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'Transgender Education for Affirmative and Competent HIV and Healthcare (TEACHH)': protocol of community-based intervention development and a non-randomised multisite pilot study with pre–post test design in Canada

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ABSTRACT

Introduction Educational workshops are a promising strategy to increase healthcare providers' ability to provide gender-affirming care for transgender (trans) people. This strategy may also reduce healthcare providers' stigma towards trans people and people living with HIV. There is less evidence, however, of educational workshops that address HIV prevention and care among trans women. This protocol details development and pilot testing of the Transgender Education for Affirmative and Competent HIV and Healthcare intervention that aims to increase gender-affirming HIV care knowledge and perceived competency, and to reduce negative attitudes/biases, among providers.

Methods and analysis This community-based research (CBR) project involves intervention development and implementation of a non-randomised multisite pilot study with pre–post test design. First, we conducted a qualitative formative phase involving focus groups with 30 trans women and individual interviews with 12 providers to understand HIV care access barriers for trans women and elicit feedback on a proposed workshop. Second, we will pilot test the intervention with 90–150 providers (n=30–50×3 in-person settings). For pilot studies, primary outcomes include feasibility (eg, completion rate) and acceptability (eg, workshop satisfaction). Secondary preintervention and postintervention outcomes, assessed directly preceding and following the workshop, include perceived competency, attitudes/biases towards trans women with HIV, and knowledge needed to provide gender-affirming HIV care. Primary outcomes will be summarised as frequencies and proportions (categorical variables). We will conduct paired-sample t-tests to explore the direction of preintervention and postintervention differences for secondary outcomes.

Ethics and dissemination This study has been approved by the University of Toronto HIV Research Ethics Board (Protocol Number: 00036238). Study findings will be disseminated through community forums with trans women and service providers; manuscripts submitted to peer reviewed journals; and conferences. Findings will inform a larger CBR research agenda to remove barriers to engagement in HIV prevention/care among trans women across Canada.

Trial registration number NCT04096053; Pre-results.

Strengths and limitations of this study

- The Transgender Education for Affirmative and Competent HIV and Healthcare (TEACHH) intervention is a workshop for healthcare providers focused on increasing their gender-affirming HIV care competency and reducing HIV and trans stigma, factors that impact trans women's access to HIV prevention, treatment and support.
- We use two structured processes of intervention adaptation and development (Card's 7 Steps, ADAPT-ITT model) and propose a theoretically informed intervention drawing on the Information-Motivation-Behavioural Skills model.
- We are limited by the non-randomised study design, immediate preintervention and postintervention data collection, and self-reported measures that were developed/adapted for this project.
- A strength of this study is the community-based research approach, which involves engaging trans women meaningfully in the leadership, conceptualisation and delivery of the TEACHH pilot study, with greater potential to impact access to HIV prevention and care for trans women in Canada.

INTRODUCTION

Globally, transgender (trans) women—a diverse group of people labelled male sex at birth who typically identify as women, trans women and/or transfeminine—experience disproportionately high rates of HIV compared with cisgender (cis) adults

(meaning those whose gender identity and sex assigned at birth are congruent).[1–3] Exposure to HIV is impacted by social and structural contexts, particularly intersecting poverty, racism, sex work stigma and HIV stigma, among other forms of marginalisation, which contribute to inequitable access to HIV prevention, treatment, care and support.[4–7] Moreover, trans women experience access barriers to HIV care, including HIV testing, linkage to HIV care, initiation of antiretroviral therapy (ART) and adherence to ART at individual (eg, mental health), interpersonal (eg, lack of social support) and structural levels (eg, housing insecurity).[8 9] Consequently, trans women living with HIV (trans WLWH) are less likely to be retained in care,[10] take ART,[11] adhere to ART,[12–15] and be virally supressed[15 16] compared with cis people living with HIV (PLWH) and may, as a group, fall below United Nations Programme on HIV/AIDS 90-90-90 targets. These targets include ensuring that 90% of PLWH be diagnosed, that 90% of those diagnosed receive ART, and that a further 90% of PLWH receiving ART achieve viral suppression.[17]

Notable barriers to accessing HIV prevention, treatment and support services among trans women include gaps in provider knowledge about trans health and the context of trans women's lives, and ongoing stigma and discrimination in health and social service settings—in addition to larger community settings.[18–22] In a mixed-methods study of HIV care access among trans WLWH (n=54 quantitative, n=11 qualitative subsample), quantitative analyses showed that trans stigma was negatively associated with having accessed HIV care in the year preceding the study, and both trans stigma and HIV stigma were negatively associated with current ART use.[9] Qualitative findings highlighted the insidious ways that HIV and trans stigma limited trans WLWH's access to HIV care through negative interpersonal interactions and denial of care through discriminatory institutional policies.[9] Participants in this study recommended service provider training, describing who should receive education (eg, students, administrative staff, providers), what topics should be included (eg, social context affecting trans women with HIV, gender diversity), and who should deliver the training (eg, trans people).[23]

Importantly, studies have shown limited hours are dedicated in medical schools to lesbian, gay, bisexual and trans (LGBT) health issues.[24] Some preliminary studies suggest that LGBT trainings are a promising approach to increase care competency of and reduce bias towards LGBT people.[25–33] However, the extent to which these trainings specifically address trans care competencies may be limited. Thus, it is critical to look to the limited body of literature focused on educational trainings to improve trans care competencies.[32 34] One study[32] piloted a training focused explicitly on improving trans care clinical competency and reducing biases towards trans patients. Study participants included staff in multiple roles, including physicians, registrars, nurses, social service providers, patient coordinators, and programme, administrative, security, and billing staff. Study findings were promising, such that three, 2-hour sessions resulted in a statistically significant postintervention decrease in negative attitudes towards trans people and increases in trans-specific clinical skills, awareness of transphobic practices and self-reported readiness to serve trans clients.[32] Another study[34] piloted a 2-hour interprofessional education workshop focused on gender-affirming care with 58 students from five colleges (medicine, pharmacy, nursing, health professions and public health). Results showed that students demonstrated statistically significant improvements in knowledge, interpersonal comfort, and sex and gender beliefs, as measured using the Transgender Attitudes and Beliefs Scale. There is much literature showing success of provider-level interventions in reducing HIV stigma.[35–39] However, there is a dearth of published, peer-reviewed articles describing provider training to improve gender-affirming HIV care competency among providers caring for trans women. There are also knowledge gaps in trans competency educational research regarding explicit integration of theory to inform intervention development.[31 40]

Objectives

Building on our formative HIV research with trans women in Canada,[4 22 41] this protocol details the planned development and pilot testing of 'Transgender Education for Affirmative and Competent HIV and Healthcare (TEACHH)'. TEACHH is a theoretically informed workshop for healthcare and social service providers, along with providers-in-training, and is focused on increasing knowledge of the social context of trans WLWH. In addition to enhancing knowledge, TEACHH also aims to reduce negative attitudes and biases towards trans women. Pilot studies are designed and powered to assess the feasibility (eg, recruitment rate) and acceptability (eg, satisfaction) of methods and procedures.[42] The primary objectives of this study are to: (1) develop the TEACHH workshop and elicit feedback from trans women and service providers and (2) pilot test the workshop. As a pilot study, we will primarily assess feasibility outcomes (eg, workshop recruitment rate), as well as acceptability outcomes (workshop satisfaction and participant willingness to attend another training specific to the needs of trans women and HIV).[42] We will also conduct a preliminary examination of secondary outcomes of changes in attitudes/biases, perceived competency and knowledge needed to provide gender-affirming HIV care to trans WLWH.

METHODS AND ANALYSIS

Study design

This study uses a community-based research (CBR) design, which involves reciprocity, capacity-building and knowledge development with, by, and for trans communities.[43] CBR requires a collaborative approach to research, based on principles of equity and empowerment. As such, this study is designed, delivered and

Table 1 Process of TEACHH workshop adaptation and pilot testing

Step	Activities
1. Selecting a programme to adapt (C)	Identify Trans 101 trainings delivered by YP, KN and GL in Toronto, Vancouver and Montreal as programme to adapt.
2. Collecting programme materials (C)	Collect Trans 101 training materials (eg, presentation slides, facilitator guides) from YP, KN and GL.
3. Identifying key components and evidence-informed approaches in the programme (C)*	Identify evidence-informed approaches in Trans 101 training content.
4. Identifying gaps between the original programme and new contexts (C)	Identify lack of content specific to the needs and experiences of trans WLWH as missing and underlying theory to guide the development, delivery and evaluation of the intervention.
5. Production of draft one of the intervention (A)	Address gaps in content by adding relevant HIV clinical information from available research and draw on theory to inform the development of the preliminary draft of the new training (TEACHH workshop).
6. Engaging with topical experts (A)	Conduct interviews with 12 service providers and focus groups with 30 trans women to elicit additional information on barriers to providing HIV prevention, care and support (service providers) and/or barriers to receiving these services (trans women), and well as feedback on training content and delivery methods developed to-date.
7. Integrating topical expert feedback on the workshop (A)	Thematic analysis of focus groups and interviews resulting in summary of recommendations for what to include/how to deliver the training. Integrate changes to content and delivery strategy and finalise data to be collected.
8. Training facilitators to deliver the training and research component (A)	Train lead facilitators in new intervention content and delivery methods and research component process (eg, informed consent process, data collection). Train cofacilitators by lead facilitators in intervention content and delivery.
9. Pilot testing the intervention (A)	Implement the training with 90–150 participants across three cities (30–50×3 in-person settings). Collect primary outcome data (eg, workshop participation rate). Administer pre-test and post-test measures to preliminarily examine secondary outcomes (eg, knowledge, attitudes/biases, perceived competency to provide gender-affirming HIV care).

*While Card's seven steps refers to the identification of best practices, we opted to identify evidence-informed approaches as best practices have not been developed.
A, Assessment, Decision, Adaptation, Production, Topical Experts, Integration, Training, and Testing (ADAPT-ITT) Model; C, Card's 7 Steps; trans WLWH, trans women living with HIV.

shared by trans women, and works to build capacity for trans researchers to directly impact social conditions affecting trans communities. This study will occur in two interconnected phases: (1): Developing the intervention and (2): Pilot testing the intervention. We followed four of Card *et al*'s[44] seven steps of adapting interventions: selecting a programme to adapt, collecting programme materials, identifying key components and evidence-informed approaches in the programme, and identifying gaps between the original programme and new contexts. While Card *et al*'s 7 steps refer to the identification of best practices, we opted to identify evidence-informed approaches as best practices have not been developed. We will then use five steps from the Assessment, Decision, Adaptation, Production, Topical Experts, Integration, Training, and Testing (ADAPT-ITT) model for adapting evidence-based HIV interventions, including: production, topical experts, integration, training and testing (table 1).[45]

Phase 1: TEACHH workshop development

The goal of phase 1 (September 2018 to October 2019) was to collaboratively adapt the TEACHH workshop from three current 'Trans 101' trainings implemented by team members (YP, KN and GL) in Toronto, Vancouver and Montreal, respectively, by following steps 1–7 (table 1). Step 1 involved selecting 'Trans 101' trainings as a programme to adapt. 'Trans 101' trainings are brief (2–4 hours) workshops facilitated by trans people and delivered to an audience (eg, health and social service providers, allied health professional students, human resources management of corporations, etc) to increase their ability to use gender affirming strategies of engaging with trans individuals and communities. While the workshops are tailored for the specific audience, they generally include information on the importance of gender affirmation and gender self-determination; common words to express gender identity and gender expression; information about human rights protections at provincial and national levels; interpersonal, institutional and systemic

discrimination of trans people; and tangible steps to improve one's individual and organisational practice with trans people.[46] Though no formal evaluations have been conducted, according to the 519 Community Centre in Toronto's Annual Report for 2016–2017, 314 workshops were held across Ontario, Canada in healthcare and care-specific settings for LGBT communities, educational institutions, community housing and shelters, social services, recreation and athletic facilities, community and advocacy groups, government, and private businesses. The majority (90%) of participants felt that their knowledge was 'good' or 'excellent' when it came to support a trans identified colleague following intervention participation, compared with only 10% reporting this level of knowledge prior to the intervention.[47]

Team members have long histories of community-based trans education in their respective cities, so step 2 of this project involved compiling materials from these trainings. The 'Trans 101' trainings, while different in each geographical setting (Vancouver, Toronto, Montreal), had three common evidence-informed approaches identified during step 3: (1) developing a shared/common language around gender identity and expression and grounding the workshop in human rights and social justice and delivery[48]; (2) cofacilitation by trans community members, consistent with theories of intergroup contact, an effective mechanism at reducing stigmatisation of diverse populations[49–51] and (3) integration of applied activities (eg, case studies), consistent with active learning principles, which have been shown to be effective in health professions education.[52]

These 'Trans 101' trainings formed the basis of the TEACHH intervention as a general understanding of language, human rights, discrimination and gender-affirming practices pertaining to trans people was believed to be a fundamental shared starting point of all health and social service providers, before considering the intersection of trans identity and HIV experience. Thus, the missing HIV-specific information was identified (step 4) and later added (step 5) to the 'Trans 101' trainings.

Data collection and analysis

Following production of the first draft of the TEACHH workshop (steps 1–5), we engaged with topical experts and integrated their feedback into the workshop (steps 6 and 7). To this end, focus groups were held with trans women aged 18 years or older living with and/or affected by HIV (one focus group per location; n=30, 10–12 in each location), recruited via word-of-mouth techniques (flyers, email listservs). Focus groups lasted 60–90 min and were conducted by YP, KN or GL and a research assistant who identified as a trans woman and/or woman with transfeminine experience. The focus groups were guided by a semistructured interview guide that aimed to explore trans women's: (1) experiences accessing HIV prevention, treatment and support services; (2) recommendations for HIV service providers about how to improve care access for trans women and (3) feedback on content and delivery of the first draft of the TEACHH workshop (online supplementary file 1: Trans Women Focus Group Guide). Interviews were also held with 12 service providers (four per location), recruited via email and purposively identified by the research team as providers (social workers, physicians, nurses, programme administrators) who have worked with at least one trans woman patient/client in the previous year. The interviews were conducted by AL-D and guided by a semistructured interview guide that aimed to explore service providers': (1) experiences providing health and/or social services for trans women, particularly HIV prevention, care and support; (2) recommendations for how to improve services for trans women and (3) feedback on content and delivery of a proposed training workshop for service providers to increase their ability to provide gender-affirming HIV prevention, treatment, care and support services (online supplementary file 2: Provider Interview Guide). Written informed consent was obtained from all research participants by YP, KN or GL for the focus group or AL-D for the service provider interviews.

Focus groups and interviews were digitally recorded and transcribed verbatim. We applied a thematic approach to data analysis to explore inductively generated themes, engaging in constant comparison.[53–56] At least two team members engaged in initial discussions of emerging codes, analytical categories and development of tangible themes. Multiple researchers reviewing transcripts enhanced the reliability of the findings.

Phase 2: pilot testing the TEACHH workshop

The goal of phase 2 (November 2019 to April 2020) is to pilot test the TEACHH intervention with service providers from partner organisations in Toronto, Vancouver and Montreal using a non-randomised multisite pilot study with pre-test and post-test design (steps 8 and 9). Owing to the pilot study design, randomisation, allocation and blinding are not relevant.[42]

Participants and eligibility criteria

Intervention sites will be determined by consultation with the research team. We anticipate between 30 and 50 services providers will attend in-person workshops in each location, for a total of 90–150 service providers. This estimate is based on feedback from partner organisations, whereby each organisation anticipated the number of providers who would participate in the TEACHH intervention. Workshop participants must identify as working at a location that provides health or social services to trans women or being in-training to work in health or social services (eg, medical student, social work student). Workshop participants may include a mix of HIV- and non-HIV service providers.

TEACHH workshop

In-depth details about the final intervention will be presented in the overall pilot study findings manuscript. As mentioned, the development of the preliminary version

of the TEACHH workshop was developed through steps 1–5 (table 1). We retained the aforementioned three evidence-informed approaches in the revised training (step 3). We then identified information that should be added to the training specific to the intersection of HIV status and trans identity, including: basic clinical knowledge (eg, HIV medication and feminising hormones), HIV social movements (eg, undetectable=untransmittable, a movement promoting the evidence base showing that PLWH who receive ART and have achieved and maintained an undetectable viral load cannot sexually transmit the virus to others,[57] and HIV-related laws and policies (eg, criminalisation of HIV non-disclosure) (step 4). These are components we will add to the TEACHH training.

We identified an underlying theory for the intervention, specifically, the Information-Motivation-Behavioural Skills Model (IMB),[58] a health behaviour change theory which has been applied previously in an LGBT provider cultural competency intervention.[40] IMB acknowledges that professional behaviours may reflect a lack of knowledge regarding the needs of a specific target population, that the usefulness of new knowledge is dependent on the motivation of the provider to integrate and use new knowledge (which in part, is related to attitudes and biases), and that skills (eg, strategies, tools) must be provided to facilitate new behaviour. Our study does not directly assess behavioural intention or change, but as a first step measures gender-affirming HIV care knowledge, perceived competency to provide gender-affirming HIV care and attitudes/biases towards trans WLWH, among providers.

With these evidence-informed approaches retained, information added and theory integrated, the preliminary draft of the workshop was developed (step 5) and is described as follows. The training workshop is designed as a 3-hour session for care providers looking to learn more about HIV prevention, treatment and support for trans women. The training will be delivered by trans women. During this training, we plan to have providers: (1) discuss human rights for trans women and consider different types of discrimination trans women may face such as transphobia, racism, sexism and HIV stigma (increasing knowledge and reducing attitudes/biases which may increase motivation to provide affirming care to trans women including those living with HIV); (2) teach providers about affirming words with which to discuss gender identity and expression (increasing knowledge and providing interpersonal strategies to be affirming) and develop a basic understanding of trans healthcare, HIV prevention (eg, pre-exposure prophylaxis) and HIV treatment (eg, ART), and how these types of healthcare affect trans women living with and affected by HIV (increasing knowledge); (3) discuss what it means to be trans-affirming in their work and how they can make their organisations more trans-affirming (increasing knowledge and providing organisational strategies to promote affirming care to trans women including those living with HIV) and (4) have participants complete a case study to apply what they have learnt to practice (application of knowledge, interpersonal strategies and organisational strategies). These case studies will address issues affecting trans women who are immigrants/newcomers, trans women who are living with HIV, and trans women who experience other vulnerabilities (eg, homelessness). The ultimate goal of the workshop is to increase providers' ability to provide gender-affirming HIV care to trans women by increasing gender-affirming HIV care knowledge and perceived competency to provide gender-affirming HIV care, and by reducing negative attitudes/biases towards trans WLWH.

Primary outcomes

As a pilot study, the primary objective of this study is to assess feasibility and acceptability outcomes.[42] To this end, facilitators will collect feasibility data including workshop recruitment rate, workshop completion rate, research consent rate, preintervention and postintervention measures' completion rates and average length of time to complete: preintervention and postintervention data collection. Based on a priori experience from the authors with respect to delivery of Trans 101 trainings and intervention research, we hypothesise that the majority (>80%) of those who initiate the workshop will complete it, will consent to participate in the research, and will complete the preintervention and postintervention data collection.

Questionnaires distributed after the workshop will collect acceptability data, including participant reasons for attending the workshop, overall satisfaction with the workshop and willingness to attend another workshop on trans women and HIV (online supplementary file 3: Acceptability Questions). In the postquestionnaire, we will also elicit open-ended feedback on the workshop with the questions, 'What was the most beneficial aspect of the workshop? What is one thing that you learned from today's workshop?' and 'What information was missing from today's workshop that would help you to better support trans women living with or affected by HIV?'. We anticipate that most (>80%) of participants who complete the postquestionnaire will indicate that they are willing to attend another workshop focused on trans women and HIV. Prior to data collection, the workshop facilitators will obtain written informed consent for participants' study participation.

Secondary outcomes

The secondary objective is to examine the direction of change in attitudes/biases, perceived competency and knowledge needed to provide gender-affirming HIV care to trans WLWH by administering measures preintervention and postintervention, in addition to the aforementioned postintervention questionnaire assessing acceptability. As there is a lack of measures specific to assessing the attitudes/biases, perceived competency and knowledge of providers working with trans WLWH, we

created one measure and adapted another. The created 16-item measure combines three items from Nyblade *et al*'s[59] brief, standardised tool for measuring HIV-related stigma among health facility staff with 13 newly created items that assess attitudes/biases (three items, eg, 'If I had a choice, I would prefer not to provide services to trans women living with HIV'), perceived competency (seven items, eg, 'I am comfortable prescribing or referring patients to a physician who will prescribe both feminising hormones and PrEP') and knowledge needed to provide gender-affirming HIV care (six items, eg, 'I am knowledgeable about the barriers trans women experience when accessing care/treatment for HIV'). The added items address the current landscape of HIV prevention, such as pre-exposure prophylaxis and the intersection of clinical care needs/concerns among trans WLWH (eg, drug interactions between feminising hormones and ART) (online supplementary file 4: Premeasurement and Postmeasurement of Secondary Outcomes). The adapted measure is a 10-item measure closely adapted from the trans-specific questions from Bidell's[60] LGBT Development of Clinical Skills Scale, an interdisciplinary self-assessment for health providers. Specifically, we adapted the language of three of the items and added two new items. This measure is not specific to trans WLWH, but assesses the three outcomes (attitudes/biases, perceived competency and knowledge) more broadly in relation to trans people. We hypothesise that participants will report a statistically significant increase in knowledge, a decrease in biased attitudes, and an increase in perceived competency to provide care to both trans WLWH and trans people as measured using these two measures.

Sociodemographic and job/training characteristics

We will also collect sociodemographic and job/training characteristics that may relate to the primary outcome of willingness to attend another training on trans women and HIV. With respect to sociodemographic characteristics, we will ask participants if they identify as a member of trans communities (yes/no) and how they describe their gender (open ended), sexual orientation (open ended), race/ethnicity (open ended) and age (continuous).

With respect to job/training characteristics (online supplementary file 5: Job/Training Questions), we will ask about participant role (social service provider, medical care provider, administrator, student, other), contact with trans clients (number of trans people worked with in the past year, number of those trans people who identified as trans women or transfeminine and number of those trans women who are living with HIV), hours of training specific to needs/experiences of trans people (none, <1 hour, 1–3 hours, >3 hours), hours of training specific to the needs/experiences of people living with HIV (none, <1 hour, 1–3 hours, >3 hours) and ever received training specific to needs/experiences of trans WLWH (yes, no). All data will be transported to and stored securely at the University of Toronto, where paper measures and postintervention questionnaire will be entered by two separate research assistants to ensure data quality.

Data analysis

All primary outcomes will be summarised as frequencies and proportions (for categorical variables) and means and SD or medians and IQRs when appropriate (for continuous variables). Open-ended postintervention questionnaire responses regarding the most beneficial aspects of and missing information from the training will be summarised and organised thematically. We will use paired-sample t-tests to assess preintervention and postintervention differences in the scaled measures. We anticipate between 72 and 120 pairs based on our sample size of 90–150 participants and hypothesised 80% retention rate. Based on a two-sided level of significance of 5%, our sample is sufficiently powered to detect a medium effect size (0.5) at our lowest anticipated sample size (72 pairs; 99% power); if we recruit 90 pairs or more we will also be sufficiently powered (>80%) to detect a small effect (0.3).

Bivariate analyses will be conducted to determine if sociodemographic and job/training characteristics are associated with the primary outcome of willingness to attend another training on trans women and HIV, dichotomised as yes/no. Specifically, Fisher's exact tests will be used to evaluate associations between categorical sociodemographic and job/training characteristics and the primary outcome. For continuous sociodemographic and job/training characteristics, t-tests will be used. We will also compute the Cronbach's alpha and factor analysis of the new scaled measures to determine their robustness for future use. Open-ended postintervention questionnaire responses will be analysed using conventional qualitative content analysis methods.[61] Specifically, key themes will be summarised by two separate coders and compared.

Public and patient involvement

As a CBR study, trans women living with and affected by HIV who are members of the research team have participated from the outset of the project by: (1) identifying the research priority; (2) writing the grant; (3) developing the preliminary intervention draft and (4) choosing and operationalising the outcomes of importance to assess. Trans women will also be directly involved participant recruitment, data collection and analysis, manuscript preparation and authorship, and sharing of findings. To reach the broader patient population with study findings, a community event will be held by YP, KN and GL in Toronto, Vancouver and Montreal, respectively.

ETHICS AND DISSEMINATION

Ethics

This study has been approved by the University of Toronto HIV Research Ethics Board (protocol number: 00036238).

Dissemination

Several collaborative approaches to knowledge mobilisation have been identified. First, we will share findings

with organisations that participate in the pilot testing through distribution of a one-page handout, which will also be hosted on the website for the Trans Women and HIV Research Initiative, codeveloped by ML and YP. We will hold an in-person meeting with the core research team (the Canadian Institutes of Health Research Canadian HIV Trials Network (CTN) Trans People and HIV Working Group) to review experiences of implementing TEACHH, including successes and challenges. At this meeting, we will plan next steps for a CBR research agenda to remove barriers to HIV engagement in prevention/care among trans women across Canada, with a focus on developing a larger operating grant proposal. Two manuscripts, one qualitative sharing the formative work and one mixed-methods sharing the overarching study findings, will be submitted for publication to peer-reviewed journals. We will also submit a short report detailing the development/adaptation, Cronbach's alpha and potential utility of the newly created measure for open-access publication in Transgender Health. Presentations will be delivered at local (eg, Rainbow Health Ontario), national (eg, Canadian Association for HIV/AIDS Research) and/or international (eg, World Professional Association for Transgender Health) conferences.

DISCUSSION

As described, we are developing, implementing and pilot testing 'TEACHH', a theoretically informed workshop for health and social service providers focused on increasing gender-affirming HIV care knowledge, perceived competency to provide gender-affirming HIV care and reducing negative attitudes/biases towards trans WLWH. Recently developed demonstration projects to increase engagement and retention in HIV care among trans Women of Colour in the USA focused largely at the individual level (eg, peer networking).[62] Less attention has been paid to shifting the organisational contexts within which trans women access care through educating health and social service providers in gender-affirming HIV care.[63] Through this intervention, we are attempting to address this significant gap with the ultimate goal of improving access to HIV prevention and care for trans women, a group disproportionately affected by HIV.[1 2] There is a dearth of published, peer-reviewed articles describing cultural competency and gender-affirming training focused on trans WLWH.

Evaluated workshops demonstrate promise in increasing providers' ability to provide gender-affirming care for trans people and reducing providers' stigmatising attitudes towards trans people[32] and PLWH.[37–39 64] This proposed study builds on this knowledge base by focusing on improving practice at the intersection of trans identity and HIV experience. Future important questions to explore include: will HIV clinicians, primary care doctors and staff and service providers in community agencies, all be able to benefit from one standardised training? How can we make information specific to HIV and gender clear enough for all participants? Can we reach everyone in an agency (from receptionists to nurses to administrators)? Can we achieve a balance of breadth and depth of knowledge, as well as affect attitudes/biases and intention to engage in future affirming behaviour?

We are limited by the study design such that pilot studies are developed and powered only to sufficiently assess the primary outcomes of feasibility and acceptability. Administering measures immediately preintervention and postintervention means that we cannot assess if the workshop results in long-term change. Moreover, pilot studies are not typically sufficiently powered to assess changes in outcomes, thus, any positive findings should be interpreted cautiously. Future studies may consider longitudinal designs. Future studies should also measure the effects of such an intervention on behavioural intention and/or behavioural change. Additionally, the lack of a comparison group will limit our ability to determine if changes observed were due to the intervention itself. All measures are self-reported, and therefore, potentially sensitive questions about attitudes may be impacted by social desirability bias. Moreover, as we are developing our own measures due to the lack of availability of measures that comprehensively address the intersection of trans and HIV experience, the reliability and validity of these measures will need to be assessed.

Despite these limitations, this study has several strengths. Notably, we use a CBR approach. This project was developed by a trans led national network of health and social service providers and researchers (CTN Trans People and HIV Working Group), a group that emerged from years of advocacy and activism on the part of trans people engaged in HIV research, service provision and advocacy. At the inaugural meeting in April 2017, attended by eight of nine coauthors, we discussed and prioritised areas of potential HIV research for trans WLWH in Canada. Addressing barriers to accessing HIV and other healthcare emerged as the most highly endorsed research priority, and a core working group was formed consisting of academic and community partners including researchers and service providers (AL-D, CHL, YP, GL and KN). The intervention was then conceptualised with the extensive experience of three coinvestigators (YP, GL and KN). By engaging trans people with various allies (researchers, clinicians, service providers), we increase engagement of trans women across the research continuum in HIV CBR and have the potential to establish a fully operationalised trans women and HIV CBR agenda in multiple sites in Canada.

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Contributors All authors (AL-D, CHL, YP, GL, KN, HK, AIS, TL and ML) were responsible for the initial conception of the study, study design and study protocol. AL-D, CHL, YP, GL, KN and YP developed the initial TEACHH workshop materials, which were subsequently edited by and expanded upon by the rest of the team (HK, AIS, TL and ML). AL-D and CHL led the first draft of this manuscript. All authors (YP, GL, KN, HK, AIS, TL and ML) provided feedback on drafts of this manuscript and have read and approved the final manuscript.

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REFERENCES

1 Baral SD, Poteat T, Strömdahl S, *et al*. Worldwide burden of HIV in transgender women: a systematic review and meta-analysis. *Lancet Infect Dis* 2013;13:214–22.
2 Becasen JS, Denard CL, Mullins MM, *et al*. Estimating the prevalence of HIV and sexual behaviors among the US transgender population: a systematic review and meta-analysis, 2006-2017. *Am J Public Health* 2019;109:e1–8.
3 Bauer GR, Hammond R, Travers R, *et al*. "I don't think this is theoretical; this is our lives": how erasure impacts health care for transgender people. *J Assoc Nurses AIDS Care* 2009;20:348–61.
4 Logie CH, James L, Tharao W, *et al*. HIV, gender, race, sexual orientation, and sex work: a qualitative study of intersectional stigma experienced by HIV-positive women in Ontario, Canada. *PLoS Med* 2011;8:e1001124.
5 Lacombe-Duncan A. An intersectional perspective on access to HIV-related healthcare for transgender women. *Transgend Health* 2016;1:137–41.
6 Neumann MS, Finlayson TJ, Pitts NL, *et al*. Comprehensive HIV prevention for transgender persons. *Am J Public Health* 2017;107:207–12.
7 Lacombe-Duncan A, Logie CH, Newman PA, *et al*. A qualitative study of resilience among transgender women living with HIV in response to stigma in healthcare. *AIDS Care* 2020:1–6.
8 Logie CH, Lacombe-Duncan A, Wang Y, *et al*. Prevalence and correlates of HIV infection and HIV testing among transgender women in Jamaica. *AIDS Patient Care STDS* 2016;30:416–24.
9 Lacombe-Duncan A, Bauer GR, Logie CH, *et al*. The HIV care cascade among transgender women with HIV in Canada: a mixed-methods study. *AIDS Patient Care STDS* 2019;33:308–22.
10 Yehia BR, Fleishman JA, Moore RD, *et al*. Retention in care and health outcomes of transgender persons living with HIV. *Clin Infect Dis* 2013;57:774–6.
11 Kalichman SC, Hernandez D, Finneran S, *et al*. Transgender women and HIV-related health disparities: falling off the HIV treatment cascade. *Sex Health* 2017;14:469–76.
12 Baguso GN, Gay CL, Lee KA. Medication adherence among transgender women living with HIV. *AIDS Care* 2016;28:976–81.
13 Dowshen N, Matone M, Luan X, *et al*. Behavioral and health outcomes for HIV+ young transgender women (YTW) linked to and engaged in medical care. *LGBT Health* 2016;3:162–7.
14 Sevelius JM, Carrico A, Johnson MO. Antiretroviral therapy adherence among transgender women living with HIV. *J Assoc Nurses AIDS Care* 2010;21:256–64.
15 Mizuno Y, Frazier EL, Huang P, *et al*. Characteristics of transgender women living with HIV receiving medical care in the United States. *LGBT Health* 2015;2:228–34.
16 Wiewel EW, Torian LV, Merchant P, *et al*. Hiv diagnoses and care among transgender persons and comparison with men who have sex with men: new York City, 2006-2011. *Am J Public Health* 2016;106:497–502.
17 UNAIDS. *90-90-90: an ambitious treatment target to help end the AIDS epidemic joint United nations programme on HIV/AIDS (UNAIDS)*, 2014.
18 Poteat T, German D, Kerrigan D. Managing uncertainty: a grounded theory of stigma in transgender health care encounters. *Soc Sci Med* 2013;84:22–9.
19 Reisner SL, Poteat T, Keatley J, *et al*. Global health burden and needs of transgender populations: a review. *Lancet* 2016;388:412–36.
20 White Hughto JM, Reisner SL, Pachankis JE. Transgender stigma and health: a critical review of stigma determinants, mechanisms, and interventions. *Soc Sci Med* 2015;147:222–31.
21 Kia H, MacKinnon KR, Legge MM. In pursuit of change: Conceptualizing the social work response to LGBTQ microaggressions in health settings. *Soc Work Health Care* 2016;55:806–25.
22 Logie CH, James L, Tharao W, *et al*. "We don't exist": a qualitative study of marginalization experienced by HIV-positive lesbian, bisexual, queer and transgender women in Toronto, Canada. *J Int AIDS Soc* 2012;15:17392.
23 Munro L, Marshall Z, Bauer G, *et al*. (Dis)integrated Care: Barriers to Health Care Utilization for Trans Women Living With HIV. *J Assoc Nurses AIDS Care* 2017;28:708–22.
24 Obedin-Maliver J, Goldsmith ES, Stewart L, *et al*. Lesbian, gay, bisexual, and transgender-related content in undergraduate medical education. *JAMA* 2011;306:971–7.
25 Riggs DW, Fell GR. Teaching cultural competency for working with lesbian, gay, bisexual and trans clients. *Psychology Learning & Teaching* 2010;9:30–8.
26 Boroughs MS, Andres Bedoya C, O'Cleirigh C, *et al*. Toward defining, measuring, and evaluating LGBT cultural competence for PSYCHOLOGISTS. *Clin Psychol* 2015;22:151–71.
27 Porter KE, Krinsky L. Do LGBT aging trainings effectuate positive change in mainstream elder service providers? *J Homosex* 2014;61:197–216.
28 Leyva VL, Breshears EM, Ringstad R. Assessing the efficacy of LGBT cultural competency training for aging services providers in California's central Valley. *J Gerontol Soc Work* 2014;57:335–48.
29 Gendron T, Maddux S, Krinsky L, *et al*. Cultural competence training for healthcare professionals working with LGBT older adults. *Educ Gerontol* 2013;39:454–63.
30 Lelutiu-Weinberger C, Pachankis JE. Acceptability and preliminary efficacy of a lesbian, gay, bisexual, and transgender-affirmative mental health practice training in a highly stigmatizing national context. *LGBT Health* 2017;4:360–70.
31 Poteat T, Park C, Solares D, *et al*. Changing hearts and minds: results from a multi-country gender and sexual diversity training. *PLoS One* 2017;12:e0184484.
32 Lelutiu-Weinberger C, Pollard-Thomas P, Pagano W, *et al*. Implementation and evaluation of a pilot training to improve transgender competency among medical staff in an urban clinic. *Transgend Health* 2016;1:45–53.
33 Reisner SL, Bradford J, Hopwood R, *et al*. Comprehensive transgender healthcare: the gender affirming clinical and public health model of Fenway health. *J Urban Health* 2015;92:584–92.
34 Allison MK, Marshall SA, Archie DS, *et al*. Community-engaged development, implementation, and evaluation of an interprofessional education workshop on gender-affirming care. *Transgend Health* 2019;4:280–6.

35 Nyblade L, Stangl A, Weiss E, *et al*. Combating HIV stigma in health care settings: what works? *J Int AIDS Soc* 2009;12:15.
36 Stangl AL, Lloyd JK, Brady LM, *et al*. A systematic review of interventions to reduce HIV-related stigma and discrimination from 2002 to 2013: how far have we come? *J Int AIDS Soc* 2013;16:18734.
37 Abell N, Rutledge SE, McCann TJ, *et al*. Examining HIV/AIDS provider stigma: assessing regional concerns in the islands of the eastern Caribbean. *AIDS Care* 2007;19:242–7.
38 Rutledge SE, Whyte J, Abell N, *et al*. Measuring stigma among health care and social service providers: the HIV/AIDS provider stigma inventory. *AIDS Patient Care STDS* 2011;25:673–82.
39 Feyissa GT, Abebe L, Girma E, *et al*. Stigma and discrimination against people living with HIV by healthcare providers, Southwest Ethiopia. *BMC Public Health* 2012;12:522.
40 Craig SL, Doiron C, Dillon F. Cultivating professional allies for sexual minority youth: a community-based educational intervention. *J Homosex* 2015;62:1703–21.
41 Lacombe-Duncan A, Newman PA, Bauer GR, *et al*. Gender-affirming healthcare experiences and medical transition among transgender women living with HIV: a mixed-methods study. *Sex Health* 2019;16:367.
42 Thabane L, Ma J, Chu R, *et al*. A tutorial on pilot studies: the what, why and how. *BMC Med Res Methodol* 2010;10:1.
43 Canadian Institutes of Health Research. CIHR HIV/AIDS community-based research, 2016. Available: http://www.cihr-irsc.gc.ca/e/25835.html [Accessed 5 Sept 2019].
44 Card JJ, Solomon J, Cunningham SD. How to adapt effective programs for use in new contexts. *Health Promot Pract* 2011;12:25–35.
45 Wingood GM, DiClemente RJ. The ADAPT-ITT model: a novel method of adapting evidence-based HIV interventions. *J Acquir Immune Defic Syndr* 2008;47 Suppl 1:S40–6.
46 The 519. Education and training: our services. Available: http://www.the519.org/education-training/services [Accessed 5 Sept 2019].
47 The 519. Annual report, 2017. Available: http://www.the519.org/about/annual-reports [Accessed 6th Apr 2020].
48 Rossi AL, Lopez EJ. Contextualizing competence: language and LGBT-based competency in health care. *J Homosex* 2017;64:1330–49.
49 Pettigrew TF, Tropp LR. A meta-analytic test of intergroup contact theory. *J Pers Soc Psychol* 2006;90:751–83.
50 Hanssmann C, Morrison D, Russian E. Talking, gawking, or getting it done: provider trainings to increase cultural and clinical competence for transgender and gender-nonconforming patients and clients. *Sex Res Soc Policy* 2008;5:5–23.
51 Pettigrew TF, Tropp LR, Wagner U, *et al*. Recent advances in intergroup contact theory. *Int J Intercult Rel* 2011;35:271–80.
52 Waltz CF, Jenkins LS, Han N. The use and effectiveness of active learning methods in nursing and health professions education: a literature review. *Nurs Educ Perspect* 2014;35:392–400.
53 Attride-Stirling J. Thematic networks: an analytic tool for qualitative research. *Qualitative Res* 2001;1:385–405.
54 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
55 Fereday J, Muir-Cochrane E. Demonstrating rigor using thematic analysis: a hybrid approach of inductive and deductive coding and theme development. *Int J Qual Methods* 2006;5:80–92.
56 Pope C, Ziebland S, Mays N. Analysing qualitative data. *BMJ*2000;320:114.
57 Eisinger RW, Dieffenbach CW, Fauci AS. HIV viral load and transmissibility of HIV infection: undetectable equals untransmittable. *JAMA* 2019;321:451–2.
58 Fisher JD, Fisher WA. Changing AIDS-risk behavior. *Psychol Bull* 1992;111:455–74.
59 Nyblade L, Jain A, Benkirane M, *et al*. A brief, standardized tool for measuring HIV-related stigma among health facility staff: results of field testing in China, Dominica, Egypt, Kenya, Puerto Rico and St. Christopher & Nevis. *J Int AIDS Soc* 2013;16:18718.
60 Bidell MP. The Lesbian, gay, bisexual, and transgender development of clinical skills scale (LGBT-DOCSS): establishing a new interdisciplinary self-assessment for health providers. *J Homosex* 2017;64:1432–60.
61 Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005;15:1277–88.
62 Xavier J, Rebchook G, Keatley J. Organizational and individual-level strategies associated with viral suppression in a sample of transgender women receiving care for HIV in the US. *Abstract number MOAD0402. 10th International AIDS Society conference on HIV science*, Mexico City, 2019.
63 Rebchook G, Keatley J, Contreras R, *et al*. The transgender women of color initiative: implementing and evaluating innovative interventions to enhance engagement and retention in HIV care. *Am J Public Health* 2017;107:224–9.
64 Stangl AL, Lloyd JK, Brady LM, *et al*. A systematic review of interventions to reduce HIV-related stigma and discrimination from 2002 to 2013: how far have we come? *J Int AIDS Soc* 2013;16:18637.