J Primary Prevent (2018) 39:59–70
https://doi.org/10.1007/s10935-017-0497-0

ORIGINAL PAPER

Beyond Content: Cultural Perspectives on Using the Internet to Deliver a Sexual Health Intervention to American Indian Youth

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Published online: 17 January 2018

Abstract American Indian and Alaska Native (AIAN) youth are characterized by high rates of pregnancy and risky sexual behavior. Reaching these youth with culturally appropriate interventions is difficult due to geographic dispersion and cultural isolation. Online interventions can provide opportunities for reaching and engaging AIAN youth. However, electronic interventions are also impersonal and this can be culturally incongruous for AIANs and other populations for whom traditional ceremonies, practices and patterns of interpersonal communication are central. This paper describes the application of community based participatory research methods to: (1) identify concerns about the exclusive use of an online sexual health program; (2) address community concerns by developing supplemental class lessons, and (3) evaluate the feasibility and acceptability of the new hybrid intervention. Data derives from qualitative and quantitative sources. During the formative phase of the project, qualitative data from partner interactions was analyzed with participatory inquiry to inform intervention development. To evaluate the intervention, qualitative data (e.g., interviews, surveys) were used to understand and explain quantitative measures such as implementation fidelity and attendance. Implementers were enthusiastic about the hybrid intervention. The lessons were easy to teach and provided opportunities for meaningful discussions, adaptations,

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and community involvement. The use of online videos was an effective method for providing training. Working with community partners, we resolved cultural concerns arising from the exclusive use of the Internet by creating a hybrid intervention. The additional burden for staff to deliver the class lessons was considered minimal in comparison to the educational and programmatic benefits of the hybrid intervention.

ClinicalTrials.gov identifier NCT01698073.

Keywords Sexual health education · Online interventions · American Indian · Youth · Community-based participatory research

Introduction

American Indian and Alaska Native (AIAN) youth experience high rates of pregnancy and risky sexual behavior. Teen pregnancy rates for AIANs are substantially higher than for non-Hispanic Whites (31 per 1000 vs. 18 per 1000), and are the third highest among all races in the United States (National Center for Health Statistics, 2010). According to the 2011 Youth Risk Behavior Survey, which uses a national sample of high school youth, AIAN teens had the highest levels of ever having had sex (69%), of having had sex in the last 3 months (46%), and of using substances before last sex (32%), as compared to all other racial and ethnic groups (Centers for Disease Control and Prevention, 2011). AIAN youth also experience high rates of early sexual debut which indicates the need for interventions targeting preteens (De Ravello, Everett Jones, Tulloch, Taylor, & Doshi, 2014; Kaufman et al., 2014a).

However, reaching AIAN youth with culturally congruent health education is challenging. With more than 500 federally recognized tribes across the United States, AIAN youth are geographically dispersed and often culturally isolated. Most live in urban areas where they are likely to be taught health education from a western perspective at public schools. For AIAN youth living in rural tribal communities, poverty and limited resources present significant barriers to receiving health education. Increasingly, the Internet is being used to reach isolated populations, including AIAN youth, with health information and interventions. AIAN youth report relatively high levels of Internet use. In a study conducted in the northwest, 76% of AIAN youth reported ever having accessed health information online. Respondents also expressed a desire for health information that is presented from an AIAN perspective (Craig Rushing & Stephens, 2011).

Engaging content, on-demand availability, tailored messaging, and privacy make the Internet an appealing channel for receiving health information, especially for youth (Barak & Fisher, 2001). As a delivery platform, its advantages include efficiency, consistent content, broad reach, portability, and cost effectiveness. Additionally, studies using online health interventions have demonstrated positive results across different topics, ages and ethnicities (Guse et al., 2012; Hieftje, Edelman, Camenga, & Fiellin, 2013; Kaufman, Schwinn, Black, Keane, & Big

Crow 2016; Noar, Black, & Pierce, 2009). However, translating these findings to interventions for AIAN youth requires sensitivity to the potential cultural impact of utilizing an impersonal delivery platform to provide information that is traditionally conveyed socially (Brown et al., 2013; Craig Rushing & Stephens, 2012). Although online interventions offer benefits for reaching and engaging AIAN youth, these benefits come at the expense of human interaction. Consequently, the Internet can be a culturally incongruous delivery platform for AIANs and other populations for whom traditional practices and patterns of interpersonal communication are central. This is especially applicable to topics that have deep cultural significance such as coming of age. For AIANs, educating youth about sexual health is traditionally a community responsibility shared by parents, elders, and extended families (Craig Rushing & Stephens, 2012).

With the rapid expansion of technology based health interventions, current research has focused almost exclusively on behavioral outcomes. In response, leaders in the field have identified the need for more studies that can help inform best practices for technology based interventions (Allison et al., 2012). One important component of this research should include evaluating the cultural impact of electronically delivered interventions, and developing guidance about culturally appropriate strategies for utilizing emerging technologies (Craig Rushing & Stephens, 2011; Noar, 2011; Soto Mas, Plass, Kane, & Papenfuss, 2003).

This paper describes the process of working with AIAN community partners to address concerns about using the Internet as the exclusive delivery platform for a sexual health intervention for AIAN youth (Kaufman et al., 2014b). Community partners made clear the tensions between the advantages of online engagement and traditional methods of teaching. Working together we resolved the tension by developing a hybrid approach that coupled class lessons with online content. While this addressed the cultural concerns, it also increased the burden on staff. Consequently, we evaluated the feasibility and acceptability of the hybrid intervention as it was implemented during a group randomized trial.

Originally developed in the 1990s with extensive input from AIAN educators, health providers, and community members, Circle of Life (COL) is a classroom based sexual health curriculum grounded in AIAN beliefs, symbols and concepts (Kaufman, Litchfield, Schupman, & Mitchell, 2012). In 2010, we partnered with the Office of Minority Health Resource (OMH) Center and Indian Health Services (IHS) to increase the program's accessibility by developing an online, multimedia version (referred to as mCOL; Kaufman et al., 2014b). Similar to the original curriculum, mCOL is intended to be delivered in community settings such as schools and afterschool programs. The online format minimizes burden on staff insofar as they do not need to present content or attend program training. mCOL contains seven chapters (each approximately 20 min long) that are rooted in AIAN symbols, traditions, and ways of learning. The interactive components of the program are designed for youth to complete independently. However, the program can also be viewed in a group setting, for example with SmartBoard technology or projection.

Methods

Data for the current analysis are derived from a larger study. From 2010 to 2015, mCOL was evaluated in a group randomized trial funded by the Office of Adolescent Health, Teen Pregnancy Prevention Program (Kaufman et al., 2014b). Conducted in partnership with six NBGCs in the Northern Plains, the study utilized a community based participatory research (CBPR) orientation, an approach found to enhance research in AIAN communities (Minkler & Wallerstein, 2003; Wallerstein & Duran, 2010). Methods, contextual information and results of the group randomized trial are reported elsewhere (Kaufman et al., 2014b; Schwinn et al., 2015). This study was approved by the University of Colorado IRB and appropriate entities for each tribal community. Informed consent was obtained from all individual participants included in the study.

The first year of the project was devoted to community engagement and planning. During this formative phase, tribal partners contributed to project planning and developing the mCOL intervention. Across the six NBGCs, there were 16 program delivery sites, known as "units." These 16 units were randomized to deliver mCOL ($n = 8$) or AfterSchool Science Plus (AS+; $n = 8$). Prior to youth enrollment, one AS+ unit closed. At baseline, there were 98 enrolled youth who attended units randomized to deliver mCOL and 69 who attended units randomized to deliver AS+. After the study, we provided all units with materials and training so they could implement both programs. We conducted process evaluations, telephone interviews and participant surveys with all units; however, because this paper focuses on the planning and implementation of the mCOL intervention, we only report results from that arm of the study.

Community Participation

Two groups of community partners participated in the planning, implementation and evaluation phases of the project. The first group, NBGC representatives, consisted of chief program officers (CPOs) and program staff from the NBGC implementation sites. Contributions from this group helped ensure that the intervention and study protocol were programmatically compatible and feasible to implement. During implementation, members coordinated day-to-day activities and delivered the intervention. Interactions with these partners were fluid and informal, consisting of site visits, conference calls, in-person meetings and emails. The second group, known as the Native Steering Committee, was a community advisory group composed of one community representative from each club, and two at-large members. This group met annually and provided guidance and oversight on cultural aspects of the project (e.g., strategies for engaging parents, community perspectives on sexual health education for AIAN youth). At the conclusion of the project, members from both groups met together with the research team to discuss and debrief about the intervention.

Data Collection and Analysis

Data collected during the formative phase of the project derived from multiple sources: meeting notes, calls, emails, field notes and site visits. Using participatory inquiry, the research team met weekly to discuss and reflect on information collected (Crabtree & Miller, 1999). The team engaged in member checking to confirm understanding and triangulated data from different sources to evaluate the consistency of themes. This iterative process informed decision-making and the development of the mCOL intervention.

During the implementation phase of the project, we collected process data consisting of observation reports and field notes written by research team members; fidelity monitoring reports and attendance records submitted by facilitators after each class lesson; and electronic reports showing the amount of the online program completed by each youth. Some units had difficulty accessing the online program and were given DVDs. At those sites, club staff manually tracked and reported program completion by participant. Throughout implementation, we monitored fidelity and used participatory inquiry to identify emergent themes.

To deepen our understanding of the feasibility and acceptability of the intervention, we also conducted post-intervention interviews with facilitators and a participant survey. We interviewed five facilitators by phone within a month after finishing the intervention. Nine months later, we administered a satisfaction survey to 44 youth, coinciding with the final outcome survey. The primary author conducted the initial coding and analysis of interview data. Next, the research team discussed and distilled salient themes. During a multiday meeting at the end of the project, we shared these preliminary findings and engaged community partners in providing their perspectives and interpretations.

Results

Formative Phase

The first year of the project was devoted to building community partnerships and discussing the needs and approaches for providing sexual health education to children ages 10–12 years old. Community partners acknowledged a need for such education and highlighted the importance of "teaching Native children about their cultural and spiritual identity so they know where they come from and who they are."

At the beginning of year two, the first (beta) version of mCOL was available and community partners reviewed the program. Their feedback on the content, animation and graphics was positive. Reviewers stated that the content was culturally respectful and appropriate. Nevertheless, both the Steering Committee and NGBC representatives independently recommended that NBGC staff play a larger role in delivering the program.

Comparing mCOL with traditional ways of teaching, the Native Steering Committee raised concerns about the impersonal and individualistic nature of the

Internet. They described the cultural significance of coming of age and how it is celebrated by many tribes with ceremonies and traditional practices. Similarly, they explained how trusted adults (parents, aunties, uncles, and elders) and the larger community share responsibility for imparting values and teaching youth about sexual health through stories and experiential learning. While traditional practices are interpersonally rich and reinforce tribal identity, mCOL requires no human interaction, something the group found culturally inappropriate. They suggested adding opportunities for NBGC staff to be involved in facilitating the program.

Echoing this sentiment, NBGC representatives articulated that the mission of NBGCs includes providing a safe environment for teaching and mentoring youth in all areas of life. They described how many youth have no trusted adults in their lives and no one they can talk to about sensitive topics. NBGC staff felt it was their responsibility as mentors to personally engage with youth after they completed each chapter of the online program. Staff also pointed out that this would model openness for discussing sexual health topics. Additionally, they identified educational benefits of facilitation such as tailoring, adapting and reinforcing content. Although levels of experience and comfort in regard to talking to youth about sexual health varied among staff, they were unanimous in desiring to embrace this role.

Community partners recognized the need for providing sexual health education to pre-teens in their communities. They also felt that it was appropriate for NBGCs to provide that education, and they liked the mCOL program. Their primary concern was relying exclusively on the Internet since it was an impersonal delivery channel. To reconcile these concerns, the group recommended creating a hybrid intervention in which NBGC staff supplemented the online chapters with classes.

Working together with community partners, we developed class lessons to accompany each of the seven online chapters. Cognizant of the need to minimize staff burden, we designed lessons that were easy to deliver, flexible and under an hour long. Since the educational content was taught online, classes consisted of discussions, games and simple activities. Whenever possible, we incorporated elements from the original COL curriculum. We also worked with community partners to identify places where the lessons could be adapted by substituting local stories, customs, and examples; and opportunities for strengthening community ties by inviting participation by elders, healthcare providers, and others. Additionally, we provided suggestions and resources for tailoring the material based on the maturity level.

Adding facilitation necessitated that we also develop training for those who would be providing the classes. Consistent with the goal of making mCOL readily accessible, we developed an online training portal within the mCOL website. Initially the training consisted of static materials including lesson plans and links to additional resources (e.g., detailed information about specific sexually transmitted diseases). However, based on feedback received during piloting, one of our team members suggested creating online training videos. With acting assistance from AIAN research team members, he created seven short videos (average length = 10 min) that demonstrated the steps and activities for teaching each class. During the study, we oriented NBGC staff to the mCOL training portal and showed them how to access the videos and other program materials.

Implementation and Process Evaluation Phase

Implementation fidelity was defined as sequentially delivering the online and class lesson for each of the seven chapters (14 total activities). All units that implemented the program ($n = 7$) delivered the full number of online chapters. Of these, four units were also able to deliver the full number of class lessons, two units delivered 2–3 class lessons and one unit did not deliver any classes.

Initially, almost all units experienced technological challenges due to insufficient broadband and/or poorly maintained computers. In most cases these problems were resolved relatively quickly; however, technological issues caused significant delays for a few sites. Once these problems were overcome (in some cases, we provided DVDs) staff reported that the online program was easy to administer. Youth were able to complete the chapters with little assistance and the online format provided flexibility that accommodated inconsistent attendance (due to competing afterschool activities).

In contrast to the online program's flexible delivery, classes could only be conducted when there was a quorum of youth who had completed the online chapter. This was difficult to achieve, especially for small units. Consequently, staff made adaptations in order to engage with youth after each online chapter. These included impromptu meetings immediately after youth finished a chapter and repeating classes to maximize attendance before going on to the next chapter. These adaptations demonstrate the NBGC staff's commitment to engaging with youth and help to explain the lengthy implementation process at some units.

We tracked the time required to complete the intervention and compared it to the recommended pace (one chapter per week). For the four units that completed the full intervention, one did so within 2 months and the others took much longer (4, 11, and 13 months). In addition to the implementation challenges previously mentioned (related to technology and attendance), many units also experienced intermittent club closures (sometimes lasting months) resulting from factors such as unit or NBGC financial instability, moving and building maintenance, inclement weather, and traumatic community events. These various challenges resulted in not only programmatic delays, but also loss of interest in the program and attrition. Consequently, some units were unable to complete all components of the program.

Although some units had difficulty implementing the classes, staff were unanimous in stating that the class lessons were valuable because they provided an opportunity to engage with youth on important topics. Nevertheless, a common theme among facilitators was the challenge of engaging 10–12 year olds in discussing sexual topics. Facilitators reported that modeling openness and emphasizing the importance of the topic encouraged youth to open up.

> And I'm one of those moms who talk to my kids. You know, open with them and stuff about it. So I told them I'm not going to be embarrassed and at first they kind of acted like they were all giggly and stuff. But then they got ok and then we talked about, you know, just how…I swear every single one of them had someone in their family that became a teenage parent. Some of them their parents did. Some of them…you know…and so gee, on that one they shared a

> lot. And so I think they were not where they didn't want to hear it or whatever. It was a good… I mean I appreciate it, being able to have it. Being able to have Circle of Life and you know, I know our kids benefited from it.

Discussions often extended beyond the main content of the program and included topics such as methamphetamine and substance abuse—big problems in many AIAN rural communities (Stanley, Harness, Swaim, & Beauvais, 2014). One facilitator described how a class about HIV transmission turned into a discussion about meth:

> … here on our Reservation, Meth is like an epidemic now. I'm thinking it is like that everywhere, but it's really bad here. So I had kids share about how they found needles in their yard. And they know people - so and so is on it. Some of their family was on it. And so when you talked about using needles for HIV, they were like hey, that could happen.

Training adequacy can significantly impact implementation, particularly for a topic such as sexual health. Since training was delivered online and utilized a relatively new and innovative method, we interviewed staff to assess training adequacy. Staff unanimously reported that they watched the training videos and found them helpful. Most of the facilitators were relatively young and had little teaching experience. Members of this group watched the videos multiple times, often on their smart phones. They said that the videos helped them become familiar with the material and comfortable with the flow of the lessons. They also used the videos to review lessons before teaching. There was only one facilitator who had a significant amount of teaching experience. She was less reliant on the videos and stated that she used them as reference if she had a question.

We were also interested in assessing whether the online training provided sufficient support for staff to feel comfortable discussing sexual health topics. We found that initially comfort ranged—some were very comfortable while others were less comfortable. This was largely related to age and experience. Nevertheless, all expressed the view: "this is important for youth to know." Those who were less comfortable described an initial period of awkwardness for themselves and for youth. One person described how he "power[ed] through it." He stated that the awkwardness disappeared once he acknowledged it, adopted a serious tone, and explained the importance of the topic to youth.

In a survey conducted 9 months after completing the mCOL intervention, 44 youth (RR = 45%) provided feedback about the mCOL program. When asked to rate how well they liked the online and class components the average ratings were 3.6 ($n = 39$) and 3.7 ($n = 30$), respectively (on a 5-point scale where 5 is highest). Thirty-five respondents said that they would recommend the program to a friend. Ten youth wrote positive comments which included: "I learned new things"; "It was an interesting program"; "It seemed like it was right on my level for age"; and "Fun. Cool. I learned new weird things." The one negative comment was "Slow." This most likely referred to the time required for the segments of the program to load.

When staff were asked their impressions of how well youth liked the program, they all stated that most youth liked doing the online program "when it was working." However, many shared the experience described by one facilitator: "we had a lot of Internet trouble. And it really hurt us because I lost kids. The loss of interest…they just weren't into it because it took too long."

Another theme that emerged related to the differing maturity levels among youth in this age range. Staff reported that some youth were embarrassed by the online content and many found the class discussions uncomfortable, at least initially. This led one person to suggest offering the program on an annual basis:

> And I just think going through it more than once, it is…I think that would help more. I'm thinking like have it, so many sessions one school year and then the next year, have it again. To those same kids. Cause it is good to start them young, learning about things. But the difference in the age from someone who is 10 and someone who is 12, you know…even two years is a lot. And I think it would be good to have something like this mainly for I'd say, seventh and eighth graders. Sixth, seventh and eighth.

Reflecting on the cultural themes of mCOL, staff reported that youth appreciated these components and engaged with them. They also noted that the hands-on activities, such as having youth draw or paste pictures of their personal strengths for each quadrant of the Medicine Wheel, and discussing AIAN stories, helped reinforce the cultural foundations of the curriculum. For example, one facilitator stated,

> Well, I liked the kind of cultural aspect of it. That is good for our kids always to know that and to always be reminded of it. And mindful of it. That their decisions - it is not just yours. It might affect your family and it might affect your future. You know? Like that.

Discussion

Converting COL to an online format increased accessibility to a culturally grounded sexual health intervention for AIAN youth. However, community partners raised cultural concerns about using an impersonal delivery channel to teach pre-teens about sexual health. This feedback highlights the importance of working with community partners to plan and develop interventions, and illustrates the need to critically evaluate the use of electronically delivered content as a sole delivery platform.

This study also demonstrates how sometimes relatively simple modifications can address cultural concerns. While our partners had concerns about relying solely on the Internet (or a DVD) as a delivery channel, they also saw the benefits that the online program offered. Working together we were able to come up with a programmatic solution that combined the strengths of the Internet with live discussions and activities. The resultant hybrid intervention provided greater cultural congruency while maintaining and likely enhancing educational

effectiveness. While hybrid interventions have both cultural and educational advantages, they nevertheless require more staff time than online only interventions. Although we designed the class lessons to minimize the burden on staff, facilitators in these rural settings encountered logistical challenges conducting the classes due to small units, technological difficulties, and inconsistent attendance. In response, they adapted several activities and discussions to make them more appropriate for their settings. This demonstrates the flexibility of the lessons, as well as staff commitment to engaging with youth during the intervention.

This project also included a relatively novel innovation: the use of online training videos paired with an online intervention. Since the role of the facilitator was not complicated, this training method worked well. Facilitators used their smart phones to view the videos whenever and as often as they wanted. As a result, they became familiar with the content and flow for each lesson before delivering it. Online videos were an efficient way of providing training/refreshers for geographically dispersed and often isolated sites.

This study had a number of limitations. First, the project was planned and implemented within a specific region of the country. Consequently, community partner feedback may not reflect the views of other AIAN tribal communities. Second, mCOL was only evaluated in NBGCs which have unique characteristics in comparison to other settings. Third, the number of sites and average enrollment at each site was small which made it difficult to conduct classes. Fourth, the intervention was only implemented once so staff had little opportunity to learn from experience. Finally, the majority of units experienced implementation delays due to financial and/or technological problems. This resulted in attrition and may have negatively impacted youth engagement.

The primary strength of this study was the partnership with our community partners who were knowledgeable, motivated and engaged in helping to develop the intervention. Working together we were able to create a product that was both culturally appropriate, and feasible for staff to deliver. After completing the study, we have also been able respond to partners' suggestions and lessons learned by making improvements in the technological functioning of the program, and reformatting the training portal.

Conclusions

While the Internet has much to offer in terms of engagement and efficiency, the impersonal nature of this delivery channel can challenge traditional ways by which AIANs impart knowledge and values. In this study we addressed community concerns about exclusive use of the Internet by creating class lessons that supplemented the online program. Since the main educational content was presented online, the additional burden on staff for leading discussions and simple activities was feasible. Furthermore, the use of online videos proved to be an effective and efficient method for delivering training in geographically dispersed communities. The class lessons afforded important opportunities for staff to reinforce concepts, tailor to local needs, and involve community members in teaching. The additional

burden associated with delivering the lessons was considered minimal in relation to their educational and programmatic benefits.

Acknowledgements This publication was made possible by Grant Number TP2AH000003 (Kaufman, PI) from the Office of Adolescent Health. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Office of Adolescent Health, the Office of the Assistant Secretary for Health, or the Department of Health and Human Services.

Compliance With Ethical Standards

Conflict of Interest No author has a conflict of interest or financial interest regarding the study.

Ethical Standard All authors have complied with the Principles of the Ethical Practice of Public Health. This study was approved by the University of Colorado IRB and appropriate entities for each tribal community.

Human and Animal Rights All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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