbreit, 2003). In AI/AN communities, Talking Circles have long provided a space to discuss community problems and provide healing for community members (McIntosh, 2012; Pember, 2011; Umbreit, 2003). More recent studies have shown significant pre-post improvements on substance-related harm, depressive symptoms, and cultural connectedness among American Indian youth and young adults who participate in Talking Circles (Kelley et al., 2023; Lowe et al., 2012; Patchell et al., 2015). This approach may be particularly relevant in addressing AUD given that the historical context of alcohol misuse among American Indians and Alaska Natives is deeply rooted in the traumatic experiences of forced relocation, cultural erasure, and systemic oppression (Skewes & Blume, 2019). Understanding this context is crucial for appreciating the significance of Talking Circles in alcohol intervention, as culturally resonant practices offer a means to restore community bonds, cultural identity, and healing through shared narratives and collective support (Gone, 2023; Nelson et al., 2022).

## 1.2 | Preliminary studies shaping the HaRTC approach

In a prior pilot study conducted in Seattle, Washington, AI/AN participants requested more Native staff in programs serving AI/AN clients with AUD, more harm-reduction approaches, and more culturally grounded treatments, specifically naming an interest in “Talking Circles.” (Arain et al., 2010; Collins et al., 2018) Our research team discussed these requests with the pilot study’s standing community advisory board (CAB), which included managers, staff, and AI/AN clients at a social service agency. With the CAB’s support, the current project leads developed and implemented a Harm Reduction Talking Circle (HaRTC) pilot program, which was, based on anecdotal feedback, well-attended and well-received.

As a follow-up to the HaRTC pilot, a larger group—including researchers; AI/AN community members with lived experience of AUD; and traditional health professionals, staff and management at an urban Indian health organization (UIHO)—came together to continue this effort. Our team used a community-based participatory research design, (Collins et al., 2018) and brought together two CABs made up of representatives from the above groups to meet on a weekly and monthly basis, respectively. The follow-up HaRTC project comprised three phases.

In phase 1, our research team conducted (a) interviews with 31 urban AI/AN patients with AUD, (b) key informant interviews with six management and traditional health professionals, and (c) five staff and provider focus groups. In these forums, we asked participants about AUD treatment they had experienced or administered to date, suggestions for its revisioning, perceptions of harm reduction, interest in Talking Circles as a means of community-led and culturally grounded healing, and ideas to tailor the HaRTC and AUD treatment more broadly to meet the needs of AI/AN patients (Nelson et al., 2022; Nelson, Collins et al., 2023).

Regarding the design of the HaRTC specifically, findings indicated a central tendency preference for 8, weekly HaRTC sessions. Participants expressed interest in an approach that is acceptance-based, respects individuals’ autonomy and culture, and creates a safe space for recovery, connection, balance, and harmony. Most participants felt the traditions and medicines applied in the HaRTC should honor the diversity of Tribal affiliations and backgrounds represented among urban AI/AN people. In addition to being open to whatever “comes from the heart,” participants proposed preferred topics to shape the HaRTC sessions, including managing stress and alcohol cravings; sharing information about cultural activities, maintaining and improving physical, spiritual and mental HRQoL; fostering good family relationships and partnerships; and being a positive influence in the community.

Given the low-barrier, harm-reduction orientation of the HaRTC, many participants expressed concerns about the potential inclusion of people who are intoxicated in HaRTC sessions; however, a large majority of staff, management, and

patient participants also felt it was important to have HaRTC be as inclusive and accepting of community members as possible. To allay concerns, participants provided suggestions for how to structure facilitation of HaRTC and mitigate risks of intoxication and patient escalation, while reducing stigma around active use. Taken together, findings indicated participants largely supported an integration of harm reduction principles and the tradition of the Talking Circle to develop a more inclusive, compassionate and culturally grounded healing practice (Nelson et al., 2022).

### 1.3 | Community codesign of in-person HaRTC and the subsequent virtual procedures during the COVID-19 pandemic

In phase 2, our research team and CABs worked together to interpret and integrate the above findings into a community-led research protocol. In March 2020, our team was poised to start phase 3 of our project, which entailed a randomized controlled trial (randomized clinical trial [RCT];  $N = 280$ ) testing the efficacy of the planned in-person HaRTC at the Seattle-based UIHO. At that moment, Seattle became the initial hotspot of the COVID-19 pandemic in the United States, and our Seattle-based community partners' primary care clinic closed to onsite research to focus on patient care. A few weeks later, our academic institutions followed suit.

With the support of our CAB and the community-based site lead, our team shifted our procedures. Instead of the planned RCT of an in-person HaRTC centered within a single-site UIHO clinic, we moved to fully virtual research procedures and HaRTC delivery. After months needed to get new approvals in place and challenges in our initial recruitment for the virtual RCT, we received questions from the original RCT's data and safety monitoring board regarding the futility of the RCT as planned. We acknowledged that the pandemic constraints, the number of revisions to study design, and additional feedback from our CAB and community partners necessitated a pilot study before a full RCT. We stopped new recruitment for our original, two-arm RCT ( $N = 21$ ) and streamlined our project into a single-arm, nonrandomized pilot study, which we report on here.

### 1.4 | Current pilot study aims

The aims of the resulting single-arm pilot were to demonstrate the feasibility and acceptability of virtual HaRTC and assessment sessions and to collect data on pre-to-post change in alcohol use, HRQoL, and cultural connectedness. It was hypothesized the virtual procedures would: (a) be feasible (i.e., participants would be interested in, present for, and be retained in the project which represents one aspect of feasibility [Arain et al., 2010]); (b) be acceptable (i.e., participants would report that virtual HaRTC was acceptable, effective, culturally aligned); and (c) allow for adequate data collection of alcohol, quality-of-life and cultural connectedness outcomes for a future RCT.

## 2 | METHODS

### 2.1 | Design

Our initial in-person RCT ( $N = 280$ ) required multiple redesign efforts in the wake of the COVID-19 pandemic and its ensuing clinic shutdowns, delays, and physical distancing requirements. To ensure we honored participants' time and effort and utilized as much available data as possible, the complete data set for this single-arm pilot study ( $N = 51$ ) was derived from both the virtual HaRTC arm of the initial RCT ( $n = 11$ ) and the ensuing single-arm data collection ( $n = 40$ ). We received support for this shift from the overseeing institutional review board and original partnering site. We show how these data were combined in Figure 1.

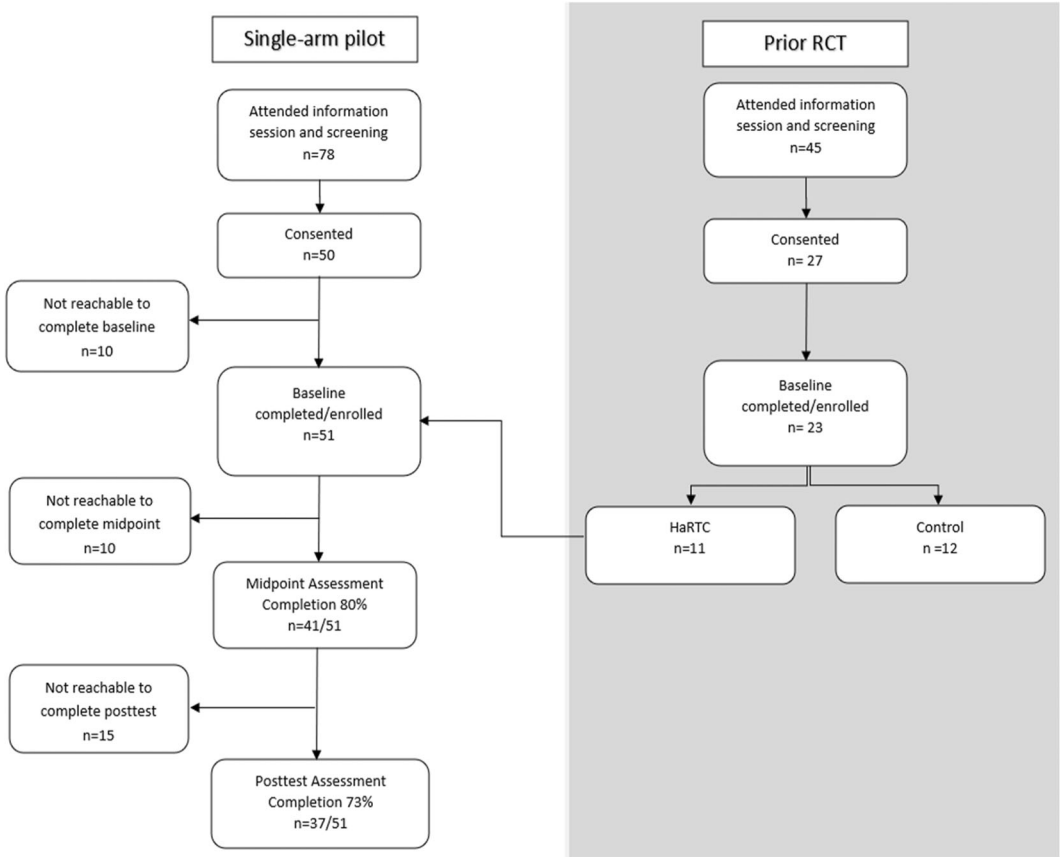


FIGURE 1 Study flowchart.

## 2.2 | Participants

Participants were 51 AI/AN adults with AUD. Inclusion criteria were living in the United States, not dwelling on Tribal lands (with the exception of patients at our partnering agencies with whom we had Tribal leadership approval), self-reported AI/AN heritage, being at least 21 years of age, meeting criteria for alcohol use disorder (AUD; current or in early/sustained remission) according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition DSM-5, (American Psychiatric Association, 2013) and having adequate technological literacy for video conferencing and texting. Exclusion criteria were (a) refusal or inability to consent to participation in research and (b) potential to place the safety or security of other patients or staff at risk.

## 2.3 | Settings

Participants were recruited through three primary pathways. The first recruitment pathway (pathway 1) was designed through the original partnership with the Seattle-based UIHO. Nine months into recruitment, this pathway was opened to two additional sites, which are substance-use treatment clinics on Tribal lands in Oklahoma and Washington State. Participants recruited through this pathway had the option of connecting with research staff using their own devices or, depending on the site, through equipment (i.e., a videoconference-enabled laptop)

provided to the sites to facilitate connection with research staff. The second recruitment pathway (pathway 2) was a broader effort to engage in outreach to the larger community. As one part of this broader recruitment effort, we engaged community consultants located in Phoenix, AZ, who regularly attended cultural events to represent the project. They brought flyers and project “swag” (i.e., water bottles, t-shirts emblazoned with the project name and contact information) to tabling events. With permission, they hung flyers on community bulletin boards and at housing, substance-use treatment and other wellness centers in the Phoenix area. The third recruitment pathway (pathway 3) was through culturally aligned, adaptive social media marketing that was codesigned with the CAB and implemented by BuildClinical, LLC.

## 2.4 | Measures

### 2.4.1 | Screening measures

The *screening questionnaire* comprised 13 items to initially establish whether participants would meet inclusion criteria regarding age, race, technological literacy, likely fulfillment of AUD criteria (3-item AUDIT-C [Bush et al., 1998]), and living either not on Tribal lands or in a community from whom we had Tribal permission to engage in research.

The *UCSD Brief Assessment of Capacity to Consent (UBACC)*, which is a 10-item, 3-point Likert-type measure, (Jeste et al., 2007) was used during the informed consent process to ensure participants understood the study protocol, potential risks/benefits, and their rights as participants before enrollment.

During the baseline assessment, we also administered the AUD portion of the *DSM-5 SCID*, (First et al., 2015) which was used to fully establish that participants met criteria for AUD. At first, we had specified current AUD as an inclusion criterion, but opened the study to AUD in early/sustained remission based on strong recommendations from our community-based partners. Specifically, we were asked to honor local requests to be maximally inclusive of community members who wanted to attend virtual HaRTC sessions within treatment agencies and to ensure people in earlier stages of recovery could learn from Elders and those more established in recovery. After careful consideration, we proceeded with this approach to be maximally responsive to community requests. However, we note that the data and safety monitoring board of the original RCT effort expressed concerns about its potential to hamper adequate variability in alcohol outcomes.

### 2.4.2 | Measures for baseline sample description

The *Personal Information Form* (Larimer, 2009) comprises single items, including age, sex assigned at birth, race, ethnicity, education, employment, military experience, concurrent participation in SUD treatment, and experience of homelessness.

### 2.4.3 | Measures of acceptability outcomes

The quantitative measure of acceptability was the *Acceptability Ruler*, which was adapted from a measure reported on in a previous study (Collins et al., 2019). It includes 5 items prompting participants to rate the virtual HaRTC on various dimensions. Ratings were made on a 10-point Likert-type scale, where HaRTC was perceived as 1 = not at all to 10 = totally acceptable/effective/helpful/aligned with culture/conducted in a “good way” (i.e., indicating an interaction or process was conducted respectfully and with the best intentions for all parties involved).

The qualitative measure comprised a series of prompts to elicit from participants their receipt of and satisfaction with HaRTC. Items served to assess participants' overall perception of HaRTC (e.g., "What was it like for you to participate in the Circles in this study?"; "What did you like about the Circles in this study?"; "What did you not like about the Circles in this study?") and participants' comparison of their alcohol use and HRQoL prior and subsequent to their participation (e.g., "Please compare your drinking/quality of life both before and after you attended these Circles"). We also asked questions about how we could improve HaRTC moving forward (e.g., "What could we do to improve participants' experience in the future?").

#### 2.4.4 | Measures of cultural connectedness, alcohol and HRQoL outcomes

The *Cultural Connectedness Scale—Short Version* is a 10-item Likert type measure consisting of three dimensions (i.e., identity, traditions, and spirituality) that generate three scale scores (Snowshoe et al., 2017). The Identity subscale refers to a positive sense of exploration and commitment to one's AI/AN culture. The Traditions subscale refers to engagement in and perception of utility of traditional practices. The Spirituality subscale refers to connection to the spirit world through an adoption of AI/AN ways of being, coping, and healing.

The *Alcohol and Substance-use Frequency Assessment* questions were adapted from the ASI (McLellan et al., 1992) to assess frequency of alcohol use over the past 30 days. The *Alcohol Quantity of Use Assessment (AQUA)* was created and used in the context of prior studies with a population impacted by AUD (Collins et al., 2019, 2021; Larimer, Kaysen, et al., 2009) and assessed peak quantity, which refers to the number of standard drinks consumed on participants' heaviest drinking day in the past 30 days. The *Short Inventory of Problems (SIP-2R)* is a 15-item, Likert-type questionnaire that measured the level of participants' experience with social, occupational and psychological alcohol-related harm over the past 30 days (Miller et al., 1995). Self-administered urinary *ethyl glucuronide (EtG)* testing, achieved with a study-supplied and mailed dipcard and cup, was used as an alcohol biomarker. A 300 ng/mL cutoff was used, and the dichotomous (negative and positive) test results were used as the outcome.

The *EuroQoL-5 Dimensional-5 Level (EQ-5D-5L)* is a standardized 5-item, 5-point Likert type measure of HRQoL (EuroQoL, 1990). This reliable and valid measure comprises five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression and may be summarized as an index value which is often used in health economics analyses. Additionally, the visual analog scale is a single item that reflects self-reported health status, where 0 = worst health imaginable and 100 = best health imaginable.

### 2.5 | Virtual HaRTC

Before their first virtual HaRTC session, participants were mailed a medicine bundle for personal use during the sessions. They were also mailed a poem and art print, which had been created by CAB members to welcome participants to the study. Virtual HaRTC sessions were led via videoconferencing (i.e., HIPAA-compliant Zoom connection) by a Circle Facilitator who is recognized in her community as a Native wellness practitioner. Initially, we planned to wait until five participants were enrolled to form a new cohort for our closed-group, virtual HaRTC sessions. We soon found, however, that this format substantially delayed recruitment. Thus, we revised our protocol. First, we removed the requirement of five participants to start a new cohort. Later, we moved to an open-group format, which allowed for rolling admissions. With this latter model, under which the majority of participants ( $n = 40$ ) were recruited, participants were invited to attend virtual HaRTC sessions starting the Friday or Saturday of the week they completed the baseline and provided written informed consent.

The Circle Facilitator hosted the weekly, open-group, virtual HaRTC sessions according to a protocol collaboratively developed by traditional health professionals (A. S. and I. J.) at our initial partnering site and

members of the research team involved in the pilot HaRTC program (L. N. and S. E. C). The protocol was informed by input from the phase 1 participants and HaRTC CAB members, and adhered to a harm-reduction approach. Participants were not asked to change their use in any way they did not want to but were encouraged to bring more awareness to their alcohol and other drug use and find ways to stay safer and healthier, even if they continued use. Although the virtual HaRTC sessions had no official running length, they typically lasted 1 h, and participants were invited to join for eight sessions. During these sessions, topics that were codeveloped by the CAB in phase 2 were introduced by the Circle Facilitator. These included managing stress and alcohol cravings; participating in cultural activities; maintaining and improving physical health; staying physically, emotionally and spiritually safer; improving quality of life; fostering good family relationships and partnerships; being a positive influence in the community; and reflecting on what was learned.

The primary virtual HaRTC Facilitator (C. M.- G.) described virtual HaRTC as a place where “participants are welcomed in a nonjudgmental way, met where they’re at in the comfort of their own space, and encouraged to live in a healthier, happier, healing way. Participants are invited to share from the heart until nothing is left unsaid. Information shared is kept in a confidential way and participants are never turned away if currently using. The intention of the Circle is to make use of harm reduction methods. The Talking Circle can be compared to Ho’oponopono and a way of healing and reconciliation and support of others, too. Participants leave the Circle feeling lighter, hopeful and reassured recovery is possible on their own terms and with the group’s support.”

## 2.6 | Procedures

All procedures were approved by the relevant institutional review boards and/or Tribal government entities before recruitment.

### 2.6.1 | Study recruitment and informed consent

Flyers, brochures and/or study information were hung at community events, posted on social media, and distributed to AI/AN communities. Potential participants contacted study staff via phone, email or online form as seen in printed brochures/flyers, on social media advertising, and/or on videoconference-enabled devices at partnering sites where they were receiving services.

Research staff screened potential participants as an initial assessment of their fulfillment of study criteria. If they screened in, research staff held a 20-min informational session with interested parties via telephone or videoconference. During informational sessions, research staff explained the study procedures, study participants’ rights, and informed consent materials. The UBACC was administered to assess capacity to provide informed consent. If they were able and agreed to participate, participants provided verbal, audiorecorded informed consent. They were scheduled for a baseline visit and were mailed a copy of the consent form, urine testing kits, and videoconferencing-enabled smartphone, as needed and only if recruited through Pathway 1. (Of note, researchers ensured that participants would not be legally or financially responsible for the study smartphone in the case of its loss or damage, and study participants were allowed one additional replacement. The practice of providing smartphones was discontinued once we found that participants were recruited primarily and most effectively through community outreach and adaptive social media marketing.) We additionally provided videoconference-enabled laptops and hotspots to two of the three partnering sites along with copies of the consent form and urine testing kits, in case participants could most readily connect through those sites.



## 2.6.2 | Baseline data collection sessions

At baseline sessions, which lasted approximately 60 min, participants were administered the baseline measures described above, which were entered by research staff directly into REDCap. Next, participants were asked to provide a urine sample and test it using the study-supplied urine testing dipcard. They then showed the dipcard results to research staff, who recorded the results in the REDCap database. Updated tracking/contact information was collected and entered into a separate REDCap database to facilitate follow-up.

At each subsequent assessment, participants connected with HaRTC staff via phone or videoconferencing application. Before all appointments, participants received reminders via phone call, voice mail, texts, and/or emails. Participants were not monetarily compensated for virtual HaRTC session attendance but were offered their choice of a \$40 electronic or hardcopy gift card for attending the baseline, midpoint and post-test assessment sessions.

## 2.7 | Data analysis plan

### 2.7.1 | Quantitative analyses

*Feasibility analyses* comprised descriptive statistics, including simple percentages of participants who (a) attended an information session, (b) were eligible, (c) provided informed consent, (d) attended assessment sessions, and (e) attended virtual HaRTC sessions.

*Acceptability analyses* comprised descriptive statistics (i.e., means and standard deviations) for participant responses to Likert-type items assessing their perceived level of acceptability, effectiveness, and cultural alignment of the virtual HaRTC sessions.

We conducted analyses to produce descriptive statistics and within-subjects (observational) tests of change for *alcohol*, *HRQoL*, and *cultural connectedness outcomes*. Although we conducted longitudinal data analysis on these outcome data, we did so to ensure we could collect the data, the measures functioned adequately, and the data were analyzable. Given the single-arm, pilot nature of the data, analyses are not to be causally interpreted as a test of intervention effectiveness. Instead, findings from these observational data are being used to inform the design of an upcoming, larger-scale RCT of the virtual HaRTC.

Descriptive analyses and exploratory data analyses were conducted in STATA/MP 18 and were used to describe the participant sample and frequency of virtual HaRTC attendance. For the inferential tests, we used population-averaged generalized estimating equations (GEE) in STATA/MP 18 (Zeger & Liang, 1986) to test the associations between the outcomes (i.e., alcohol, HRQoL and cultural connectedness) and (a) centered time, (b) centered number of virtual HaRTC sessions attended, and (c) the interaction of centered time x centered number of sessions.

Because exploratory data analyses indicated that alcohol outcome distributions were positively skewed and overdispersed, we used negative binomial (log link) GEE models for those outcomes. The EQ Index was negatively skewed, positive and continuous; thus, we reflected the scores (1-x) to align with the assumptions of the gamma distribution. In reporting coefficients for the gamma (identity link) models, we reversed the sign to align with the original scale. We used a logistic distributions (log link) for the EtG outcome, and Gaussian distributions (identity link) for the other outcomes, which were normally distributed. To enhance the interpretability of negative binomial and logistic model parameters, resulting effect sizes were exponentiated and reported as incident rate ratios or odds ratios (*IRRs/ORs*), respectively where *IRRs/ORs* < 1 indicate an inverse association, *IRRs/ORs* = 1 indicate no association, and *IRRs/ORs* > 1 indicate a positive association. Alphas were set to  $p = 0.05$ . Confidence intervals were set to 95%.

## 2.7.2 | Qualitative analyses

Additional open-ended prompts assessing themes related to participants' perceptions of the intervention and the assessment of their alcohol use and HRQoL were analyzed using conventional content analysis, a qualitative data analysis method that entails a systematic classification process to identifying themes (Hsieh & Shannon, 2005; Krippendorff, 2004). Qualitative data were managed in Dedoose and were independently coded using a constant comparative process (Charmaz, 2014; Miles & Huberman, 1994). Initial coding was conducted using a line-by-line technique, whereby coders narrated the actions occurring in the interviews (Charmaz, 2014). Following independently conducted initial coding, we created a codebook during consensus meetings, wherein incident-by-incident codes were pooled and idiosyncratic or redundant codes were collapsed or removed. In the next coding phase, we used the codebook to independently double-code 10% of the interviews until intercoder consistency was established (76.8%). Any discrepancies and issues in coding were addressed during weekly coding meetings and resolved via consensus. Once target intercoder consistency was achieved, the remaining interviews were coded independently.

## 3 | RESULTS

### 3.1 | Study sample description

Participants represented 41 tribal affiliations and 25 US states. Baseline descriptive statistics on sociodemographic data are in Table 1.

### 3.2 | Safety and adverse events

No participants reported any safety concerns, and no serious adverse events were observed or reported during the study duration.

### 3.3 | Feasibility

Of those who attended information sessions ( $N = 123$ ), 77 (63%) screened in and consented to participate, including 27/45 (60%) of the original RCT sample and 50/78 (64%) of those in the later single-arm recruitment (see Figure 1). In total, 51 participants completed the baseline measures, which contained additional items to confirm full qualification for participation, and 80% (41/51) and 71% (36/51) of participants attended assessments at Week 4 (midpoint) and 8 (post-test), respectively. As shown in Table 2, we attempted various means of recruitment during the pandemic. As we moved to adaptive social media marketing, we saw the most substantial increases in recruitment and retention.

During the initial recruitment phase, we provided smartphones to five potential participants who stated they did not have access to their own device at the time of consent. Of the participants who received study-paid smartphones, four completed the baseline and thus fully qualified for study participation. Two of these participants, who were recruited at the very start of the original study, were withdrawn by the researchers because we could not provide HaRTC sessions in a timely way before our removal of the requirement of the recruitment of five participants to start a new closed Circle cohort. None of the participants who received smartphones attended any virtual HaRTC sessions or completed further assessments.

**TABLE 1** Sociodemographic sample description at baseline ( $N = 51$ ).

Variables	M (SD)/% (n)
Age	47.02 (11.34)
Sex assigned at birth	73% (37) female
Ethnicity	22% (11) Hispanic/Latine
Race	
American Indian/Alaska Native	65% (33)
Native Hawaiian/Pacific Islander	0% (0)
Black/African American	0% (0)
White/European American	0% (0)
More than one race <sup>a</sup>	35% (18)
"Other"	0% (0)
Highest level of education completed	
Less than high school	10% (5)
High school/GED	14% (7)
Vocational school	6% (3)
Some college	39% (20)
College graduate	18% (9)
Advanced degree	14% (7)
Employment status	45% (23) currently employed
Homelessness in past year	24% (12)
Residence on a reservation	27.5% reservation-dwelling
Military experience	4% (2)
Current AUD <sup>b</sup>	65% (33)
Concurrent substance use disorder treatment attendance	18% (9)

Abbreviations: AUD, alcohol use disorder; GED, general equivalence diploma; SD, standard deviation.

<sup>a</sup>All participants who reported "more than one race" identified as American Indian or Alaska Native plus another race;

<sup>b</sup>All participants met criteria for lifetime AUD.

Of the complete sample, 64% of participants attended at least one HaRTC session. Of the eight possible HaRTC sessions they were offered, participants attended a mean of 2 ( $SD = 2.02$ ), with 39% ( $n = 20$ ) attending 0 sessions, 10% ( $n = 5$ ) attending 1 session, 10% ( $n = 5$ ) attending 2 sessions, 14% ( $n = 7$ ) attending 3 sessions, 14% ( $n = 7$ ) attending 4 sessions, 8% ( $n = 4$ ) attending 5 sessions, and 6% ( $n = 3$ ) attending 6 sessions. No participants attended all 8 HaRTC sessions offered.

A zero-inflated Poisson regression indicated that HaRTC attendance was not predicted by any baseline sociodemographic variables (age, sex assigned at birth, race, ethnicity, current housing status, employment, importance of spirituality, and income) or alcohol variables (alcohol-related harm, quantity, frequency),  $\chi^2(17, N = 47) = 14.48, p = 0.63$ .

**TABLE 2** Mean monthly recruitment across time corresponding to our different efforts and our gradually mounting success as we learned how to most efficiently recruit participants for a virtually adapted HaRTC intervention.

Era	Recruitment efforts attempted	Mean monthly recruitment	Relative change over prior era (% $\Delta$ )
October 2020 to May 2021	Initial RCT recruitment using a homemade website, social media posts, flyering at the initial primary care clinic site, and word of mouth	0.5 participants/month	-
June 2021 to November 2021	Addition of 2 substance use treatment center sites for RCT	1.5 participants/month	+200%
December 2021 to February 2022	Bringing on community consultant with ties to recovery communities, flyering and recruiting at community events	3.7 participants/month	+145%
May 2022 to July 2022	Single-arm pilot study recruitment starts	2.3 participants/month	-38%
August 2022 to October 2022	Adding tailored, adaptive, community-codedigned online and social media marketing	8.3 participants/month	+207%

Abbreviations: HaRTC, Harm Reduction Talking Circles; RCT, randomized clinical trial.

### 3.4 | Perceived acceptability, efficacy, and cultural alignment

#### 3.4.1 | Quantitative findings

On a ruler where one is “not at all” and 10 is “totally,” participants reported virtual HaRTC was highly acceptable ( $M = 9.3$ ,  $SD = 1.9$ ), effective ( $M = 8.4$ ,  $SD = 2.9$ ), culturally aligned ( $M = 9.1$ ,  $SD = 1.5$ ), helpful ( $M = 8.8$ ,  $SD = 2.0$ ), and conducted in a good way ( $M = 9.8$ ,  $SD = 0.5$ ).

#### 3.4.2 | Qualitative findings

Of the overall sample, 37/51 individuals provided responses to qualitative questions at the follow-up assessment. Before the study, 48.6% (18/37) of participants had attended in-person Talking Circles, and 16.2% (6/37) had attended virtual Talking Circles. Reasons given for virtual HaRTC project participation included interest in (a) the study's alignment towards Native health (40.5%, 15/37), (b) learning more about oneself (29.7%, 11/37), (c) building community and connecting with others (27.0%, 10/37), (d) helping others through contributing to research (27.0%, 10/37), (e) interest sparked by recruitment materials (i.e., flyers, brochures, social media; 13.5%, 5/37), and (f) recommendations from friends or family (8.1%, 3/37).

#### 3.4.3 | What's working about HaRTC according to participants

A majority of participants (54.1%, 20/37) cited building community and connecting with other AI/AN people as a key reason for their attendance (e.g., “It was good being with other Indigenous people”; “I needed people who are Native who didn't mind sharing their story”). One participant appreciated the “‘familyness’, how people were just

being raw and upfront and honest. There were moments when we would cry, and I was happy that happened. People were vulnerable but willing to embrace it like a family.” Even people who were “not used to talking” found that it helped them to “open up better... Even if you are having a bad day, then the person on the other side can lift your spirits and improve your day.”

Participants also appreciated having a safe space to be open and share freely, without judgment (37.8%, 14/37). One participant liked “having an open place to talk about what’s on your mind especially in relation to substance or alcohol use.” Another said the virtual HaRTC sessions made for a “therapeutic environment where I did not feel like I would be judged.” The fact that participants were often connecting with people from other Tribal communities contributed to this feeling; there was less concern about social repercussions resulting from what they said about their alcohol and other drug use. As one participant said: They were “a little apprehensive about knowing people at local Circles. So, I liked that I didn’t know anybody.”

Some participants explicitly mentioned positive perceptions of the Circle Facilitators (16.2%, 6/37). While some noted simply that “the facilitator was good,” others were more specific about appreciating the traditions honored (e.g., “She would burn sage in the beginning and taught about cultural stuff”) and way the sessions were facilitated (e.g., “I appreciated the way it was facilitated...it felt more like a conversation”; “I liked how she demonstrated different topics...”). In reporting on the logistics, most participants thought that the number of (54.1%, 20/37) and length of time for virtual HaRTC sessions was appropriate (62.2%, 23/37; e.g., “liked it...liked that it was every Friday and that someone has dedicated their time to help others,” “I think an hour was good”).

Participants appreciated the integration of Native traditions and medicines into virtual HaRTC sessions, even as they noted it was “not the same” as their prior experiences within-person Talking Circles. One participant noted it was “very interesting. The very first time I thought, ‘That was different’. Virtually, it’s nothing like actually being in the Talking Circle live—actually looking at the altar, burning the sage, seeing the feather go around.” That said, the same participant “liked that [they] were able to meet other people across the country and get input and feedback and vice versa which is not like traditional Talking Circles.” Participants viewed their access to and use of medicine in the sessions as positive and a means of connecting with their culture (e.g., “I liked when you guys sent the sweetgrass, and it made me feel a little more prepared and comfortable. I never had it before because I’m an urban Native.”)

#### 3.4.4 | What can be improved

As noted above, the majority of participants were satisfied with the running length of the virtual HaRTC sessions; however, several participants suggested having longer virtual HaRTC sessions (16.2%, 6/37; e.g., “Sometimes I felt like it could be longer because there were more issues coming up and more deeper things coming up right when it was time to wrap up.”) Others wanted the option to continue attending virtual HaRTC or be connected to other Talking Circle opportunities after the completion of the study (10.8%, 4/37; e.g., “time was good for an hour, but wish I could continue on with the Circle after so many weeks”).

Several participants (10.8%, 4/37) mentioned technology issues that made it difficult to participate and connect in a virtual space (e.g., “the Zoom technology can sometimes not work as great as it should”). Some participants expressed interest in having an in-person option alongside the virtual HaRTC sessions to increase accessibility (13.5%, 5/37; e.g., “make it more easier to join, not just via Zoom or phone—in person option”).

Of note, 34% of participants were unable to attend virtual HaRTC sessions altogether. Although this gap was sometimes due to our own recruitment challenges and technical difficulties in the early days of the study, later participants noted various reasons they were unable to attend. Although one participant indicated they had not wanted to “expose [themselves] to anyone, wanted to keep [their] privacy,” the majority of participants who did not attend indicated that school, work or family responsibilities had prevented them from attending the virtual HaRTC sessions at the scheduled time (e.g., “Had to take care of my mother. Timing did not work out.”)

### 3.5 | Cultural connectedness, HRQoL, and alcohol outcomes

#### 3.5.1 | Quantitative findings

Descriptive statistics across the 3 timepoints for the cultural connectedness, alcohol and QoL outcomes are included in Table 3.

#### 3.5.2 | Cultural connectedness outcomes

Regarding the Spirituality subscale within cultural connectedness, the main effects model featuring the predictors of time, Wald  $\chi^2(1, N = 51) = 2.29, p = 0.13$ , and time plus sessions attended were not statistically significant, Wald  $\chi^2(2, N = 51) = 3.49, p = 0.17$ . However, the interaction model was significant, Wald  $\chi^2(3, N = 51) = 9.91, p = 0.02$ , which indicated that the more HaRTC sessions a person attended, the more their Spirituality score increased across time ( $b = 0.06, SE = 0.03, p = 0.049$ ; see Figure 2). None of the models were statistically significantly predictive of the Identity and Traditions subscales within cultural connectedness (all  $p$ 's > 0.20).

#### 3.5.3 | HR-QoL outcomes

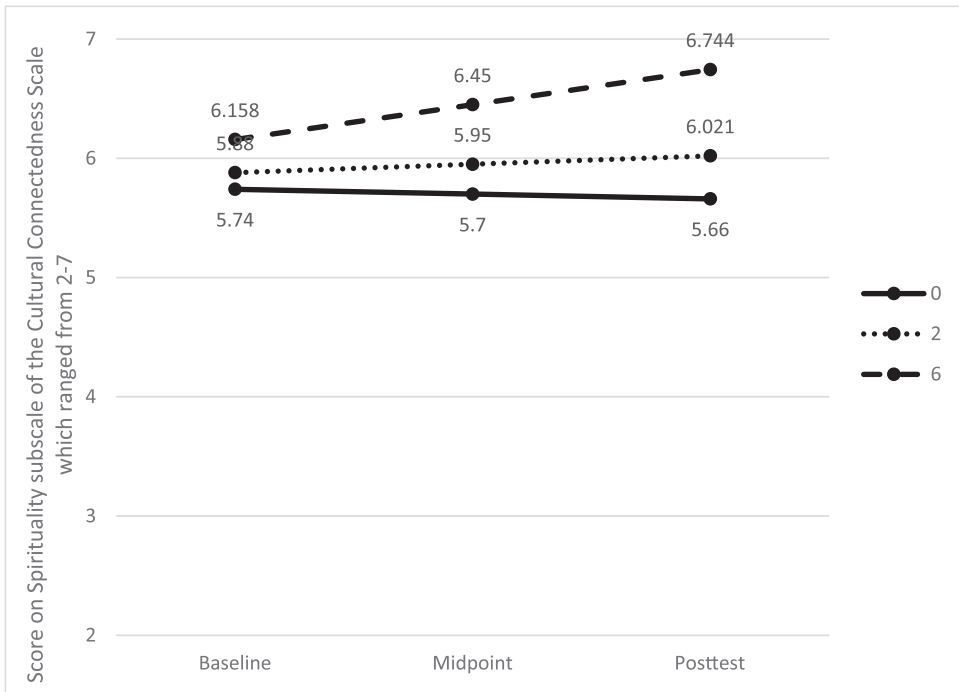
Regarding the EQ Index, the main effects model featuring the predictors of time, Wald  $\chi^2(1, N = 51) = 0.01, p = 0.92$ , and time plus sessions attended were not statistically significant, Wald  $\chi^2(2, N = 51) = 3.17, p = 0.20$ . However, the interaction model was significant, Wald  $\chi^2(3, N = 51) = 12.89, p = 0.005$ , which indicated that the more HaRTC sessions a person attended, the more their overall HR-QoL increased across time ( $b = 0.03, SE = 0.01, p = 0.01$ ; see Figure 3). None of the models were statistically significantly predictive of the EQ-VAS (all  $p$ 's > 0.13).

#### 3.5.4 | Alcohol outcomes

Considering days of alcohol use, the main effects model for time was significant, Wald  $\chi^2(1, N = 51) = 4.13, p = 0.04$ , which indicated that for each month that passed, participants reported drinking on 13% fewer days (IRR = 0.87,

**TABLE 3** Descriptive statistics for outcomes across time.

	Baseline M(SD)/%	Midpoint M(SD)/%	Post-test M(SD)/%
Cultural connectedness: Identity	14.16 (1.94)	14.07 (2.04)	13.84 (2.02)
Cultural connectedness: Traditions	4.57 (1.70)	4.88 (1.75)	4.78 (1.78)
Cultural connectedness: Traditions	5.84 (1.17)	5.85 (1.31)	6.11 (1.10)
Drinking days/mo	5.53 (8.79)	3.66 (7.09)	3.86 (6.35)
Drinks on peak drinking day	11.38 (29.59)	7.03 (15.57)	8.16 (16.74)
Alcohol-related harm	11.18 (12.16)	7.12 (10.84)	6.22 (8.25)
Positive ethyl glucuronide tests	85% ( $n = 33/39$ )	83% ( $n = 24/29$ )	85% ( $n = 22/26$ )
Health-related quality of life	0.71 (0.25)	0.69 (0.29)	0.71 (0.33)
Self-assessment of health	69.08 (19.38)	68 (23.43)	69.24 (22.72)



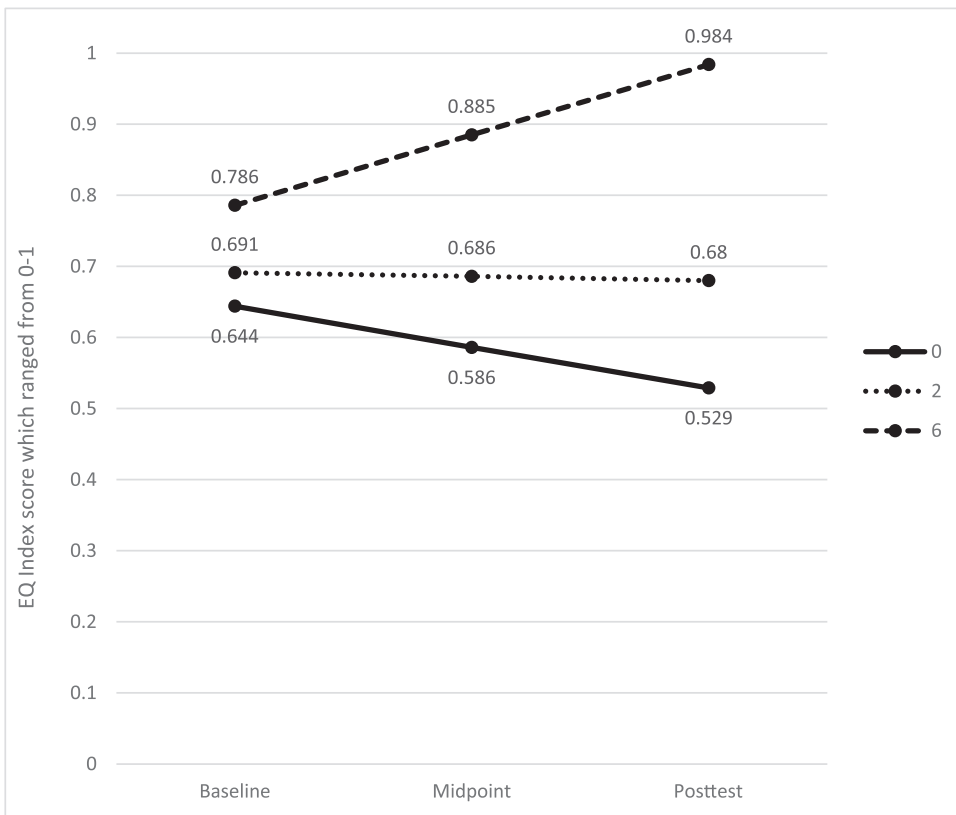
**FIGURE 2** Spirituality scores increase by number of HaRTC sessions attended. HaRTC, Harm Reduction Talking Circles.

SE = 0.06,  $p = 0.04$ ). The main effects model adding the number of HaRTC sessions, Wald  $\chi^2$  (2,  $N = 51$ ) = 3.74,  $p = 0.15$ , and the interaction of time x HaRTC sessions, Wald  $\chi^2$  (3,  $N = 51$ ) = 4.66,  $p = 0.20$ , were, however, not significantly predictive of days of alcohol use.

The main effects model for time as a predictor of alcohol-related harm was significant, Wald  $\chi^2$  (1,  $N = 51$ ) = 18.01,  $p < 0.001$ , which indicated that for each month that passed, participants had a 23% lower alcohol-related harm score (IRR = 0.77, SE = 0.05,  $p < 0.001$ ). The main effect for number of HaRTC sessions (IRR = 0.86, SE = 0.07,  $p = 0.07$ ) and the interaction of time x HaRTC sessions (IRR = 1.01, SE = 0.03,  $p = 0.76$ ) were, however, not significantly predictive of alcohol-related harm. None of the main effects or interaction models for peak alcohol use or EtG, were statistically significant (all  $p$ 's > 0.05).

### 3.5.5 | Qualitative outcomes

Participants' qualitative comparisons of their own pre-to-post-test drinking largely corresponded to the quantitative findings indicating significant pre-to-post-test changes in alcohol frequency and alcohol-related harm. More than a quarter of participants (27.0%, 10/37) reported an increase in their awareness around alcohol use, especially in ways that indicated a move towards harm reduction (e.g., "I am not completely sober, and I don't feel bad about it. I am coming to alcohol with a clearer mind about why and what I'm drinking and what it does to me"). While a couple of participants reported their active use remained at the same level (5.4%, 2/37; e.g., "drinking stayed the same"), an equal number reported engaging safer-drinking strategies (5.4%, 2/37; e.g., "drinking less hard alcohol and more beer instead"), and even more participants reported decreases in alcohol consumption (16.2%, 6/37; e.g., "drinking has slowed down a bit," "I take less sips"). One participant noted achieving abstinence since joining the



**FIGURE 3** EQ index scores increase by number of HaRTC sessions attended. HaRTC, Harm Reduction Talking Circle. EQ, EuroQol.

study (2.7%, 1/37; e.g., “drinking heavily before the study but made a choice to slow down and stop...not interested in drinking right now, sobering up helped me get back to what’s important to me”), and a large minority of participants who were not actively drinking at the start of the study reported that the HaRTC sessions helped them maintain their sobriety (40.5%, 15/37; e.g., “still not drinking after the Circles and more confident that I will continue not drinking...”).

In addition to making changes in their drinking, 2 participants pointed out more encompassing ways the virtual HaRTC sessions helped them to make connections between their culture, community, spirituality and new ways of defining their recovery. One participant noted, “It was more looking at alcoholism from the Native American side. Before, didn’t really have a connection because I couldn’t really connect with anybody in AA. Now, I became more a part of my healing, and drinking was not a part of the equation anymore. Rather than running to alcohol I would say all my prayers and do smudging and doing Talking Circle once a week.” Another shared that “as an Indigenous female and being responsible as a matriarch in my culture, it’s important that we continue having these Talking Circles and raising awareness. It’s a personal goal but also cultural and community goal to ensure the survival of my people and my culture. ...We have lost so many lives and young lives; this isn’t our medicine. We need to understand it better and be educated. ...I put that beer up to my lips, and I know what it can do. I think it’s important to bring awareness. We can’t keep on saying we don’t know any better. If I wanted to change, then I need to be an example and be the change.”



## 4 | DISCUSSION

To our knowledge, this single-arm pilot is the first test of the feasibility and acceptability of virtually provided, harm-reduction oriented and culturally grounded programming in the form of virtual harm-reduction Talking Circles. In this study, we were able to demonstrate that, after various iterations, the virtual HaRTC was feasible, acceptable, and provided adequate data on alcohol, quality-of-life and cultural connectedness outcomes. Regarding the latter, participants showed increased spirituality, one aspect of cultural connectedness, and HRQoL over the course of the study in accordance with the number of virtual HaRTC sessions they attended. Participants also reported decreased alcohol frequency and alcohol-related harm across the course of the study. Given this was not an RCT, we cannot conclude the observed changes were due to the virtual HaRTC sessions. That said, these initial data provided a promising signal and important information to inform future RCTs of virtual HaRTC for AI/AN people with AUD.

### 4.1 | Feasibility of virtual HaRTC

With ongoing consultation of our community partners, CAB members and consultants and through multiple iterations, our team was able to shape a feasible protocol for the virtual HaRTC sessions and other study procedures. Our earliest attempts to reach out to participants—those who were not yet connected to the technology and were being seen primarily through in-person services at a UIHO – were largely unsuccessful. We improved our recruitment pace and retention as we shifted recruitment efforts to substance-use treatment clinics that were more focused on the priority population and, later, to community outreach at events that allowed for a more personal connection with trusted leaders. Ultimately, the use of adaptive social media marketing that incorporated the CAB's graphic designs and wording provided the swiftest pathway to identifying and inviting new participants to join the study.

The relative strength of this latter approach was likely rooted in its ability to reach people who were already connected online and were explicitly seeking the type of virtual intervention we were offering. This group showed strong digital assimilation (i.e., the degree to which technology is integrated and used in one's daily life), which corresponds to one pandemic-era review's finding that digitally assimilated members of minoritized groups in the US were more likely to use online means of connecting with community during the COVID-19 pandemic (Litchfield et al., 2021). Our lack of success in connecting people with less digital access and literacy is likely reflective of larger structural and socioeconomic issues that have led to the "digital divide" in the US. This phenomenon signals the need for a greater, publicly supported infrastructure to more generally increase accessibility of virtual support, recovery and treatment resources (Eruchalu et al., 2021; Litchfield et al., 2021; Vassilakopoulou & Hustad, 2023).

### 4.2 | Acceptability of virtual HaRTC

In reviewing qualitative outcomes, participants "liked" specific aspects of virtual HaRTC in greater proportions than they "disliked" specific aspects of virtual HaRTC, the latter which seemed related to more idiosyncratic, logistical issues. These qualitative findings converged with the quantitative findings, which likewise indicated very high mean levels of acceptability, perceived effectiveness, cultural alignment, and helpfulness. Taken together, we can conclude that participants largely found the procedures acceptable. These findings coincide with those from the telehealth literature more generally, which has indicated high levels of patient satisfaction with virtual treatment and recovery opportunities (Mahmoud et al., 2022; Mark et al., 2022; Sweeney et al., 2022).

More specifically, the virtual HaRTC sessions served as a low-barrier and accessible space where individuals reported feeling acknowledged, connected, and heard nonjudgmentally. One of the Circle Facilitators noted that, despite the fact participants were often not from the same Tribe or geographical community, they felt very

connected and would share from their hearts. In fact, some participants noted that they had been more apprehensive about knowing people at local gatherings and thus appreciated connecting with other AI/AN people with AUD without fear of shame or social repercussions for what they shared. This finding corresponds to those of other studies using virtual technologies to connect communities; these studies have likewise noted greater levels of help-seeking due to the perception of anonymity ascribed to virtual support groups (Allen et al., 2016; Sanger et al., 2019; Worley & Krishnan, 2020).

Even as participants noted that virtual HaRTC sessions were “very different” from their prior experiences within-person Talking Circles, the virtual HaRTC sessions were nonetheless largely well-received. The role of the Circle Facilitator was pivotal in this positive experience. Circle Facilitators served as a touchstone, ensuring that all participants were validated for reaching out in their recovery and that their perspectives were heard. Circle Facilitators set up the experience to be comfortable, safe and inviting, especially for those who felt disconnected from community in the context of the global COVID-19 pandemic and the longstanding historical trauma experienced in Native communities. Participants described Circle Facilitators as warm, welcoming, relatable and nonjudgmental. They appreciated the Circle Facilitators’ role in orienting participants to the virtual protocols and helping participants use the medicine they received through the project. Circle Facilitators wove together harm-reduction and cultural topics, talking story about their own personal experiences to normalize participants experiences, and then facilitating sharing among participants. To close the virtual HaRTC sessions in a good way, Circle Facilitators offered prayers, chanted, or sang based on the spiritual and emotional needs of the participants in attendance. This complex and layered role in facilitation was crucial in translating individual experiences so that the entire group could join with and support others in their recovery and in ensuring participants left each virtual HaRTC session, as one Circle Facilitator noted, “feeling lighter and more optimistic about their ability to embrace recovery.” This complex and layered way of being embodied the suggestions made to us by traditional health professionals and patients when planning the project, (Nelson et al., 2022, Nelson, Shinagawa, et al., 2023) and has been described in other efforts documenting the development of Talking Circles for substance use disorder (Baldwin et al., 2020).

### 4.3 | Considering cultural connectedness, HRQoL, and alcohol outcomes in the context of virtual HaRTC

Greater virtual HaRTC attendance was associated with both increased spirituality, which is one reflection of cultural connectedness, (Snowshoe et al., 2017) and increased HRQoL. This quantitative finding coincided with participants’ qualitative feedback and Circle Facilitators’ observations that participants experienced a confluence of culture, community, spirituality, and recovery. In addition to the use of traditional medicine, one unique aspect of the program was helping participants to reframe all substances as medicine, which required them to bring more awareness to their use. Another unique aspect entailed the sense of spiritual and community connection forged among people from very different Tribal and geographical backgrounds, even in the absence of the more familiar protocols of in-person Talking Circles they had previously experienced. Our finding that virtual HaRTC sessions fostered spirituality and cultural connections dovetails with similar findings for in-person Talking Circles, (Lowe et al., 2022; Mehl-Madrona & Mainguy, 2014) and it is particularly encouraging that this sense of spirituality can be cultivated intertribally and in a virtual format. The fact that greater HaRTC attendance was associated with both greater spirituality and HRQoL also corresponds with recent findings from other studies in Native populations that cultural connectedness is associated with better physical and mental health. Aligned with the suggestions of Elliott et al. (Elliott-Groves et al., 2020), this study shows that even virtual interventions can support the interconnectedness and relationality that shapes the Indigenous worldview in the times of the pandemic and beyond.

The program’s emphasis on harm reduction garnered appreciation among participants. This approach, which neither requires nor precludes abstinence as a recovery pathway, provided a perspective that was both

compassionate and empowering. One Circle Facilitator described harm reduction as a “gentle nudge” towards self-awareness around alcohol use to promote incremental change that could be celebrated with participants in the virtual HaRTC sessions. Some participants noted this approach reduced their feelings of shame around their use and attributed gains in self-awareness, group connection, and positive behavioral changes to the virtual HaRTC sessions—more so than had been possible in prior, abstinence-based support groups.

Of additional note, our decision to be responsive to community requests to include people with current AUD as well as those with AUD in remission, did not appear to hamper the variability of alcohol outcomes: We observed adequate variability in cross-sectional distributions and significant change in alcohol outcomes across time. These quantitative findings initially dispelled methodological concerns expressed by the prior RCT's data and safety monitoring board. More important, this move was more inclusive of participants across the spectrum of recovery and was responsive to community requests that we ensure people in earlier stages of recovery could learn from Elders and those more established in recovery. Finally, this approach was congruent with our field's embrace of a broader spectrum of recovery goals, ranging from relapse prevention to harm reduction (SAMHSA, 2012).

Taken together, the qualitative and quantitative findings for a positive association between virtual HaRTC attendance and increased spirituality and HRQoL as well as decreases in drinking frequency and alcohol-related harm, corresponded to similar, positive findings of other studies testing the efficacy of individual harm-reduction treatment for AUD; (Collins et al., 2019, 2021) as well as those exploring in-person Talking Circles as a means of culturally grounded substance-use intervention (Lowe et al., 2022). Thus, the integration of a harm-reduction orientation and the Talking Circle approach shows promise as a viable and culturally grounded intervention that deserves further evaluation.

#### 4.4 | Limitations

This study did not include a randomized design or control group. The within-subjects nature of the design therefore precludes our ability to make causal interpretations regarding study findings. It is possible that other factors besides the virtual HaRTC sessions accounted for the observed increases in spirituality and improvement on alcohol outcomes. On the one hand, these changes could reflect statistical artifacts, including the ceiling effect (i.e., participants may not be physically able to increase drinking beyond current levels) or regression to the mean (Kazdin, 2003). On the other hand, the fact that greater attendance was associated with greater spirituality across time lends more confidence regarding the role of virtual HaRTC sessions in the observed effect. Because it is possible that greater attendance stemmed from greater motivation, it is possible that self-selection bias is at play. Further, we noted that nearly one-fifth of participants were involved in other recovery activities, and because this was a single-arm pilot, we cannot know how these other recovery activities impacted participant outcomes. Considering these limitations, a future RCT is needed to provide a rigorous, causal test of the efficacy of HaRTC in increasing cultural connectedness, improving alcohol outcomes, and enhancing HRQoL.

#### 4.5 | Conclusions and future directions

Virtual HaRTC is a Native-led healing approach that was shaped by AI/AN people with AUD. The outcome was an intervention that was more aligned with participants' culture, values and needs. Integrating the flexible, low-barrier approaches of harm-reduction and virtual delivery, our project expanded its reach from people in one UIHO to people across 25 states and 41 Tribal affiliations. Community outreach and professionally led, adaptive social marketing gave recruitment an essential boost. Retention and recruitment improved with open-group and rolling admission delivery that included AI/AN people across the spectrum of recovery.

Quantitative results of this initial, single-arm pilot indicated that virtual HaRTC was highly acceptable, effective, culturally aligned, helpful, and conducted in a "good way." Qualitative results indicated that building community and connecting with other AI/AN people was a key reason for participants' attendance. We support culturally acceptable methods as a minimum baseline for working in partnership with diverse communities, and we encourage researchers and funders to expand into even more culturally grounded approaches to intervention and research methods. To this end, we aim to use Indigenous Evaluation to inform the development of a future, full-scale, follow-up RCT of virtual HaRTC. Indigenous Evaluation refers to the use of Indigenous ways of knowing, Indigenous values, and deep community involvement when developing programming and evaluation of an effort's effectiveness and community impact (Eakins et al., 2023; Lafrance & Nichols, 2008). Use of Indigenous Evaluation may improve our future harm reduction efforts via increases in cultural connectedness and cultural alignment because it more fully relies on AI/AN communities' review and reflection to understand the impact of decisions and activities on community health and wellbeing.

Finally, this work offers a great opportunity to encourage researchers and clinicians to be inspired by the hope and potential offered here, and to implement and test similar protocols as the COVID-19 pandemic is shifting. Thus, future research could clarify whether virtual, harm reduction and culturally grounded approaches continue to be acceptable and feasible beyond the COVID-19 pandemic and whether virtual HaRTC might also be helpful for other priority populations in the AI/AN community seeking a sense of community and recovery via digital health platforms.

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## CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The participants of this study did not give written consent for their data to be shared publicly. Due to the sensitive nature of the research, supporting data is thus not available.

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## PEER REVIEW

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