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Evaluating knowledge and attitude change among participants in a participatory filmmaking and HIV and AIDS education workshop for Indigenous youth

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ABSTRACT

Although arts-based HIV and AIDS education and prevention initiatives with Indigenous youth have become increasingly popular, there is a paucity of research on their use, development, appropriateness, effectiveness, and acceptability. The aim of this study was to evaluate Indigenous youths' HIV and AIDS knowledge and attitude change after participation in an arts-based HIV and AIDS education workshop.

Eleven self-identifying Indigenous youth, ages eleven to seventeen, attended a 3.5-day participatory filmmaking workshop hosted as part of a community-based research project examining the use of arts in HIV and AIDS prevention with Indigenous youth in Labrador. Participatory filmmaking was used to engage youth and create dialogue about HIV and AIDS, sexual health, and health in general.

A mixed methods design was used to assess knowledge and attitude change post-workshop. Youth completed pre and post-test surveys immediately before and after the workshop. Approximately two weeks later, youth were interviewed about their experiences. Using content analysis, interview transcripts were analyzed for themes related to HIV and AIDS knowledge and attitude change.

Post-workshop knowledge and attitude change was statistically significant. On average, participants improved their HIV knowledge scores by nearly 22% and their attitude scores by 18% after the workshop.

Analysis of the interview transcripts revealed that the participants: 1) learned what HIV is; 2) learned how HIV is transmitted; 3) learned about stigma; 4) operationalized new knowledge; 5) learned about self-efficacy: boundaries/healthy relationships; and 6) attributed their knowledge and attitude change to the environment created through participatory filmmaking.

These findings suggest that participatory filmmaking is a promising strategy for HIV and AIDS education and prevention with Indigenous youth. Improving HIV and AIDS knowledge and attitudes is essential to addressing the overrepresentation of Indigenous youth affected and infected by HIV and AIDS in Canada.

BACKGROUND

This manuscript presents findings from my doctoral research, a community-based research project exploring and evaluating the use of the arts in HIV and AIDS education and prevention with Indigenous[1] youth. I was approached by the coordinator of the Labrador HIV and AIDS Project and asked to assist in developing, implementing, and evaluating an arts-based, HIV and AIDS education program for the Indigenous youth they serve. Together, we aimed to develop an arts-based workshop that was strengths-based, culturally-safe, educational, and engaging.

In Canada, there is a need for culturally-relevant, engaging, and effective HIV and AIDS education for Indigenous youth, as Indigenous people face a disproportionate burden of disease including overrepresentation in rates of HIV infection (Adelson, 2005; Gracey & King, 2009; PHAC, 2014). The Public Health Agency of Canada (PHAC) (2014) estimates that HIV infections rates are more than three times higher within Canada's Indigenous population than the non-Indigenous population. In addition to being disproportionately affected by HIV, PHAC estimates that Indigenous Peoples tend to contract HIV at a younger age (ten years younger) than the general population (PHAC, 2014) and often receive treatment at later stages of the disease (Nowgesic, 2015). In Canada, Indigenous youth have a higher risk of contracting HIV than do their non-Indigenous counterparts (PHAC, 2014). Indigenous youth, in particular, "are more likely to be diagnosed late, more likely to have an earlier onset of acute illness, less likely to received optimal medical care, and have shorter survival rates" (Smillie-Adjarkw et al, 2013).

The factors that determine health are biologically, socially, politically, and environmentally driven (Adelson, 2005; Loppie Reading & Wien, 2009; PHAC, 2014; Richmond & Ross, 2009). Health disparities between Indigenous and non-Indigenous populations are related to factors such as the ongoing legacy of colonialism (Adelson, 2005; Gracey & King, 2009). For example, poverty, racism, unstable housing, mental health and addictions, the residential school system, intergenerational trauma and the loss of autonomy, self-governance, and traditional ways of life and lands contribute to poorer health outcomes among Canada's Indigenous Peoples, including higher rates of HIV infection (PHAC, 2014).

Traditional public health approaches are not adequate for addressing HIV and AIDS within Indigenous populations, as they do not account for the unique factors (such as the impact of colonialism) that increase the risk of transmission and determine health for Indigenous people

[1] Indigenous Peoples traditionally living in Labrador include the Inuit (Nunatsiavut), Southern Inuit (NunatuKavut), and Innu (Innu Nation recognized as a First Nation in 2002). The term Indigenous is used throughout this paper to be inclusive of the participants in this study who self-identified as First Nation, Inuit and Innu and/or Indigenous.

(Flicker et al., 2014; Steenbeek, 2004). Innovative health promotion strategies that address the determinants of Indigenous health and factors that increase the risk of HIV infections must be developed in order to curb infection rates. In particular, prevention strategies for Indigenous youth should adopt decolonizing approaches and address the social factors that contribute to the elevated risk of HIV infection for Indigenous youth (Flicker et al., 2013).

Arts-based initiatives have emerged as promising strategies for health promotion in recent years with a variety of populations (Boydell, Gladstone, Volpe, Allemang, & Stasiulis, 2012). Genres of art, such as painting, music, and theatre have been used to in health education initiatives such as learning about stroke, hand hygiene, heart disease, chronic pain, tobacco use, and sexual health, with target audiences including children, youth, adults, men, and women around the world (Boydell et al., 2012; Williams & Noble, 2008). Arts-based education initiatives have also been increasingly used as strategies for HIV and AIDS prevention with and by Indigenous youth in Canada (Flicker et al., 2013; Ricci, Flicker, Jalon, Jackson, & Smillie-Adjarkwa, 2009; Fanian et al., 2015; Lys, Gesink, Strike, & Larkin, 2018; Lys et al., 2016; Ricci, Flicker, Jalon, Jackson, & Smillie-Adjarkwa, 2009).

Arts-based HIV and AIDS education programming is compatible with many of the best practices for HIV and AIDS education for Indigenous youth. Ricci and colleagues (2009) published a scoping review that identified "Wise Practices" for HIV and AIDS education and prevention with Indigenous youth, which included arts-based approaches (p. 29). Peer-education and other strategies that address the impact of colonialism have been identified as effective tools for education with Indigenous youth and can be incorporated into arts-based education (Larkin et al., 2007; Lys et al., 2016; Majumdar, Chambers, & Roberts, 2004; Ricci et al., 2009; Mikhailovich & Arabena, 2005; Wilson et al., 2016). Lys and colleagues (2016) created an HIV prevention program and leadership development for Indigenous girls in the Northwest Territories that used the arts as a method of engagement and empowerment. As well, arts-based programming can strengthen community relations by involving many members of the community (Riecken et al., 2006). Additionally, arts-based programs can be empowering (Boydell et al., 2012; Finley, 2008; Flicker et al., 2014; Lys et al., 2016b). For instance, Flicker and colleagues (2014) reported that Indigenous youth participating in an arts-based HIV and AIDS prevention initiative found it to be empowering. Flicker and colleagues state, "arts-based approaches typically offer participants an opportunity to: participate equally in the decision-making process; learn and share new skills; create counter-narratives that make visible previously hidden or silenced aspects of their identity or experience; and build on or reclaim their cultural identities or cultural practices" (2014, p.19).

Although there are many initiatives that use arts-based approaches for HIV and AIDS education and prevention, there is little research available discussing their use, development, appropriateness, effectiveness, and acceptability. Evaluating arts-based programming has challenged some of the traditional strategies for evaluation, in part due to their complexity as well as the multitude of impacts and audiences (Boydell et al., 2012; Parsons & Boydell, 2012). This research project collaboratively developed and assessed an arts-based strategy (i.e. participatory filmmaking) for HIV and AIDS prevention and education with Indigenous youth. This manuscript presents a description of the arts-based strategy developed, an assessment of the

youth's knowledge and attitude change after the workshop, and an exploration of the participants' perceptions of what they learned about HIV and AIDS at the workshop.

METHODS

In order to evaluate knowledge and attitude change during participation in the arts-based workshop, mixed methods data collection strategies were employed (Creswell, 2013; Tashakkori & Teddlie, 1998). Data sources included the instruments to assess knowledge and attitudes about HIV and AIDS pre- and post- workshop, and in-depth interviews with participants after the workshops had concluded. Using a mixed methods approach allowed for a more comprehensive understanding of the youth's knowledge uptake and attitude change after participation in the workshop.

As stated, this mixed methods evaluation of the participants` knowledge and attitude change is part of a larger community-based research study examining the use of the arts as a participatory and culturally-relevant strategy for HIV and AIDS education with Indigenous youth. This community-based research project was undertaken as a partnership between the author and the HIV and AIDS Labrador Project based in Happy Valley-Goose Bay, Labrador. The research process and workshop development were guided by the HIV and AIDS Labrador Project coordinator and advisory committee, discussions with the community youth and other stakeholders, the principles of OCAP®[2] (ownership, control, access and possession over research), and a review of relevant literature.

Ethics approval was granted from the Newfoundland and Labrador provincial Health Research Ethics Board (NL HREB #14 147) and NunatuKavut's research review board. Information about this study was shared with Nunatsiavut throughout the research process.[3]

The Workshop

The workshop was held in Happy Valley-Goose Bay to make it accessible to as many youth as possible. Happy Valley-Goose Bay is the largest community in central Labrador with a population of approximately 6408 people, 2965 (46.3%) of which identified as Aboriginal on the 2016 Census (Statistics Canada, 2017). In 2016, approximately 6.3% of the population identified as First Nations, 31.2% of the population identified as Inuit, and 13.8% of the population identified as Métis[4] (Statistics Canada, 2017). Additionally, the HIV and AIDS Labrador Project's office is in Happy Valley – Goose Bay, although they provide programming throughout many of the communities in Labrador.

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[2] OCAP® is a registered trademark of the First Nations Information Governance Centre (FNIGC). www.FNIGC.ca/OCAP.

[3] Nunatsiavut's research review board only reviews research conducted on Nunatsiavut lands. The Innu Nation had no official research ethics process at the time of this research.

[4] Members of NunatuKavut were at one time referred to as Métis, but this term is outdated. Members of NunatuKavut refer to themselves as Southern Inuit.

The genre of arts was determined by informal consultations with youth in the community that were held by youth group coordinators and arranged by research partners. Youth were asked to rank their interest in different types of arts including painting, hip hop, filmmaking, carving and drumming, and were invited to add their own suggestions. The youth were predominantly interested in learning about filmmaking. Therefore, we developed a 3.5-day participatory filmmaking and HIV and AIDS education workshop which took place over a long weekend.

Youth ages 11-26 who self-identified as Indigenous were invited to participate in the study. Participants were recruited by word-of-mouth. A recruitment poster was circulated on community listservs, at community buildings around town, and on Facebook. Eleven self-identifying Indigenous youth (3 males and 8 females) between ages of eleven and seventeen participated in the workshop (eight middle school aged youth and three high school aged youth). Each participant gave written informed assent and a guardian signed the informed consent form prior to the youths' participation in the research study. Participants received a $25 gift card honorarium for their participation in the workshop.

The workshop was divided into two sections: an HIV and AIDS education session with an educator from Healing Our Nations (HON),[5] and filmmaking. Middle school and high school-aged participants attended separate sessions tailored to their age group with the HON educator. The education sessions included information about boundaries, healthy relationships, alcohol and other drugs, sexually transmitted and blood borne infections (STBBIs), and an HIV and AIDS basics presentation: what HIV and AIDS are, how HIV develops into AIDS, and HIV transmission, prevention, and treatment. The sessions also included educational games and crafts and open discussions. Stigma was not explicitly raised by educators but emerged as a discussion topic among the participants during the workshop.

The remainder of the workshop was spent learning filmmaking skills, engaging in group-building activities such as icebreaker games, sharing meals and snacks, and participating in sharing circles led by the Elders. Professional facilitators were hired to provide instruction on filmmaking during the workshop. Two of the three film facilitators were young (under 30 years old) Indigenous people from outside Labrador. They provided technical instruction, the equipment, and facilitated each of the filmmaking groups. The youth learned how to plan a film, as well as how to film (set up shots), perform, direct and edit. The majority of time each day was dedicated to learning how to make a film (see appendix A for workshop schedule).

Participants made four short films in groups of three to six people. The participants began by brainstorming a list of topics as a group. The group narrowed down the film topics and smaller groups were formed as youth chose the topics they were most interested in. The youth made three films: "Tested," Young Genius," and "Our Body is a Treehouse." A fourth film, called "Condom in Grandma's Bag", was initiated by the Elders.

[5] Healing Our Nations is an Indigenous HIV and AIDS education organization based in eastern Canada.

The first two films were written, filmed, performed and edited by youth. "Tested" was made by 4 female participants and portrayed themes of stigma, STBBI testing, and supporting friends. "Young Genius" was created by 2 female and 2 male participants. This film portrayed themes of bullying and support from family, "Our Body is a Treehouse" is a Claymation film written, performed and created by 2 male and 1 female participants. This film built on the phrase "our body is a treehouse" which was used by the HIV educator in her discussion of personal boundaries and healthy relationships. One youth worked on two films. He was part of the group that made the Claymation film, and he also participated in the Elders' film, "Condom in Grandma's Bag", taking the role of interviewer, asking the Elders what they knew about HIV in the past and what they know now. At the end of the workshop, any final edits that remained to be finished were indicated by the youth on an editing plan to be completed by the film facilitators after the workshop. Additionally, the facilitators added credits to the films that described the research project and acknowledged the funders.

Instruments

Two instruments were combined to form the pre- and post- test in order to assess changes in HIV knowledge and attitudes. The validated 18-item HIV Knowledge Questionnaire (Carey & Schroder, 2002), which is "internally consistent, stable, sensitive to the change resulting from intervention, and suitable for use with low-literacy populations," was used to assess HIV knowledge change (Carey & Schroder, 2002). We also used the "Your Beliefs" attitude scale, a validated 10-item Attitude Questionnaire from *Assessment Instruments for Measuring Student Outcomes: Grades 7 – 12*, to assess attitude change (Popham et al., 1992). Participants were required to indicate "true", "false", or "don't know" to each of the statements on both instruments. These instruments were chosen because they had been successfully used previously by the HIV and AIDS Labrador Project to evaluate school-based information sessions (not arts-based programming).

A semi-structured interview schedule was developed to explore the youth's experiences at the workshop and to provide a more comprehensive understanding of knowledge and attitude changes that occurred during the workshop. The interview schedule included questions about why youth chose to participate in the workshop, the youth's experiences at the workshop, knowledge of HIV and AIDS, and filmmaking as a strategy for HIV and AIDS education.

Data Collection

Participants answered all questions on the self-administered the pretest when they first gathered for the workshop and on the posttest they completed at the end of the weekend workshop. Participants' pretests and posttests were matched by unique identifying numbers. Unique identifying numbers, all data, and materials from the workshop were stored securely in my locked office.

Approximately two weeks after the workshop, participants were invited to be interviewed about their experiences at the workshop. All of the 11 participants were interviewed either alone or in

pairs depending on whether the participant(s) chose to be interview together. Two sets of siblings participated in the interview process together. The interviews were conversational and lasted thirty to ninety minutes. The interviews were digitally recorded and transcribed verbatim. I started the interviews by showing the participants (and their parent/guardian, if present) their film and asking if it had been completed according to the group's editing plan and if there were any other changes they would like to make. In most cases, the parent/guardian, if present, left the room after watching the film. In two cases, parents/guardians were present for the full interview. In those cases, the parents/guardians both withdrew to a corner of the room during my conversation with the participant.

Data Analysis

Responses from the pretest and posttest were entered and analysed in R Project—statistical analysis software (2013). To examine whether knowledge levels had changed over the course of the workshop, correct responses from the knowledge questionnaire were coded "1," incorrect responses and "don't know" were coded as "0." Correct answers were tallied for a maximum possible score of 18 for each participant. Responses to the attitudes questionnaire were assigned a score of "1" if they were in agreement with the evidence of risk of transmission and "0" if their response was not in line with the risk of transmission. The number of correct answers was counted for a maximum possible score of 10 for each participant. The pretest and posttest scores from the knowledge questionnaire and attitudes questionnaire were tallied and analyzed separately. A matched pair t-test was used to compare mean pretest and posttest scores. Significance was set at $p < 0.05$.

I used a conventional content analysis approach to code interview data that focused on knowledge change and attitude change. (Hsieh & Shannon, 2005; Hesse-Biber & Leavy, 2010; Miles, Huberman, & Saldana, 2013). Interviews were audio recorded and transcribed verbatim (in full). Each transcript was read multiple times to get an overall sense of the data (youth's experiences). Microsoft Word was used for data management and to assist with coding. Individual words and phrases regarding knowledge uptake and attitude changes regarding HIV and AIDS were coded. These codes were developed into the themes presented.

RESULTS

HIV knowledge and attitudes Pre- and Post- Arts-Based Workshop

Due to the small sample size, the data were examined to determine whether statistical inferences could be made. The Shapiro-Wilk normality test indicates that both the HIV knowledge and attitude scores came from normal distributions (HIV knowledge $W(10) = 0.929$, $p = 0.441$; HIV attitudes $W(10) = 0.896$, $p = 0.197$). The results of the Wilcoxon signed-rank test offer further support of significant positive improvement in post-intervention scores, without relying on the normality of the differences (HIV knowledge $p = 0.006$; HIV attitudes (0.013).

On average, participants answered 5.7 (SD 2.45) out of 18 questions correctly on the HIV knowledge pretest and 9.6 (SD 2.88) on the posttest. Participants answered an average of 5.7 (SD 3.13) out of 10 questions correctly on the HIV attitudes pretest and 7.5 (SD 2.59) on the posttest.6

Matched paired t-tests indicate that the changes in scores between the pretest and posttest are statistically significant ($t(9) = 8.093$, $p < .001$). Participants' HIV knowledge scores increase on average by approximately 4 additional correct answers post-workshop ($MD = 3.9$, $SD = 1.52$; 95% CI (2.8, 5.0)).

Participants' HIV attitudes scores increased on average by approximately 2 additional correct answers post-workshop ($MD = 1.8$, $SD = 1.55$; 95% CI (0.7, 2.9)). This is a significant positive improvement ($t_{(9)} = 3.674$, $p = .005$) (see Table 1, below).

Table 1. Pretest and posttest comparison of participants' HIV knowledge and attitude scores

	MEAN PRETEST N = 10	MEAN POST TEST N=10	MEAN DIFFERENCE (PRE/POST TEST) N=10	95% CI	TEST-STAT (T_9)	P-VALUE (P)
HIV KNOWLEDGE	$\bar{x} = 5.7$	$\bar{x} = 9.6$	MD = 3.9, SD = 1.52	(2.8, 5.0)	$t_9 = 8.09$	$p < 0.001$
HIV ATTITUDES	$\bar{x} = 5.7$	$\bar{x} = 7.5$	MD = 1.8, SD = 1.55	(0.7, 2.9)	$t_9 = 3.67$	$p = 0.005$

Emerging themes on HIV knowledge and attitudes

Qualitative content analysis of the interview data increases the understanding of the quantitative findings by providing breadth, depth, and context to the quantitative data. It also allows for a comparison of the data and findings from each data collection method to occur (Creswell, 2013). The findings from the qualitative analysis support the quantitative findings as they suggest that participants learned about HIV and AIDS over the course of the workshop. To further this, many youth attributed their learning to participation in the workshop.

[6] One participant had an 18-point increase between the pretest and posttest, having answered, "Don't Know" to every statement on the pretest. This unusual 18-point increase was an outlier in the data. This participant did not have exceptionally different (from average) pretest or posttest scores; the 18-point improvement post workshop is almost 3 standard deviations above the average improvement (z-score = 2.78). Including the outlier the knowledge pretest and posttest means were 5.2 (SD 2.89) and 9.4 (SD 2.84) respectively on the knowledge questionnaire and 5.2 (SD 3.43) and 7.6 (SD 2.50) respectively on the attitudes questionnaire. The outlier is excluded from further analysis.

Through qualitative content analysis, the following themes regarding HIV and AIDS knowledge and/or attitude change emerged from the interviews. These themes include 1) the participants learned what HIV is, 2) the participants learned how HIV is transmitted, 3) the participants learned about stigma, 4) the participants operationalized new knowledge, 5) the participants learned about self-efficacy: boundaries/healthy relationships, and 6) the participants attributed their knowledge and attitude change to the environment created through participatory filmmaking.

1) The participants learned what HIV and AIDS is.

Participants had a range of HIV and AIDS knowledge prior to the workshop. Several youth reported that they did not know what HIV and AIDS was prior to attending this workshop. Other participants were familiar with other STBBIs but did not know about HIV and AIDS prior to the workshop.

> I: Okay, that was the first time you had heard about HIV? Okay, had you heard about other STIs before?
> P: Well, I know chlamydia or whatever.

2) The participants learned how HIV is transmitted.

When asked about what they learned at this workshop, many youth indicated that they learned about how HIV was transmitted. For instance, one group of youth decided to focus their film on educating people about how HIV is transmitted:

> We learned that there is only three ways[7] that you can get HIV. So we used that in our film. Like at first we didn't know, most of us didn't know what it was. So we just, once we learned about it we decided to make our film based on that because a lot of people don't know what it is.

In addition to learning how HIV is transmitted, many of the youth learned how it is not transmitted.

> I: What did you learn about [HIV and AIDS]?
> P: Well, I didn't know that, it can like, when you touch people, you can't get it.

3) The participants learned about stigma

Although not specifically addressed in the HIV and AIDS information session, stigma regarding HIV, AIDS, STBBIs and testing emerged in the discussions during the workshop as well as in the films and in the interviews. One youth connected reducing stigma and not being afraid of contracting HIV to having more knowledge about how it is transmitted:

[7] The "three ways" this participant is referring to is through blood, breastmilk and semen/vaginal/anal secretions.

> Even if you got HIV or any of that stuff, you don't got to be scared you can catch it or anything because you can only get it through certain things and why you shouldn't make fun of them because this happens to some people and sometimes they don't even know they have got it.

Some youth indicated that they were using the opportunity to make films to educate others about HIV and non-stigmatizing attitudes:

> The film that it is helping people understand more, like how we talked about how you can't just catch it just from touching someone, … we are helping people learn that it is okay to be around people, you can't just block them out.

Another youth stated, "We learned about different ways that you can get HIV, how to not get HIV and to get tested." Some youth related stigma to the reasons people do not get tested for HIV and AIDS.

> I: Do you think that is a big problem that people that people don't want to get tested because …?
> P: They think people are going to make fun of them.
> I: Yeah? Do you think that that happens?
> P: Yeah.
> I: Yeah? And so what do you want to tell people by making this film, what was your message?
> P: That if a person have HIV or STIs, they shouldn't go away because you can't you can't like, I don't know how to explain it.
> I: You are doing a good job. Because you can't…like you can't catch it?
> P: Yeah.
> I: From?
> P: It is not like a flu or nothing.

4) Operationalizing knowledge

Several of the youth made films that operationalized their new knowledge during the workshop. Several youth felt they had a duty to educate others about what they did not previously know. They used the opportunity to make a film to educate their audiences about HIV and AIDS. For instance, one group made a film called "Tested."

> P: Well, we made a film about, we were bullying a girl because she got tested for HIV and then we started spreading rumours about it and […] and stuff.
> I: Why did you think it was important to make that film?
> P: So that people would know not to make fun of people and stuff.
> I: And was it made because of things that you learned at the workshop?
> P: Yeah.

I: Like what?
P: Like we learned that there is only three ways that you can get HIV so we used that in our film. Like at first we didn't know, most of us didn't know what it was, so we just, once we learned about it we decided to make our film based on that because a lot of people don't know what it is.
I: Did you know anything about HIV before?
P: No.
I: This is the first time you had heard about it?
P: Yeah.

Additionally, another youth described operationalizing her new knowledge in her own life during a playground interaction during the period between the workshop and the research interview.

P: On Friday [a boy in the playground] was like, don't touch me I have HIV. I was like, I explained to him, you can't get, I cannot get HIV from touching you.
I: So the bully[8] was saying that you shouldn't touch him? Or the boy was saying it?
P: The boy was on Friday when I went to school, this boy was like don't touch me I have HIV and I was like, I cannot get HIV by touching you.
I: and what did he say to that?
P: he said, oh, he said, oh, I didn't know that, yeah.

5) Self-efficacy: Boundaries, Healthy relationships

Another theme that emerged from the interviews was the idea of having boundaries, including ownership and control of one's body. The youth used the metaphor, "Our body is a treehouse" from their HIV and AIDS education session in one of the films. Several of the youth described learning about having control over what happens to their body when talking about what they learned at the workshop. "We learned that our body is kind of like a treehouse, like you have rules." Another youth stated, "Kids and teenagers can make their own choices about what they do to their body." Another youth related this metaphor to having respect for herself. In particular, she felt it was important to have boundaries when negotiating [sexual] relationships in the future. She stated,

P: I learned that your body is a treehouse, that you got to respect your body and for me, I would rather be with someone I know and all that before we get serious.
I: so you would have a good relationship with somebody before.
P: and I will set some boundaries.

6) Knowledge and attitude change as a result of participation in participatory filmmaking

All of the youth reported learning about HIV and AIDS at the workshop. Some youth described learning from the HIV and AIDS educator and other facilitators, some youth described learning

[8] The participant had previously referred to the other youth as a "bully."

from their peers through the process of participatory filmmaking and others described learning from other groups' films.

> I: Did you know some of those things before?
> P: The only think I knew about that is that you could only get it like from if you have sex and all that.
> I: And so have you ever thought about the bullying for people who were getting tested or might have HIV.
> P: No.
> I: No? You never thought about that before? That was just something you guys thought about when you were talking all together?
> P: Yeah.

DISCUSSION

The findings of this study suggest that during the participatory filmmaking and HIV and AIDS education workshop youth increased their level of knowledge and improved their attitudes related to HIV and AIDS. Post-workshop change was significant for HIV knowledge scores ($t_{(9)} = 8.093$, $p < .001$) and HIV attitudes scores ($t_{(9)} = 3.674$, $p = .005$). Interview data supported the quantitative findings and expanded upon these findings by providing details regarding what the participants felt they learned at the workshop.

Analysis of the interviews indicated that participants had a range of HIV knowledge prior to the workshop. Beyond learning of the existence of HIV, both the questionnaires and interviews confirmed that youth learned how HIV is transmitted. Although knowledge increased significantly after the workshop, knowledge levels remained low with an average correct response rate of 53.3 percent on the HIV knowledge posttest, an approximately 21.7 percent increase in correct responses. The participants' attitudes towards HIV and AIDS improved on average by 18.0 percent after participation in the workshop to an average correct response rate of 75.0 percent. The change in attitudes appeared to be related to learning about HIV transmission, including about which body fluids contained HIV. One potential reason knowledge remained low is that the HIV education session was not tailored to specifically address the questions on the test.

Giles (2014) conducted a similar assessment of a (non-arts) school-based HIV and AIDS education intervention in Labrador. Her study included 91 youth ages 11 to 17, 54 of whom identified as Indigenous (59.3%). Participants in her study improved their scores on average by 13.3 percent on a similar knowledge questionnaire and by 2.2 percent on the same attitudes questionnaire after a 1.5 hour classroom-based information session (Giles, 2014). The participants of our participatory filmmaking workshop demonstrated a greater improvement in both knowledge and attitude scores than a similar population participating in a non-arts-based education session.

Youth attending this participatory filmmaking and HIV and AIDS education workshop identified a connection between stigma and HIV testing. Improving HIV knowledge is critical to improving

HIV-related attitudes and ultimately to reducing stigma. For instance, knowing how HIV is transmitted and not transmitted can affect attitudes towards people living with HIV. Additionally, HIV stigma can be a barrier to accessing prevention services including HIV testing (Lys et al. 2016), as well as HIV treatment. Considering Indigenous people have higher rates of HIV infection and often are diagnosed at later stages of the disease (Nowgesic, 2015), reducing HIV-related stigma is crucial. The findings from this study show that youth participating in this participatory filmmaking and HIV education workshop demonstrated increased HIV knowledge and improved related attitudes after the workshop, ultimately reducing HIV stigma among the participants.

Although the participants in this study significantly increased their HIV-related knowledge and improved their attitudes, their knowledge and attitudes scores remained low. This suggests that participatory filmmaking was a successful strategy for HIV and AIDS education but demonstrates the need for ongoing engagement and education initiatives with this population.

There are few studies that examine HIV knowledge and attitude change with this population in Canada. Although best practices suggest HIV prevention education should begin before the age of 15 (Ricci et al., 2009), many HIV education initiatives and assessments do not include youth under the age of 15. The findings of this study suggest that participatory filmmaking is an effective strategy for HIV education.

Operationalizing knowledge and attitude change

While the quantitative data demonstrate that there was a significant change in both HIV knowledge and attitudes among the participants, the participants' interviews provide a much more nuanced understanding of how knowledge and attitudes changed as a result of the workshop.

Something not captured by the HIV knowledge questionnaire was how youth were able to operationalize their new HIV-related knowledge. For instance, one youth recounted an interaction she had on her school's playground during the period between the workshop and the participants' interviews that demonstrated her HIV knowledge and her confidence to challenge a "bully" with that knowledge. Another youth spoke about wanting to set boundaries in future relationships. Many of the youth spoke about how they wanted to educate their peers by informing others of their new knowledge through their films. The youth operationalized their new knowledge, in this case through filmmaking with the desire to educate their peers. Overall, these finding suggest that the youth were empowered through their participation in the workshop. These findings are in line with others who have found participatory arts-based health promotion initiatives to be empowering for participants including with Indigenous youth and Indigenous women (Boydell et al., 2012; Finley, 2008; S. Flicker et al., 2014; Prentice, 2015). Additionally, these findings are promising as research suggests increasing feelings of empowerment, self-esteem, and self-efficacy can have protective qualities with regards to HIV infection (King, 1999; Lys & Reading, 2012; Prentice, 2015; UNAIDS, 2014).

LIMITATIONS

This was a descriptive pretest and posttest study which evaluated HIV and AIDS knowledge and attitude change. The design of this study is limited to assessing change over time. The change measured post workshop may not be solely due to workshop participation. An additional limitation of this study is that knowledge and attitude changes were only measured immediately after the workshop. Ongoing assessment at greater time intervals would provide information on whether participants retained what was learned during the workshop.

The findings of this study are not generalizable due to the small (n=11) non-representative sample of self-selected participants, and lack of comparison group. Additionally, the small sample size did not allow for data to be analyzed by participant's gender, or age. We were also unable to report on ethnicity beyond participants identifying as Indigenous; ideally, youth would be able to report whether they identify as Innu, Inuit, First Nations, or Métis, for example. However, the significance of the change in knowledge and attitudes suggests that it may be fruitful to conduct a similar study with a representative sample of participants.

Additionally, the HIV-KQ questionnaire provides limited assessment of knowledge regarding the "natural history, clinical course, or treatment of HIV and AIDS" (Carey & Schroder, 2002, p. 6). Therefore, an additional limitation of the questionnaire is that it only addresses sexual vectors of transmission and does not include other vectors of transmission such as intravenous drug use (IDU) which is the most common mode of HIV transmission among Indigenous people in Canada population (Carey & Schroder, 2002; PHAC, 2014). Additionally, this HIV knowledge assessment tool was not actually developed for use with Indigenous youth.

CONCLUSION

This study is the first to evaluate knowledge and attitude change among Indigenous youth engaging in participatory filmmaking as a strategy for HIV and AIDS prevention. Youth significantly improved their HIV and AIDS knowledge and attitudes during their participation in the workshop. These findings suggest that participatory filmmaking is a promising strategy for HIV and AIDS education and prevention with Indigenous youth. Improving knowledge and attitudes and the resulting reduction in stigma are essential to curbing the overrepresentation of Indigenous youth affected and infected by HIV and AIDS in Canada.

APPENDIX A: Workshop Schedule

Filmmaking and HIV AND AIDS/health education workshop schedule
Friday 5-9pm

- 5pm Introduction
- Opening circle
- Movement game
- Opening by Elders
- Ice breaker
- Pre-test
- 6:00 -6:30 pm Dinner
- 6:30 pm Group A: HIV Workshop; Group B: Community agreements
- 8:20pm Closing circle
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Saturday 10am -4pm

- Opening Circle & Icebreakers
- Group A: Community Agreements; Group B: HIV Workshop
- 12:30 Lunch
- 1pm Movement games
- Film Planning
- 3pm Talking Circle with Elders
- 3:40 Closing Circle

Sunday 10am -4pm

- Opening Circle & Icebreakers
- Shooting a film
- 12:30 Lunch
- 1pm Movement games
- Shooting films cont'd
- 3pm Talking Circle with Elders
- 3:40 Closing Circle

Monday 10am -4pm

- Morning Gathering
- Icebreaker games
- Editing films
- 12:30 lunch
- 1pm movement games
- Editing films cont'd
- 2pm Showing the films - works in progress
- 2:30pm Talking circle with everyone
- Post-test & Wrap up
- Closing by Elder

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