FEASIBILITY AND ACCEPTABILITY OF VIRTUAL IMPLEMENTATION OF A SEXUAL REPRODUCTIVE HEALTH TEEN PREGNANCY PREVENTION PROGRAM FOR NATIVE YOUTH

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Abstract: American Indian/Alaska Native (Native) youth face high rates of substance use, teen pregnancy and sexually transmitted infections. In response to the COVID-19 pandemic, Respecting the Circle of Life (RCL), a sexual reproductive health and teen pregnancy prevention program for Native youth and their trusted adult, was adapted and delivered in a virtual format with Native youth in a rural, reservation-based Native community. This manuscript describes the adaptation process, feasibility, and acceptability of virtual program implementation. The manuscript describes the process of rapidly shifting the RCL program into a virtual format. In addition, a mixed-methods process evaluation of implementation forms, program feedback forms, in-depth interviews with participants, and staff debriefing sessions was completed. Results show virtual implementation of RCL is both feasible and acceptable for Native youth and their trusted adults. A key benefit of virtual implementation is the flexibility in scheduling and ability to have smaller groups of youth, which offers greater privacy for youth participants compared to in-person implementation with larger groups. However, internet connectivity did present a challenge for virtual implementation. Ultimately, sexual and reproductive health programs seeking to reach Native youth and families should consider virtual implementation methods, both during and outside of pandemic situations.

INTRODUCTION

American Indian and Alaska Native (Native) youth endure inter-related health disparities related to poor substance use and sexual health. Recent research shows Native youth are the second most likely to initiate sex before age 13 compared to all other racial groups, increasing the potential

frequency and duration of exposure to unprotected sex (Centers for Disease Control and Prevention [CDC], 2019). Though teen pregnancy rates in general are declining, Native females have the highest teen birth rate (29.7 vs. 17.4/1,000 nationally) and the highest repeat teen pregnancy rate in the United States (Martin et al., 2018). In 2018, Native teens had the second highest rates of chlamydia, gonorrhea, and syphilis in the nation—2.8 times higher for chlamydia (2445.1 vs 890.7/100,000), 4.2 times higher for gonorrhea (554.9 vs. 132.9/100,000), and 4.6 times higher for syphilis (14.4 vs. 3.1/100,000) than their White peers (CDC, 2019). Early substance use initiation and progression to use and abuse increases risk for sexually transmitted infections (STIs) and unintended pregnancy. Native youth more often report first alcohol use before age 13 than other youth (18.7% vs. 15.0% for all races) and greater frequency of current drinking (32.6% vs. 29.2% for all races). These trends of early initiation and current use are similar for marijuana, prescription drugs, cocaine, heroin, and other illicit drugs (CDC, 2019).

These health disparities may be further exacerbated by the COVID-19 pandemic which is disproportionately impacting Native communities. Even though adolescents and young adults are at lower risk of hospitalization and severe illness due to COVID-19 for now, the pandemic has and will continue to affect other aspects of young adult health, including their physical, mental, and social health (Lindberg et al., 2020). Key focal points of socialization and community resources, such as schools and community centers have closed, adding further stress to already overburdened health systems in tribal nations. The global focus has necessarily shifted to saving lives, with restrictions and lockdowns limiting individuals' access to vital reproductive and substance prevention health services, commodities (like condoms and contraceptives), and education (Lindberg et al., 2020; Sharma et al., 2020). In many Native communities, including those where this project takes place, most schools did not have sexual health education classes prior to the pandemic, and those that did have since removed it from the curriculum in favor of prioritizing core subject matter amidst the transition to virtual and hybrid learning.

The pandemic also creates logistical and economic barriers to obtaining sexual and reproductive health commodities (like contraceptives) and access to health services due to lockdowns, prioritization of COVID-19-related medical services, and loss of earnings (Lindberg et al., 2020). Young adults living with relatives or guardians may lack access to confidential and private sexual and reproductive health care. This lack of privacy in other settings has shown reduced use of sexual reproductive health services and lower contraceptive use among adolescents and young adults (Copen et al., 2016; Fuentes et al., 2018; Lindberg et al., 2020).

Lindberg et al. (2020) recommend developing and disseminating online sex education curricula to address these emerging gaps for adolescents and young adults, which are further aggravated by COVID-19. Though the body of evidence for Native-specific online and internet-based sexual health programs is small, some have found success using this method of implementation. Some have raised concerns that virtual programs for youth may be impersonal and have little success in engaging youth or improving sexual/reproductive health outcomes, especially in Native contexts (Black et al., 2018). Others have found that this impersonality may actually be an advantage among youth (including non-Native youth), as an online platform affords youth a veil of anonymity for talking about sensitive topics, especially for sexual-minority youth who may not want to disclose their sexual orientation (Schwinn et al., 2015).

Those who have developed online and internet-based sexual health programs with Native and other minority youth have found that it can increase accessibility and enhance reach of culturally grounded programs for at-risk minority youth and their parents (Black et al., 2018; Guilamo-Ramos et al., 2015; Kalichman et al., 2006; Markham et al., 2016). Involving parents in these internet-based approaches has also proven to be successful in improving parental communication and sexual health knowledge (Guilamo-Ramos et al., 2015; Shegog et al., 2021). Promisingly, Native adults have had high engagement in online evidence-based interventions (Hiratsuka et al., 2019; Sacca et al., 2021; Stotz et al., 2021). There is also existing evidence that online sexual health programming can effectively engage both Native parents and teens, such as the "Talking is Power" text messaging service (Sacca et al., 2021). Other sexual reproductive health programs for Native youth have also been successfully adapted from in-person implementation (Black et al., 2018).

The Respecting the Circle of Life (RCL) program is a proven evidence-based teen pregnancy prevention and sexual health promotion program that was originally developed to be delivered in-person (Tingey et al., 2017, 2021; Patel et al., 2021). The Johns Hopkins Center for American Indian Health received a grant, as well as institutional and tribal IRB approval, to implement the RCL program with Native youth ages 11-19 and their trusted adults, slated to begin in Summer 2020. In late Spring 2020, the program team made the decision to convert RCL from an in-person to virtual program, to ensure the safety of our staff and community. The pandemic has forced many programs to make this pivot from in-person to virtual implementation, and the authors hope that this publication will add to the growing body of literature on converting and implementing programs for Native youth in a virtual and online format. This publication will outline our team's pivot to virtual

programming, as well as the acceptability and feasibility of virtual sexual health programming among youth and trusted adult participants in the community we implemented this program in.

METHODS

Converting RCL Curriculum from In-Person to Virtual

In-Person Program

The RCL program was originally designed to be implemented with youth ages 11-19 and their trusted adult (TA; a parent or caregiver selected by the youth), through eight youth peer-group lessons and a ninth, home-based youth-TA lesson. All lessons were to be delivered in-person. The eight peer-group lessons would be taught during a 10-day basketball camp (the first two days would not include any lessons but would be a time for registration), where enrolled youth ages 11-19 would spend two hours each day learning basketball skills and then receive one RCL lesson (~2 hours per lesson). RCL lessons would be delivered to self-selected peer-groups of 8 to 12 youth, comprised of the same gender and age-ranges. Youth would then complete a ninth lesson which would be delivered in the home of the participant together with their enrolled TA. All classroom lessons would be taught by two Native paraprofessional facilitators, then one of these same facilitators would teach the ninth lesson to the youth and their TA at home.

Pivot to Virtual Implementation

As COVID-19 cases were rising in the participating community and stay-at-home orders were put in place, the program team made the decision to switch to a virtual-only approach for implementation. To shift from an in-person to virtual curriculum, key changes were made to the duration of the program, activity implementation style, and program structure. These changes were determined in tandem by the program team, curriculum team, key tribal stakeholders, and the target population as necessary for optimal implementation in a virtual format. The key changes are as follows: 1) platform choice, 2) lesson length, 3) facilitation structure, 4) pacing, 5) lesson materials, 6) lesson privacy, and 7) curriculum adaptation.

Platform Choice

The target population and key tribal stakeholders were surveyed over the phone to ascertain internet availability and platform preference to ensure that the platform chosen would be accessible and accepted by the community. Zoom was chosen as the platform of choice.

Lesson Length

It was determined that the lessons would be shortened. The nine (eight lessons for youth only, one lesson for youth and their TA) 2-hour lessons would be cut to 45 minutes to 1-hour lessons in the virtual format, as attention spans were known to be shorter during a virtual, screen-based intervention (Wiederhold, 2020). This led to ten, 45–60-minute lessons for youth, and two, 45–60-minute lessons for youth and their TA for the virtual format. The program team determined it was important to keep the youth-TA lesson as results from past RCL evaluations have shown the youth-TA lesson enhances and extends RCL program impacts (Patel et al., 2021; Tingey et al., 2015, 2017, 2019).

Facilitation Structure

It was determined that the original facilitation structure would be maintained. Each youth lesson would be taught by two Native paraprofessional facilitators, and each youth-TA lesson would be taught by one Native paraprofessional facilitator over Zoom. Lessons would still be taught to youth in self-selected peer groups of up to 10 youth. Youth were informed of the peer group structure and asked to select and enroll with their own peer groups, with the knowledge that the groups could be comprised of any gender and age mix that the youth felt comfortable in and could be as small as one youth or as large as ten youth.

Pacing

Lessons would be self-paced for groups, as opposed to being taught over the course of eight consecutive days. Self-selected peer groups worked with their assigned facilitators to determine a pace for completing the program as a group. This was done with great flexibility, as some groups could readily determine their availability ahead of time and other groups needed a week-by-week scheduling approach due to the many disruptions to daily life brought on by the pandemic.

Lesson Materials

Workbooks and lesson materials (e.g., condoms) would be necessary for effective implementation and, thus, would be safely delivered by mail or home drop-off to youth and TA participants prior to their first lesson, based on participant preference.

Lesson Privacy

TAs and youth were asked to take part in the lessons in a private, secluded location to ensure confidentiality and encourage participation. If a private, secluded location could not be

readily found, facilitators worked with participants to identify such a location, like unoccupied rooms at project offices or school classrooms.

Curriculum Adaptation

Converting the in-person curriculum to a virtual format constituted the brunt of the adaptation process and contributed to the above aspects of adaptation. A deep dive of the curriculum was conducted by the curriculum team, in tandem with experienced Native facilitators and community stakeholders, to better understand what aspects of the program could remain the same in a virtual context, as well as activities that would need to be significantly altered to ensure key messages were retained. The entirety of the RCL curriculum was outlined, lesson by lesson, activity by activity, with key messages and facts laid out. Then, each activity was analyzed and reviewed for virtual implementation by the curriculum team. This analysis included looking at the activity with an eye for: 1) What could remain as is; 2) What needed slight modifications (for example, instead of writing something on the board, it would be shared via a PowerPoint slide or written on a document shared on the screen); and 3) What could be altered in style, but not in content (for example, instead of a live demonstration showing the effects of oil-based and water-based lubricants on condoms, a short video could be used).

Careful consideration was taken to better understand how lessons could be adapted for virtual implementation by the curriculum team. Activities that were tactile and required large group participation would be difficult, if not impossible, to conduct in a virtual format. A few of these instances resulted in activities being dropped from the virtual implementation, but for most activities, the key messages were reinforced in a manner conducive to a virtual format. For example, many RCL activities required that the facilitators write on poster papers, but the virtual format allowed youth to add their own thoughts by typing or drawing on the Zoom whiteboard.

Some concepts normally taught in a lecture style format during in-person programming needed to be altered to be more appealing and engaging virtually. The team found animated, engaging, age-appropriate videos by reputable sexual health education content creators, like Advocates for Youth's AMAZE.org, that very closely matched the RCL curriculum, which were used in the virtual RCL program in place of a lecture-style format (Advocates for Youth, n.d.). The content of the videos was matched with curriculum content to ensure that no messaging or concepts would be lost when altering activity formats. Lesson activities were also adapted to better use features of Zoom, including the whiteboard, polling, and share screen. In addition, alternate, visual

methods were selected to convey key messages, including using PowerPoints with images as well as medically and factually accurate videos to better engage youth compared to a lecture-style format.

RCL was originally intended to be iterative, with large key concepts reinforced and taught in increments over the course of eight consecutive days. As the virtual format would be self-paced, ideally implemented over the course of six weeks, the iterative nature of the original RCL format would not be as effective as more time could pass between lessons and retention of minute details may be lost by youth. Thus, the structure of RCL was reorganized to accommodate these changes in the delivery timeline. Instead of being broken up over several lessons, facilitators taught key concepts together and more holistically during each lesson to prevent loss of nuance needed to learn larger concepts.

Finally, most of the activities were adjusted for time, shortening examples or time spent in discussion, allowing the main points to be highlighted while maintaining interest in the virtual format. The adapted lessons were shared with expert Native facilitators for final comment before piloting, with the intention that ongoing facilitator feedback would be incorporated as the curriculum was implemented to strengthen the program.

Final Curriculum and Training

This careful adaptation of the RCL curriculum resulted in twelve, 45–60-minute lessons (10 for youth only and 2 for youth and their TA). It is important to note that much of the content of RCL remained the same, with all key content kept intact. See Table 1 for a detailed comparison of lessons and activities of in-person and virtual formats of RCL. Once the RCL curriculum was adapted to a virtual format, all facilitators were thoroughly trained in the virtual curriculum, as well as in using Zoom and related technical skills. The trainings for facilitators were conducted virtually and required that facilitators conduct virtual mock implementation, or teach backs, to practice teaching the virtual RCL program to the larger group of facilitators and the curriculum team, to mimic the virtual implementation they would do with participants. These trainings took place over the course of two weeks and were recorded so that facilitators could always have the trainings on hand for reference.

Virtual Implementation Participants

Participants were youth and their TA who participated in RCL. Youth were ages 11-19, had primary residence on or near the participating tribal reservation community, self-identified as

Native American ethnicity, and had a TA willing to participate in the program. TAs could be parents, guardians, grandparents, aunts, uncles, or any adult 18 years of age or over in the community with whom the youth felt comfortable. Participants were recruited using safe, socially distanced measures, including word of mouth, social media, partnerships with local schools, and flyers posted in community gathering spots, such as grocery stores. Facilitators explained the program and assessment structure over the phone or on a video call prior to enrolling youth, TAs, and parents and legal guardians (if youth were under the age of 18).

Table 1
Comparison of RCL curriculum before and after adaptation

RCL In-Person Curriculum	RCL Virtual Curriculum
Lesson 1: Building Respect: We're in this Together • Overview • Group Cohesion • Group Agreements • Family Tree • Decision Making Steps 1-2	Lesson 1: Overview and Family Tree • Overview • Group Agreements • Family Tree
Lesson 2: Honoring Ourselves and Our Values • Identifying Risks • Values	Lesson 2: What are the Risks? • Identifying Risks
Lesson 3: Puberty: Understanding What's Happening to You • Decision Making Step 3 • Resources • Identity • Puberty and Anatomy	Lesson 3: Making Decisions: Resources, Values, and SPIRIT Problem Solving Tool • Resources • Values • Decision Making Steps 1-6
Lesson 4: The Best Decision for Me! • Communication with TA • Peer Behaviors • Condom Demonstration and Experiments • Decision Making Step 4	Lesson 4: The Human Body and Puberty • Identity • Puberty and Anatomy
Lesson 5: Communicating for a Healthier You • Decision Making Steps 5-6 • Communication Games • Communication Styles • Consent and Sexual Assault	Lesson 5: Protection • Peer Behaviors • Condom Demonstration and Experiments
Lesson 6: Reducing My Risk for STDs & Pregnancy • Showing You Care • STD and Unplanned Pregnancy Game • Contraceptive Methods	Lesson 6: Communication • Communication with TA • Communication Styles

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Table 1 continued
Comparison of RCL Curriculum before and after adaptation

RCL In-Person Curriculum	RCL Virtual Curriculum
Lesson 7: The Skills and Wills to Make My Own Choice • Teen Parent Speaker • Sticking with Values and Decisions • Safer Sex Guidelines	Lesson 7: Sex: A Decision for Two Consent and Sexual Assault
Lesson 8: Looking Towards my Future • Goal Setting • Identifying Concerns • Being a Leader • Review • Building Self-Esteem	Lesson 8: Showing You Care • Showing You Care • Contraceptive Methods
Parent/TA Lesson • Sexual Health 101 • RCL Youth and Parent/TA Video • Effective Communication • Condom Demonstration • Talking with Your Youth Roleplays • Goal Setting	Lesson 9: Respecting Values • Teen Parent Video • Safer Sex Guidelines • Sticking with Values and Decisions
	Lesson 10: Goals • Goal Setting • Identifying Concerns • Being a Leader
	Parent/TA Lesson Part 1 • Sexual Health 101 • RCL Youth and Parent/TA Video • Condom Demonstration
	Parent/TA Lesson Part 2 • Effective Communication • Talking with Your Youth Roleplays • Goal Setting

Measures

Our goal was to understand the feasibility and acceptability of delivering RCL in a virtual format. Demographic data, including age and gender, was collected for all participants. Implementation Forms (IFs), Program Feedback Forms (PFFs), and In-Depth Interviews (IDIs) were specifically designed for this program and conducted with youth and TA participants. IFs were specific to each lesson, with 12 youth IFs and 2 TA IFs, with each IF taking ~5-10 minutes to complete. Youth and TA participants were asked to complete IFs immediately after receiving each lesson. The IFs included questions with response options on a five-point Likert scale

(Strongly Agree to Strongly Disagree) asking about particular activities and the lesson overall (e.g., "I liked this activity," "I like that this lesson was taught virtually [over the phone, computer, or tablet]"). The IFs also included multiple choice knowledge questions to check for understanding. PFFs asked about the program as a whole and were completed once by youth and TAs within two weeks of program completion.

IFs and PFFs were delivered via emailed survey, where participants could complete them on their own phones, computers, or other devices. All emailed surveys were sent from and stored on REDCap, a secure data management and capture program with a HIPPA compliant server. If participants preferred hard copies of IFs or PFFs, they were safely delivered to and collected from participants following standardized safety protocols, and then manually entered into REDCap by program staff. All data were collected using a unique participant identification number. Youth received a $30 gift card and TAs received a $20 gift card for completing all IFs and PFFs. Youth also received one weekly raffle prize entry per completed IF, which included prizes with a monetary value of <$50 such as blue tooth headphones, bikes, and tents. Facilitators reminded participants to fill out the IFs and PFFs at the end of the lesson and gave verbal, email, and/or text reminders to all participants to complete the forms, with further reminders if forms were not filled out within 2 weeks of the expected return date.

After program completion, youth and TAs were asked if they wanted to participate in an optional IDI to speak about their experience participating in the virtual RCL program. IDIs were conducted to deepen understanding of virtual implementation acceptability and feasibility among participants. IDIs followed a written qualitative guide, took place over the phone or Zoom, and took approximately 1 hour to complete. To reduce response bias, the IDIs were conducted by program staff that participants had not interacted with before (e.g., not their lesson facilitators). Youth and TAs received a $20 gift card for participating in the IDIs.

Continuous Quality Improvement

As this was a new format for RCL, continuous quality improvement was used to further adapt the program during virtual implementation. IFs and PFFs were analyzed in real time, with data summarized weekly. In addition, weekly debriefing lessons with facilitators and program staff were conducted to review the information from the IFs and PFFs and discuss feedback from facilitators, to better understand virtual program implementation, as well as assist in resolving any issues that arose. Debriefs took place over Zoom and were facilitated by the Program Coordinator.

It should be noted that immediate steps were taken to alter activities that facilitators found to be culturally incompatible, and those same activities were then found to be culturally competent after alteration. Through the weekly debriefs, language in the RCL virtual curriculum was refined and technical glitches were addressed. In addition, the debriefs provided a space for facilitators to discuss tips and strategies for virtual implementation, such as engaging youth over a screen and how to navigate between documents and platforms.

Analysis

Responses on IFs and PFFs were grouped. “Strongly agree” and “agree” were combined, “neither” was left as its own group, and “strongly disagree” and “disagree” were combined, resulting in 3 groups. Data was assessed across lessons. The total count of the responses and the percentage of responses for each group were calculated for questions that were the same across all implementation forms. For PFF data, the total count of the responses and the percentage of responses were calculated for each question by group.

IDIs were conducted with youth and TAs after completion of the program. Twelve youth and 12 TAs participated in an interview and were asked about their experience with the RCL program using an interview guide developed by the team. Additionally, 11 debrief meetings with program staff over the course of the implementation process were recorded and transcribed. In total, 35 transcripts (youth, TA, and debriefs) were coded and analyzed. Computer-assisted qualitative data analysis software NVivo was used for data management. The qualitative analysis process followed an inductive thematic approach using four distinct phases: familiarization of data, codebook development, code assignment, and theme identification. The codebook was developed collaboratively with the analysis team and two coders were used to ensure reliability. The themes drawn from the transcripts were discussed by the analysis team and synthesized for the purpose of this publication. Counts for debriefs and IDIs for TAs and youth were tallied by theme, as explored in the results below.

RESULTS

Implementation Forms (IFs) and Program Feedback Forms (PFFs)

In total, 550 IFs were collected from 60 youth participants across twelve lessons and 79 IFs were collected from 41 TA participants across two lessons, and 37 youth PFFs and 37 TA PFFs

were collected. At time of analysis, 37 youth and TAs had completed the program. Overall, youth and TAs were in accordance with each other in their views across IFs and PFFs. Youth and TAs enjoyed participating in the RCL program virtually, with 87.73% of youth and 92.65% of TAs indicating that they liked doing RCL virtually in results from the IFs (Table 2). Similarly, 81.25% of youth and 100.00% of TAs indicated that they liked doing RCL virtually in results from the PFFs (Table 3). RCL was well liked—94.59% of youth and 100.00% of the TAs liked the RCL program overall (Table 3). When asked in the PFFs, 43.24% of youth and 62.16% of TAs wished that there were more youth lessons (Table 3). Overall, 92.57% of youth and 100.0% of TAs indicated that they understood the way things were explained (Table 2). Ease of joining lessons was also assessed—72.72% of youth felt that it was easy to get online and join lessons, and 91.18% of TAs felt that their child was able to get a computer and internet to join the lessons (Table 3).

Only 11.15% of youth and 13.16% of TAs in the IFs indicated that the lessons were too long, while only 10.99% of youth and 6.58% of TAs indicated that the lessons were too short (Table 2). The majority of youth and TAs felt comfortable asking questions according to the IFs, with 83.90% of youth and 100.00% of TAs agreeing or strongly agreeing with the statement, "I feel comfortable asking questions" (Table 2). Likewise, in the PFFs, 89.19% of youth and 97.29% of TAs felt like they could ask their facilitator questions (Table 3). In regards to whether facilitators were acceptable to participants, 94.59% of youth and 100.00% of TAs felt that the facilitators knew what they were talking about and were knowledgeable (Table 3).

In-depth Interviews (IDIs) and Debriefs

Overall, many participants felt that virtual implementation provided an effective alternative to in-person implementation during the COVID-19 pandemic. Nine TAs specifically cited COVID-19 safety as a reason that virtual implementation was preferred, stating that safety was taken into consideration, as well as ensuring that youth would still receive RCL. The virtual format allowed youth to be comfortable and engaged in RCL (n = 1 debrief, n = 5 TAs, and n = 2 youth). Another explicit benefit of virtual implementation was the flexibility for scheduling and coordination, often due to the facilitators' willingness to schedule (and re-schedule) around TA and youth availability (n = 4 TAs). TAs and youth cited that the virtual format was preferred, both given the pandemic and as a personal preference over in-person (n = 3 TAs and n = 4 youth). The videos, which otherwise would not have been included, were seen as advantages of the virtual format by both facilitators during debriefs and TAs (n = 1 debrief and n = 2 TAs).

Table 2
Implementation Form (IF) results

	Strongly Agree or Agree %(n)	Neither %(n)	Strongly Disagree or Disagree %(n)
Youth			
I liked doing this activity virtually	87.73% (415)	9.31% (44)	2.96% (14)
I felt comfortable asking questions	83.90% (448)	12.36% (66)	3.75% (20)
The lesson was too long	11.15% (60)	33.64% (181)	55.20% (297)
The lesson was too short	10.99% (59)	31.28% (168)	57.73% (310)
I understood the way things were explained to me during this lesson	92.57% (498)	6.32% (34)	1.12% (6)
Trusted Adult			
I liked doing this activity virtually	92.65% (63)	7.35% (5)	0.00% (0)
I felt comfortable asking questions	100.00% (7)	0.00% (0)	0.00% (0)
The lesson was too long	13.16% (10)	35.53% (27)	51.32% (39)
The lesson was too short	6.58% (5)	43.42% (33)	50.00% (38)
I understood the way things were explained to me during this lesson	100.00% (76)	0.00% (0)	0.00% (0)

Table 3
Program Feedback Form (PFF) results

	Strongly Agree or Agree %(n)	Neither %(n)	Strongly Disagree or Disagree %(n)
Youth			
Overall, I liked the RCL Program	94.59% (35)	5.41% (2)	0.00% (0)
I liked that the program was taught online/virtually	81.25% (26)	15.63% (5)	3.13% (1)
I wish there were more lessons	43.24% (16)	32.43% (12)	21.62% (8)
It was easy to get online and join lessons	72.72% (24)	12.12% (4)	15.15% (5)
My facilitators knew what they were talking about	94.59% (35)	2.70% (1)	2.70% (1)
I felt like I could ask my facilitators questions	89.19% (33)	10.81% (4)	0.00% (0)
I enjoyed learning the things I did during the program	91.89% (34)	8.11% (3)	0.00% (0)
The skills I learned during the program are useful	89.19% (33)	0.00% (0)	10.81% (4)
Trusted Adult			
Overall, I liked the 2 RCL TA-youth lessons	100.00% (36)	0.00% (0)	0.00% (0)
I liked how the lessons were taught virtually	100.00% (34)	0.00% (0)	0.00% (0)
I wish there were more lessons for myself and my child	62.16% (23)	37.84% (14)	0.00% (0)
My child was able to get a computer and Wi-Fi/ internet to join the lessons	91.18% (31)	8.82% (3)	0.00% (0)
The person who taught my lessons was knowledgeable	100.00% (36)	0.00% (0)	0.00% (0)
I felt like I could ask questions during the lessons	97.29% (36)	2.70% (1)	0.00% (0)

Virtual implementation was not without its concerns. Facilitators struggled with engaging some youth, including some who would not turn on their cameras, making it difficult to ascertain engagement (*n* = 5 debriefs). "Zoom fatigue" was also mentioned (n = 1 debrief and n = 2 TAs) as youth were tired of being online all day due to a combination of virtual schooling and virtual RCL. Six TAs felt that RCL would have benefited from in-person interaction and rapport building, which felt missing in a virtual format. Some youth and TAs noted that there were external conflicts that prevented smooth RCL implementation, including scheduling conflicts, as well as competing commitments, like work, family, and pandemic-related disruptions, that prevented the youth and TAs from having a dedicated focus on RCL (*n* = 2 debriefs, *n* = 4 TAs, and *n* = 2 youth).

A small number of youth, TAs, and facilitators felt that in-person implementation would be preferable to virtual implementation of RCL for a variety of reasons. Some felt that in-person implementation would improve comfortability and openness of the youth (*n* = 1 debrief and *n* = 3 TAs), increase youth engagement with facilitators (*n* = 3 TAs and *n* = 1 youth), and increase youth engagement in the material by virtue of more hands-on and in-person experiences (*n* = 1 debrief, *n* = 1 TA, and *n* = 1 youth). Peer support was also cited as an advantage of in-person implementation, including the potential to increase youth engagement with their peers (*n* = 3 TAs and *n* = 1 youth). Others felt that in-person implementation would be a hinderance, especially for more shy youth who may be hesitant to openly participating and asking questions in a group setting (*n* = 3 TAs and *n* = 4 youth).

Content appropriateness varied, but was generally found to be acceptable across age, topic area, and culture. Age and gender were often cited as reasons that the content did not feel appropriate. Three debriefs and 2 TAs cited that their youth, who in all instances were 11 years of age, were too young for the RCL content. However, 7 TAs and 1 youth cited that the content was age appropriate across the 11 to 19 age range. Two TAs and 1 youth stated that male youth were not mature enough for the content, compared to female youth. Overwhelmingly, however, the content was found to be appropriate, relevant, and covered topics that may be uncomfortable but were deemed necessary and useful to learn (*n* = 2 debriefs, *n* = 12 TAs, and *n* = 6 youth).

Culturally, many mentioned that sexual and reproductive health is not spoken about openly in their community, especially between certain relatives, and could be a cause for discomfort, though these same people expressed that the content itself was valuable and should be spoken about and taught (*n* = 1 debrief and *n* = 7 TAs). Seven TAs mentioned that the content was

culturally appropriate, and some also flagged that including Elders in the content emphasized the cultural appropriateness of the material by virtue of their buy-in (*n* = 7 TAs).

Specific curriculum content was also highlighted during the debriefs and IDIs. Two activities were flagged by facilitators to be changed for clarity and cultural context during four debriefs, including an activity on the family tree that required a refresher training for facilitators and an activity on contraceptive methods that was augmented with visuals for clarity. The curriculum specificity was praised, including the value of workbooks filled with statistics and facts that TAs and youth could reference long after program implementation ended (*n* = 3 debriefs and n = 7 TAs). TAs and youth praised the overall RCL curriculum flow and comprehensive nature of the content (*n* = 9 TAs and n = 3 youth). Some activities were highly praised or disliked. TAs and youth thoroughly enjoyed roleplaying (*n* = 4 TAs and *n* = 1 youth) and the goal setting activities (*n* = 3 TAs and *n* = 4 youth). The condom demonstration was viewed by some as an uncomfortable activity, though it was acknowledged as teaching a valuable skill (*n* = 2 debrief, *n* = 3 TA, and *n* = 3 youth). Two TAs and 2 youth specifically mentioned enjoying the condom demonstration as it taught valuable, concrete skills that TAs felt they would not have known how to teach to their youth themselves. The youth/TA lessons were also well received by the majority of TAs and youth interviewed, and most often seen as a source of increased communication and relationship building between the youth and TA (*n* = 11 TAs and *n* = 9 youth).

RCL program delivery, including facilitator personalities, group implementation, timing, and scheduling were discussed during the interviews. Thirteen TAs found that the facilitators themselves were pleasant, knowledgeable, and warm, which encouraged participation in RCL. In terms of group size, there were mixed thoughts. Some youth seemed to desire one-on-one lessons, especially if they were shy (*n* = 3 debriefs, *n* = 1 TA, and *n* = 6 youth), while some youth wanted to participate in RCL with their peers or siblings in a group setting (*n* = 1 debrief, *n* = 3 TAs, and *n* = 4 youth). Facilitators mentioned that some lessons went over time, and that pacing was difficult (*n* = 6 debriefs), but both TAs and youth felt that the lessons were the appropriate length of time and had nice pacing (*n* = 5 TAs and *n* = 2 youth). Scheduling was also frequently mentioned by facilitators, TAs, and youth as a difficulty. Facilitators often struggled with back-to-back lessons leading to longer working days and having to re-schedule often with participants (*n* = 3 debriefs). However, TAs and youth found the flexibility in scheduling as helpful and allowed for better engagement in RCL, especially when lack of internet connectivity required rescheduling (*n* = 5 TAs and *n* = 4 youth).

Specific questions targeted technology accessibility and use. A common issue flagged by facilitators, TAs, and youth alike was internet connectivity (internet cutting in and out or not connecting at all) as a barrier to easy implementation, requiring quick thinking on the part of facilitators or even rescheduling of lessons (n = 3 debriefs, n = 7 TAs, and n = 6 youth). Some of these participants cited intentionally seeking Wi-Fi-accessible areas to ensure that they could join RCL lessons, including sitting in their vehicles at restaurant parking lots to use their Wi-Fi. However, there were some participants who did not find internet connectivity to be an issue (n = 4 TAs and n = 2 youth). Overall, phones, tablets, and computers were used by participants to join RCL lessons. Facilitators found that when participants joined by phone, participants could not clearly see lesson material on the smaller screen, hindering thorough engagement (n = 3 debriefs). TAs and youth did find it easy to join and engage in the virtual programs using their phones, tablets, and computers (n = 2 TAs and n = 4 youth). Zoom was preferred and found to be an easy and functional option for virtual implementation by all 12 TAs interviewed and 11 youth interviewed.

DISCUSSION

It seems both feasible and acceptable for Native youth and their TAs to participate in a virtual sexual reproductive health teen pregnancy prevention program, as evidenced by the generally positive results outlined in detail above. Overall, both youth and TAs enjoyed their time in the program and seemed to understand the content and material taught in a virtual format.

Youth and TAs reported similar experiences with the virtual implementation of RCL. Both groups overwhelmingly enjoyed completing RCL virtually, felt comfortable asking questions, understood the material being presented, and felt that the lessons were of appropriate length. It should be noted that speaking about sexual and reproductive health may be uncomfortable, as highlighted by the IDIs, and may have factored into overall participant comfortability in asking questions, as mentioned by several TAs during their IDIs. The condom demonstration activity was mentioned as an uncomfortable activity for some, but it is integral and valuable in sexual and reproductive health programs, including RCL (Tingey et al., 2015, 2017). Many youth and TAs also acknowledged its utility, despite feeling uncomfortable.

A key benefit of virtual implementation is the flexibility afforded to participants in finding times that work best for them. Times are fixed in an in-person format, which may pose a barrier to

enrollment for some participants. In addition, the ability to have smaller or one-on-one groups afforded privacy and appealed to youth who were shyer and more reticent to participation and engagement in sexual reproductive health content in larger group or in-person settings. This emphasizes the important need to continue offering virtual or hybrid modes of implementation to reach participants who may not otherwise join in-person programs, even if and when pandemic-related safety requirements are no longer a concern.

Technological barriers, specifically internet connectivity, presented a challenge for implementation, and in many cases led to rescheduling of lessons, adding a burden to facilitators and participants alike. In the participating community, efforts had been made to increase internet access at a large-scale level during the pandemic, especially as many youth were participating in remote learning for school, though internet connectivity gaps remained. It should also be noted that many youth who participated in the virtual RCL program received laptops from school for remote learning, which were used by some youth to participate in RCL virtually. Internet and computer access must be a key consideration for virtual implementation of programs, especially in similar rural settings.

Adapting an in-person program to a virtual format required tremendous effort on the part of curriculum, program, and implementation staff to thoughtfully adapt the curriculum and implement it. In addition to this publication, there are also other helpful resources that exist to aid in adapting an in-person program to a virtual format, such as the Healthy Native Youth: Virtual Adaptation Guidebook (Trevino & Gaston, 2020).

Our virtual program presented additional challenges for recruitment, as participants needed to be able to reliably access online platforms and previous programs did not necessarily rely as heavily on online-based recruitment strategies. Our team persisted by adapting word of mouth as a recruitment strategy by contacting local schools for partnerships and using catchy social media posts to recruit. However, high quality training of staff to use new technology is needed to ensure smooth virtual implementation, which can be time intensive. Also, the added costs of upgraded licenses of virtual platforms like Zoom must be taken into consideration, as certain features can only be used in upgraded platforms.

Further research may be warranted to compare in-person RCL and virtual RCL outcomes. In addition, further research would be needed to better understand the specific gender and relationship dynamics of the self-selected groups formed for RCL virtual implementation. In addition, further research on the adaptation and implementation of sexual health programs into

virtual or hybrid contexts for Native youth would be valuable to better understand how programs like RCL can continue during the pandemic and beyond.

Limitations

There are many limitations to consider. First, this project was conducted to better understand how virtual implementation of RCL is received by participants and not to draw any conclusions about its utility or impact. Data for IFs and PFFs was collected via self-report from youth and TA participants, which could have resulted in biased reporting. PFF data was collected at the end of the program, which may have impacted recall. Though all participants who completed the program were asked if they would like to participate in an IDI, only those who agreed participated in the IDI portion, and this may have led to response bias. This process evaluation was conducted mid-program to better understand feasibility and acceptability for continued implementation, and results may change when RCL virtual implementation is complete. In addition, the findings are from a specific tribal community, and may not be applicable to other Native and non-Native communities.

CONCLUSION

Virtual implementation of RCL, an evidence-based sexual and reproductive health teen pregnancy prevention program for Native youth is feasible and acceptable, although not without important considerations. Programs seeking to reach Native youth, both during and outside of a pandemic, should consider virtual implementation to confer necessary education and skill building during an important period of adolescent development.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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