HIV epidemics among transgender populations: the importance of a trans-inclusive response

Guest Editors: Tonia C Poteat, JoAnne Keatley, Rose Wilcher and Chloe Schwenke
Supplement Editors: Martin Holt and Marlène Bras
Support

The publication of this supplement was supported by the United Nations Development Programme (UNDP), the Joint United Nations Programme on HIV/AIDS (UNAIDS), the United Nations Population Fund (UNFPA), the World Health Organization (WHO), and the United States Agency for International Development (USAID) and the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) through the Linkages across the Continuum of HIV Services for Key Populations Affected by HIV project (LINKAGES, Cooperative Agreement AID-OAA-A-14-00045). The content of this supplement is solely the responsibility of the authors and does not necessarily represent the official views of any funding agency.
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Editorial

Evidence for action: a call for the global HIV response to address the needs of transgender populations

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Received 2 May 2016; Accepted 13 May 2016; Published 17 July 2016

Transgender people are severely underserved in the global response to HIV. Less than 40% of countries report that their national AIDS strategies address transgender people [1], despite a growing body of evidence that transgender women, in particular, face a disproportionate and heavy burden of HIV. An estimated 19% of transgender women worldwide are living with HIV, and they have almost 50 times the odds of living with HIV compared to other reproductive age adults [2]. The impact among transgender sex workers is even more profound. Transgender sex workers have a prevalence of HIV that is nine times that of non-transgender female sex workers and three times that of male sex workers [3].

Data on HIV among transgender men are extremely limited. However, emerging studies among transgender men who have sex with men (MSM) suggest heightened HIV vulnerability among this group. While specific data on transgender men are lacking, in settings with high HIV prevalence and epidemics of gender-based violence, sexual assault on gender variant persons places transgender men and women at substantial risk for HIV as well as other negative sequelae of sexual violence. The stigma, violence and human rights abuses transgender people suffer drive much of their risk for HIV and hinder their access to care.

While the world’s response to HIV has largely overlooked transgender people and the myriad factors that increase their risk, the tide is slowly turning. In 2014, the World Health Organization provided guidance on the essential elements of HIV programming among key populations, including the first specific recommendations for transgender people [4]. More recently, leaders in transgender health have spearheaded the development and launch of the first practical guide for implementing HIV and STI programmes with transgender people [5]. These documents represent important steps forward in the global HIV response. However, in order to provide the most effective interventions to the populations with the greatest need, we need research that is specific to the unique concerns of transgender communities. This calls for research to be accessible to all who seek to implement transgender-sensitive, evidence-based programmes. This special issue of the Journal of the International AIDS Society is dedicated to that goal.

We issued a global call for abstracts addressing topics relevant to HIV in transgender populations, and submissions by transgender authors were encouraged. The response was overwhelming. More than 80 abstracts were submitted! After a careful process of editorial and peer review, we selected 11 high-quality manuscripts that contribute data and documentary experiences from a variety of geographic regions and social contexts. This supplement brings to the forefront new empiric data, case studies and commentaries that, taken together, expand our understanding of the HIV epidemic in transgender communities and offer practical, rights-based and evidence-informed recommendations for reducing HIV and promoting the broader health and human rights of transgender individuals.

Epidemiological research

We include three original research articles that present new epidemiological and behavioural data addressing HIV risk and prevalence among transgender people in countries and regions with little published research. The supplement opens with a study by Stahlman and colleagues characterizing the HIV-related risks of transgender women as compared with MSM in three West African countries – Togo, Burkina Faso and Cote d’Ivoire [6]. The data from this study’s sample of 453 transgender women found that transgender women were more likely than MSM to report high-risk behaviours, including engaging in condomless anal intercourse and sex work. In addition, transgender women were more likely to be living with HIV as compared with MSM (19% vs. 7%). Experiencing social stigma was significantly associated with condomless anal intercourse and sex work among the study population.

Kaplan et al. offer insights on the HIV-related risks and needs of transgender women in the Middle East and North Africa region [7]. This study with 53 transgender women from Lebanon found an HIV prevalence of 10% among those who self-reported being HIV-positive or participated in testing. However, a quarter of participants declined to be tested, suggesting the HIV prevalence in this population may be higher. The study found participants to be at high risk of acquiring and transmitting HIV with 57% of participants having had condomless receptive anal intercourse in the past three months and two-thirds currently engaging in sex work. All but one participant reported experiencing transgender identity-related discrimination, and 68% had experienced violence...
because of their gender identity. Participation in sex work and being open about transgender identity were associated with condomless receptive anal intercourse.

Cai et al.'s study with 220 transgender women sex workers in China also contributes data on HIV prevalence and condomless receptive anal intercourse with male partners [8]. More than a quarter (25.9%) of the study sample was HIV-positive. Similar to the study from Lebanon, however, the authors acknowledge this is likely an underestimate given that 40% of the participants declined to be tested as part of the study. Nearly 27% of all participants and one-third of those who were identified as HIV-positive reported engaging in condomless receptive anal intercourse in the past month. Efforts to avoid revealing transgender identity to male clients were associated with condomless receptive anal intercourse while condom self-efficacy was associated with lower likelihood of condomless intercourse.

New evidence to advance community- and clinic-based practice

Two manuscripts expand the evidence base for how programme implementers and service delivery providers can more effectively support transgender people to be healthy and empowered. Shaikh and colleagues report outcomes of the Pechan programme in India supported by the Global Fund, contributing critical programmatic evidence from one of the only large-scale, trans-specific programmes to be evaluated to date [9]. The evaluation found that the programme’s rights-based, community-led empowerment and gender-affirming approach produced several significant outcomes among transgender individuals in states across India, including increased use of tailored HIV, health, legal, social and psychological services; increased condom use; increased self-efficacy; as well as collective efficacy and identity.

A manuscript by Radix et al. highlights the need for more data to guide clinical care recommendations for transgender women living with HIV who are accessing both gender-affirming hormone therapy and antiretroviral therapy (ART) [10]. The authors describe the feminizing hormonal regimens used by many transgender women and summarize the available data on drug–drug interactions between feminizing hormonal agents and ART. Most of the data investigating oestrogens and ART came from studies of oral contraceptives; no studies were found that examined interactions between ART and the types and doses of oestrogens found in feminizing regimens. The authors call for more research in this area and encourage providers to closely monitor patients for drug interactions and potential side-effects that may lead to loss of virologic suppression.

Data on the programmatic needs of key transgender sub-populations

Scheim and colleagues draw on data from a global survey of MSM to assess access to HIV prevention services for a sub-sample of 69 transgender MSM [11]. The study found that access to services among transgender MSM was inadequate with only 43.5, 53.6 and 26.1% of respondents having access to HIV testing, condoms and lubricants, respectively. Moreover, transgender MSM were less likely to have access to HIV testing and lubricants compared with non-transgender MSM. The study found that ever having been arrested or convicted due to being transgender and having experienced stigma from a healthcare provider posed significant barriers to accessing prevention services.

A study by Le et al. with 301 transgender female youth in the United States contributed data on the relationships between parental acceptance, sources of social support, mental health and HIV risk factors [12]. Data from this study suggest that transgender female youth whose parents are their primary source of social support experience greater parental acceptance of their transgender identity and less psychological distress than those who have non-parental primary social support. However, only 16.3% of the respondents reported having parental primary social support. No significant associations were found between type of primary social support and HIV risk factors such as age at sexual debut and engagement in condomless anal sex. Nevertheless, the authors conclude that interventions focused on parental acceptance of their child’s gender identity may improve young transgender people’s access to parental social support, which could mitigate risks of HIV and poor mental health outcomes over the life course.

Field-based policy and programmatic case studies

The supplement contains two manuscripts documenting progress and gaps in addressing the HIV-related needs of transgender communities in the Latin America region. Silva-Santisteban and colleagues provide an assessment of the state of HIV prevention programmes for transgender women in 17 countries in Latin America, examining the quality, scope and effectiveness of programme implementation; accessibility and coverage; existing legal frameworks; levels of transgender community participation; and how well each country’s programmatic approach aligns with international recommendations [13]. The authors describe how Argentina, Brazil, Mexico and Uruguay have prevention strategies that are specifically tailored for transgender women, with Argentina and Uruguay singled out as having a human rights–based approach that emphasizes social inclusion. However, other countries failed to demonstrate trans-specific programmes. The authors note that, while there are some promising new interventions, the existing limited coverage of services, entrenched stigma and discrimination and the pervasive distrust of the healthcare system among transgender women constitute important obstacles to effective HIV prevention in the region.

A more encouraging picture emerges in a case study by Salazar et al., which describes how a remarkable collaboration involving multiple stakeholders resulted in the development of a robust national strategy for addressing HIV among transgender women in Peru [14]. The policy is responsive to the leading determinants of the HIV epidemic among transgender women.
in that country, including socio-economic conditions, the living and working environment, accessibility of health services, the existence of social networks, as well as other pertinent lifestyle and biological factors. Appropriate consideration was also given to identifying effective strategies to ameliorate specific legal and human rights challenges, stigma and violence experienced by the Peruvian transgender population. The authors attribute a decade-long process of evidence generation, policy dialogue and capacity building with the transgender community as key factors leading to this significant policy success.

**Calls to action**

We close the supplement with two commentaries that provide specific calls to action to address overarching issues experienced by transgender people globally. Divan and colleagues juxtapose the range of international and regional human rights protections with the lived experience of transgender people who suffer the consequences of punitive and discriminatory laws that deny and threaten their very existence [15]. The authors make an urgent call for countries to address the human rights violations of transgender people in order to honour international obligations, stem HIV epidemics, promote gender equality, strengthen social and economic development and put a stop to untrammelled violence.

The final commentary by Wolf and colleagues draws attention to recently developed programmatic tools with the potential to meaningfully advance the health and human rights of transgender populations, if widely implemented [16]. These tools – supported by multi-national organizations such as the Pan American Health Organization, World Health Organization, U.S. President’s Emergency Plan for AIDS Relief and the United Nations Development Programme, in collaboration with regional transgender groups – provide concrete recommendations for interventions that respond to the health, HIV, violence, stigma and discrimination, social protection, and human rights needs of transgender communities. The authors urge a range of audiences, from government ministers to programme implementers, to immediately put these tools to use for trans-specific advocacy, training, strategic planning, capacity building and programme design.

**Where we go from here**

In addition to their contributions to the literature on HIV among transgender populations, each of the manuscripts in this supplement underscores the specific vulnerabilities and unique needs of transgender populations. It cannot be overstated that transgender women are not MSM and should not be subsumed in a category that erases their identity. Likewise, transgender MSM should be visible within the data about MSM. The contents of this supplement also make clear that addressing stigma, discrimination and structural violence is essential for any effective HIV response for transgender communities. Now is the time for funders to invest more in research and programmes tailored for transgender communities and for implementers and providers to design and deliver trans-competent programmes and services. On the whole, we hope that the manuscripts in this supplement not only confirm the urgency of HIV epidemics in transgender communities around the world but also provide readers with compelling case studies and global resources they can use to create an effective response, led by and grounded in the human rights of transgender people.

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**Competing interests**

The authors declare that they have no competing interests.

**Authors’ contributions**

TP and RW conceptualized and outlined the paper. TP wrote the introduction and RW summarized a subset of the articles. JK and CS summarized a subset of the articles. TP, JK, RW and CS all contributed to the conclusions. All authors approved the final draft.

**Acknowledgements**

This manuscript was supported by the United Nations Development Programme (UNDP), the Joint United Nations Programme on HIV/AIDS (UNAIDS), the United Nations Population Fund (UNFPA), the United States Agency for International Development (USAID) and the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) through the Linkages across the Continuum of HIV Services for Key Populations Affected by HIV project (LINKAGES, Cooperative Agreement AID-OAA-A-14-00045). The writing of this manuscript has been facilitated by the infrastructure and resources provided by the Johns Hopkins University Center for AIDS Research, an NIH funded programme (P30AI094189), which is supported by the following NIH Co-funding and participating institutes and centres: NIAID, NCI, NICHD, NHLBI, NIDA, NIMH, NIA, FIC, NIGMS, NIDDK and OAR. The content is solely the responsibility of the authors and does not necessarily represent the official views of any of the funding agencies.

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Characterizing the HIV risks and potential pathways to HIV infection among transgender women in Côte d’Ivoire, Togo and Burkina Faso

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Abstract

Introduction: Transgender women are at high risk for the acquisition and transmission of HIV. However, there are limited empiric data characterizing HIV-related risks among transgender women in sub-Saharan Africa. The objective of these analyses is to determine what factors, including sexual behaviour stigma, condom use and engagement in sex work, contribute to risk for HIV infection among transgender women across three West African nations.

Methods: Data were collected via respondent-driven sampling from men who have sex with men (MSM) and transgender women during three- to five-month intervals from December 2012 to October 2015 across a total of six study sites in Togo, Burkina Faso and Côte d’Ivoire. During the study visit, participants completed a questionnaire and were tested for HIV. Chi-square tests were used to compare the prevalence of variables of interest between transgender women and MSM. A multilevel generalized structural equation model (GSEM) was used to account for clustering of observations within study sites in the multivariable analysis, as well as to estimate mediated associations between sexual behaviour stigma and HIV infection among transgender women.

Results: In total, 2456 participants meeting eligibility criteria were recruited, of which 453 individuals identified as being female/transgender. Transgender women were more likely than MSM to report selling sex to a male partner within the past 12 months (p < 0.01), to be living with HIV (p < 0.01) and to report greater levels of sexual behaviour stigma as compared with MSM (p < 0.05). In the GSEM, sexual behaviour stigma from broader social groups was positively associated with condomless anal sex (adjusted odds ratio (AOR) = 1.33, 95% confidence interval (CI) = 1.09, 1.62) and with selling sex (AOR = 1.23, 95% CI = 1.02, 1.50). Stigma from family/friends was also associated with selling sex (AOR = 1.42, 95% CI = 1.13, 1.79), although no significant associations were identified with prevalent HIV infection.

Conclusions: These data suggest that transgender women have distinct behaviours from those of MSM and that stigma perpetuated against transgender women is impacting HIV-related behaviours. Furthermore, given these differences, interventions developed for MSM will likely be less effective among transgender women. This situation necessitates dedicated responses for this population, which has been underserved in the context of both HIV surveillance and existing responses.

Keywords: HIV; transgender women; stigma; sub-Saharan Africa; epidemiology; sexual risk behaviours; structural equation modelling.

Received 28 October 2015; Revised 14 April 2016; Accepted 25 April 2016; Published 17 July 2016

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Introduction

Transgender women, defined here as individuals who were assigned the male sex at birth but who identify as women, are at high risk for HIV acquisition and transmission [1,2]. Globally, the odds of being infected with HIV for transgender women are almost 50 times those of other adults of reproductive age, with a pooled HIV prevalence of around 19% [1]. Even compared to other key populations such as men who have sex with men (MSM), transgender women appear to be at increased risk for HIV transmission [1,3]. A primary driver of this burden, similar to MSM, is the high transmission probability of condomless anal sex [4]. Transgender women also experience high levels of multiple intersecting stigmas, such as stigma related to gender identity, sexual practices, sex work and HIV status [5–10]. Sexual behaviour stigma, which is defined here as stigma that is anticipated, perceived or experienced as a result of one’s sexual experience, is just one form of stigma that may be shared in common between MSM and transgender women [11]. However, because of the potential non-additive effects of these intersecting stigmas, the negative health outcomes due to sexual behaviour stigma may be even more severe for transgender women than for MSM [12,13].

A qualitative study of transgender women in the United States provided one example of the impact of stigma...
and discrimination on increasing the risk for HIV infection. The study noted that stigma can reduce self-esteem within the context of romantic relationships, which can lead to reduced condom use for the sake of these women pleasing their partner [14]. Sexual behaviour stigma and gender-related abuse have also been associated with risk factors for HIV infection, including condomless anal sex [8,15,16], as well as reduced access to/uptake of HIV prevention and care services [3,17,18]. Because transgender women are often among the most marginalized and economically discriminated against in societies, many engage in sex work to support themselves [19,20], which can further increase the risk for HIV transmission [19].

In Togo, Burkina Faso and Côte d’Ivoire, the HIV prevalence among adults aged 15 to 49 in 2014 ranged from 1 to 3.5% [21]. However, MSM communities in these countries experience a much greater burden of infection, with HIV prevalences ranging from 10 to 35% [22]. In addition, there are almost no empiric data on the risk factors for HIV infection among transgender women anywhere on the African continent, including West Africa [1,3,23]. Historically and also in the context of the HIV/AIDS epidemic, most have denied or downplayed the existence of gay, lesbian, bisexual and transgender individuals in Africa [24]. The lack of research on transgender populations in countries across sub-Saharan Africa has contributed to a lack of funding and clinical competency for transgender-specific HIV services [23]. Although visibility is increasing, the increased exposure to violence and victimization among transgender women has also contributed to the persistent lack of epidemiological research in this group [23]. As a result, we know little about sexual practices, HIV prevalence and risk factors among transgender women in the region.

The objective of these analyses is to determine what factors, such as sexual behaviour stigma, condom use and engagement in sex work, contribute to the risk for HIV infection among transgender women across three West African nations (Burkina Faso, Côte d’Ivoire and Togo). By studying the potential effects of sexual behaviour stigma across gender identities, we utilize intersectional research methods with the goal of unifying theoretical frameworks of stigma to reduce health disparities among transgender women, and to support data that examine multiple social identities (gay men and other MSM, as well as transgender women who have sex with men) [12,25,26]. During the period of data collection, same sex practices were illegal in Togo [27]. Although not criminalized in Côte d’Ivoire and Burkina Faso, same sex practices remained highly stigmatized and without any constitutional protections against discrimination [27,28]. Specifically, we explored the HIV risk factors that affect transgender women as compared with MSM and assessed which factors could potentially mediate the association between sexual behaviour stigma and risk of HIV infection.

Methods

Study population and sampling methods

Data were collected as part of larger cross-sectional studies including quantitative questionnaires, HIV testing and population size estimates of MSM in several West African countries. The studies took place from December 2012 to June 2013 (Kara and Lome) in Togo; January to August 2013 (Bobo-Dioulasso and Ouagadougou) in Burkina Faso; and in Côte d’Ivoire in March to May 2015 (Abidjan), July to September 2015 (Bouaké), May to June 2015 (Gagnoa) and September to October 2015 (Yamousoukro). The study cities were chosen based on the following criteria: large enough to enable recruitment of the proposed sample size (all urban cities), far enough away from other cities so that the same population was not resampled, representative of different areas and cultures within the country, and existing relationships of trust with activities and programmes that work with MSM. Eligible participants had to be at least 18 years old, to have been assigned male sex at birth, to be capable of providing informed oral consent, and to report having had insertive or receptive anal sex with a man in the past 12 months. During the questionnaire, participants were asked, “What do you consider your gender to be?” Those responding “female” or “transgender” were considered as transgender women for these analyses. The response options were “man,” “woman” or “Intersex” in Togo and Burkina Faso and “man,” “woman,” “transgender” or “other (specify)” in Côte d’Ivoire. Intersex was explained to participants as meaning that they did not identify as either male or female, and key informants indicated that participants interpreted “transgender” as meaning the same thing as “female.”

Participants were recruited using respondent-driven sampling (RDS) [29,30]. To begin recruitment, three to six seeds, or initial recruits, were selected based on the recommendation of local community-based organizations, representing a range of characteristics including age, education, socioeconomic status and participation in LGBT associations. In Bobo-Dioulasso, 24 waves of accrual were reached, with all other sites reaching between 7 and 14 waves. Equilibrium was reached for the outcome variable of interest (HIV status) and for sociodemographics (e.g., age, education) in all study sites. Equilibrium was defined as the point at which the cumulative sample proportions came within 2% of the final sample proportion and did not fluctuate more than 2% during the sampling of additional waves [31].

Participants were reimbursed for the cost of travel to the study site. In Togo, participants were additionally reimbursed for the cost of one meal. RDS recruiters were compensated the equivalent of USS3 (Burkina), USS6 (Togo) and USS2 (Côte d’Ivoire) for each eligible participant they recruited into the study (up to three recruits). Studies were approved by the Ethical Committee of Togo, the Health Research Ethics Committee of Burkina Faso, the Health Research Ethics Committee of Côte d’Ivoire and the institutional review board at the Johns Hopkins Bloomberg School of Public Health.

Data collection and key measures

During the study visit, trained interviewers administered a structured questionnaire including modules on demographics, sexual risk practices and sexual behaviour stigma. Interviews were conducted in French or in the local languages of Ewe or Kabiýé (Togo) or Mooré or Dioula (Burkina Faso), by interviewers who were fluent and trained in conducting the interviews in the local language of the city.
Sexual risk practices included the number of receptive anal sex partners within the past 12 months (Togo and Burkina) and number of regular receptive anal sex partners within the past 30 days (Côte d’Ivoire; number of casual receptive anal sex partners was not measured). Participants were also asked whether they used a condom during the last time they had anal sex with a male partner. Sexual positioning variables were generated for those who only engaged in receptive anal sex (“bottoms”), those who only engaged in insertive anal sex (“tops”) and those who engaged in both receptive and insertive anal sex (“versatiles”). In order to measure engagement in sex work, participants were asked whether they had anal or oral sex with any men in the last 12 months in exchange for things they wanted or needed such as money, drugs, food, shelter or transportation.

Sexual behaviour stigma measures consisted of a series of yes/no questions that assessed four domains [32–35]. Domains were identified via exploratory factor analysis using tetrachoric correlations. They included the following: 1) stigma from family and friends (e.g., “Have you ever felt excluded from family gatherings because you have sex with men?”), 2) perceived healthcare stigma (e.g., “Have you ever felt afraid to go to healthcare services because you worry someone may learn you have sex with men?”), 3) experienced healthcare stigma (e.g., “Have you ever heard healthcare providers gossiping about you because you have sex with men?”) and 4) social stigma (e.g., “Have you ever been verbally harassed and felt that it was because you have sex with men?”). Social stigma also included whether the participant had ever been physically attacked or forced to have sex and felt that it was because they have sex with men. Of the 13 initial items, two were removed due to cross loading on two or more factors. Four stigma domain variables were created for use in the multivariable model, which consisted of the sum of the total number of yes responses for each domain.

At the end of the survey, participants were tested for HIV using the Alere Determine HIV 1/2 Ag/Ab Combo Rapid Test (Waltham, MA, USA). If there was a positive result, either the HIV Bispot ImmunoComb II (Orgenics, Yavne, Israel), First Response HIV 1-2.O Card Test (Premier Medical Corporation, Nani Daman, India) or Clearview HIV 1/2 STAT-PAK™ (Chembio Diagnostic Systems, Medford, NY, USA) were used to confirm the result in Burkina Faso, Togo, or Cote d’Ivoire, respectively. The specificity for the HIV confirmatory test was 100% in all settings. Participants who tested positive for HIV at any of the study sites were provided referrals for treatment.

### Statistical analysis
Because we combined data from multiple study sites to maximize the number of transgender women, no adjustments were made for RDS sampling methods [36]. Chi-square tests were used to compare the prevalence of variables of interest between transgender women and MSM both overall and stratified by country. A multilevel generalized structural equation model (GSEM) (Stata 14, StataCorp, College Station, TX, USA) was used to account for clustering of observations within study sites by including a latent variable at the study site level in the multivariable analysis, as well as to

### Table 1. Prevalence of sociodemographic characteristics of transgender women as compared with MSM participants in three West African nations (N = 2246)

| Characteristic | Total | % | MSM | % | Transgender women | % | $\chi^2$ | p* |
|---|---|---|---|---|---|---|---|---|
| Median age (IQR)$^a$ | 23 (21 to 26) | 23 (21 to 26) | 22.5 (20 to 26) | | | 0.02* | |
| Education completed | | | | | | | | |
| Primary school or lower | 211 | 9.5 | 139 | 7.8 | 72 | 16.1 | <0.001*** | |
| Secondary/high school | 1437 | 64.5 | 1174 | 66.0 | 263 | 58.7 | | |
| More than high school | 579 | 26.0 | 466 | 26.2 | 113 | 25.2 | | |
| Employment status | | | | | | | | |
| Unemployed | 238 | 10.6 | 187 | 10.4 | 51 | 11.3 | 0.07 | |
| Student | 1102 | 49.1 | 902 | 50.3 | 200 | 44.3 | | |
| Employed | 905 | 40.3 | 704 | 39.3 | 201 | 44.5 | | |
| Study site location | | | | | | | | |
| Bobo-Dioulasso, Burkina Faso | 276 | 12.3 | 201 | 11.2 | 75 | 16.6 | <0.001*** | |
| Ouagadougou, Burkina Faso | 265 | 11.8 | 242 | 13.5 | 23 | 5.1 | | |
| Abidjan, Côte d’Ivoire | 350 | 15.6 | 211 | 11.8 | 139 | 30.7 | | |
| Bouake, Côte d’Ivoire | 350 | 15.6 | 287 | 16.0 | 63 | 13.9 | | |
| Gagnoa, Côte d’Ivoire | 150 | 6.7 | 113 | 6.3 | 37 | 8.2 | | |
| Yamoussoukro, Côte d’Ivoire | 250 | 11.1 | 183 | 10.2 | 67 | 14.8 | | |
| Kara, Togo | 307 | 13.7 | 301 | 16.8 | 6 | 1.3 | | |
| Lome, Togo | 298 | 13.3 | 255 | 14.2 | 43 | 9.5 | | |

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; $^a$p-value derived using Pearson’s chi-square test; $^b$p-value derived using the Wilcoxon rank-sum test; MSM, men who have sex with men.
estimate mediated associations between sexual behaviour stigma and HIV infection among transgender women in the combined data set. The model adjusted for age and education level as potential confounders based on previous knowledge [16,37,38] and on results from bivariate analyses. Participants with missing data for variables of interest were excluded from the analyses.

**Results**

**Study sample**

In all, 2456 eligible participants were recruited across the six study sites, including 453 (18.4%) individuals who identified as being female or transgender. Those who reported being intersex \((n = 208)\) or both male and female \((n = 1)\) or “don’t know” \((n = 1)\) were not considered to be transgender women nor MSM and were excluded from these analyses post hoc. The median age of the participants was 23 years, most had completed secondary/high school education (65%) and a large proportion were students (49%). Transgender women were similar to MSM in terms of employment status \((p = 0.07)\) (Table 1). However, transgender women were more likely to only have completed primary school or a lower level of education \((p < 0.01)\) and were slightly younger \((p < 0.05)\). In addition, transgender women were disproportionately sampled across certain study sites, with the largest percentages of transgender women attending study locations in Abidjan (31%) and Bobo-Dioulasso (17%). These sociodemographic trends were similar when we examined associations.

| Characteristic                  | Total                  | MSM                  | Transgender women | \(\chi^2\) | \(p^a\) |
|---------------------------------|------------------------|----------------------|-------------------|--------|-------|
| Median age (IQR)\(^b\)          | 23 (21 to 26)          | 23 (21 to 26)        | 21 (20 to 25)     | 0.004**|       |
| Education completed             |                        |                      |                   |        |       |
| Primary school or lower         | 32 5.3                 | 26 4.7               | 6 12.2            | 0.04*  |       |
| Secondary/high school           | 410 68.0               | 376 67.9             | 34 69.4           |        |       |
| More than high school           | 161 26.7               | 152 27.4             | 9 18.4            |        |       |
| Employment status               |                        |                      |                   |        |       |
| Unemployed                      | 62 10.3                | 59 10.6              | 3 6.1             | 0.08   |       |
| Student                         | 215 35.5               | 203 36.5             | 12 24.5           |        |       |
| Employed                        | 328 54.2               | 294 52.9             | 34 69.4           |        |       |
| Study site location             |                        |                      |                   |        |       |
| Kara                            | 307 50.7               | 301 54.1             | 6 12.2            | <0.001***|       |
| Lome                            | 298 49.3               | 255 45.9             | 43 87.8           |        |       |

\(* p < 0.05; ** p < 0.01; *** p < 0.001; \(^a\)p-value derived using Pearson’s chi-square test; \(^b\)p-value derived using the Wilcoxon rank-sum test; MSM, men who have sex with men.\)

| Characteristic                  | Total                  | MSM                  | Transgender women | \(\chi^2\) | \(p^a\) |
|---------------------------------|------------------------|----------------------|-------------------|--------|-------|
| Median age (IQR)\(^b\)          | 22 (20 to 24)          | 22 (20 to 24)        | 21 (20 to 24)     | 0.70   |       |
| Education completed             |                        |                      |                   |        |       |
| Primary school or lower         | 51 9.6                 | 38 8.7               | 13 13.8           | 0.13   |       |
| Secondary/high school           | 384 72.2               | 315 71.9             | 69 73.4           |        |       |
| More than high school           | 97 18.2                | 85 19.4              | 12 12.8           |        |       |
| Employment status               |                        |                      |                   |        |       |
| Unemployed                      | 27 5.0                 | 18 4.1               | 9 9.2             | 0.002**|       |
| Student                         | 344 63.6               | 296 66.8             | 48 49.0           |        |       |
| Employed                        | 170 31.4               | 129 29.1             | 41 41.8           |        |       |
| Study site location             |                        |                      |                   |        |       |
| Bobo-Dioulasso                  | 276 51.0               | 201 45.4             | 75 76.5           | <0.001***|       |
| Ouagadougou                     | 265 49.0               | 242 54.6             | 23 23.5           |        |       |

\(* p < 0.05; ** p < 0.01; *** p < 0.001; \(^a\)p-value derived using Pearson’s chi-square test; \(^b\)p-value derived using the Wilcoxon rank-sum test; MSM, men who have sex with men.\)
stratified by country, although transgender women were less likely than MSM to be students as compared with employed or unemployed in Burkina Faso ($p < 0.01$) (Tables 2–4).

**Prevalence of HIV risk-related characteristics**

Transgender women were more likely than MSM to report recently engaging in exclusively receptive anal sex ($p < 0.01$) and less likely to report recently engaging in exclusively insertive anal sex ($p < 0.01$) (Table 5). However, overall transgender women were not found to be more or less likely to report sexual position versatility (i.e., practicing both receptive and insertive anal sex). Transgender women were, however, more likely to report condomless anal sex ($p < 0.01$), selling sex to a male partner ($p < 0.01$) and were more likely to be living with HIV ($p < 0.01$) as compared with MSM.

There was some variation when results were stratified by country (Tables 6–8). Namely, transgender women were less likely than MSM to report sexual position versatility in Togo ($p < 0.05$) and were more likely to report sexual position versatility in Côte d’Ivoire ($p < 0.01$). Transgender women were not more likely to be living with HIV in Burkina Faso ($p = 0.96$), though the overall HIV prevalence was lower there. Transgender women were more likely to report a higher number of receptive anal sex partners in all settings and were more likely to report condomless anal sex in all countries except for Burkina Faso.

**Prevalence of sexual behaviour stigma**

Transgender women in the combined sample were more likely than MSM to report feeling excluded by family members

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### Table 4. Prevalence of sociodemographic characteristics of transgender women as compared with MSM participants in Côte d’Ivoire ($N = 1100$)

| Characteristic                  | Total   | MSM     | Transgender women |
|---------------------------------|---------|---------|-------------------|
|                                 | n (%)   | n (%)   | n (%)             |
| Median age (IQR)$^b$            | 24 (21 to 27) | 24 (22 to 27) | 23 (21 to 27) |
| Education completed             |         |         |                   |
| Primary school or lower         | 128 11.7 | 75 9.5  | 53 17.4           |
| Secondary/high school           | 643 58.9 | 483 61.4 | 160 52.5          |
| More than high school           | 321 29.5 | 229 29.1 | 92 30.2           |
| Employment status               |         |         |                   |
| Unemployed                      | 149 13.6 | 110 13.9 | 39 12.8           |
| Student                         | 543 49.4 | 403 50.8 | 140 45.9          |
| Employed                        | 407 37.0 | 281 35.4 | 126 41.3          |
| Study site location             |         |         |                   |
| Abidjan                         | 350 31.8 | 211 26.6 | 139 45.4           |
| Bouake                          | 350 31.8 | 287 36.2 | 63 20.6           |
| Gagnoa                          | 150 13.6 | 113 14.2 | 37 12.1           |
| Yamoussoukro                    | 250 22.7 | 183 23.1 | 67 21.9           |

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; $^a$ $p$-value derived using Pearson’s chi-square test; $^b$ $p$-value derived using the Wilcoxon rank-sum test; MSM, men who have sex with men.

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### Table 5. Prevalence of HIV risk-related characteristics of transgender women as compared with MSM participants in three West African nations ($N = 2246$)

| HIV risk-related characteristic                  | Total   | MSM     | Transgender women |
|--------------------------------------------------|---------|---------|-------------------|
|                                                  | n (%)   | n (%)   | n (%)             |
| Sexual position$^b$                               |         |         |                   |
| Insertive only                                   | 801 47.9 | 770 59.4 | 31 8.2            |
| Receptive only                                   | 290 17.3 | 84 6.5  | 206 54.6          |
| Versatile                                        | 583 34.8 | 443 34.2 | 140 37.1          |
| Condomless anal sex, last anal sex episode        | 583 26.6 | 438 24.9 | 145 33.3          |
| Sold sex to male partner, past 12 months          | 874 39.2 | 658 37.0 | 216 48.1          |
| Living with HIV                                  | 201 9.2  | 119 6.8  | 82 18.9           |

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; $^a$ $p$-value derived using Pearson’s chi-square test; $^b$ within the past 12 months in Togo/Burkina Faso and within the past 30 days in Côte d’Ivoire; MSM, men who have sex with men.
(p < 0.01), gossiped about by family members (p < 0.01) and rejected by friends (p < 0.01) (Table 9). For healthcare-related sexual behaviour stigma, a slightly higher prevalence of transgender women reported avoiding seeking healthcare (p < 0.05) and being treated poorly at a healthcare centre (p < 0.05). Finally, a greater proportion of transgender women reported being verbally harassed (p < 0.01), blackmailed (p < 0.05), physically hurt (p < 0.01) and raped (p < 0.01) because of their sexual behaviours.

In the analysis stratified by country, transgender women consistently reported higher levels of verbal harassment (Tables 10–12). Transgender women also reported significantly higher levels of physical assault in Côte d’Ivoire (p < 0.01) and Burkina Faso (p < 0.01), as well as higher levels of rape in Côte d’Ivoire (p < 0.01). Perceived and experienced healthcare stigma was not significantly higher among transgender women in Togo or Burkina Faso, and family/friend stigma was not significantly higher among transgender women in Togo. However, in Togo several cell counts for family- and healthcare-related stigma were below 5.

### Table 6. Prevalence of HIV risk-related characteristics of transgender women as compared with MSM participants in Togo (N = 605)

| HIV risk-related characteristic | Total | MSM | Transgender women | Y² p* |
|--------------------------------|-------|-----|-------------------|-------|
| **Median number of receptive anal sex partners, past 12 months (IQR)** | | | | |
| Insertive only | 101 | 38.7 | 95 | 41.7 | 6 | 18.2 | <0.001*** |
| Receptive only | 36 | 13.8 | 18 | 7.9 | 18 | 54.6 | <0.001*** |
| Versatile | 124 | 47.5 | 115 | 50.4 | 9 | 27.3 | 0.01* |
| Condomless anal sex, last anal sex episode | 146 | 24.3 | 127 | 23.0 | 19 | 39.6 | 0.01* |
| Sold sex to male partner, past 12 months | 172 | 28.5 | 152 | 27.4 | 20 | 40.8 | 0.046* |
| Living with HIV | 51 | 8.5 | 42 | 7.6 | 9 | 18.8 | 0.008** |

*p < 0.05; **p < 0.01; ***p < 0.001; "p-value derived using Pearson’s chi-square test; "p-value derived using the Wilcoxon rank-sum test; MSM, men who have sex with men.

### Table 7. Prevalence of HIV risk-related characteristics of transgender women as compared with MSM participants in Burkina Faso (N = 541)

| HIV risk-related characteristic | Total | MSM | Transgender women | Y² p* |
|--------------------------------|-------|-----|-------------------|-------|
| **Median number of receptive anal sex partners, past 12 months (IQR)** | | | | |
| Insertive only | 210 | 38.8 | 205 | 46.3 | 5 | 5.1 | <0.001*** |
| Receptive only | 78 | 14.4 | 25 | 5.6 | 53 | 54.1 | <0.001*** |
| Versatile | 253 | 46.8 | 213 | 48.1 | 40 | 40.8 | 0.19 |
| Condomless anal sex, last anal sex episode | 134 | 24.8 | 106 | 24.0 | 28 | 28.6 | 0.34 |
| Sold sex to male partner, past 12 months | 207 | 39.1 | 164 | 37.8 | 43 | 44.8 | 0.20 |
| Living with HIV | 27 | 5.0 | 22 | 5.0 | 5 | 5.1 | 0.96 |

*p < 0.05; **p < 0.01; ***p < 0.001; "p-value derived using Pearson’s chi-square test; "p-value derived using the Wilcoxon rank-sum test; MSM, men who have sex with men.
Variables that were not statistically significant (p > 0.05) were dropped from the model; however, HIV laboratory diagnosis was kept in order to describe associations of interest, and age and education were kept to control for potential confounding. In the final model, social stigma was positively associated with condomless anal sex at the last anal sex episode (p < 0.01). In addition, social stigma and family/friend stigma were associated with selling sex to a male partner within the past 12 months (p < 0.01) (Table 13; Figure 1). However, condomless anal sex and engagement in sex work were not found to be significantly associated with HIV infection.

### Discussion

In these analyses of transgender women in three West African nations, we found a high burden of HIV, nearly three times that of MSM, who are known as a key population at risk for HIV infection. Previous studies among transgender women in the United States have pointed to higher levels of condomless anal sex and engagement in sex work as key risk factors for HIV transmission, driven potentially by underlying experiences or perceptions of stigma and economic marginalization [3,15,17]. In this sample, we found that sexual behaviour stigma from family/friends and broader social groups was positively and significantly associated with recent

| HIV risk-related characteristic | Total | MSM | Transgender women |
|---------------------------------|-------|-----|-------------------|
| Median number of regular receptive anal sex partners, past 30 days (IQR)b | 0 (0 to 1) | 0 (0 to 0) | 1 (0 to 2) | <0.001*** |
| Sexual position, past 30 days | | | | |
| Insertive only | 490 | 56.2 | 470 | 75.1 | 20 | 8.1 | <0.001*** |
| Receptive only | 176 | 20.2 | 41 | 6.6 | 135 | 54.9 | <0.001*** |
| Versatile | 206 | 23.6 | 115 | 18.4 | 91 | 37.0 | <0.001*** |
| Condomless anal sex, last anal sex episode | 303 | 28.8 | 205 | 26.9 | 98 | 33.9 | 0.03* |
| Sold sex to male partner, past 12 months | 495 | 45.2 | 342 | 43.2 | 153 | 50.3 | 0.03* |
| Living with HIV | 123 | 11.7 | 55 | 7.3 | 68 | 23.5 | <0.001*** |

* p < 0.05; ** p < 0.01; *** p < 0.001; "p-value derived using Pearson's chi-square test; b-p-value derived using the Wilcoxon rank-sum test; MSM, men who have sex with men.

### Table 9. Prevalence of sexual behaviour stigma among transgender women as compared with MSM participants in three West African nations (N = 2246)

| Stigma from family/friends | Total | MSM | Transgender women |
|----------------------------|-------|-----|-------------------|
| Excluded by family | 223 | 9.9 | 156 | 8.7 | 67 | 14.8 | <0.001*** |
| Gossiped about by family | 641 | 28.6 | 448 | 25.0 | 193 | 42.7 | <0.001*** |
| Rejected by friends | 501 | 22.3 | 358 | 20.0 | 143 | 31.6 | <0.001*** |
| Perceived healthcare stigma | | | | |
| Afraid to seek healthcare | 473 | 21.1 | 364 | 20.3 | 109 | 24.1 | 0.08 |
| Avoided seeking healthcare | 363 | 16.2 | 276 | 15.4 | 87 | 19.2 | 0.049* |
| Experienced healthcare stigma | | | | |
| Treated poorly at a healthcare centre | 60 | 2.7 | 41 | 2.3 | 19 | 4.2 | 0.02* |
| Gossiped about by healthcare worker | 167 | 7.4 | 124 | 6.9 | 43 | 9.5 | 0.06 |
| Social stigma | | | | |
| Verbally harassed | 727 | 32.4 | 475 | 26.5 | 252 | 55.6 | <0.001*** |
| Blackmailed | 420 | 18.7 | 320 | 17.9 | 100 | 22.1 | 0.04* |
| Physically hurt | 253 | 11.3 | 139 | 7.8 | 114 | 25.3 | <0.001*** |
| Raped | 230 | 10.3 | 131 | 7.3 | 99 | 21.9 | <0.001*** |

* p < 0.05; ** p < 0.01; *** p < 0.001; "p-value derived using Pearson's chi-square test; MSM, men who have sex with men.
condomless anal sex as well as engagement in sex work, which could help to partially explain the disproportionate burden of HIV among this population.

Another important finding is the relatively large proportion of participants who identified as a woman or transgender as part of these RDS-generated samples of individuals born male who have sex with men. Our findings highlight that transgender women comprise a distinct population from that of MSM, with increased levels of stigma and risk of HIV infection. Of further note is the relationship between sexual positioning and gender identity, which suggests that transgender women are more likely to engage exclusively in receptive anal sex. One possibility is that some participants may have confused questions about gender identity with questions about sexual positioning (e.g., those who bottom being more likely to indicate female gender). However,

### Table 10. Prevalence of sexual behaviour stigma among transgender women as compared with MSM participants in Togo (N = 605)

|                          | Total | MSM | Transgender women |
|--------------------------|-------|-----|-------------------|
|                          | n     | %   | n     | %   | n     | %   |
| **Stigma from family/friends** |       |     |       |     |       |     |
| Excluded by family       | 51    | 8.4 | 46    | 8.3 | 5     | 10.2|
| Gossiped about by family | 94    | 15.5| 83    | 14.9| 11    | 22.5|
| Rejected by friends      | 70    | 11.6| 66    | 11.9| 4     | 8.2 |
| **Perceived healthcare stigma** |       |     |       |     |       |     |
| Afraid to seek healthcare | 53    | 8.8 | 47    | 8.5 | 6     | 12.2|
| Avoided seeking healthcare| 42    | 6.9 | 40    | 7.2 | 2     | 4.1 |
| **Experienced healthcare stigma** |       |     |       |     |       |     |
| Treated poorly at a healthcare centre | 7    | 1.2 | 6     | 1.1 | 1     | 2.0 |
| Gossiped about by healthcare worker | 24   | 4.0 | 20    | 3.6 | 4     | 8.2 |
| **Social stigma** |       |     |       |     |       |     |
| Verbally harassed         | 97    | 16.0| 82    | 14.8| 15    | 30.6|
| Blackmailed               | 106   | 17.5| 93    | 16.7| 13    | 26.5|
| Physically hurt           | 21    | 3.5 | 17    | 3.1 | 4     | 8.2 |
| Raped                     | 20    | 3.3 | 17    | 3.1 | 3     | 6.1 |

* p < 0.05; ** p < 0.01; *** p < 0.001; *p-value derived using Pearson’s chi-square test; Fisher’s exact test was used for cell counts less than 5; MSM, men who have sex with men.

### Table 11. Prevalence of sexual behaviour stigma among transgender women as compared with MSM participants in Burkina Faso (N = 541)

|                          | Total | MSM | Transgender women |
|--------------------------|-------|-----|-------------------|
|                          | n     | %   | n     | %   | n     | %   |
| **Stigma from family/friends** |       |     |       |     |       |     |
| Excluded by family       | 53    | 9.8 | 36    | 8.1 | 17    | 17.4|
| Gossiped about by family | 161   | 29.8| 125   | 28.2| 36    | 37.1|
| Rejected by friends      | 166   | 30.7| 127   | 28.7| 39    | 39.8|
| **Perceived healthcare stigma** |       |     |       |     |       |     |
| Afraid to seek healthcare | 154   | 28.5| 133   | 30.0| 21    | 21.4|
| Avoided seeking healthcare| 136   | 25.1| 114   | 25.7| 22    | 22.5|
| **Experienced healthcare stigma** |       |     |       |     |       |     |
| Treated poorly at a healthcare centre | 18   | 3.3 | 13    | 2.9 | 5     | 5.1 |
| Gossiped about by healthcare worker | 39   | 7.2 | 32    | 7.2 | 7     | 7.1 |
| **Social stigma** |       |     |       |     |       |     |
| Verbally harassed         | 209   | 38.7| 152   | 34.4| 57    | 58.2|
| Blackmailed               | 99    | 18.3| 86    | 19.5| 13    | 13.3|
| Physically hurt           | 67    | 12.5| 40    | 9.1 | 27    | 27.8|
| Raped                     | 52    | 9.7 | 38    | 8.6 | 14    | 14.3|

* p < 0.05; ** p < 0.01; *** p < 0.001; *p-value derived using Pearson’s chi-square test; MSM, men who have sex with men.
we used a two-step process for gender assessment, which is the method recommended by the UCSF Center of Excellence for Transgender Health [39]. In addition, our analyses further indicate that, overall, transgender women are equally likely as MSM to engage in sexual position versatility (i.e., to practice both receptive and insertive anal sex). This sexual position versatility has implications for increasing network-level HIV transmission risks, in that it enables partners who are newly infected through receptive anal sex to transmit HIV efficiently to new partners when they are the insertive partner [4,40].

Taken together, these results suggest that participants in this study defined their gender identity separately from their sexual practices and that sexual practices alone cannot explain the disproportionately high burden of HIV among transgender women.

In a sensitivity analysis, we included the 210 individuals in Togo and Burkina Faso who reported their gender as intersex (n = 208) or other (n = 2) as a separate category in the bivariate analyses. We found that these individuals had a relatively similar distribution of sociodemographic characteristics and experience of stigma as that of transgender women; however, they were much more likely to report versatile sexual positioning (73% in Togo and 76% in Burkina Faso). The HIV prevalence of these individuals was 21% in Togo and 4% in Burkina Faso, which was similar to the prevalences of 19% and 5% observed among transgender women in each country, respectively. Based on these findings, it appears that those who identify as intersex may have similar HIV risks to transgender women, reinforcing the need to better understand gender diversity across these settings.

Stigma likely plays an important role in facilitating risk for HIV transmission in this population. After adjusting for sociodemographic factors and clustering within study sites, we found that social and family/friend stigma was associated with engagement in sex work, and social stigma was associated with increased report of condomless anal sex at the last anal sex episode. Although condomless anal sex and engagement in sex work were not found to be empirically associated with prevalent HIV infection in this sample, they nonetheless serve as important risk factors for HIV transmission [41,42].

Table 12. Prevalence of sexual behaviour stigma among transgender women as compared with MSM participants in Côte d’Ivoire (N = 1100)

| Stigma from family/friends | Total | MSM | Transgender women |
|---------------------------|-------|-----|-------------------|
| Excluded by family        | 119   | 74  | 45                |
| Gossiped about by family  | 386   | 240 | 146               |
| Rejected by friends       | 265   | 165 | 100               |

Table 13. GSEM-adjusted associations with testing positive for HIV and potential mediators among transgender women in three West African nations (N = 417)

| Outcome variable | Explanatory variable | Adjusted odds ratio | 95% confidence interval | p       |
|------------------|----------------------|---------------------|-------------------------|---------|
|                   |                      |                     |                         |         |
| Condomless anal sex, last anal sex episode | Social stigma | 1.33 | 1.09, 1.62 | 0.004** |
| Sold sex to male partner, past 12 months   | Social stigma | 1.23 | 1.02, 1.50 | 0.03*   |
|                                | Family/friend stigma | 1.42 | 1.13, 1.79 | 0.003** |
| Positive for HIV     | Condomless anal sex, last anal sex episode | 1.21 | 0.63, 2.33 | 0.56    |
|                                | Sold sex to male partner, past 12 months | 0.82 | 0.44, 1.53 | 0.54    |

* p < 0.05; ** p < 0.01; *** p < 0.001; *p-value derived using Pearson's chi-square test; MSM, men who have sex with men.

Table 12. Prevalence of sexual behaviour stigma among transgender women as compared with MSM participants in Côte d’Ivoire (N = 1100)

| Stigma from family/friends | Total | MSM | Transgender women |
|---------------------------|-------|-----|-------------------|
| Excluded by family        | 119   | 74  | 45                |
| Gossiped about by family  | 386   | 240 | 146               |
| Rejected by friends       | 265   | 165 | 100               |

Table 13. GSEM-adjusted associations with testing positive for HIV and potential mediators among transgender women in three West African nations (N = 417)

| Outcome variable | Explanatory variable | Adjusted odds ratio | 95% confidence interval | p       |
|------------------|----------------------|---------------------|-------------------------|---------|
|                   |                      |                     |                         |         |
| Condomless anal sex, last anal sex episode | Social stigma | 1.33 | 1.09, 1.62 | 0.004** |
| Sold sex to male partner, past 12 months   | Social stigma | 1.23 | 1.02, 1.50 | 0.03*   |
|                                | Family/friend stigma | 1.42 | 1.13, 1.79 | 0.003** |
| Positive for HIV     | Condomless anal sex, last anal sex episode | 1.21 | 0.63, 2.33 | 0.56    |
|                                | Sold sex to male partner, past 12 months | 0.82 | 0.44, 1.53 | 0.54    |

* p < 0.05; ** p < 0.01; GSEM, generalized structural equation model; MSM, men who have sex with men. Note: Model adjusts for age and education. Clustering is taken into account at the site level.
Sample size limitations and underreporting of sexual risk practices due to social desirability bias in face-to-face interviews, as well as the timing of HIV infection as measured in relation to risk practices (i.e., condom use at last anal sex episode), could explain the lack of finding of an association here.

There are additional limitations of this study to consider. First, temporality could not be established with the use of cross-sectional data. However, we removed those who self-reported living with HIV from our final multivariable model, reducing the likelihood that knowledge of HIV status affected sexual behaviour stigma or sexual risk practices. In addition, transgender women face multiple levels of intersecting stigma, including gender identity stigma and HIV stigma. We measured only sexual behaviour stigma; however, these measures had good validity in this sample and were found to be significant in predicting risk factors for HIV infection among those unaware of living with HIV. This intercategorical approach to assessing intersectionality of sexual behaviour stigma, by focusing analyses on categories of gender identity, is an approach that has been recommended in previous work [26]. Another limitation is that a large proportion of participants in Togo had missing data for sexual positioning (55%), and these results should be interpreted with caution. Because transgender women were recruited via predominantly MSM social networks, we may have failed to reach transgender women not linked to the MSM community via social or sexual networks. Due to sample size limitations, it was not possible to run separate GSEMs for each country. Because Côte d’Ivoire accounted for roughly half of the study sample and the majority of prevalent HIV cases, we note that the findings from the GSEM were driven primarily by data from Côte d’Ivoire. Finally, there may have been differences in culture, time period and access to healthcare across settings that were not explored. For example, Abidjan, Bobo-Dioulasso and Lomé have areas that are more culturally open to and accepting of MSM than other regions within the same country and, although we adjusted for study site in the GSEM, we did not assess the impact of these site-specific factors on stigma or risk for HIV.

Conclusion
The World Health Organization and UNAIDS recently called for a reduction of stigma towards MSM and transgender women to reduce HIV transmission in these key populations [43,44]. Overall, these data suggest that sexual behaviour stigma perpetuated against transgender women is widespread in Togo, Burkina Faso and Côte d’Ivoire and is even more extreme than stigma directed towards MSM. This stigma also has a significant impact on HIV risk-related behaviours and will need to be addressed as part of a comprehensive HIV prevention strategy. Empirical data among transgender women across sub-Saharan Africa are historically limited. However, these findings indicate that transgender women are present in substantial numbers in West Africa. They are a distinct population from MSM, and this distinction is not defined exclusively by sexual positioning. Continued efforts are needed to improve our understanding of gender identity and to better meet the HIV treatment, care and prevention needs of transgender women across the continent.

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Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
This study combines work conducted across six study sites in three different West African nations, which resulted in multiple collaborators. SS led the analysis and writing of the manuscript. SK1 created data entry and data management systems for each of the sites, contributed to the questionnaire development and provided input for the analysis. SK2 served as principal investigator from the Institut de Recherche en Sciences de la Santé for the Burkina Faso site. OK was the principal investigator from the Programme d’Appui au Monde Associatif et Communautaire (PAMAC) for the Burkina Faso study. ML was a co-investigator from PAMAC in Burkina Faso and supported the manuscript development by providing important guidance. DD was the West Africa regional advisor/investigator for all three studies (Togo, Burkina Faso and Côte d’Ivoire). SA was the local principal investigator and study coordinator in Togo. JT was responsible for the supervision of data entry and management in Togo. AB and RE were responsible for programme support in Côte d’Ivoire. FMD, AK and BL supported the implementation of the studies, as well as supporting data cleaning processes and interpretation of the data. S8 conceptualized the study designs and monitored study stages in all countries, as well as giving guidance on the analysis and being involved throughout the manuscript development. All authors contributed substantially to either the
study design, data collection or analysis or interpretation of data; participated in drafting the article or revising it for intellectual content; and approved the final version to be published, as outlined by the ICMJE authorship criteria.

Acknowledgements

We would like to thank the participants for their engagement and for making these analyses possible. We also acknowledge the study team members for their continued dedication and important role in the success of these studies.

Funding

Work in Togo and Burkina Faso was supported by Project SEARCH, which was subcontracted for technical assistance to Johns Hopkins University. Funding was funded by the US Agency for International Development under contract GH-I-00-07-00032-00 and by the President’s Emergency Plan for AIDS Relief. Work in Côte d’Ivoire was funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria through the government of Côte d’Ivoire National AIDS Control Program (PNPPEC) contract to Enda Santé, an organization based in Senegal and subcontracted for technical assistance to Johns Hopkins University.

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HIV prevalence and demographic determinants of condomless receptive anal intercourse among trans feminine individuals in Beirut, Lebanon

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Abstract

Introduction: Growing evidence suggests increased HIV incidence in the Middle East and North Africa among “key populations.” To date, epidemiological data have not accurately included and measured HIV prevalence and risk among trans feminine individuals in the region. Through the lens of the Gender Affirmation Framework, we assessed demographic correlates of risk behaviour and the prevalence of HIV among trans feminine individuals in Lebanon.

Methods: Long-chain referral sampling was used to recruit 53 participants for completion of a behavioural survey and optional free rapid HIV tests. Data were collected using interviewer-administered questionnaires. A multivariable logistic regression model was used to identify demographic determinants of HIV risk behaviour.

Results: Fifty-seven percent of participants reported condomless receptive anal intercourse (CRAI) with male partner(s) in the last three months, 40% of whom reported not knowing the HIV status of the partner(s). Of the participants tested for HIV as part of the study or via self-report, four (10%) were HIV positive; 13 declined HIV testing. Forty percent of the sample had no prior history of HIV testing. A history of trauma such as sexual abuse/assault was reported by almost half of the participants (49%). Sixty-eight percent reported experiencing physical violence and 32% police arrest, because of gender identity or presentation. A staggering 98% reported having experienced gender identity or gender presentation-related discrimination. Sixty-six percent of the sample reported current sex work; sex work was correlated with CRAI but was not significant in multivariate analysis. In regression analysis, “openness”/”outness” about transgender identity at work or school was significantly associated with CRAI. Surprisingly, a history of sexual abuse/assault was negatively correlated with CRAI, suggesting the need for further inquiry.

Conclusions: The results of this study provide implications for how to address sexual health among trans feminine individuals in Lebanon and the greater Middle East and North Africa region.

Keywords: trans feminine; transgender; Lebanon; Middle East and North Africa (MENA); URAI; CRAI; HIV prevalence.

Introduction

While most regions throughout the globe have successfully achieved declines in the incidence of HIV, the Middle East and North Africa (MENA) region is one of the only regions still witnessing an increase in new infections [1]. Within the MENA region, the likelihood of the development of concentrated epidemics has been identified in Egypt, Yemen, Oman and Lebanon among “key populations” including men who have sex with men (MSM) and transgender populations [2]. Although transgender women’s risk of HIV infection has been identified as 49 times higher than members of the general population throughout the globe [3], epidemiological data have yet to include and measure HIV prevalence and risk among trans feminine individuals in MENA [2].

Most HIV research to date that has taken place in MENA has failed to distinguish between MSM and transgender women [2]; therefore, little is known about HIV risk behaviour in this population despite staggeringly high rates of risk and infection globally. Among trans feminine individuals in other settings, a range of evidence has been gathered about HIV risk behaviour. Rates of unprotected sex are high, ranging, for example, from 34–37% in the United States [4,5] to 68% in Nepal [6]. Previous research has identified factors associated with unprotected sex among transgender women including drug and alcohol use, education level, and discrimination [4]. Intense stigma, and the anticipation of experiencing it, can limit access to resources and opportunities such as healthcare, employment, and HIV prevention programmes [7,8]. Family support has been shown to positively impact regular condom use among young transgender women [9]. Additionally, HIV prevalence rates have been found to be higher among transgender women who engage in sex work than those who do not [10,11]. Transgender women have reported high rates of having never been tested for HIV, ranging, for example, from 42% in Ontario, Canada [12], to 50% in Bangkok, Thailand [13].
In a region that is often characterized by clear distinctions between binary male and female categories, any ideas or individuals whose identity or presentation obscures or challenges these distinctions are viewed as a problem and sometimes even as a threat to the established order [14]. Indeed, a recent population survey conducted in Lebanon found that 98% of respondents adhered to the idea of the sex and gender binary, rather than a spectrum [15]. Further, the vast majority of respondents (82%) felt the need to be able to identify someone’s gender when first meeting [15]; this finding parallels the structure of the country’s first language in that the “you” form in Arabic in gendered, meaning that the speaker must choose the feminine or masculine form of “you” in order to address someone. The availability and accessibility of hormones and surgeries in Lebanon’s heavily privatized healthcare system has yet to be documented formally; conflicting reports exist about the legality of obtaining gender affirmation surgery in the country [16,17]. It is, however, established that genital surgery is the only way for transgender individuals to be able to change their legal identification cards in the region [16]. Media reports indicate that many trans feminine individuals in Lebanon face discrimination and harassment in most aspects of their lives, from law enforcement to business owners, and from family members to passers-by on the street [17]. Further, they often face financial vulnerability due to challenges in securing and maintaining employment because of discrimination and perceived inconsistencies between government-issued identification and gender presentation [16]. Indeed, the first HIV study conducted among trans feminine individuals in Lebanon found that physical, emotional and financial threats to safety are common and that these experiences could impact vulnerability to mental health symptoms and risky sexual behaviours [18], as has been documented in other settings [8]. A lack of financial stability may result in individuals engaging in sex work and agreeing to have condomless sex if customers are willing to pay more for sex without condom [18]. Although only very recently applied to transgender populations, minority stress theory suggests that members of sexual (and/or gender) minority groups experience identity- and membership-related stress that have negative health consequences [19].

The Gender Affirmation Framework [20] offers a model for understanding needs and access in relation to HIV risk. Gender affirmation [20], “the process by which individuals are affirmed in their gender identity through social interactions” (p. 675), is a framework developed for conceptualizing risk behaviour among transgender women of colour that uses intersectionality theories and conceptual tools that have emerged from research on stigma, eating disorders and HIV. Developed in the United States among transgender women of colour who live at the intersections of transphobia, racism and sexism, the Gender Affirmation Framework provides a potential lens for interpreting the risk behaviour and experiences of trans feminine individuals in Lebanon who live at the intersections of transphobia and sexism—in addition to cultural collectivism, which prioritizes the group and/or family over the individual. This is in contrast with more individualistic societies found, for example, in mainstream United States [21]. Trans feminine individuals are not alone in their need for gender affirmation, but unlike non-trans counterparts, the need may take a more primary role in identity development due to gender minority status [20]. Social recognition of gender identity might include being perceived as feminine, being spoken to with the correct name and pronoun, and generally being treated with respect. In the present study, the Gender Affirmation Framework offers clues about how gender affirmation needs and access might impact risk behaviour in the Lebanese context.

The purpose of this study was to measure and interpret demographic determinants, HIV prevalence and risk behaviour associations among trans feminine individuals in Beirut, Lebanon, as the first to do so in MENA. Here we use the term “trans feminine individual” to refer to people whose gender identity, expression or behaviour is different from those typically associated with their binary sex of male assigned at birth. By using “trans feminine individual” rather than “trans woman” or “transgender woman,” we aim for inclusion and to avoid restriction of usage to any specific form of gender embodiment or identification. Further, in Lebanon, not all trans feminine individuals identify as women [18].

Methods
Participants and recruitment
Formative qualitative research [18] covering topic areas of relationships, sexuality, stigma, sexual behaviour, HIV testing and perceived norms about HIV testing that engaged the community was conducted prior to the implementation of this quantitative study. Long-chain referral sampling [22] was used to recruit participants between May and December of 2012. The sample included 53 trans feminine individuals who met the eligibility criteria of having been assigned male sex at birth and identifying as a woman or trans feminine, being 18 years or older, being fluent in Arabic or English, and residing in the greater Beirut area. Lebanese community organizations working with trans feminine individuals and study consultants identified individuals to be designated as “seeds.” Five “seeds” were given four recruitment coupons to recruit eligible trans feminine peers in their social networks and received $10 for each peer recruit, with a maximum potential for recruiting four participants. The coupons were uniquely coded to link participants to their survey responses and for monitoring who recruited whom, and reimbursement of participants for recruitment of peers. Participants were instructed to give a coupon to eligible trans feminine peers who were interested in participating, and to inform the potential participant to call the study coordinator for coupon verification, eligibility screening, verbal consent procedures and scheduling of an interview.

The interviewer-administered surveys took place at one of the collaborating community organizations or at a neutral location preferred by the participant. Upon completing the survey, participants received $30. Health referrals were provided for any participants who expressed interest in medical and mental health services. Each participant was also offered free finger prick rapid tests for HIV, hepatitis B and syphilis, as well as pre- and post-test counseling. For participants with positive test results, referrals were given for a
free confirmatory test. Participants returned for confirmatory test results, counselling and referrals for medical treatment, if warranted. Individuals gave oral consent prior to participation. Institutional Review Boards at the RAND Corporation and Lebanese American University reviewed and approved this study.

Measures
The study’s survey was administered with computer-assisted software in Arabic or English, according to the participants’ preference. A team of researchers and community members developed the survey in English; the survey was then translated into Arabic and back-translated to ensure accuracy and consistency in meaning.

Demographics
Demographic characteristics included age, religious affiliation, education level, monthly income, country of birth, household members and sexual orientation. For the purposes of this study, participants’ religious affiliations were categorized as “Muslim,” “Christian” or “no religious affiliation.” Sexual orientation was categorized as “gay,” “heterosexual” or “other,” which included responses of “bisexual,” “other” and “don’t know/uncertain.” Highest education level was categorized as: “did not complete high school,” “completed high school” and “completed some/graduated university.”

Sexual behaviour
Sexual behaviour measurements included age of sexual debut, incidence of insertive anal sex with a man within the last three months, incidence of sex with a woman within the last three months, current engagement in sex work (for income of any kind) and relationship status. Insertive anal sex, sex work and relationship status were measured by binary variables. Participants were asked how many times they had had condomless receptive anal intercourse (CRAI) in the past three months; this measure was used as the primary risk behaviour of interest as although condomless insertive anal intercourse carries risk, CRAI is associated with much higher transmission risk. A binary variable was created with any participant reporting one or more instances of CRAI as having had risky sexual behaviour. This binary variable was used as the outcome variable for this analysis.

HIV testing and healthcare access
In order to measure HIV testing, participants were asked whether they knew where to go for a free HIV test and whether they had (ever) been tested for HIV. For HIV testing history, survey responses of “within the last 6 months” and “between 6 and 12 months ago” were combined under the subcategory variable “tested within 12 months.”

Gender affirmation
Although measures related to Gender Affirmation were not quantified as such because formal measures were not available at the time of data collection and the model had not been used in MENA, six variables were selected as relevant to the Gender Affirmation Model by two of the authors (RK, JM) who reviewed existing literature for applicability and pertinence [20]. Participants were asked about current hormone use for medical transition and whether they had had any gender confirmation surgeries. Self-reported satisfaction with one’s body was measured on a five-point Likert scale; a binary variable was then created with the combined responses of “strongly agree” and “somewhat agree” compared to the combined responses of “uncertain,” “somewhat disagree” and “strongly disagree.” Comfort with gender was also measured on a five-point Likert scale and compiled into three subcategories: (1) “very comfortable” and “somewhat comfortable,” (2) “very uncomfortable” and “somewhat uncomfortable,” and (3) “uncertain.” Participants were also asked to rate their level of “openness” or “outness” as trans; one variable measured this in the context of participants’ personal/social lives and the other measured this in the context of the workplace or school. Responses were analysed in three categories: (1) “not at all,” (2) “a little bit,” “some” and “mostly,” and (3) “completely ‘out’ or ‘open’.”

Stigma and discrimination
A dichotomous discrimination variable was created to capture any “Yes” response to nine questions on experiences with discrimination that the participant perceived was due to trans identity or gender presentation. Family support for trans identity was measured by the survey question, “How supportive do you feel your family is regarding your trans-gender identity?” with response options provided on a six-point scale of 1 (“not at all supportive”) to 6 (“very much supportive”). History of arrest due to trans identity or gender presentation was measured by a binary variable, as was having experienced trans- or gender-related discrimination by a healthcare provider.

Trauma
Measures of trauma included having experienced physical and/or sexual abuse. A history of identity-related physical abuse was derived from a dichotomous question about whether the participant had been physically abused and thought it was because of their trans identity or gender presentation. A history of sexual abuse was measured via a “yes” response to having ever been forced or pressured into sexual activity.

Mental health
Mental health measures included depression, and suicidal ideation and attempts. Depression was measured by the 9-item Patient Health Questionnaire (PHQ-9) to assess the presence of depressive symptoms over the past two weeks. Participants were asked if they had “ever thought about or attempted suicide” to measure suicidal behaviour.

Data analysis
Descriptive statistics derived from survey responses included measures of central tendency and variability for continuous variables and frequencies and percentages for categorical variables. For all tests of association, statistical significance was represented by \( p \) values less than 0.10. The \( \chi^2 \) test was used to analyse the association between reported CRAI within the last three months and selected categorical variables. Fisher’s exact tests were used for categorical variables with less than five observations in any one of its categories. Wilcoxon rank-sum tests were conducted for variables with
Sex work was found to be strongly associated with having had CRAI. Thirty-six percent of participants engaged in sex for income. The majority (61%) of the sample had sex with a woman in the past three months; therefore, it was found to be correlated. Only one participant reported having CRAI in the last three months. Table 1 summarizes selected demographic characteristics of the sample (stratified by CRAI status). The median age of the sample was 22 years, with a range of 18 to 58 years. Most participants (89%) had been born in Lebanon and just over half (54%) of the sample identified as Muslim. While 40% of participants identified as heterosexual and 17% identified as gay, 43% had other responses including “bisexual,” “other,” and “don’t know/uncertain.” Only three participants had graduated from university and over half (57%) had not completed high school. Forty percent of participants reported a monthly income of less than $500, while almost one third (31%) reported over $1000. The majority (68%) of participants reported living with someone, most of whom (58%) reported living with family member(s). None of the demographic characteristics were found to be significantly associated with having had CRAI in the last three months. Table 1 summarizes selected demographic characteristics of the sample (stratified by CRAI in the past three months).

Almost all participants (92%) reported having had receptive anal intercourse with a man in the last three months, most of whom (61%) had had CRAI (56% of total study sample).

Sexual behaviour
The median age of sexual debut with a male was 13 years; this average did not differ between those who reported CRAI and those who did not. Thirty-six percent of participants were in a committed relationship at the time of data collection, all of whose committed relationships were with men; relationship status was not found to be significantly associated with CRAI. Similarly, recent insertive anal intercourse with a man (reported among 36% of the sample) and CRAI were not found to be correlated. Only one participant reported having had sex with a woman in the past three months; therefore, this variable was not included in the analysis. The majority of participants (66%) reported engaging in sex for income. Sex work was found to be strongly associated with having had CRAI in the past three months (p = 0.01).

HIV testing and healthcare access
Forty-three percent of participants had been tested for HIV within the last 12 months, whereas 40% had never been tested. Almost half (47%) of the sample reported knowing where to get a free HIV test. While half (51%) of the participants had been seen by a healthcare professional in the last 12 months, almost a third (32%) reported having a need for medical care in the last 12 months but being unable to obtain it, because they were unable to afford it. Only 17% of participants had health insurance. None of these variables related to HIV testing or healthcare access were found to be associated with CRAI.

Gender affirmation
Nineteen percent of the sample reported having had gender confirmation surgeries, whereas half had ever used hormones for medical transition. One third (32%) of the sample population reported being accepting of their bodies. Regarding comfort with gender, half of the participants reported being “very” or “somewhat comfortable” while the other half were “uncertain” (9%) or “somewhat” to “very uncomfortable” (42%). Participants reported a range of degrees of being “out” or “openness” about their transgender identities in private and professional life. While the majority (64%) of participants reported being “somewhat ‘out’” in their personal lives, the sample was more divided in terms of the workplace or school, with 38% “completely ‘out’” and 26% “not at all ‘out’ or open” about being transgender. Participants who reported CRAI were significantly more likely to report being “completely ‘out’” at the workplace or school than those who reported not having had CRAI (53% vs. 17% respectively, p = 0.02).

Stigma and discrimination
An overwhelming majority (98%) of participants reported having experienced a form of discrimination due to their transgender identity or gender presentation in the last year; in fact, only one individual in the sample reported not having experienced discrimination. Two thirds (67%) of the sample reported family not being at all supportive of their transgender identity. One third of participants had been arrested because of being transgender or gender presentation. One third also reported being discriminated against in a medical setting for these reasons. Of these discrimination variables, a history of arrest was the only one significantly correlated with CRAI (p = 0.07).

Trauma
Having experienced trauma was common within the sample. Two thirds of participants reported having been physically abused or beaten because of their gender identity or presentation. A history of physical abuse, however, was not correlated with CRAI. Half (49%) of participants reported having been sexually abused or assaulted in their lifetime. A history of sexual abuse/assault, surprisingly, was found to be negatively associated with CRAI; those engaging in CRAI reported sexual abuse/assault less than those who did not (p = 0.04).
Table 1. Demographic characteristics stratified by condomless receptive anal intercourse (CRAI) in the last three months

| Characteristic                                                                 | Total population (N = 53) | CRAI (N = 30) | No CRAI (N = 23) | P     |
|--------------------------------------------------------------------------------|---------------------------|---------------|------------------|-------|
| Demographics                                                                    |                           |               |                  |       |
| Age, median (IQR)                                                              | 22 (20, 30)               | 23.5 (20, 30) | 22 (19, 35)      | 0.40  |
| Religion                                                                        |                           |               |                  | 0.48  |
| Muslim                                                                          | 28 (53.9)                 | 15 (51.7)     | 13 (56.5)        |       |
| Christian                                                                       | 15 (28.9)                 | 11 (37.9)     | 4 (17.4)         |       |
| No religious affiliation                                                        | 9 (17.3)                  | 3 (10.3)      | 6 (26.1)         |       |
| Highest education level                                                         |                           |               |                  | 0.16  |
| Did not complete high school                                                    | 30 (56.6)                 | 20 (66.7)     | 10 (43.5)        |       |
| Completed high school                                                           | 14 (26.4)                 | 5 (16.7)      | 9 (39.1)         |       |
| Completed some/graduated university                                              | 9 (17.0)                  | 5 (16.7)      | 4 (17.4)         |       |
| Monthly income > $1000 USD                                                      | 16 (30.8)                 | 11 (36.7)     | 5 (22.7)         | 0.28  |
| Born in Lebanon                                                                 | 46 (88.8)                 | 26 (86.7)     | 20 (87.0)        | 0.98  |
| Living with someone                                                             | 36 (67.9)                 | 19 (63.3)     | 17 (73.9)        | 0.41  |
| Sexual orientation                                                              |                           |               |                  | 0.16  |
| Gay                                                                             | 9 (17.0)                  | 5 (16.7)      | 4 (17.4)         |       |
| Heterosexual                                                                    | 21 (39.6)                 | 15 (50.0)     | 6 (26.1)         |       |
| Other                                                                           | 23 (43.4)                 | 10 (33.3)     | 13 (56.5)        |       |
| Sexual behaviour                                                                |                           |               |                  |       |
| Age of sexual debut with male, median (IQR)                                     | 13 (10, 15)               | 13 (11, 16)   | 13 (9, 15)       | 0.25  |
| Insertive anal sex with a male (in the past three months)                       | 19 (35.9)                 | 13 (43.3)     | 6 (26.1)         | 0.19  |
| Sex for income                                                                  | 35 (66.0)                 | 24 (80.0)     | 11 (47.8)        | 0.01  |
| Relationship status: currently in a committed relationship                      | 19 (35.9)                 | 12 (40.0)     | 7 (30.4)         | 0.47  |
| HIV testing and health care access                                              |                           |               |                  |       |
| Tested for HIV                                                                  |                           |               |                  | 0.54  |
| Never                                                                           | 21 (39.6)                 | 10 (33.3)     | 11 (47.8)        |       |
| Tested > 12 months ago                                                          | 9 (17.0)                  | 6 (20.0)      | 3 (13.0)         |       |
| Tested within last 12 months                                                    | 23 (43.4)                 | 14 (46.7)     | 9 (39.1)         |       |
| Knows where to go to get a free HIV test                                       | 25 (47.2)                 | 14 (46.7)     | 11 (47.8)        | 0.93  |
| Has health insurance                                                            | 9 (17.0)                  | 5 (16.7)      | 4 (17.4)         | 1.00  |
| Saw healthcare provider in last 12 months                                       | 27 (50.9)                 | 14 (46.7)     | 13 (56.5)        | 0.48  |
| Medical care within last 12 months                                              |                           |               |                  | 0.72  |
| Received or did not need                                                        | 27 (50.9)                 | 16 (53.3)     | 11 (47.8)        |       |
| Needed and did not receive (due to cost)                                        | 17 (32.1)                 | 10 (33.3)     | 7 (30.4)         |       |
| Needed and did not receive (due to other reasons)                               | 9 (17.0)                  | 4 (13.3)      | 5 (21.7)         |       |
| Mental health                                                                   |                           |               |                  |       |
| Currently depressed                                                             | 33 (62.3)                 | 20 (66.7)     | 13 (56.5)        | 0.45  |
| Suicidality                                                                     |                           |               |                  | 0.70  |
| Never thought about or attempted                                               | 20 (37.7)                 | 12 (40.0)     | 8 (34.8)         |       |
| Suicidal ideation                                                               | 11 (20.8)                 | 5 (16.7)      | 6 (26.1)         |       |
| Attempted suicide                                                               | 22 (41.5)                 | 13 (43.3)     | 9 (39.1)         |       |
| Gender affirmation                                                              |                           |               |                  |       |
| Ever used hormones for gender confirmation                                      | 25 (52.8)                 | 17 (56.7)     | 8 (34.8)         | 0.11  |
| Ever had any gender confirmation surgeries                                      | 10 (19.8)                 | 6 (20.0)      | 4 (17.4)         | 1.00  |
| Accepts body despite flaws                                                      | 17 (32.1)                 | 8 (26.7)      | 9 (39.1)         | 0.34  |
| Comfort with gender                                                             |                           |               |                  | 0.25  |
| Very/somewhat comfortable                                                       | 26 (49.1)                 | 16 (53.3)     | 10 (43.5)        |       |
| Uncertain                                                                       | 5 (9.4)                   | 1 (3.3)       | 4 (17.4)         |       |
| Somewhat/very uncomfortable                                                     | 22 (41.5)                 | 13 (43.3)     | 9 (39.1)         |       |
| Open (out) as a transgender individual in social/personal life                  |                           |               |                  | 0.34  |
Stigma and discrimination due to transgender identity/presentation

Characteristics were used to further examine the statistically significant (p < 0.05) characteristics with CRAI, a bivariate regression analysis was conducted. After conducting a Chi-squared test on the association of each of the variables, having been arrested was no longer statistically significantly associated with CRAI. A Fisher’s exact test of association found no association between history of arrest and engaging in transactional sex (p = 0.123). History of sexual abuse/assault remained negatively correlated with CRAI [OR (95% CI) = 0.22 (0.53, 0.89)]. Sex for income was no longer statistically significantly associated (p = 0.06) with CRAI [OR (95% CI) = 4.05 (0.97, 16.95)]. Being completely “open”/“out” as transgender at work or school was associated with almost six times the odds of having had CRAI. Table 2 summarizes the bivariate and multivariable analyses.

**Table 1 (Continued)**

| Characteristic | Total population (N = 53) | CRAI (N = 30) | No CRAI (N = 23) | P |
|----------------|--------------------------|---------------|-----------------|---|
| Not at all     | 4 (7.6)                  | 2 (6.7)       | 2 (8.7)         |   |
| A little bit/some/mostly | 34 (64.2) | 17 (56.7) | 17 (73.9) |   |
| Completely     | 15 (28.3)                | 11 (36.7)     | 4 (17.4)        |   |
| Open (out) as a transgender individual at work or school | 14 (26.4) | 5 (16.7) | 9 (39.1) | 0.02 |
| Not at all     | 19 (35.9)                | 9 (30.0)      | 10 (43.5)       |   |
| A little bit/some/mostly | 20 (37.7) | 16 (53.3) | 4 (17.4) |   |
| Stigma and discrimination due to transgender identity/presentation | | | | |
| Experienced any discrimination | 52 (98.1) | 30 (100.0) | 22 (95.7) | 0.43 |
| Family not at all supportive | 36 (67.9) | 23 (76.7) | 13 (56.5) | 0.12 |
| Has been arrested | 17 (32.1) | 13 (43.3) | 4 (17.4) | 0.07 |
| Had problems getting health/medical services | 17 (32.1) | 11 (36.7) | 6 (26.1) | 0.41 |
| Trauma | 23 (43.4) | 12 (40.0) | 11 (47.8) | 0.57 |
| Has been physically abused | 36 (67.9) | 21 (70.0) | 15 (65.2) | 0.71 |
| Has been sexually abused | 26 (49.1) | 11 (36.7) | 15 (65.2) | 0.04 |

Bold indicates p-value ≤ 0.05.

**Mental health**

Mental health results are reported elsewhere [23]. In the present analysis, depression, suicide ideation and suicide attempts were not significantly associated with CRAI.

**HIV Prevalence and sexual risk behaviour**

Three participants reported living with HIV and an additional one participant tested positive for HIV in the rapid antibody test, administered as an optional part of the study following survey completion. Thirteen participants declined the HIV test. Thus, four participants were HIV positive out of the 40 participants (10%) who were tested as part of the study or via self-report.

**Risk behaviour associations**

After conducting χ² tests on the association of each of the characteristics with CRAI, a bivariate regression analysis was used to further examine the statistically significant (p < 0.05) correlates and those with high prevalence in the study sample, in order to estimate the size of the effect of these factors on the outcome, and the degree of precision with which they were measured. In the logistic regression analysis, statistical significance was set at p ≤ 0.05 to determine associations. Having sex for income was associated with a fourfold odds of having had CRAI [OR (95% CI) = 4.36 (1.30, 14.67)]. Being “open”/“out” as a transgender individual at work or school was associated with having seven times the odds of having had CRAI compared to those who were not at all out [OR(95% CI) = 7.20 (1.52, 33.85)]. Having a history of arrest was associated with over three times the odds of having had CRAI [OR (95% CI) = 3.63 (0.99, 13.30)]. Sexual abuse/assault was negatively correlated with CRAI [OR (95% CI) = 0.31 (0.10, 0.96)].

The four variables found to be associated with CRAI in the bivariate analysis were entered simultaneously into a multivariable regression model. When controlling for the other variables, having been arrested was no longer significantly associated with CRAI. A Fisher’s exact test of association found no association between history of arrest and engaging in transactional sex (p = 0.123). History of sexual abuse/assault remained negatively correlated with CRAI [OR (95% CI) = 0.22 (0.53, 0.89)]. Sex for income was no longer statistically significantly associated (p = 0.06) with CRAI [OR (95% CI) = 4.05 (0.97, 16.95)]. Being completely “open”/“out” as transgender at work or school was associated with almost six times the odds of having had CRAI. Table 2 summarizes the bivariate and multivariable analyses.

**Discussion**

In this sample of mostly young, Lebanon-born trans feminine individuals in Beirut, HIV prevalence (10%) was higher than that of MSM (1.5–3.6%) [24,25], but lower compared to prevalence rates among transgender women in other settings around the globe [3]. This prevalence rate among trans feminine individuals in Lebanon, as compared to other contexts, may be lower due to sample size or a lack of representativeness of our sample. The prevalence may have also been higher if more or all participants had received an HIV test as part of the study, as 13 participants declined to be tested (either because of a previous positive test or for other reasons not specified by participants). High rates of CRAI with male partner(s) in the last three months (57%) were reported, suggesting high risk for HIV transmission. Of these participants reporting CRAI, 40% reported not knowing the HIV status of the partner(s), further indicating the potential for risk.

One third (66%) of the participants reported engaging in sex work. This percentage is very similar to rates found in the United States [26]; engagement in sex work is often the result of economic hardship due to transphobia and discrimination.
Despite the risks associated with sex work, 40% of our sample had no history of HIV testing, which is comparable to counterparts in other countries [12,13].

Trauma such as sexual abuse/assault were common among the participants in our sample; almost half (49%) of the participants reported having experienced such trauma. Rates of having experienced physical violence (68%) and police arrest (32%) because of gender identity or presentation were also high, and all but one (98%) reported discrimination due to gender identity or presentation. We were surprised to find that in the regression analysis that a history of sexual abuse/assault remained negatively correlated with CRAI (OR (95%CI) = 0.22 [0.53, 0.89]). While these results could have been the result of sample size and seem to indicate that having been sexually abused reduces the likelihood of CRAI, these findings are unsupported theoretically or by data from other countries. There is no obvious reason why these kinds of cultural influences play a stronger role in the context of sex work in Lebanon should be explored in future research. Understanding the determinants of sex work will be critical for informing future sexual health intervention strategies with this population.

Another main finding, that requires further exploration and interpretation, was that being completely “out” or “open” about transgender status at work or school was independently and significantly associated with having had CRAI, even after adjustment. Potentially related to being completely “out” or “open” at work or school, some of the variables related to Gender Affirmation may help shed some light on these results. Overall, discomfort with gender identity was common among the participants, and most were not “out” as transgender in their personal or professional lives. Although half of the participants had used hormones for medical transition, less than a quarter had had any type of gender confirmation surgeries. Most expressed dissatisfaction with their physical appearance. Further inquiry is needed to determine the impact of factors potentially related to medical transition and “outness” such as access to medical transition services, affordability of transition-related healthcare, and quality and availability of trans-friendly providers. Indeed, the aforementioned qualitative study that was conducted among trans feminine individuals in Lebanon [18] found that some participants felt that in order to be able to maintain relationships with family members, dressing “as a woman” and having breast augmentation surgeries were not an option. Further research is required to understand the potentially complex relationship between medical transition, body satisfaction, “outness” and CRAI.

### Table 2. Factors independently associated with CRAI

| Characteristic                                                                 | Bivariate | Multivariable |
|-------------------------------------------------------------------------------|-----------|--------------|
|                                                                               | Odds ratio (95% CI) | P  | Odds ratio (95% CI) | P            |
| **Highest education level**                                                   |            |              |
| Did not complete high school                                                  | Ref       |              |
| Completed high school                                                         | 0.28 (0.07, 1.05) | 0.06 | –               | –            |
| Completed some/graduated university                                            | 0.63 (0.14, 2.85) | 0.55 | –               | –            |
| **Sex for income**                                                            |            |              |
| Monthly income > $1000 USD                                                     | 1.97 (0.57, 6.82) | 0.28 | –               | –            |
| Open (out) as a transgender individual at work or school                      | Not at all |            |
| A little bit/some/mostly                                                      | 1.62 (0.39, 6.68) | 0.50 | 1.43 (0.28, 7.32) | 0.66          |
| Completely                                                                   | 7.20 (1.53, 33.85) | 0.01 | 5.97 (1.09, 32.81) | 0.04          |
| Family not at all supportive of transgender identity                          |            |              |
| Has been arrested because of transgender identity/presentation               | 2.53 (0.78, 8.24) | 0.12 | –               | –            |
| Has been sexually abused                                                      | 3.63 (0.99, 13.30) | 0.05 | 2.95 (0.61, 14.41) | 0.18          |
|                                                                 | 0.31 (0.10, 0.96) | 0.04 | 0.22 (0.53, 0.89) | 0.03          |

Bold indicates p-value ≤ 0.05.

Sex, deferring to male partners for condom use decisions has been found to be common among transgender women due to traditional patriarchal gender roles [31]. Whether these kinds of cultural influences play a stronger role in the context of sex work in Lebanon will be explored in future research. Understanding the determinants of sex work will be critical for informing future sexual health intervention strategies with this population.

Despite the risks associated with sex work, 40% of our sample had no history of HIV testing, which is comparable to counterparts in other countries [12,13].
Future directions
These results contribute to the existing body of literature on HIV risk and prevalence among trans feminine individuals around the globe. Further, they highlight the need for culturally relevant strategies to mitigate the impact of HIV, stigma and transphobia in diverse international settings, and for the first time in MENA. First, the importance of trans feminine individuals’ inclusion in HIV research and programming cannot be overemphasized. Second, efforts to include trans feminine individuals in research, programming, outreach and services must distinguish between MSM and trans feminine individuals. Research efforts and funding opportunities, both in MENA and in other locations throughout the world, must recognize and prioritize the health needs of this population. Future research will explore the feasibility and acceptability of culturally adapting HIV prevention interventions to the Lebanese and Middle Eastern contexts.

Conclusions
To our knowledge, this is the first quantitative study to measure sexual risk and HIV prevalence among trans feminine individuals in MENA. These results illuminate important health challenges that members of this understudied population face and provide the first measurements of HIV prevalence and risk behaviour. As in studies from other regions, the results of this study indicate that there is a high prevalence of HIV risk behaviour, particularly sex work and CRAI, among the trans feminine population in Lebanon. The data from this study suggest that understanding the motivations for engaging in sex work and CRAI as well as determining the potential factors that facilitate condom use are important next steps for addressing the health disparities and mitigating the effects of an emerging epidemic among trans feminine people in Lebanon.

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Competing interests
The authors declare no competing or financial interests.

Authors’ contributions
RK and GW contributed to study design and implementation, data analysis and interpretation, and writing of the manuscript; JM contributed to data analysis and interpretation, and writing of the manuscript.

Acknowledgements
The authors wish to acknowledge the contribution of the study coordinator (Simon Nehme) and the study participants who had the trust and confidence in the study team to participate and share their life experiences.

Funding
Funding for this research is from a grant from the National Institute of Mental Health (Grant No. R21MH93204; PI: G. Wagner).

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Research article

Prevalence and associated factors of condomless receptive anal intercourse with male clients among transgender women sex workers in Shenyang, China

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Abstract

Introduction: Globally, transgender women sex workers have a high prevalence of HIV and condomless receptive anal intercourse with male clients (CRAIMC). We investigated the prevalence of CRAIMC and factors associated with CRAIMC among transgender women sex workers in China.

Methods: In 2014, we anonymously interviewed 220 transgender women sex workers face to face in Shenyang, China. Those who self-reported as HIV negative or as having unknown HIV serostatus were invited to take up free, anonymous HIV rapid testing (n = 183); 90 did so. Using CRAIMC in the last month as the dependent variable, three types of associated factors were investigated, in addition to background factors: feminizing medical interventions, sex work and perceptions related to condom use. Univariate and multiple logistic regression models were fitted.

Results: Of the participants, 16.8% self-reported as HIV positive and 9.1% were detected to be HIV positive through free HIV testing; 26.8% had had CRAIMC in the last month, 45.5% had performed sex work in other Chinese cities (last year), and 23.2% had had condomless anal intercourse with men who were non-clients. In the adjusted analysis, significant factors associated with CRAIMC (last month) included the following: 1) any feminizing medical intervention performed (adjusted odds ratio, AOR: 2.22); 2) sex-work-related factors, including recruitment of male clients most often at hotels (AOR: 5.02) and charge per episode of transactional sex (201 to 400 RMB, AOR: 0.27; reference group: ≤ 100 RMB); and 3) perceptions related to condom use, including perceived transgender identity’s impact on condomless sex such as wearing feminine attire, concern about exposing their status as a transgender woman to male clients (AOR: 1.20) and perceived self-efficacy of consistent condom use with male clients (AOR: 0.56). Perceived self-efficacy of consistent condom use with male clients fully mediated the association between perceived transgender identity’s impact on condomless sex and CRAIMC.

Conclusions: HIV prevalence among transgender women sex workers was high but probably underestimated. The high prevalence of condomless anal intercourse with male non-clients and high mobility in sex work among this population in China are causes for concern. Risk factors for CRAIMC were multidimensional and should be considered when designing interventions targeting transgender women sex workers. Such interventions are urgently needed.

Keywords: transgender women sex workers; unprotected anal intercourse; associated factors; HIV infection; China.
size of the population of transgender men and women in mainland China, estimated at 400,000 [12], only one survey (n = 52) has recorded self-reported HIV prevalence (11.1%) [13], and no data is available for transgender women sex workers.

Previous studies have reported high prevalence of condomless receptive anal intercourse with male clients (CRAIMC) among transgender women sex workers: 12 to 77% in the United States [5], 25% in South Africa [14], 26.9% in Thailand [1], 29.8% in Italy [15] and 92% in Pakistan [16]. We found only two quantitative studies that reported risk factors (e.g. financial pressure) and protective factors (e.g. subjective norms) associated with CRAIMC [1,17], and three qualitative studies that described reasons for practising CRAIMC [18-20]. These studies were conducted outside China.

Perceptions related to condom use have been associated with condomless sex with clients among male and female sex workers [17,21]. Although theory-based interventions have been found to be more effective than non-theory-based ones [22], behavioural health theories have not been utilized to study factors associated with CRAIMC among transgender women sex workers. The health belief model (HBM) [23] has been used to explain risk behaviours among sex workers more generally [21,24] and was used in this study. The HBM postulates that perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and perceived self-efficacy are determinants of health-related behaviours [17,21,24].

We investigated four types of factors that may be associated with CRAIMC: 1) background variables (sociodemographics, HIV serostatus and anal intercourse with non-commercial male sex partners), 2) feminizing medical interventions (cosmetic surgery, hormone treatment and sexual reassignment surgery), 3) variables related to sex work (e.g. venue, charge and sex work in other cities) and 4) perceptions related to condom use (both perceived transgender identity’s impact on condomless sex and perceptions related to condom use derived from the HBM). We further tested two hypotheses: 1) self-efficacy for condom use with male clients would mediate the association between feminizing medical interventions and CRAIMC and 2) self-efficacy for condom use with male clients would mediate the association between perceived transgender identity’s impact on condomless sex and CRAIMC.

Methods
Study design
A cross-sectional study was conducted in Shenyang, China, from April to July 2014. Inclusion criteria were as follows: 1) age ≥ 18 years, 2) self-identification as a transgender woman, 3) anal intercourse with ≥1 male client (last three months) and 4) wearing feminine attire and make-up during sexual practice with men. In the absence of a sampling frame, it was not feasible to perform probability sampling. Instead, the staff of a non-governmental organization (NGO) who provided services to transgender women sex workers contacted all their clients and performed outreach for recruitment. Referrals were also made by some participants. Prospective participants were assured that refusing to participate in the study would not affect their right to use any services and that they could quit at any time without being questioned. A total of 282 eligible transgender women sex workers were approached for the study; 62 declined to participate in the study and 220 (78%) provided written informed consent and completed an anonymous face-to-face interview in settings with privacy ensured.

In the survey, 37 participants self-reported being HIV positive. The 183 who self-reported being HIV negative or having an unknown HIV serostatus were invited to take a finger-prick HIV rapid test (Alere Determine™ HIV-1/2 rapid HIV screening test, Alere Inc, Waltham (MA), United States; sensitivity = 99.75%; specificity = 100%); 49.2% (90/183) agreed. Those who tested HIV negative were given post-test counselling. Those who showed HIV-positive test results received psychological support and underwent confirmatory testing at the local Center for Disease Control and Prevention (CDC). All were subsequently confirmed as HIV positive and referred to appropriate services. Eight of them subsequently started antiretroviral treatment. Monetary compensation (50 RMB or 8.1 USD) was given to participants upon completion of the procedures. Ethics approval was obtained from the Survey and Behavioural Research Ethics Committee of the Chinese University of Hong Kong.

Measures
Participant profiles
Information collected included sociodemographics (age, education level, monthly personal income, city of residence (hukou) and duration of stay in Shenyang), utilization of any HIV prevention services in the last six months, any CRAIMC in the last month, any anal intercourse with male sex partners who were non-clients in the last month and, if affirmative, whether condomless anal intercourse was involved. HIV status (self-reported as HIV positive, tested HIV positive, tested HIV negative and self-reported as HIV negative or unknown HIV status but refused testing) was recorded (Table 1).

Feminizing medical interventions
Participants were asked whether they had taken up cosmetic surgery, hormone treatment and/or undergone sex reassignment surgeries (removal of testes, penis and scrotum and surgeries for reconstruction of female genitalia) (Table 2).

Variables related to sexual practice with clients
Participants were asked about the channel that was most frequently used to recruit sex clients, venues where sexual intercourse with clients took place, the average charge per episode of sex with male clients, the number of male and female clients in the last week, drug/alcohol use prior to or during sex with male clients, any performance of sex work in other Chinese cities/other countries and the proportion of their male clients that might be aware of their identity as transgender women (Table 2).

Perceptions related to HIV and condom use
Three scales were constructed for this study and were based on the HBM: 1) the four-item Perceived Susceptibility for HIV Scale, 2) the six-item Perceived Barrier against Condom Use Scale and 3) the three-item Perceived Self-efficacy of
Consistent Condom Use Scale (response categories: 1 = strongly disagree, 5 = strongly agree). In addition, participants were asked to assess their transgender identity’s impact on condomless sex (i.e. whether wearing feminine attire during sexual practice with clients, worrying about clients discovering their gender identity, avoiding exposing their genitals to male clients and avoiding talking to male clients would increase risk of CRAIMC). The four-item Transgender Identity’s Impact on Condomless Sex Scale was then constructed by summing up responses to these four items. Another item, “reminders for condom use were displayed in the venues where sexual practice with clients took place” was asked to assess cue to action. All the scale items are listed in Table 3.

Statistical analysis
Using CRAIMC in the last month as the dependent variable, bivariate odds ratios (ORs) of the background independent variables were estimated. Those background variables that showed $p < 0.1$ in the bivariate analysis were adjusted for in subsequent multiple logistic regression analyses to derive the adjusted ORs (AORs) and respective 95% confidence intervals (CIs). Following Baron and Kenny’s method [25], the first mediation hypothesis was tested by first inspecting the association between feminizing medical interventions and self-efficacy in condom use. Multiple logistic regression models, including the variables of feminizing medical interventions and self-efficacy, were then fitted. A weakened association between the variable of feminizing medical intervention and CRAIMC would suggest the presence of a mediation effect [25]. To test the second mediation hypothesis, the same procedure was repeated, but the variable of feminizing medical interventions was replaced by the Transgender Identity’s Impact on Condomless Sex Scale. We used SPSS version 16.0; $p$ values $< 0.05$ were considered statistically significant.

Results
Background characteristics
Over half of the participants were 18 to 30 years old (50.9%), not permanent Shenyang residents (87.3%) and had stayed in Shenyang for up to five years (55.9%). Only 10.9% had attended college or university, and 41.8% had a monthly personal income $>5000$ RMB (806.5 USD). About 90% (91.8%) had utilized HIV prevention services in the last six months (Table 1). Over one-quarter (26.8%) had had CRAIMC in the last month, whereas the prevalence was 32.4% among those who self-reported being HIV positive. The majority (88.6%) had
RMB, renminbi; USD, US dollars.

any of the following interventions: cosmetic surgery (13.2%), hormone treatment (2.3%) or sex reassignment surgery (0.5%) (Table 2).

HIV serostatus
Prevalence of self-reported HIV-positive status was 16.8% (n = 37). The 183 participants who self-reported HIV negative or having unknown HIV serostatus were invited to take up free HIV testing; 90 accepted the offer. The testing identified 20 HIV positive cases (22.2% among the 90 testers and 9.1% among all participants). The HIV serostatus of the 93 participants who refused to take up HIV testing remained unknown. Overall, 25.9% of all the participants either self-reported or were tested/confirmed as HIV positive (Table 1).

Sexual practices with male clients
Almost half of the participants most often recruited their male clients at parks (44.1%) and 45% had provided sex services to male clients in a rented room. About one-third (35%) charged ≤ 100 RMB (≤ 16.1 USD) per episode of sexual practice. About two-thirds (65.4%) had had one to ten male clients (9.1% had had >30) in the last week and 4.5% had also had female clients in the last week; 22.3 and 20.9% reported having used alcohol and/or drugs, respectively, prior to or during sex with male clients in the last month. Almost half (45.5%) had performed sex work in other Chinese cities, and 3.2% had done so in other countries in the last year (Table 2).

Perceptions related to HIV and condom use
Individual item responses and means (SD) of the scales are described in Table 3. Cronbach’s alpha values of the Perceived Susceptibility for HIV Scale, Perceived Barriers against Condom Use Scale, Perceived Self-efficacy of Consistent Condom Use Scale and Transgender Identity’s Impact on Condomless Sex Scale were acceptable (0.85, 0.82, 0.70 and 0.70, respectively). Single factors were identified for these four scales by using exploratory factor analysis (EFA) and explained 58.5 to 71.8% of the total variances.

Factors associated with CRAIMC in the last month
In the bivariate analysis, only one of the background factors (education level) was significantly associated with CRAIMC, whereas two (i.e. utilization of HIV prevention services in the last six months (p = 0.062) and unknown HIV serostatus (p = 0.089)) were of marginal statistical significance (i.e. 0.05 < p < 0.1) (ORs are shown in Table 4). Adjusted for these three background variables, the three other variables that were significantly and positively associated with CRAIMC were 1) feminizing medical interventions (AOR: 2.22; 95% CI: 1.03, 5.11), 2) male sex clients most often recruited at hotels (AOR: 5.02; 95% CI: 1.97, 12.79) and 3) the Transgender Identity’s Impact on Condomless Sex Scale score (AOR: 1.20; 95% CI: 1.09, 1.32). The two significantly and negatively associated variables were 1) charge per episode of sex practice with clients (201 to 400 RMB: AOR: 0.27; 95% CI: 0.11, 0.67; reference group: ≤ 100 RMB) and 2) perceived self-efficacy of consistent condom use with male clients (AOR: 0.56; 95% CI: 0.45, 0.70). Perceived susceptibility of HIV transmission was positively associated with a marginal p-value of 0.052 (AOR: 1.12; 95% CI: 1.00, 1.26) (Table 5).
Testing the mediation hypotheses
Perceived self-efficacy of consistent condom use with male clients was significantly correlated with the Transgender Identity’s Impact on Condomless Sex Scale (Spearman $r = 0.422$, $p < 0.001$). Furthermore, the significant association between this scale on perceived transgender identity’s impact on condomless sex and CRAIMC became non-significant (AOR: 1.09; 95% CI: 0.98, 1.22; Table 5) after perceived self-efficacy was added to the multiple logistic regression model, with the variable of self-efficacy remaining strongly associated with CRAIMC in that model. The results suggest a full mediation effect. Feminizing medical interventions was not significantly associated with perceived self-efficacy (Spearman $r = 0.005$, $p = 0.642$); therefore the second mediation hypothesis was not tested.

Discussion
Transgender women sex workers in China are likely to be at high risk of HIV, indicated by the 25.9% HIV prevalence according to self-reported and testing data. Moreover, 40% of all participants self-reported negative or unknown HIV status and refused free HIV testing offered by this study. These participants were more likely to report CRAIMC, although this was marginally statistically significant. It is reasonable that some participants may have felt uncomfortable disclosing their HIV positive status to interviewers. Disclosure of HIV status is not a norm in China and is highly stigmatized. Therefore, the self-reported HIV prevalence was probably understated. Further research on HIV prevalence and incidence among transgender women sex workers is required to inform policymakers and health workers.

Over 25% of all participants and one-third of those who self-reported being HIV positive had engaged in CRAIMC, suggesting that we need to develop more effective and tailor-made HIV prevention interventions for transgender women sex workers. There is a dearth of NGOs serving transgender women sex workers in China. The establishment of transgender-friendly NGOs is needed. The majority of transgender women sex workers also had sex with men who were non-clients and such occasions frequently involved condomless anal intercourse. HIV interventions should take into account the different partner types for transgender women sex workers.
Importantly, 5% of the participants also served female clients. As we focused on the male clients of transgender women sex workers, we did not investigate condom use related to female clients. More research is required to understand the implications for HIV prevention. The mobility of transgender women sex workers is a concern, as this is a known risk factor for HIV transmission [26]. The majority of the participants came to Shenyang from other parts of China.

Table 4. Associations between background variables and CRAIMC in the last month

| Education level      | %  | OR (95% CI) |
|----------------------|----|-------------|
| Primary or below     | 44.0| Reference   |
| Junior secondary     | 26.6| 0.46 (0.18, 1.17) |
| Senior secondary     | 22.0| 0.36 (0.14, 0.91)* |
| Tertiary             | 29.2| 0.52 (0.16, 1.71) |

| HIV prevention services utilization in the last six months | %  | OR (95% CI) |
|----------------------------------------------------------|----|-------------|
| No                                                       | 44.4| Reference   |
| Yes                                                      | 25.2| 0.42 (0.16, 1.13) |

| HIV serostatus                                           | %  | OR (95% CI) |
|----------------------------------------------------------|----|-------------|
| Self-reported as being HIV positive                      | 22.0| Reference   |
| Tested as positive in rapid HIV testing                  | 32.4| 1.92 (0.78, 4.74) |
| Tested as negative in rapid HIV testing                  | 15.0| 0.71 (0.18, 2.75) |
| Self-reported HIV negative or unknown HIV serostatus but refused to take up HIV testing | 32.3| 1.91 (0.92, 3.95) |

Table 4. Note: Variables considered but that were non-significant are not listed in this table; they included age group, monthly income, resident of Shenyang and duration of stay in Shenyang. *p < 0.05; †p < 0.10; OR: univariate odds ratios; CI, confidence interval. OR and 95% CI of variables with p < 0.05 were bold.

Table 5. Associations between feminizing medical interventions, sexual practice with male clients, perceptions on HIV and condom use, and CRAIMC in the last month

| Feminizing medical interventions | OR (95% CI) | AOR (95% CI) |
|----------------------------------|-------------|-------------|
| Had undertaken such intervention(s) | 2.71 (1.26, 5.81)* | 2.22 (1.03, 5.11)* |

| Sexual practice with male clients | OR (95% CI) | AOR (95% CI) |
|----------------------------------|-------------|-------------|
| Channel most often used to recruit clients | | |
| Internet                          | Reference   | Reference   |
| Park                              | 2.16 (1.07, 4.37)* | 1.85 (0.86, 3.97) |
| Hotel                             | 4.47 (1.84, 10.87)** | 5.02 (1.97, 12.79)** |

| Engaged in sexual practice with clients in other Chinese cities in the last year | OR (95% CI) | AOR (95% CI) |
|-----------------------------------------------------------------------------|-------------|-------------|
| No                                                                          | Reference   | NS          |
| Yes                                                                         | 1.78 (0.98, 3.25)† | NS          |

| Average charge per episode of sex with clients (in RMB) | OR (95% CI) | AOR (95% CI) |
|--------------------------------------------------------|-------------|-------------|
| ≤ 100 RMB                                               | Reference   | Reference   |
| 101 to 200 RMB                                         | 1.26 (0.54, 2.90) | 1.22 (0.50, 2.98) |
| 201 to 400 RMB                                         | 0.28 (0.12, 0.65)** | 0.27 (0.11, 0.67)** |
| ≥ 401 RMB                                              | 0.41 (0.17, 0.99)* | 0.42 (0.16, 1.12)† |

| Perceptions on HIV and condom use | OR (95% CI) | AOR (95% CI) |
|----------------------------------|-------------|-------------|
| Perceived susceptibility for HIV scale | 1.13 (1.02, 1.26)* | 1.12 (1.00, 1.26)† |
| Perceived self-efficacy in consistent condom use scale | 0.54 (0.43, 0.67)** | 0.56 (0.45, 0.70)** |
| Transgender identity's impact on condomless sex scale | 1.19 (1.09, 1.31)*** | 1.20 (1.09, 1.32)*** |

Table 5. Note: Variables that were considered but were non-significant are not listed in this table; they included anal intercourse with non-commercial male sex partner(s) in the last month, venues where sexual practices with clients took place, engaged in sexual practices with clients in other countries, number of male clients and female clients, ever used alcohol or drug prior to or during sexual practices with clients, the Perceived Barrier of Condom Use Scale and perceived cue to action of condom use.

†p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001, NS: p > 0.10. OR, univariate odds ratios; AOR, adjusted odds ratio, odds ratios adjusted by significant background variables (educational level, HIV prevention services utilization in the last six months and HIV serostatus). OR and 95% CI of variables with p < 0.05 were bold.
Moreover, half had travelled to other Chinese cities or other countries for sex work in the last year. Prevalence of CRAIMC while working in other cities was also high. Mobility may create additional challenges for designing HIV interventions for transgender women sex workers in China.

We need to understand the factors associated with CRAIMC in order to design effective HIV prevention programmes. Similar to previous studies on condomless anal intercourse among men who have sex with men (MSM) [27], education level was negatively associated with CRAIMC. Unlike studies of MSM that found 40.7 to 69.6% in Chinese cities had attained university education [28–30], our study with transgender women sex workers found that only 10.9% had a university education. The lower education level may create additional challenges for HIV prevention efforts targeting transgender women sex workers. Similar to previous studies involving female sex workers [31] and those of the two studies that surveyed transgender women sex workers [1,22], we found that a lower price for sexual practices with clients was associated with CRAIMC. About one-third of our participants charged ≤100 RMB per episode of sex. The lower income might result in financial difficulty and lower negotiation power over condom use with male clients. Attention should be given to those with low educational level and/or who charge less for their sex work.

Only 15% of study participants had taken up at least one type of feminizing medical intervention (mostly cosmetic surgeries: 13.2%), and only one had received sex reassignment surgery. It is unknown whether that participant had vaginal sex with male clients. In China, cosmetic surgeries are available at most plastic surgery hospitals nationwide. However, sex reassignment surgery is costly (about 30,000 RMB or 4838 USD) and is unaffordable for many transgender women. Accessibility is extremely low, as it can only be conducted by senior plastic surgeons of major hospitals [12]. Endorsement must be obtained from the applicant’s next of kin, and an official proof of being free from any past criminal offenses has to be issued by local public security offices [12]. Meanwhile, sex work remains illegal in China [32]. We found that participants who underwent feminizing medical interventions were at higher risk of CRAIMC. It was not associated with self-efficacy in condom use with male clients, and its association with CRAIMC was hence not mediated by self-efficacy.

Although perceptions related to condom use, including those derived from the HBM, were associated with condomless anal intercourse in research among male sex workers [24], such factors had not been studied among transgender women sex workers. We found that self-efficacy for consistent condom use with male clients was a protective factor against CRAIMC. About one-third of our participants charged ≤100 RMB per episode of sex. The lower income might result in financial difficulty and lower negotiation power over condom use with male clients. Attention should be given to those with low educational level and/or who charge less for their sex work.

For condom use and address concerns about exposing one’s status as a transgender woman may be important components of HIV prevention.

Another factor, perceived susceptibility for HIV transmission, was of marginal statistical significance; however, it may still be important to increase the perception of HIV transmission risk among transgender women sex workers. Perceived barriers and cue to action (e.g. display of prevention messages at sexual venues) were not significant and strategies based on these factors may not be useful for HIV prevention targeting this population in China.

Although over 90% had received HIV-related services in the last six months, prevalence of CRAIMC was high. Half of all participants did not know their HIV status, indicating much room for improvement in HIV testing and condom promotion strategies. Tailored HIV prevention services for transgender women sex workers are virtually unavailable in mainland China. They may be treated as MSM in the eyes of workers of the CDC, neglecting their unique prevention needs. Barriers for condom use, however, differ between transgender women sex workers and male sex workers. For instance, some circumstances during sex work linked to their transgender identity (e.g. worry about disclosure of transgender status) may create additional risks of CRAIMC. Needs assessments for developing tailored HIV prevention services for transgender women sex workers and their male clients are urgently warranted. Segmentation is a key to success in HIV prevention, according to social marketing principles [33]. We strongly advocate a policy review and training for CDC workers about gender identity and the special needs of transgender women sex workers.

This study has some limitations. Like previous studies [1,13,18–20,34], identity as a transgender woman was self-defined; there is no standard instrument assessing gender identity. Similar to other studies surveying hard-to-reach populations (including transgender women sex workers) [1,14–16], participants were recruited mainly through outreach and referrals. There was no sampling frame, and random sampling was not feasible. Unlike female sex workers, transgender women sex workers tend to recruit their clients via a relatively limited number of venues/channels (such as particular parks and Internet websites). Because we covered most of these areas when recruiting participants, we believe that our sample reflected the overall situation of transgender women sex workers in Shenyang. However, the applicability of study findings to other places in China may be limited. As face-to-face interviews were conducted, social desirability may have caused reporting biases when answering questions regarding HIV status and CRAIMC. This was a cross-sectional study that could not establish causality. In the absence of validated scales, relevant scales were constructed for this study. They demonstrated acceptable internal reliability; however, they have not been externally validated. Moreover, some potentially important factors related to CRAIMC (e.g. social support and subjective norms) were not included in this study. We did not obtain information about whether the male clients had had sex only with men, only with women or with both men and women. Lastly, we did not ask about potentially important sexual practices between transgender
women sex workers and their female clients, as this study mainly focused on CRAIMC.

Conclusions
This study, for the first time, described the complex high-risk situations of transgender women sex workers in mainland China, including the high prevalence of HIV and CRAIMC, high intercity mobility involving sex work and involvement in sexual networks consisting of multiple types of sex partners. Interventions are urgently needed and should target transgender women sex workers with lower education levels and those who charge less for sex work services. Factors unique to transgender women sex workers further increased the risk of CRAIMC, such as feminizing medical intervention and perceived transgender identity's impact on condomless sex. Skills training should be provided to increase self-efficacy in condom use. Further research is warranted to better understand the determinants of CRAIMC and to develop effective intervention programmes.

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Competing interests
The authors declare no conflicts of interest.

Authors' contributions
YC participated in conceptualizing the study, designing the protocol and questionnaires, managing the data collection. TM and YL participated in conceptualizing the study, designing the protocol and questionnaires, providing scientific and management leadership, and drafting and revising the manuscript critically. JTFL participated in conceptualizing the study, designing the protocol and questionnaires, and interpreting the data. ZW participated in designing the questionnaires, analyzing and interpreting the data, and drafting and revising the manuscript critically. YC participated in conceptualizing the study, designing the protocol and questionnaires, and interpreting the data, reviewing the literature and drafting and revising the manuscript. JTFL participated in conceptualizing the study, designing the protocol and questionnaires, and interpreting the data, and drafting and revising the manuscript critically. ZW participated in designing the questionnaires, analyzing and interpreting the data, and drafting and revising the manuscript.

Acknowledgements
The authors would like to thank all the participants in the study.

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Empowering communities and strengthening systems to improve transgender health: outcomes from the Pehchan programme in India

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Abstract

Introduction: Transgender populations face inequalities in access to HIV, health and social services. In addition, there is limited documentation of models for providing appropriately tailored services and support for transgender populations in low- and middle-income countries. This paper presents outcomes of the Global Fund-supported Pehchan programme, which aimed to strengthen community systems and provide HIV, health, legal and social services to transgender communities across 18 Indian states through a rights-based empowerment approach.

Methods: We used a pre- and post-intervention cross-sectional survey design with retrospective analysis of programmatic data. Using stratified sampling, we identified 268 transgender participants in six Indian states from a total of 48,280 transgender people served by Pehchan through 186 community-based organizations. We quantified the impact of interventions by comparing baseline and end line indicators of accessed health, social and legal services. We also assessed end line self-efficacy and collective action with regard to social support networks.

Results: There were significant increases in community-based demand and use of tailored health, legal, social and psychological services over the time of the Pehchan programme. We report significant increases in access to condoms (12.5%, \( p < 0.001 \)) and condom use at last anal sex with both regular (18.1%, \( p < 0.001 \)) and casual (8.1%, \( p < 0.001 \)) male partners. Access to HIV outreach education and testing and counselling services significantly increased (20.10%, \( p < 0.001 \); 33.7%, \( p < 0.001 \)). In addition, significant increases in access to emergency crisis response (19.7%, \( p < 0.001 \)), legal support (26.8%, \( p < 0.001 \)) and mental health services (33.0%, \( p < 0.001 \)) were identified. Finally, we note that the Pehchan programme successfully provided a platform for the formation, collectivization and visibility of peer support groups.

Conclusions: The Pehchan programme’s community involvement, rights-based collectivization and gender-affirming approaches significantly improved both demand and access to tailored HIV, health and social services for transgender individuals across India. Furthermore, the Pehchan programme successfully fostered both self-efficacy and collective identity and served as a model for addressing the unique health needs of transgender communities. Continued strengthening of health, social and community systems to better respond to the unique needs of transgender communities is needed in order to sustain these gains.

Keywords: Transgender; Hijra; Community; HIV; India.

Introduction

Transgender populations in low-, middle- and high-income countries face inequality of access to HIV and health services [1]. In India, the estimated prevalence of HIV at the national level is 0.31% [2], whereas HIV prevalence in the transgender population is estimated to be 8.2% [2]. While the HIV prevalence and incidence data among transgender populations differ, a constellation of factors at the individual, community and structural levels determine these patterns.

At the individual level, and similar to other populations, unprotected sexual exposure and sex work, as well as multiple casual sexual partners, can contribute to HIV risk [3,4]. Hormone injecting has also been associated with HIV exposure among transgender populations [1]. Similar to other populations, transgender people often lack adequate knowledge regarding HIV transmission [5,6] and in India, they may also have high levels of sexually transmitted infections (STIs) that could contribute to HIV transmission [7].

At the interpersonal and community levels, transgender populations often experience high levels of both perceived and internalized social stigma [8,9], social isolation, discrimination and victimization [10]. Extreme social exclusion and lack of acceptance of transgender populations in different settings diminishes their self-esteem and ability to participate
in social events [11]. These situations often lead to symptomatic psychological distress, depression, anxiety and other mental health difficulties among this population [9,12–14]. Social victimization may occasionally contribute to poor sexual health and unhealthy use of alcohol among this group, for example in India [10].

Structural factors also contribute to poor health and HIV risk among transgender populations. Healthcare for transgender populations is limited due to stigma among health professionals [15] and within health facilities [16]. In many contexts, medical training excludes transgender health [17] and, as a result, health professionals lack the appropriate skills and competencies to provide tailored services to transgender populations [17,18].

In India, poverty and economic exclusion contribute to livelihood deprivation among transgender persons [19], and prevent their access to sex-reassignment surgery for gender transition and other healthcare services [20,21]. As a result, an estimated 20% of the transgender population in India has unmet transgender-specific healthcare needs [22]. Additionally, economic marginalization has also meant that 20 to 30% of transgender populations in India engage in begging or sex work as their primary occupation [21]. Yet criminalization of sex work combined with aggressive policing has often resulted in violence directed towards this population in India and globally [21,23].

While the provisions for a “third gender” status made in a 2014 Supreme Court ruling may have been perceived as securing transgender rights, a third gender status is not universally accepted across India. Furthermore, legislative discrimination persists, as transgender rights remain suppressed by Section 377 of the Indian Penal Code, which criminalizes same-sex relations [24]. Yet there is an urgent need for a rights-based approach to address HIV and health needs among the transgender population [1], especially in light of the current global [25] and Indian [26] commitment to achieve sustainable control of the HIV epidemic.

To this end, it is critical to identify ways in which HIV services in India can be readjusted to adequately address the needs of the transgender population. Yet there is very limited documentation on effective models for providing tailored health, social and legal protection services to transgender populations, especially in low- and middle-income settings [27]. Nevertheless, aspects of models from high-income settings could be replicated at the community level in low- and middle-income settings. For instance, in the United States, two studies demonstrated that community-based outreach, social inclusion and peer support successfully mitigated social stigma and psychological distress and generally improved health outcomes among transgender individuals [9,13]. This paper documents outcomes from the Pehchan programme, which has been providing HIV, health, legal and social protection services to transgender communities across 18 Indian states through a rights-based and empowerment approach.

Methods

Intervention origin and description

In India, the Pehchan programme aims to increase access to health, social and legal services through community-based and peer-led social support systems that encourage gender-affirming empowerment. Pehchan serves the men who have sex with men (MSM), transgender and hijra communities. In this study, transgender is used an umbrella term that also includes hijra persons, a South Asian subgroup of the transgender community. In Hindi, pehchan means “identity,” “recognition” or “acknowledgement.” The origin of the programme dates back to March 2008 when a group of eight Indian community activists – including one transgender and one hijra – met to discuss the opportunity for a large-scale programme by and for their own communities to complement the Indian government’s services. Pehchan is financed by the Global Fund to Fight AIDS, Tuberculosis and Malaria and is the largest single-country global fund grant focusing on vulnerable and underserved sexual minorities to date. The programme began in October 2010 and has strengthened the capacity of 200 community-based organizations (CBOs) to provide tailored HIV services. By August 2015, the programme had reached more than 433,000 community members, 60% of whom had never been reached by HIV prevention services before. The programme itself was developed through a process of consultation involving a consortium of partners, community leaders, the government of India’s National AIDS Control Organization (NACO) and State AIDS Control Societies, and the Global Fund, among other stakeholders. The India HIV/AIDS Alliance was chosen as the principal recipient (PR) by the leaders of transgender communities and has worked closely with the programme’s regional sub-recipients (SRs) – Humsafar Trust, Pehchan North Region Office, SAATHI, SIAAP, Sangama and AIAP – and 200 sub-sub-recipients (SSRs) spread over the 18 states to implement the programme.

Specific components and activities

Pehchan provides three broad categories of activities. The first category of activities focuses on improving the organizational and technical capacity of CBOs working with transgender communities. Using a capacity-building approach [28], the programme strengthens the community mobilization, leadership, programming, planning, monitoring and budgeting capacity of CBOs, enabling them to participate more effectively in the delivery of targeted interventions as per the national guidelines, to prevent HIV among high-risk groups and support those who are HIV positive to get linked to care. By helping build strong CBOs, Pehchan addresses capacity gaps that often prevent such organizations from effectively contributing to community-based HIV prevention in many contexts [29,30]. The second category of activity is support to CBOs to provide a range of basic community-based prevention and linkage to care interventions, as defined by and as defined by India’s National AIDS Control Program. To ensure that the programme was sensitive to the needs of transgender persons, the programme facilitated the participation of transgender representatives at every level. For instance, a transgender professional was leading the programme as national manager, and transgender persons were recruited as staff across organizations serving as PR, SR and almost all SSRs. In addition, transgender persons were engaged in preparing and delivering all the capacity building, research and communication activities, alongside other subject matter experts.
This way, transgender communities defined what services were most needed and in what way they should be provided to transgender communities.

These interventions include behavioural change communication such as outreach-based interpersonal communication through peers, educational materials, closed Facebook page, media posters and facility-based one-on-one counselling. These communications provide counselling and information on safe sex, STIs, condom use, HIV testing and, in addition, ART adherence to transgender individuals living with HIV. The third category relates to the creation of a supportive environment for transgender communities. This extended package of services includes legal support, support for accessing social entitlements, identity, mental health and psychosocial counselling, relationship counselling, life skills, community-based group mobilization and empowerment, advanced crisis and trauma management, family support and counselling related to sexual and reproductive health.

Theoretical basis of intervention
This intervention was based on a self-efficacy framework. Self-efficacy is a concept that captures people's beliefs and actual ability to thrive in different, potentially difficult social situations. It can be improved based on a person's experiences and gained competencies [31]. It has therefore been employed by scholars such as Cicogna et al. [32] and Tsang [33] to understand the processes through which empowerment and collective bargaining power can be enhanced so as to enable people to overcome social stressors and have better control and influence over their own circumstances. Community mobilization, collectivization and empowerment strategies have been shown to empower marginalized sexual minorities [34–36].

While community mobilization is often a loosely applied term, authors emphasize that in this programme it encompassed wider principles of involvement in or influence on the design, implementation and quality monitoring of the programme, and not merely a local grouping of marginalized transgender communities. More specifically, and in this project, the concept of community involvement was operationalized through staff recruitment policies, engagement of communities in technical areas and in a feedback mechanism though a community advisory board. The community advisory board included transgender representatives who were not directly employed by the programme, to provide quarterly feedback regarding Pehchan services. This concept recognizes that health experiences and outcomes are often influenced by the ability of individuals to demand services, which is in turn influenced by self-efficacy and collective action to overcome social and structural barriers to services.

Evaluation methodology

Design
To evaluate the impact of the Pehchan interventions, we used a pre- and post-intervention cross-sectional design with retrospective analysis of programmatic data. We conducted an end line survey in 2015 and compared the findings to those of the baseline survey conducted in 2011, the findings of which have been reported elsewhere [37,38]. Both the baseline and end line surveys were similar in content and followed similar protocols in participant recruitment but did not include the exact same participants. We adopted a quantitative design to track changes in key indicators over time.

Sampling procedure
We employed a stratified systematic random sampling to identify 268 transgender participants from a total population of 48,280 transgender clients in the six states (covered by 112 CBOs): Andhra Pradesh and Telangana, Karnataka, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal.

Sample size was calculated to detect a minimum required difference in key indicators between baseline and end line surveys at 80% power and a 95% two-sided confidence level of 0.05. We accounted for a design effect of 1.5 for multistage sampling and estimated 5% for no response or invalid responses. A primary programme indicator on which the sample size was calculated was a 4% increase in the percentage of respondents using condoms during last sex with men. We stratified based on gender identity and age in programme sites; to capture differences among minority transgender populations, we determined that at least 30% of the respondents had to be transgender individuals.

We determined the extent of Pehchan coverage by assessing the numbers of transgender people accessing services from a comprehensive list of CBOs in each state. We then used a probability proportional to size sampling method to determine the required number of districts to include in our study.

Sampling procedure

While our end line structured questionnaire retained key elements of the baseline questionnaire [37,38], we expanded the questions on community mobilization and sexual behaviour and introduced questions on programme exposure and collective efficacy. The end line questionnaire focused on the sociodemographic characteristics of respondents, their sexual behaviour including condom use patterns, access and results of HIV testing services, experiences of stigma and discrimination, awareness of Indian Penal Code Section 377, instances of abuse, community and police violence or harassment, collective action and efficacy, exposure to the Pehchan programme, awareness and access of interventional services and biological feminization. Representatives from the CBOs were involved in finalizing the study protocols and preparing research tools and fieldwork plans, as well as field data collection. The structured questionnaire had both open-ended and closed questions to capture qualitative information, as well as built-in checks to ensure the reliability and validity of the data.
Questionnaires were translated into six local languages (Bengali, Hindi, Kannada, Marathi, Tamil and Telugu) by local research assistants, using a standard forward-backward procedure to preserve intended meanings and cultural appropriateness. The translated versions were used for a three-day training of field teams in the study states, which covered the study objectives, methodology, meanings of the terms used in the study, confidentiality, questionnaire explanation, and recording and validating of questionnaire responses. Translations and question routing were assessed during piloting and amendments were made.

**Data collection and management**

We used accompaniment and spot checks in the field to assure the quality of data collection. In accompaniment, the supervisor attended the interview to observe that the interviewer was asking questions exactly as written and in the same sequence. In the spot checks, the supervisors and the field-based project manager visited the interview site to ensure that interviewers were conducting interviews in identified secure locations and with the selected respondents following the fieldwork plan. Data were checked for completeness and logic to minimize data entry errors.

**Questionnaire interview procedures**

Participants were approached at the CBOs, informed of the purpose of the survey and invited to participate. After consenting, the questionnaire was administered to respondents face-to-face by local trained researchers. In all cases, interviews were conducted in a private room at the CBO or at drop-in centres operated by the CBOs. Each interview lasted 45 to 60 minutes. To complement survey data, we used tally records of services provided by CBOs to extract relevant programme data.

**Data analysis**

Survey and CBO programme data were manually checked for completeness and entered into CSPro software, which has built-in scrutiny checks to minimize data entry errors. These data were then electronically imported into SPSS v17.0 for analysis. We used descriptive analyses to examine participant characteristic and service access and association analyses to assess the differences between baseline and end line findings.

**Ethical considerations**

During this study, we used appropriate approaches for obtaining informed consent and safeguarding privacy and confidentiality [41]. In particular, the researchers explained the purpose of the study; participants were informed of their right to end the interviews at any stage and were provided with the contact information of the principal investigators for questions or concerns. The researchers were trained to conduct interviews with respect for the dignity of the respondents. Apart from travel expenses and light refreshments during the interviews, no incentives were provided. Participants were specifically recruited through CBOs already working with sexual minorities, which mitigated potential concerns related to personal identification and stigma. All personally identifiable data were deleted. Ethical approval was obtained from the Sigma Institutional Review Board (ref: 10004/IRB/D/15–16).

**Results**

**Survey participant characteristics**

A total of 268 transgender participants were included in the end line survey. The mean age was 28 years of age, 20% were involved in sex work and 27%, mainly hijras, were living communally (Table 1). These characteristics are compared with the findings from transgender participants in the baseline survey, which have been reported elsewhere [37,38].

**Increased access and use of tailored sexual and reproductive health services**

All measures of access to and use of sexual and reproductive health services indicate significant increased access and use from baseline to end line (Table 2). Through July 2015, 9587 transgender clients, including 4028 hijra individuals, had been provided with STI treatment, an increase of 47.8% since baseline. Overall, 1,977,932 condoms were provided to transgender and 1,593,721 to hijra clients through outreach-based distribution and access to condoms and condom use increased during this time. Finally, the data demonstrate a significant increase in access to information and services related to sex reassignment, such as hormone use and surgery.

**HIV testing and counselling**

Our data indicate that the Pehchan programme increased the proportion of transgender individuals reached with HIV-related education, referred to testing and provided with ART adherence counselling (Table 3). HIV testing in transgender communities increased 33.7% (p < 0.001) over the study period and, by July 2015, a total of 34,087 for transgender clients, including 11,547 hijra were referred to counselling and testing services and 48,280 transgender clients, including 16,015 hijra, received outreach-based education for behavioural changes that reduce HIV risk. In the end line survey, almost all participants were offered HIV education (94.8%) and had been referred for HIV testing and counselling (93.9%). A total of 28,493 HIV tests were provided to transgender and hijra clients and 583 clients were identified as seropositive.

**Increased access to legal and psychological services and advocacy training**

Due to high levels of arrest, extortion, violence and harassment experienced by the transgender population [38], interventions to mitigate these experiences were a central part of Pehchan. Demand for legal and psychological services was high and increased over the survey time period (Table 4). By July 2015, 48,280 transgender clients had used services related to the emergency crisis response, legal support, and empowerment and advocacy training to empower and increase self-advocacy skills. Services used also included counselling for those with symptoms of depression, anxiety or post-traumatic stress following violence, police arrests or other harassment. We also noted a significant increase in access to drop-in centres, which play a particularly important role by bringing the programme beneficiaries together, creating opportunities to share problems, collaborate on potential solutions, and form alliances for collective action.
Access to social protection
In relation to social protection, the programme facilitated the provision of various social entitlements, documents and amenities that are provided by the government, such as a ration card (a document needed for accessing food rations from the public distribution system), Aadhaar card (a newly introduced identity card also used for many bank and government benefits), benefits card for those below the poverty line, bank account, voter identity card, Permanent Account Number Card, passport and social insurance. Survey data showed that the programme improved access to these entitlements, although data related to whether these entitlements were provided with their names given at birth or new preferred names were not collected. Overall, when asked if Pehchan had facilitated their access to these amenities, 4182 participants reported accessing social entitlement services with the support of the Pehchan programme by the end of July 2015.

Self-efficacy and collective action
By the end of July 2015, a total of 2218 transgender-run community peer support groups were operational.

Table 1. Characteristics of transgender participants in the baseline and end line surveys

| Characteristic                | Baseline (n = 277) | End line (n = 268) | χ² test statistic | p    |
|------------------------------|-------------------|-------------------|------------------|------|
| Mean age (years)             | 30.05 ± 9.4       | 28.45 ± 7.3       | −2.282(t)        | 0.023|
| Education                    |                   |                   |                  |      |
| Illiterate                   | 57 (21)           | 47 (18)           | 0.82             | 0.37 |
| Primary school               | 39 (14)           | 91 (34)           | 29.63            | <0.001|
| Secondary school             | 146 (53)          | 108 (40)          | 8.43             | <0.001|
| Graduate and above           | 35 (13)           | 22 (7)            | 2.85             | 0.09 |
| Vocational training          | 0 (0)             | 58 (22)           |                  |      |
| Main occupation              |                   |                   |                  |      |
| Salaried job                 | 32 (12)           | 28 (10)           | 0.17             | 0.68 |
| Unemployed                   | 9 (3)             | 58 (21)           | 46.97            | <0.001|
| Student                      | 14 (5)            | 12 (4)            | 0.1              | 0.75 |
| Labourer                     | 5 (2)             | 31 (11)           | 21.04            | <0.001|
| Self-employed                | 15 (5)            | 7 (3)             | 2.76             | 0.10 |
| Other trade                  | 3 (1)             | 9 (4)             | 3.27             | 0.07 |
| Dancer                       | 83 (30)           | 30 (11)           | 29.2             | <0.001|
| Sex work                     | 153 (55)          | 53 (20)           | 72.84            | <0.001|
| Other                        | 11 (4)            | 8 (4)             | 0.39             | 0.53 |
| Monthly income (in INR)      |                   |                   |                  |      |
| Less than 3000               | 82 (31)           | 57 (22)           | 23.5             | <0.001|
| 3001 to 6000                 | 104 (39)          | 77 (30)           |                  |      |
| 6001 to 10,000               | 39 (15)           | 79 (30)           |                  |      |
| More than 10,000             | 37 (14)           | 48 (18)           |                  |      |
| Mobile phone ownership       | –                 | –                 | 244 (91%)        |      |
| Immigrant                    | 213 (77)          | 62 (24%)          | 157.49           | <0.001|
| HIV testing status           | 220 (79)          | 257 (96)          | 33.85            | <0.001|
| Living situation             |                   |                   |                  |      |
| Living alone                 | 70 (25)           | 54 (20)           | 2.03             | 0.15 |
| Cohabiting                   | 37 (13)           | 15 (6)            | 9.5              | <0.01 |
| Living with spouse           | 0 (0)             | 4 (1)             | –                |      |
| Living with parents          | 48 (17)           | 113 (42)          | 40.37            | <0.001|
| Communal                     | 106 (38)          | 77 (27)           | 5.55             | 0.02 |
| Living with relative         | 4 (1)             | 10 (4)            | 2.85             | 0.09 |
| Substance use                |                   |                   |                  |      |
| Alcohol                      | 178 (64)          | 147 (55%)         | 5.01             | 0.03 |
| Tobacco                      | 22 (8)            | 117 (44%)         | 91.45            | <0.001|
| Stimulants                   | 0 (0)             | 13 (5%)           | –                |      |
| Opioids                      | 4 (1)             | 3 (1%)            | 0.11             | 0.74 |

INR, Indian rupee.
average time of participation by the end line survey was two years. In relation to self-efficacy, these data suggest that over half of these peer-support group members felt confident going to a health facility even if their identity was known, and over 63% felt confident getting tested for HIV at least once every six months at a government facility. Although this component was not collected in the baseline survey, results from the end line survey suggested high levels of confidence in collective action in cases of police arrest and intimate partner violence (Table 5).

**Discussion**

Our data demonstrate that the community-based and client-centric approaches of the Pehchan programme significantly increased access to a range of tailored health, HIV, psychological, social and legal services for transgender populations. By focusing on sexual minorities, the Pehchan programme could more effectively address the individual-level stigmas and interpersonal-level stigmas associated with the transgender population. While a corpus of evidence demonstrating that collectivization, empowerment and community mobilization are effective in increasing access to services for marginalized sexual minorities [34,36,42,43], studies among transgender populations are limited. This study makes a significant contribution to the literature in this regard. The key strength of this study is the inclusion of both programmatic and large survey data from significantly diverse districts and states, all of which demonstrate the positive impact of the programme.

The Pehchan programme relied on community involvement for the programme design and implementation. By using community-led feedback mechanisms, Pehchan mitigated some of the common concerns regarding operationalization of programmes that are based on a premise of community ownership, mobilization and agency [44], in which community involvement tends to be tokenistic, or simply not focused enough on specific minority groups to have an impact [34]. The Pehchan programme is unique in incorporating true community involvement at programme inception, design, implementation, administration and change over time.

While more detailed and longitudinal data related to the extent to which agency was increased would be useful, our survey respondents reported high levels of confidence individually and collectively in seeking services and acting collectively in defence of their rights. Evidence from other settings suggests that collective agency is associated with better access to STI services in MSM and transgender people in India [35] and increased condom use in sex workers in India [45]. Creation of peer support groups is an important avenue for enhancing collective efficacy and has been shown to increase positive behaviours in sex workers [46] and enhance the collective ability of people living with HIV to challenge and cope with stigma [47]. In conjunction with the limited previous studies, our data emphasize the importance of peer-support groups for transgender populations. Other scholars have also called for support groups for transgender populations [48], particularly given the synergistic impact that poor resilience, coping and lack of social support have on sexual risk among transgender individuals [10].

Experience from Pehchan suggested an evolution of the utility of collectivization approaches. Initially there was a high need for visibility, which was achieved through peer support groups and events such as “Hijra Habbas” (literally meaning “coming together of hijras,” with a festive connotation). These collectivization platforms later served as advocacy and convening platforms where the transgender people and hijras were able to secure an audience with and express their situations to important stakeholders, including the Minister of Social Justice and Empowerment, Secretary of Health, Commissioner of Human Rights, and representatives from law enforcement, NACO, UNAIDS, and other development partners.

**Table 2. Access to sexual and reproductive health services**

| Indicator                                         | Baseline, % (n = 277) | End line, % (n = 268) | Net change, % | $\chi^2$ test statistic | $p$  |
|---------------------------------------------------|-----------------------|-----------------------|---------------|--------------------------|------|
| Access to condoms                                 | 82.3                  | 94.8                  | 12.5          | 20.7                     | <0.001|
| Condom use during last anal sex (regular male partner) | 70.1                  | 89.0                  | 18.1          | 30.57                    | <0.001|
| Condom use at last anal sex (non-regular male partner) | 84.4                  | 92.5                  | 8.1           | 8.66                     | <0.001|
| Access to lubricants                              | 61.4                  | 80.4                  | 19.0          | 23.34                    | <0.001|
| Access to STI treatment                           | 31.0                  | 78.8                  | 47.8          | 124.9                    | <0.001|
| Sexual reassignment health services for female partners | 15.5                  | 48.6                  | 33.0          | 68.4                     | <0.001|
| Sex reassignment surgery information              | 30.3                  | 61.7                  | 31.3          | 53.58                    | <0.001|

**Table 3. Comparison in HIV testing between baseline and end line surveys**

| Indicator                                         | Baseline, % (n = 277) | End-line, % (n = 268) | Net change, % | $\chi^2$ test statistic | $p$  |
|---------------------------------------------------|-----------------------|-----------------------|---------------|--------------------------|------|
| Reached with HIV education through outreach        | 74.7                  | 94.8                  | 20.1          | 41.99                    | <0.001|
| Referred for HIV testing and counselling           | 59.2                  | 93.9                  | 33.7          | 91.43                    | <0.001|
| Receiving ART adherence counselling if on ART      | 32.9                  | 41.8                  | 7.9           | 4.66                     | 0.297|
Table 4. Access to legal, emergency and psychological services

| Indicator                                      | Baseline, % (n = 277) | End line, % (n = 268) | Net change, % | $\chi^2$ test statistic | p    |
|------------------------------------------------|------------------------|------------------------|---------------|--------------------------|------|
| Access to emergency crisis response            | 48.7                   | 68.4                   | 19.7          | 19.08                    | <0.001|
| Access to legal support                        | 38.9                   | 65.7                   | 26.8          | 33.17                    | <0.001|
| Empowered with advocacy skills for services     | 42.9                   | 77.9                   | 35.0          | 59.54                    | <0.001|
| Access to mental health support                | 43.7                   | 77.2                   | 33.0          | 53.95                    | <0.001|
| Access to drop-in and safe centres             | 57.0                   | 76.9                   | 19.9          | 24.04                    | <0.001|

Another important aspect of the Pehchan programme interventions is related to the differentiation of hijra from the transgender communities, both in terms of programmatic focus as well as socio-economic context. While these communities are often assumed to share a common social identity and community practices, the hierarchy within the hijra system works as a potential obstacle to the self-determination and autonomy of individuals within the system [49]. Thus, treating them as distinct communities in terms of identity and sexual risks was a central part of the programme.

At the structural level, our findings have important implications for informing how health systems can be strengthened to ensure access to a range of services specific to the transgender population needs, such as services related to sex reassignment and biological feminization, including hormone use and removal of the penis and/or testes. Given the convergence of multiple issues among transgender populations such as poor mental health, STIs, HIV, alcohol use and gender violence, appropriate health interventions should be a priority for health systems and services. Experience from our programme indicates that even simple operational procedures were a challenge to healthcare providers, who sometimes did not know to which ward they should admit or refer transgender females. Similarly, our findings suggest that social security and public entitlement programmes need to increasingly focus on ensuring equitable access to services by transgender populations.

While our results suggest that the intervention had positive impact, we note that, in keeping with minority stress theories, optimal impact of services for marginalized populations is often achieved when services are combined with policy interventions [50]. While inclusion of legal support mitigated structural factors of vulnerability of transgender clients, changing the legal and legislative framework to decriminalize sexual practices among transgender populations would contribute to reducing their exposure to violence and harassment.

In interpreting the findings, the limitations of our study should be noted. As indicated in some of the results, not all participants responded to all the questions. In addition, the generalizability of our findings to other settings might be limited due to differences in culture, epidemiology, religion and other social aspects. Nevertheless, the study provides useful information related to the provision of tailored, community-based services. Because the Pehchan programme was not providing all potential services, some of the data collected were about referral rather than actual utilization of services. Data related to collective efficacy were not collected in the baseline survey, which limits our ability to quantify the intervention. However, these findings form a starting point on which further research can be built. We acknowledge the lack of application of regression methods to limit confounding of observed effects. However, our analysis was primarily aimed at highlighting differences between baseline and end line samples, rather than identifying independent predictors of such changes. Finally, the baseline and end line samples did not constitute the exact same participants. This is a limitation of the extent to which individual-level impact can be claimed, as it introduces potential for confounding and artefactual impact resulting from sampling variation. However, our

Table 5. Self-efficacy and collective action of transgender respondents in the end line survey

| Indicator                                                                 | Proportion, % |
|---------------------------------------------------------------------------|---------------|
| Respondents who were willing to seek health services from a government clinic where health workers were aware of their transgender identity | 58            |
| Respondents who were confident that they would take an HIV test regularly (once in six months) at a government facility | 63            |
| Respondents who believed that “most or all” transgender people and hijra would work together to address a problem of transgender people | 74            |
| Respondents who were confident that transgender participants or CBOs can speak collectively for the rights of transgender people | 83            |
| Respondents who were confident that transgender participants or CBOs can work together or keep each other from harm | 79            |
| Respondents who participated in a public event in the last six months where they could be identified as transgender | 58            |
| Respondents who were helped by other transgender participants or CBO when they were last arrested | 61            |
| Respondents who were helped by transgender peers or CBO when their partner became violent | 46.4          |

CBO, community-based organization.
sampling from larger transgender communities served by the programme provides useful data related to the efficacy of the programme in those communities.

Conclusions

The community-based, client-centric and gender-affirming approaches employed by the Pehchan programme significantly improved the demand for and access to tailored health, HIV, psychological, social, and legal services for transgender people. Community involvement and collectivization approaches strengthened self- and collective efficacy and identity of transgender communities and are greatly needed to address the unique needs of this marginalized group. Furthermore, structural changes in the legal and legislative framework to decriminalize sexual practices among transgender populations are a priority. The global 90-90-90 goals of controlling the epidemic [25] cannot be achieved unless the HIV and health needs of transgender populations are addressed through an inclusive, rights-based approach.

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Competing interests

The authors declare no conflict of interests.

Authors’ contributions

SS, SM and JR were involved in designing the study and programme. VA and NM analyzed and interpreted the data. SS and GM drafted and revised the manuscript. SM, AA and JR edited and provided critical input to the manuscript. All authors reviewed and approved the final manuscript. The views expressed in this paper are entirely those of the authors and do not necessarily represent the views of the authors’ organizations.

Acknowledgements

The authors thank the survey participants from India’s transgender and hijra community, Cadence International for its assistance with design and execution of the survey protocol, and colleagues from Humsafar Trust, Pehchan North Region Office, SAATHI, SIAAP, Sangama, Alliance India Andhra Pradesh, and the 200 CBOs that have successfully implemented Pehchan since 2010.

Funding

The Pehchan programme was financed through a grant from the Global Fund to Fight AIDS, Tuberculosis, and Malaria.

Disclaimer

The views expressed here do not reflect those of the Global Fund to Fight AIDS, Tuberculosis, and Malaria.

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Transgender women, hormonal therapy and HIV treatment: a comprehensive review of the literature and recommendations for best practices

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Abstract

Introduction: Studies have shown that transgender women (TGW) are disproportionately affected by HIV, with an estimated HIV prevalence of 19.1% among TGW worldwide. After receiving a diagnosis, HIV-positive TGW have challenges accessing effective HIV treatment, as demonstrated by lower rates of virologic suppression and higher HIV-related mortality. These adverse HIV outcomes have been attributed to the multiple sociocultural and structural barriers that negatively affect their engagement within the HIV care continuum. Guidelines for feminizing hormonal therapy among TGW recommend combinations of oestrogens and androgen blockers. Pharmacokinetic studies have shown that certain antiretroviral therapy (ART) agents, such as protease inhibitors (Pis), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and cobicistat, interact with ethinyl estradiol, the key oestrogen component of oral contraceptives (OCPs). The goal of this article is to provide an overview of hormonal regimens used by TGW, to summarize the known drug-drug interactions (DDIs) between feminizing hormonal regimens and ART, and to provide clinical care recommendations.

Methods: The authors identified English language articles examining DDIs between oestrogen therapy, androgen blockers and ART published between 1995 and 2015 using PubMed, Cumulative Index to Nursing and Allied Health Literature and EBSCOhost.

Results and Discussion: Published articles predominantly addressed interactions between ethinyl estradiol and NNRTIs and PIs. No studies examined interactions between ART and the types and doses of oestrogens found in feminizing regimens. DDIs that may have the potential to result in loss of virologic suppression included ethinyl estradiol and amprenavir, unboosted fosamprenavir and stavudine. No clinically significant DDIs were noted with other anti-retroviral agents or androgen blockers.

Conclusions: There are insufficient data to address DDIs between ART and feminizing hormone regimens used by TGW. There is an urgent need for further research in this area, specifically pharmacokinetic studies to study the direction and degree of interactions between oral, injectable and transdermal estradiol and ART. Clinicians need to be vigilant about possible interactions and monitor hormone levels if concerns arise. More research is also needed on the provision of hormone therapy and gender-affirming care on the long-term health outcomes of HIV-positive TGW.

Keywords: hormones; transgender; HIV; antiretroviral therapy.

Introduction

HIV prevalence among transgender women

Transgender individuals are those whose gender identities and/or gender expression do not fully align with their assigned sex at birth. Many cultures around the world recognize transgender people using varied terms such as “Kathoeys” in Thailand [1]; “Hijras” in India, Bangladesh and Pakistan [2–4]; “Warías” in Indonesia [5]; the “Rae Rae’s” and “Mahu’s” in French Polynesia [6]; and “Travestis” of Latin America [7]. Currently, there are no national-level estimates of the prevalence of transgender identity for any country, although India, Bangladesh, Nepal and Pakistan have recently added a third gender option to the census. Approximately 0.5% of adults (aged 18–64) who participated in the Massachusetts Behavioral Risk Factor Surveillance System self-identified as transgender when a gender identity question was included in the survey [8]. The lack of inclusion of gender identity in national census data in most countries means that the true size of the transgender population is unknown, confounding public health efforts to fully understand the extent of HIV burden within these populations.

Despite the fact that few countries use HIV surveillance methods that permit the identification of transgender people, global estimates have demonstrated an increased HIV burden among transgender women (TGW), with a pooled HIV prevalence of 19.1%, and an odds of HIV among transwomen 48 times that of the general population [9]. Although limited data exist on HIV incidence, two studies demonstrate incidence among TGW of 3.4 to 7.8 per 100 person-years, placing them as the group at highest risk for HIV infection [10,11].
TGW and the HIV continuum of care

TGW face a complex array of psychosocial challenges that complicate their access and adherence to HIV care, such as limited access to and avoidance of health care because of stigma and past negative experiences with providers, prioritization of gender-related health care and concerns about adverse interactions between antiretroviral therapy (ART) medications and hormone therapy [12,13]. Social and economic marginalization because of transphobia (negative societal attitudes towards transgender persons) often result in poverty and unstable housing, familial alienation, limited formal education, limited social support, mental illness, trauma and victimization, substance abuse and introduction to sex work often at an early age [14–20]. These factors can result in late or no presentation to HIV medical care and poor health outcomes [21].

Data on the HIV care continuum among TGW are limited because both informational and institutional erasures render many TGW invisible in data collection and research [22]. HIV testing rates reveal that many HIV-positive TGW are less likely than the general population to be aware of their HIV status despite their elevated HIV risk [23]. Melendez et al. also showed disparities with ART at one clinical site, with fewer TGW (59%) than non-transgender people (82%) taking ART [24]. Even when receiving ART, TGW have been shown to be significantly less likely to report optimal adherence [25]. A study examining community viral load in San Francisco revealed that TGW had a higher community viral load, almost three times compared to non-transgender persons, consistent with low rates of ART [26]. A study evaluating the care continuum among newly diagnosed TGW in San Francisco revealed that 77% reported being linked to primary care within three months of their HIV diagnosis, 65% were taking ART, but only 44% were virologically suppressed (viral load <200 copies/mL) [27]. This last study likely represents a “best-case scenario” because many TGW may not be engaged in care [13], but the indicators still fall short of the UNAIDS 90-90-90 targets [28].

Hormone therapy for TGW

Hormone therapy is one aspect of gender-affirming care that is utilized as part of medical transition. Gender affirmation in clinical settings goes far beyond hormones and includes the creation of a welcoming environment, including the use of patients’ preferred names and pronouns and providers who are knowledgeable about transgender health issues [29]. The desire for gender-affirming health care, such as hormone therapy, is a critical factor that may both serve as an adjunct to and require special considerations for effective engagement in HIV medical care. Anecdotal reports from health care providers indicate that hormone treatment can be an incentive for TGW to seek and adhere to ART [30].

The goal of feminizing hormone therapy is to induce the secondary sex characteristics of the affirmed gender and to reduce the sex characteristics of the individual’s natal sex. For TGW, feminizing regimens usually involve the use of an androgen blocker in addition to oestrogen, with many regimen options available, as outlined in Table 1. Feminizing hormonal regimens result in favourable effects, including breast growth, softening of the skin, slowing of androgenetic hair loss and fat redistribution, however will not have an effect on beard hair or voice, for which electrolysis/laser treatment and voice therapy are recommended [31,32].

In the United States, spironolactone, a mineralocorticoid receptor antagonist with anti-androgen properties, is most frequently used for androgen blockade [31]. Cyproterone acetate and gonadotropin-releasing hormone (GnRH) agonists are the androgen blockers most frequently used in Europe [33,35]. Oestrogen may be administered by oral, intramuscular or transdermal routes [31]. The World Professional Association of Transgender Health recently published the latest recommendations for the health of transsexual, transgender and gender non-conforming people, and these

| Table 1. Examples of oestrogens, androgen blockers, routes and dosing used in feminizing hormone regimens |
|-----------------------------------------------|-----------------------------------------------|
| **Hormone**                                  | **Route**                                    | **Dose**                                      |
| Estradiol/estradiol valerate                  | Oral or sublingual                           | 2–8 mg daily                                 |
| Estradiol valerate                            | Intramuscular                                | 20–40 mg every 2 weeks                       |
| Estradiol cypionate                           | Intramuscular                                | 2 mg every week or 5 mg every 2 weeks        |
| Estradiol gel Topical                         | Topical                                      | 0.75 mg two to three times daily             |
| Estradiol patch transdermal                   | Transdermal                                  | 25–400 μg                                    |
| Conjugated equine oestrogens (not recommended – see text) | Oral                                         |                                                |
| Ethynil estradiol (not Recommended – see text) | Oral                                         |                                                |
| **Anti-androgen**                             |                                              |                                                |
| Spironolactone                                | Oral                                         | 50–400 mg daily                              |
| Finasteride                                   | Oral                                         | 2.5–5 mg daily                               |
| Cyproterone acetate                           | Oral                                         | 50–150 mg daily                              |
| Goreselin                                     | Subcutaneous                                 | 3.6 mg/month or 11.25 mg/3 months            |
| Leuprolide acetate                            | Intramuscular                                | 3.75 mg/month                                |

Sources: Adapted from Royal College of Psychiatrists [33], Hombre et al. [31] and the Blueprint for the provision of comprehensive care for trans people and trans communities in Asia and the Pacific [34].
guidelines are widely used in the USA and internationally [32]. Several countries have also published their own guidelines, to reflect the local availability and acceptability of hormonal formulations as summarized in Table 2.

**Utilization of feminizing hormonal therapy among TGW**

The proportion of TGW who opt to start hormones varies significantly across countries because of the availability of oestrogens and androgen blockers, cost and whether these are available only through medical sources or without prescriptions. In addition, some TGW opt not to use hormones for personal/identity reasons or medical contraindications. The highest rates of hormone use are in countries where hormones are readily available without prescription, and where a greater level of acceptance exists towards transgender persons, for example, Thailand, where studies report hormone use among TGW of 73 to 94%, mostly obtained without a prescription [38–40]. In the USA and Canada, hormone utilization among TGW is reported to be 27 to 93% [23,41–45], with up to 60% obtaining their hormones outside of the medical system [44,46–48]. The lowest rates of non-prescription hormone use are reported in Canada and the UK, two countries where hormones are available through the health care system at no expense to the transgender client [46,49]. Use of non-prescription hormones is associated with less knowledge about clinical guidelines and adverse effects of hormones [49,50]. Users of non-prescription hormones usually do so because of difficulty accessing gender-affirming care and are therefore less likely to be monitored appropriately and to use optimal regimens [44,50]. Both ethinyl estradiol (a potent oestrogen and a component of oral contraceptives, or OCPs) and conjugated equine oestrogens are no longer recommended as feminizing agents because of the increased risk of venous thromboembolism [51,52]. Outside of health care settings these agents are often used by TGW for medical transition [37,50].

**Comorbidities and other considerations**

Since the advent of ART, people living with HIV are living longer, healthier lives. There has been an increase in awareness of some of the age-related health conditions that are more prevalent in this population that hold particular considerations for HIV-positive TGW receiving hormone therapy.

Low bone mineral density (BMD) has been reported to occur more frequently in HIV-positive individuals [53,54] as well as HIV-negative individuals receiving tenofovir disoproxil fumarate (TDF) for pre-exposure prophylaxis (PrEP) [55]. This is a particular concern for TGW because hormones have a direct effect on bone metabolism. There is evidence that the risk of osteopenia and osteoporosis may be elevated in TGW even before initiation of hormone therapy [56]. Reasons include reduced engagement in sports resulting in lower muscle mass and grip strength and lower levels of vitamin D levels [56]. After starting feminizing regimens there are inconsistent data about risk for osteopenia, with studies showing increase, decrease or no change in BMD [57–59]. The differences in results may be because of the regimen used (some used unopposed androgen blockers for a period of time before initiating hormones) and length of follow-up. Known risk factors for osteoporosis include underutilization of hormones after gonadectomy or use of androgen blockers without or with insufficient oestrogen [31]. GnRH agonists also may result in short-term decline in BMD [60].

Cardiovascular disease (CVD) is another area of special concern for TGW living with HIV. A recent prospective study demonstrated increased CVD mortality in this population [61]. Feminizing hormone therapy may be an independent risk factor for CVD; however, this population also experiences higher rates of other CVD risk factors including tobacco use, obesity, diabetes and dyslipidemias [61–67]. The already well-documented high rates of CVD among people living with HIV make this an additional concern for HIV-positive TGW receiving hormones. In the absence of clinical trials evaluating health outcomes associated with different hormone regimens, clinicians have advocated the use of transdermal oestrogens in those with a history of CVD or a predominance of risk factors, based on studies conducted in postmenopausal women [68,69].

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**Table 2. Selected international guidelines for transgender health care**

| Agency | Year | Guideline |
|--------|------|-----------|
| The Endocrine Society, USA [31] | 2009 | Endocrine treatment of transsexual persons: an Endocrine Society clinical practice guideline |
| The World Professional Association of Transgender Health (WPATH) [32] | 2011 | Standards of care for the health of transsexual, transgender, and gender-nonconforming people, Version 7 |
| Counties Manukau District Health Board, Wellington, New Zealand [36] | 2011 | Gender reassignment health services for trans people within New Zealand. good practice guide for health professionals |
| Royal College of Psychiatrists, London, UK [33] | 2013 | Good practice guidelines for the assessment and treatment of adults with gender dysphoria, 2013 |
| Pan American Health Organization [37] | 2014 | Blueprint for the provision of comprehensive care for trans persons and their communities in the Caribbean and other Anglophone countries |
| Health Policy Project, Asia Pacific Transgender Network, United Nations Development Programme [34] | 2015 | Blueprint for the provision of comprehensive care for trans people and trans communities in Asia and the Pacific |
| Center of Excellence for Transgender Health, University of California, San Francisco | 2016 | Guidelines for the primary care of transgender, gender nonconforming, and gender non-binary people |

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Guidelines for ART
The goals of HIV treatment are to improve health outcomes for people living with HIV and to reduce HIV transmission. There are five classes of antiretroviral agents that have different mechanisms of action during the HIV life cycle. Effective treatment regimens usually consist of ART with at least three agents. The initial regimen usually includes three agents from two classes, most often two nucleoside reverse transcriptase inhibitors (NRTIs) with either a non-nucleoside reverse transcriptase inhibitor (NNRTI), a protease inhibitor (PI), which is usually “boosted” with ritonavir, or an integrase strand transfer inhibitor (INSTI). Two other antiretroviral agents block entry of HIV into human cells using different mechanisms, the CCR5 receptor antagonists and fusion inhibitors.

The recent update in WHO HIV treatment guidelines, expanding ART to all individuals regardless of CD4 cell count, means that an additional 9 million individuals, including many transgender individuals, are now eligible for ART. It is extremely timely therefore to determine what impact, if any, hormone therapy has on the uptake as well as adverse effect profile of ART.

The recommendations for initial antiretroviral regimens vary globally based on considerations such as cost, availability of generic agents, adverse effect profile and prevalence of comorbidities. The WHO guidelines recommend an initial regimen of two NRTIs, either lamivudine (3TC) or emtricitabine (FTC) with TDF and the NNRTI efavirenz (EFV), or if not available, nevirapine (NVP) [70]. Other NRTI options to use in place of tenofovir include zidovudine (ZDV) [70]. In the USA, the two guidelines predominantly used are the International Antiviral Society-USA Panel and Department of Health and Human Services (DHHS) Panel on Antiretroviral Guidelines for Adults and Adolescents [71,72]. Both guidelines recommend the use of INSTIs, such as dolutegravir or elvitegravir in initial regimens, as well as the PI darunavir, in combination with two NRTIs (TDF, FTC or 3TC); however, minor differences exist in the recommendations for other agents.

TGW and PrEP
The use of emtricitabine and TDF for PrEP is an important biomedical intervention in preventing HIV acquisition. A recent substudy of the iPrEx trial revealed that TGW were less likely to have detectable drug levels compared to non-transgender MSM [30]. Furthermore, TGW may have concerns about potential interactions between feminizing hormone regimens and PrEP that reduce the likelihood of PrEP uptake among HIV-negative TGW [25].

Potential interactions between antiretroviral regimens and feminizing hormone regimens
The current guidelines for transgender care listed in Table 2 do not address interactions between ART and hormonal therapy; however, potential interactions may exist.

Many antiretroviral agents are metabolized through the cytochrome P450 (CYP) system [72], allowing for potential drug-drug interactions (DDIs) with other medications that use the same pathway and often resulting in unpredictable changes. Most of the studies that examine for interactions between antiretrovirals and oestrogens have focused primarily on OCPs, because the predominant concern has been effects on the efficacy of contraception in HIV-positive non-TGW. Ethinyl estradiol, the main component of OCPs, is predominantly metabolized through the cytochrome P450 3A4 (CYP3A4) enzyme pathway, presenting concerns for interactions with the NNRTIs efavirenz and nevirapine, which are CYP3A4 inducers, and the PIs, which are metabolized by and known to be potent CYP3A4 inhibitors [73]. Understanding the potential for interactions is important because untoward increases in oestrogen or antiretroviral drug levels may cause serious adverse effects, whereas those that reduce these drug levels may result in loss of virologic suppression or inadequate feminization. In qualitative studies, TGW have reported fears that ART can limit the effect of hormones, a serious concern for this population [12]. Faced with this dilemma, TGW have reported that they may prioritize gender-affirming health care over HIV treatment [12] which underscores the importance of having evidence-based data on DDIs.

Methods
To identify studies investigating antiretroviral agents and the components of feminizing hormone regimens, the authors retrieved English language articles from 1995 to 2015 using PubMed (MEDLINE), Cumulative Index to Nursing and Allied Health Literature (CINAHL) and EBSCOhost. Medical subject headings (MeSH) terms for ART (“Antiretroviral,” “HAART,” “Anti-HIV Agents”) were cross-referenced with feminizing hormonal agents (including “estrogen,” “estradiol,” “hormonal contraceptives”) and androgen blockers (“spironolactone,” “finasteride,” “gonadotropin releasing hormone agonist,” “GnRH,” “leuprolide,” “goreselin”). Androgen blockers were also cross-referenced with “interactions.” The authors reviewed abstracts for relevance, with subsequent full-text review for data abstraction. Inclusion criteria were primary DDI and pharmacokinetic studies that evaluated interactions between antiretroviral agents and oestrogens or androgen blockers. Additional information was obtained from pharmacokinetic data listed in package inserts for antiretroviral agents and named anti-androgens, the University of Liverpool’s HIV drug interactions website [74] and the DHHS guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents [72].

Results and discussion
Feminizing hormones
The authors reviewed 165 unduplicated articles that included references to feminizing hormonal agents. These were reviewed for relevance, resulting in identification of 26 peer-reviewed articles, of which 8 were reviews [73,75–81]. Of the remaining 17 articles, one involved an ART agent no longer in use [82] and one was for an investigational drug [83]. The remaining 16 articles were used in this review [84–99]. All but one (an in vitro study) [99] were in vivo pharmacokinetic DDI studies. All of the available studies evaluated ART interactions with OCPs and not with other feminizing hormones. The studies were all conducted in non-TGW, with 10 to
34 participants. In all but five studies [87,88,95,96,98], the participants were all HIV-negative.

There are few studies that have examined interactions between exogenous oestrogens and ART, and these have all investigated effects of OCPs [76]. Although we can speculate about the direction of interactions based on these data, they may not reflect the true interactions seen using the types and doses of oestrogens used in feminizing regimens. One review found that many studies of PIs and NNRTIs showed inconsistencies in the direction and level of interactions, mainly because of differences in study design and OCP regimen [76]. Table 3 summarizes all known effects of ART on ethinyl estradiol.

The only known interactions of ethinyl estradiol on ART that have the potential to result in loss of virologic suppression are with ampranavir, unboosted fosamprenavir and stavudine [72,99], although the latter was a single in vitro study in peripheral blood lymphocytes. It may be prudent however to recommend that these ART drugs be avoided in the treatment of TGW receiving feminizing hormones.

**Anti-androgens**

There were no published pharmacokinetic studies that investigated interactions between ART and spironolactone or finasteride. Drug package inserts, the DHHS guidelines and investigated interactions between ART and spironolactone, the agent most often used in feminizing regimens in the USA, is also metabolized through the cytochrome P450; however, no relevant DDIs occur with ART through this mechanism [74]. The GnRH agonists leuproliide and gorenesil are both metabolized through intravascular and extravascular hydrolysis of the C-terminal amino acids followed by excretion in the urine [102,103]. No pharmacokinetic-based DDI studies have been conducted with these agents [102,103].

A special consideration for HIV-positive TGW is that anti-androgens may be unnecessary for medical transition purposes because HIV infection is frequently associated with low testosterone levels. Studies of HIV-positive natal men have shown a prevalence of hypogonadism of approximately 25% [104]. Before the initiation of hormonal therapy, total testosterone levels should be checked.

This review did not find evidence of clinically significant interactions between ART and feminizing hormones (ethinyl estradiol) for medical transition. Although the possible increase in CVD and osteoporosis among TGW living with HIV is concerning, it underscores the importance of engagement in HIV primary care, which as noted above could be enhanced by provision of hormone therapy and other gender-affirming services. Engagement in primary care services will allow for appropriate health care screenings as well as identification and reduction of modifiable cardiovascular risk factors, such as tobacco use, hyperlipidemia, overweight and obesity.

In fact, bundling HIV care with hormone and other aspects of gender-affirming care may result in synergistic enhancements, as has been demonstrated in other medical contexts. A preliminary data analysis, led by MD, of the ongoing HRSA SPNS Transgender Women of Color initiative found associations between current ARV use, undetectable viral load and receipt of HIV primary care in the past six months and receiving a hormone prescription from the participant’s HIV primary care provider (as opposed to other sources).

**Table 3. Interactions between antiretroviral therapy and ethinylestradiol**

| Effect on ethinylestradiol levels (AUC) | Antiretroviral | Change |
|----------------------------------------|---------------|--------|
| **Increase**                           |               |        |
| Atazanavir [72]                        | AUC ↑ 48%     |        |
| Etravirine [89]                        | AUC ↑ 22%     |        |
| Fosamprenavir [72]                     | Cmin ↓ 32%    |        |
| Rilpivirine [72,90]                    | AUC ↓ 0–14%, Cmax ↑ 17% |
| Atazanavir/ritonavir [72,84]           | AUC ↓ 19%, Cmax ↓ 16% |
| and Cmin ↓ 37%                        |               |        |
| Darunavir/ritonavir [86]               | AUC ↑ 44%, Cmin ↓ 62%, Cmax ↓ 32% |
| Fosamprenavir/ritonavir [84]           | AUC ↓ 37%, 28% ↓ Cmax and 34% |
| Lopinavir/ritonavir [72,87]            | AUC ↓ 42%, Cmax ↓ 41%, Cmin ↓ 58% |
| Nevirapine [72,88]                     | AUC ↓ 29%     |        |
| EVG/c/TDF/FTC [72]                     | AUC ↓ 25%, Cmin ↓ 44% |
| Tipranavir/ritonavir [72]              | AUC ↓ 37 to 48% |
| **Decrease**                           |               |        |
| **No effect**                          |               |        |
| **No data**                            |               |        |

Clinicians should maintain vigilance for perceived or actual interactions between hormone therapy and ART, and take appropriate clinical or patient educational action as

**Conclusions**

Although the data investigating oestrogens and ART come mainly from OCP data, it is likely that, apart from ampranavir, unboosted fosamprenavir and possibly stavudine, no clinically significant interactions exist between feminizing regimens and ART. These data are also important for HIV prevention among at-risk HIV-negative TGW, who may not be inclined to use PrEP until clear information is available about potential interactions between TDF and feminizing hormone regimens [105].

Clinicians should maintain vigilance for perceived or actual interactions between hormone therapy and ART, and take appropriate clinical or patient educational action as
indicated. This may include monitoring estradiol levels while on ART in order to assess for elevated or subtherapeutic levels as well as ongoing viral load monitoring.

Clinicians should be aware of the possible increase in CVD and osteoporosis among HIV-positive TGW on hormones and seek to identify and reduce modifiable risk factors.

There is an urgent need for further research, specifically pharmacokinetic and pharmacodynamics studies to evaluate for interactions between oral, injectable and transdermal estradiol and ARTs. More research is also needed on the impact of hormone therapy on long-term health outcomes of HIV-positive TGW, not only to evaluate adverse effects but also to assess the potential positive impact of hormones on HIV-specific outcomes, like retention and engagement in care and virologic suppression as well as other preventive health needs.

The key limitation to this review is the lack of evidence-based data to support recommendations for TGW living with HIV. Meaningful inclusion of sexual orientation and gender identity data in national surveillance systems, as well as as prospective studies investigating the long-term health outcomes for transgender people accessing medical transition services, will allow for more robust data upon which to build guidelines for care.

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Competing interests
None.

Authors’ contributions
AR, JS and MD designed the study and developed the methodology. AR performed the literature review. AR, JS and MD wrote the manuscript.

Funding
None.

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Inequities in access to HIV prevention services for transgender men: results of a global survey of men who have sex with men

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Abstract

Introduction: Free or low-cost HIV testing, condoms, and lubricants are foundational HIV prevention strategies, yet are often inaccessible for men who have sex with men (MSM). In the global context of stigma and poor healthcare access, transgender (trans) MSM may face additional barriers to HIV prevention services. Drawing on data from a global survey of MSM, we aimed to describe perceived access to prevention services among trans MSM, examine associations between stigma and access, and compare access between trans MSM and cisgender (non-transgender) MSM.

Methods: The 2014 Global Men’s Health and Rights online survey was open to MSM (inclusive of trans MSM) from any country and available in seven languages. Baseline data (n = 3857) were collected from July to October 2014. Among trans MSM, correlations were calculated between perceived service accessibility and anti-transgender violence, healthcare provider stigma, and discrimination. Using a nested matched-pair study design, trans MSM were matched 4:1 to cisgender MSM on age group, region, and HIV status, and conditional logistic regression models compared perceived access to prevention services by transgender status.

Results: About 3.4% of respondents were trans men, of whom 69 were included in the present analysis. The average trans MSM participant was 26 to 35 years old (56.5%); lived in western Europe, North America, or Oceania (75.4%); and reported being HIV-negative (98.6%). HIV testing, condoms, and lubricants were accessible for 43.5, 53.6, and 26.1% of trans MSM, respectively. Ever having been arrested or convicted due to being trans and higher exposure to healthcare provider stigma in the past six months were associated with less access to some prevention services. Compared to matched cisgender controls, trans MSM reported significantly lower odds of perceived access to HIV testing (OR = 0.57, 95% CI = 0.33, 0.98) and condom-compatible lubricants (OR = 0.54, 95% CI = 0.30, 0.98).

Conclusions: This first look at access to HIV prevention services for trans MSM globally found that most reported inadequate access to basic HIV prevention services and that they were less likely than cisgender MSM to have access to HIV testing and lubricants. Results indicate the need to enhance access to basic HIV prevention services for trans MSM, including MSM-specific services.

Keywords: HIV prevention; health services; transgender; men who have sex with men; HIV testing.

Received 30 October 2015; Revised 18 April 2016; Accepted 25 April 2016; Published 17 July 2016

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Introduction

In Europe and North America, a majority of transgender (trans) men report attraction to other men [1–3], and a substantial proportion report recent sexual contact with cisgender (non-trans) men. For example, in Ontario, Canada, 63% of trans men identified as gay, bisexual, or queer, and/or had a male sex partner in the past year, while 21% had a cisgender male sex partner in the past year [1]. Trans men who have sex with men (trans MSM) have been identified as a key population facing stigma, and potentially increased vulnerability to HIV, across settings [4]. Yet, research evidence regarding HIV prevalence, risk, and prevention service access is scant and almost entirely limited to small convenience samples in Canada and the United States [5,6]. A recent international review identified 10 studies with laboratory-confirmed HIV seroprevalence data for trans men, which ranged from 0 to 4% [7]. Of these studies, only the two smallest (both n = 14) were specific to trans MSM [8,9], who are at increased biological risk for HIV and may face structural barriers rendering them more vulnerable than other trans men. Self-reported prevalence among trans MSM has ranged from 0 to 5.9% [10–13]. While these prevalence estimates are low when compared to cisgender MSM and transgender women [6,14], the higher estimates are many-fold greater than HIV prevalence in the broader adult populations of Canada and the United States. Moreover, trans MSM are increasingly integrated in MSM sexual networks in some settings [12,15], and this may potentiate increased HIV risk, particularly if access to basic HIV prevention services is limited.

Trans people face systemic barriers to healthcare in systems that, by and large, operate with the taken-for-granted assumption that patients or clients will be cisgender [16].
The results of this pervasive assumption have been described as informational and institutional “erasure” [16], leading to limited medical education on trans health issues [17], absence of policies to accommodate trans patients (e.g., regarding access for individuals without identification that matches their gender presentation [18]), discomfort and uncertainty in healthcare encounters [19,20] and outright mistreatment or denial of care [21,22]. Specific to sexual health services, trans men have reported experiencing limited provider knowledge, stigmatizing attitudes, and invalidation of their gender identities, which limit their ability to disclose their sexual health needs (e.g., related to having vaginal sex with cisgender men) and access HIV/STI testing or other prevention services [10,23]. Indeed, some evidence points to low uptake of HIV testing among trans MSM, even in a setting with universal health coverage where HIV testing is relatively accessible for cisgender MSM [1]. Discrimination in healthcare is situated in a context of widespread stigma across a range of settings [2,24], which may further reduce perceived accessibility of health services, or willingness to access them (for fear of encountering discrimination). Trans MSM may additionally contend with stigma related to their sexual orientation or behaviour. For cisgender MSM, sexual stigma has been associated with reduced access to HIV testing and treatment, condoms, and lubricants [25].

Drawing on data from a global survey of MSM (inclusive of trans MSM), we aimed to describe perceived accessibility of prevention services among trans MSM, examine associations between perceived stigma and access, and compare access between trans MSM and matched cisgender MSM. We hypothesized (1) that greater exposure to anti-transgender violence, discrimination, and healthcare provider stigma would be associated with reduced access to HIV testing, condoms, and lubricants for trans MSM and (2) that trans men would report less access to these services than demographically comparable cisgender men.

Methods
Data source
The 2014 Global Men’s Health and Rights Survey was a web-based longitudinal survey of MSM recruited through online convenience and purposive sampling (e.g., via organizational networks, email listservs, MSM websites). Eligible participants needed to identify as male or as trans men, not report sexual attraction exclusively to women, be 18 years of age or older, and be able to complete the survey in Arabic, Chinese, English, French, Portuguese, Russian, or Spanish. No geographical restrictions were applied, and the inclusion of trans men was specified in recruitment materials. At baseline, participants completed a 30-minute survey including items about demographics, stigma, and access to healthcare (including but not limited to HIV prevention, treatment, and support). Six- and 12-month follow-up data were collected from a subset who consented to participate in a longitudinal component, but only baseline data are included in the present analysis. Ethical approval was obtained from the Western Institutional Review Board.

Measures
Demographics
Trans respondents were identified using a two-step method [26]; current gender identity and assigned sex at birth were ascertained. Those who reported a female natal sex and identified either as male or as trans men (parenthetically defined for respondents as female-to-male trans people) were classified as trans MSM. Age, country of residence, gender of primary or main partner in the past six months, gender(s) to which participants were attracted, and most recent HIV test result were self-reported.

Stigma
Items pertaining to violence, discrimination, and healthcare provider stigma related to being trans were adapted from parallel MSM-specific items (trans men received both sets). Ever experiencing violence attributed to anti-trans stigma was assessed with a four-item scale (Cronbach’s α = 0.74) with items relating to physical violence, sexual assault, threats or blackmail, and malicious disclosure of trans status (“Has the fact that you are a trans man ever been disclosed against your will by someone who intended to cause you harm?”). Five items (α = 0.86) assessed stigma and discrimination from healthcare providers in the past six months, including whether a provider had “treated you poorly . . .,” “refused to treat you . . .,” “judged you . . .,” “reprimanded (lectured/scolded) you . . . because you are a trans man,” or “disclosed that you are a trans man to others with your permission.” For violence and provider stigma scales, participants indicated the frequency with which they experienced each type of violence or stigma (from never to more than five times). Responses were summed and divided by the number of items to generate a mean frequency score ranging from 0 (never) to 4 (all types experienced more than five times). Three items measured trans-related discrimination (“Have you ever been . . . arrested or convicted/denied employment/harassed by police because you are a trans man”) and were not summed to form a scale as they represent discrete events and have poor internal consistency (α = 0.49). They were dichotomized for analyses to indicate ever versus never having each discrimination experience.

Access to HIV prevention services
Participants were asked “In your community, how accessible is free or affordable HIV testing?” Parallel items assessed perceived accessibility of condoms and condom-compatible lubricants. Response options were on a 5-point scale from “completely inaccessible” to “completely accessible,” and were dichotomized as completely accessible versus somewhat accessible or less, consistent with prior analyses [25,27].

Statistical analysis
All analyses were conducted in STATA version 13.1 [28]. Descriptive statistics were calculated for GMHR participants who were identified as trans MSM. Violence and healthcare provider stigma scale scores were skewed, and therefore, medians are reported and non-parametric statistics were employed to examine associations. The Wilcoxon rank-sum test was used to examine associations between transphobic
violence and provider stigma scores and each HIV service access outcome (testing, condoms, and lubricants), while Fisher’s exact test was used for the binary trans discrimination variables (arrest or conviction, police harassment, employment discrimination). Statistical significance was set at \( p < 0.05 \).

In the nested matched study, trans MSM were randomly matched 4:1 to cisgender MSM controls on age group (25 and under, 26–35, 36–45, 46+), region (eastern Europe and Central Asia; Latin America; Sub-Saharan Africa; western Europe, North America, or Oceania; and other), and self-reported HIV status (negative or unknown vs. positive). Each trans and cisgender MSM matched group was assigned a match ID number that was used to define strata. Conditional logistic regression models were fit to estimate the odds of perceived access to HIV testing, condoms, and condom-compatible lubricants, comparing trans MSM to matched cisgender MSM. The nested pair-matched study design has been shown to be an effective method to evaluate disparities between transgender participants and a subset of cisgender controls [29]. Sensitivity analyses were conducted by adjusting conditional logistic regression models for an indicator of controls [29].

Results

Of 3857 survey respondents, 133 (3.4%) were identified as trans MSM, including those who reported their gender identity as trans man (\( n = 81 \)), and others who indicated male gender identity in combination with female natal sex (\( n = 52 \)). Participants who indicated being assigned male at birth but identified as trans men (\( n = 15 \)) could not be appropriately categorized and were excluded from further analysis. Trans MSM who completed all items related to anti-transgender stigma and discrimination (\( n = 69 \)) were included in subsequent analyses. Demographic characteristics of trans MSM and matched cisgender MSM, and experiences of stigma among trans MSM, are shown in Table 1. Most trans MSM were between the ages of 18 and 25 (23.2%) or 26 and 35 (56.5%) and lived in western Europe, North America, or Oceania (75.4%). One reported being HIV positive (1.4%). Of the 98.6% who did not identify as HIV positive, 91.1% reported that their last HIV test result was negative, while 8.8% had never been tested. Most trans MSM (69.7%, \( n = 48 \)) reported a cisgender male primary or main sexual partner in the past six months. All (100%) reported attraction to cisgender men, and 70% were primarily or exclusively attracted to cisgender men.

Stigma and HIV prevention service access among trans MSM

Reported stigma and discrimination were not associated with access to lubricants. Associations between stigma and discrimination variables and HIV testing and condoms are shown in Tables 2 and 3, respectively. Having been arrested or convicted due to being trans was significantly associated with lack of access to condoms; no trans MSM who had been arrested or convicted reported that condoms were completely accessible, as compared to 56.9% of trans MSM without this experience of discrimination. Access to HIV testing was also lower among those who had been arrested or convicted, although this relationship did not reach statistical significance.

In addition, a marginally significant (\( p = 0.05 \)) association was found between the frequency of healthcare provider stigma over the past six months and accessibility of HIV testing, with higher provider stigma scores among those for whom HIV testing was not completely accessible. While transphobic violence was not related to any type of service access overall, those who had ever been sexually assaulted due to being trans were less likely to report access to HIV testing, compared to trans MSM who were never sexually assaulted (results not shown; 22.2% vs. 50.0%, \( p = 0.04 \)).

Access to HIV prevention services by transgender status

As shown in Table 4, HIV testing, condoms, and lubricants were completely accessible for 43.5, 53.6, and 26.1% of trans MSM, respectively. In contrast, HIV testing, condoms, and lubricants were completely accessible for 56.9, 54.7, and 39.5% of cisgender MSM, respectively. In conditional logistic regression models, in comparison to age-, region-, and HIV status-matched cisgender controls, trans MSM reported significantly lower odds of perceived access to HIV testing.

| Age group (%) | Trans men % (n) or Cisgender men % (n) |
|---------------|----------------------------------------|
| 18 to 25 years | 23.2 (16) / 23.2 (64) |
| 26 to 35 years | 56.5 (39) / 56.5 (156) |
| 36 to 45 years | 11.6 (8) / 11.6 (32) |
| 46 years +    | 8.7 (6) / 8.7 (24) |

| Region (%)            | Trans men % (n) or Cisgender men % (n) |
|-----------------------|---------------------------------------|
| Eastern Europe and Central Asia | 4.3 (3) / 4.3 (12) |
| Latin America and Caribbean | 4.3 (3) / 4.3 (12) |
| Sub-Saharan Africa | 2.9 (2) / 2.9 (8) |
| Western Europe, North America, Oceania | 75.4 (52) / 75.4 (208) |
| Other | 13.0 (9) / 13.0 (36) |

| Self-reported HIV status (%) | Trans men % (n) or Cisgender men % (n) |
|-----------------------------|---------------------------------------|
| Negative or unknown         | 98.6 (68) / 98.6 (272) |
| Positive                    | 1.5 (1) / 1.5 (4) |
| Trans violence, lifetime (range = 0–4) | 0.5 (1.25) / – |
| Ever arrested or convicted because trans (%) | 5.8 (4) / – |
| Ever denied employment because trans (%) | 44.9 (31) / – |
| Ever harassed by police because trans (%) | 27.5 (19) / – |
| Healthcare provider stigma past six months (range = 0–4) | 0.4 (0.8) / – |
Table 2. Associations between stigma and access to HIV testing among transgender men \( (n = 69) \) in a global survey of men who have sex with men

| Stigma                                                               | Testing completely accessible | Testing not accessible | \( Z^a \)  | \( P^b \) |
|----------------------------------------------------------------------|-------------------------------|------------------------|----------|--------|
| Violence scale score (median, range = 0–4)                          | 0.5                           | 0.75                   | 1.11     | 0.27   |
| Ever arrested or convicted because trans                            | 0.0%                          | 10.3%                  | –        | 0.09   |
| Ever denied employment because trans                                | 43.3%                         | 46.2%                  | –        | 0.50   |
| Ever harassed by police because trans                               | 20.0%                         | 33.3%                  | –        | 0.17   |
| Healthcare provider stigma, past six months (median, range = 0–4)   | 0.2                           | 0.6                    | 1.94     | 0.05   |

\( a \) Z-test and \( P \)-value for continuous variables from Wilcoxon rank-sum test; \( b \) \( P \)-value for difference in proportions from Fisher’s exact test.

(OR = 0.57, 95% CI = 0.33, 0.98) and lubricants (OR = 0.54, 95% CI = 0.30, 0.98). No differences were found with respect to access to condoms. Results of sensitivity analyses with adjustment for SES status were not appreciably different (results not shown).

Discussion

We found partial support for our hypotheses that exposure to anti-transgender violence, discrimination, and healthcare provider stigma would be negatively related to accessibility of HIV prevention service. Access to free or low-cost condoms, and to HIV testing, was lower among those reporting arrest or conviction due to being trans. This may reflect the impact of living in a highly legally-constrained environment, rather than as a direct result of arrest or conviction. These findings indicate a need for further research on, and service delivery to address, the sexual health of trans MSM in settings with official and informal legal sanctions against trans people. Ultimately, structural interventions are required to eliminate laws and policies that criminalize trans people and MSM.

Those respondents reporting no or limited access to HIV testing had (marginally significantly) higher past six-month healthcare provider stigma scores. While participants were not asked to evaluate trans cultural competency in rating accessibility of prevention services, it is likely that such considerations would impact perceived accessibility. Past experiences of enacted anti-transgender stigma in healthcare settings, and anticipation of future stigma, are associated with reduced access to healthcare for trans men [22,30]. In addition, providers with stigmatizing attitudes towards gender and sexual minorities may be less aware of available resources for trans patients [19,20], including sexual health services, and less likely to refer patients to them. It is also possible that some reported experiences of provider stigma occurred in the context of sexual health or HIV testing services.

While not statistically significant, among those without complete access to HIV testing, proportions reporting each form of discrimination were consistently higher, as were violence scale scores. This was not the case for condoms or lubricants. We note that with our small trans MSM sample \( (n = 69) \), power to detect significant differences was low. Few data are available regarding utilization of HIV testing services among trans MSM, but there is some evidence to suggest low uptake [31]. Further research could examine the impacts of various manifestations of stigma on access to and utilization of HIV testing among trans MSM, including stigma experienced when accessing testing services and lack of inclusion in testing-related outreach and materials. While the present study only considered trans-specific stigma, trans MSM may additionally face stigma related to their sexual minority identity and/or behaviour. Researchers may wish to consider how gender and sexual stigmas, and intersecting stigmas related to race, ethnicity, class, gender expression, and other aspects of social identity or position interact to impact access for trans MSM [21].

Findings supported our hypothesis that trans MSM would report less access to basic HIV prevention services as compared to cisgender MSM, with the exception that while almost half of trans MSM had inadequate access to condoms, ...

Table 3. Associations between stigma and access to condoms among transgender men \( (n = 69) \) in a global survey of men who have sex with men

| Stigma                                                               | Condoms completely accessible | Condoms not accessible | \( Z^a \)  | \( P^b \) |
|----------------------------------------------------------------------|-------------------------------|------------------------|----------|--------|
| Violence scale score (median, range = 0–4)                          | 0.5                           | 0.75                   | 0.42     | 0.68   |
| Ever arrested or convicted because trans                            | 0.0%                          | 12.5%                  | –        | 0.04   |
| Ever denied employment because trans                                | 48.6%                         | 40.1%                  | –        | 0.34   |
| Ever harassed by police because trans                               | 29.7%                         | 25.0%                  | –        | 0.43   |
| Healthcare provider stigma, past six months (median, range = 0–4)   | 0.6                           | 0.2                    | –1.22    | 0.22   |

\( a \) Z-test and \( P \)-value for continuous variables from Wilcoxon rank-sum test; \( b \) \( P \)-value for difference in proportions from Fisher’s exact test.

Bolded values indicate statistical significance at \( p < 0.05 \).
this proportion was quite similar to cisgender MSM. Our findings are consistent with trans men’s qualitative reports of barriers to accessing sexual health services, particularly HIV and other sexually transmitted infections testing [10,23]. HIV testing is a pre-requisite for access to HIV treatment and pre-exposure prophylaxis, as well as for prevention of onwards transmission. That trans MSM report less access than their cisgender counterparts (among whom access is already inadequate) indicates that enhancing access to culturally competent testing services should be prioritized. While not explored in this study, the co-provision of transgender competent testing services may improve service utilization.

In addition to their importance for safer anal intercourse, access to lubricants is crucial for trans MSM on testosterone therapy who engage in receptive vaginal sex. Although not yet studied among trans men, changes to vaginal tissue related to oestrogen deficiency among menopausal cisgender women are well documented, including atrophy, dryness, and loss in elasticity, which increase risk of tissue injury, bleeding, and infection [32]. Trans men report similar symptoms [12] and thus may be at heightened risk of STI or HIV infection related to vaginal intercourse, particularly if they do not have access to condom-compatible lubricants.

One potential explanation for a disparity in access to lubricants but not to condoms relates to the settings in which condom-compatible lubricants are often distributed free of charge, that is, MSM-focused clinical and community venues. Many trans MSM want to receive service in such settings [11], but face perceived and enacted exclusion from them [33]. Similarly, that trans MSM reported less access to HIV testing than their cisgender counterparts may be related to their exclusion from HIV prevention and testing services targeted to MSM. Efforts to understand and reduce in-group stigma that trans MSM face from cisgender MSM and MSM-oriented services may be required to increase access to HIV testing and lubricants.

### Strengths and limitations

The present analysis has several important limitations. As part of a study of MSM, we recruited trans men who align themselves with gay, bisexual, and other MSM communities. The experiences of trans masculine individuals who are attracted to men but do not identify with these terms may differ. Additionally, while specific outreach to trans MSM was conducted, most participants were recruited via predominantly cisgender MSM networks, from which some trans men may be excluded or feel alienated. More broadly, results of this small convenience sample cannot be generalized to trans MSM globally or in any specific setting. Survey participants had email and Internet access and were at least minimally connected to sexual minority communities, and thus, they may have greater access to HIV prevention services than other MSM. Comparisons of service access between trans and cisgender MSM employed matching based on age group, region, and HIV status, but other factors may confound associations between transgender status and access. However, sensitivity analyses indicated that SES (operationalized as ability to meet one’s basic needs) did not act as a confounder. Additionally, residual confounding within relatively heterogeneous regional groups is possible. Finally, measures were based on self-report, were not formally validated, and only reflect perceptions of stigma and accessibility; these measures are also subject to recall bias. The two-step method for identifying trans respondents has been evaluated in English, Spanish, and Portuguese [26,34], but its validity across diverse cultures and languages remains to be established [35]. Nevertheless, our study has some notable strengths. It was one of the first studies focused on (cisgender) MSM to include and report on data specific to trans MSM. In addition, representation of trans men was greater than in the two previous reports on trans men in MSM studies (in which trans men constituted 14 of 717 [8] and 32 of 36,063 [26] participants). Strategies for sensitive and valid data collection with trans MSM were developed in collaboration with community members, and outreach was conducted to ensure participation of trans men. Recruitment materials specified trans-inclusivity but were not targeted specifically to trans men. As a result, trans men who are “stealthy” (i.e., do not disclose their trans history) may have felt more comfortable participating. The survey was translated into seven languages and open to MSM in any country, and it represents an important step towards reflecting experiences of trans MSM living outside of Canada and the United States. In addition, while need characteristics will impact actual utilization of HIV

| HIV testing completely accessible | % (n) | Odds ratio (95% CL) | P |
|---------------------------------|-------|---------------------|---|
| Cisgender MSM                   | 56.9 (157) | 1.00 | 0.04 |
| Transgender MSM                 | 43.5 (30)  | 0.57 (0.33, 0.98) | |
| Condoms completely accessible   |       |                     | 0.87 |
| Cisgender MSM                   | 54.7 (151) | 1.00 | |
| Transgender MSM                 | 53.6 (37)  | 0.96 (0.56, 1.63) | |
| Condom-compatible lubricants completely accessible | | | 0.04 |
| Cisgender MSM                   | 39.5 (109) | 1.00 | |
| Transgender MSM                 | 26.1 (18)  | 0.54 (0.30, 0.98) | |

*Matched on age group, region, and HIV status. Bolded values indicate statistical significance at p < 0.05.
prevention services, our comparison of perceived service accessibility is unlikely to be confounded by differences in need between cisgender and trans MSM. Utilization of preventative healthcare has been associated with its perceived accessibility, a construct that incorporates considerations of service availability, affordability, physical and geographic accessibility, and cultural competence [35].

Conclusions

We have provided a first look at access to basic HIV prevention services for trans MSM globally, demonstrating associations with some facets of trans-specific stigma and discrimination (particularly arrest or conviction and healthcare provider stigma), and identifying disparities among MSM based on transgender status. Our study has implications for the conduct and content of future trans and MSM sexual health research, as well as for enhancing HIV prevention service access for trans MSM. Exclusion of trans MSM from research based on their natal sex is arguably unethical and contributes to their invisibility in the HIV response [7,36]. For future MSM-focused survey research, our study highlights the feasibility of including trans men using a two-step method for ascertaining assigned sex at birth and gender identity, and the potential to use the resulting data to examine health disparities—something that cannot be accomplished with trans-specific studies alone. Moreover, in online or interviewer-administered questionnaires, skip patterns can easily be implemented to include questions specific to the experiences of trans respondents. In the future, intentional over-sampling of trans MSM may be required for more complex analyses, such as investigations of potential contributors to disparities in access to HIV services. Substantively, trans and MSM health research should further explore facilitators and barriers to HIV prevention services for trans MSM and consider implementation and evaluation of interventions to enhance access. In a context of stigma at multiple levels, interventions must also be multilevel and may include legal changes, policy changes in healthcare settings, community-level interventions, and clinical interventions. Examples of potential interventions in these domains include efforts to repeal laws that criminalize gender and sexual minorities, introduction of policies to explicitly address the domains of trans health needs, and targeted interventions for transgender MSM in health services targeting MSM, campaigns to raise awareness about HIV prevention services among trans MSM, and integration of HIV testing in trans-friendly primary care.

Authors’ contributions

AJS, G-MS, and SA conceived and designed the analysis. KM programmed the survey instrument, managed data collection, and prepared some multi-item scales. G-MS conducted the analysis, and AJS drafted the manuscript. All authors contributed to interpreting data and revising the manuscript and have read and approved the final version.

Acknowledgements

The authors thank all GMHR survey participants for their time and involvement in this study, as well as community partners who helped with GMHR survey development and implementation. Study funding was provided by the Ministry of Foreign Affairs of the Netherlands’ Bridging the Gaps Program. AJS was supported by Pierre Elliott Trudeau Foundation and Vanier Canada Graduate Scholarships. Research reported in this publication was supported by the National Institute of Allergy & Infectious Diseases of the National Institutes of Health under award number T32AI14398. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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Types of social support and parental acceptance among transfemale youth and their impact on mental health, sexual debut, history of sex work and condomless anal intercourse

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Introduction: Transfemale youth (TFY) are an underserved and understudied population at risk for numerous poor physical and mental health outcomes, most notably HIV. Research suggests that parental acceptance and social support may serve as protective factors against HIV and other risks for TFY; however, it is unclear whether TFY receive primary social support from parents with or without parental acceptance of their gender identity. This study examines differences in parental acceptance, mental health and the HIV risk factors of history of sex work, age at sexual debut and engagement in condomless anal intercourse between TFY with two types of primary social support — non-parental primary social support (NPPSS) and parental primary social support (PPSS).

Methods: Cross-sectional data collected from 301 TFY from 2012 to 2014 in the San Francisco Bay Area were analyzed to determine differences in parental acceptance, mental health and HIV risk factors between youth with and without PPSS. Univariate statistics and chi-squared tests were conducted to determine if parental acceptance and health outcomes were correlated with type of social support.

Results: Two-hundred fifty-one participants (83.7%) reported having NPPSS, and 49 (16.3%) reported PPSS. Significantly more youth with PPSS reported affirmative responses on parental acceptance items than their NPPSS counterparts. For example, 87.8% of youth with PPSS reported that their parents believed they could have a happy future as a trans adult, compared with 51.6% of youth with NPPSS ($p < 0.001$). Fewer participants with PPSS reported symptoms of psychological distress (2.0% vs. 12.5%, $p = 0.057$), though this finding was not statistically significant; no significant associations were found between primary social support type and HIV risk factors.

Conclusions: These results suggest that TFY with parental acceptance of their gender identity may be more likely to reach out to their parents as their primary source of social support. Interventions focused on parental acceptance of their child’s gender identity may have the most promise for creating parental social support systems in the lives of TFY.

Keywords: youth; transgender women; HIV; parental acceptance; social support.
gender and sexual orientation has been found to lead to decreased social support among LGBT youth, which is associated with increased depressive symptoms, higher rates of victimization and increased suicide attempts, with transyouth being more likely to attempt suicide than their sexual minority peers [8]. However, few studies have addressed the impact of parental support and rejection among TFY specifically. One study of transwomen of colour found that familial rejection led to an increased risk of homelessness [6]. As a result, some TFY turned to sex work to survive [9]. Though the trans sex work community can be an important source of social support, it may also facilitate engagement in high-risk sex work and risk for HIV and other poor health outcomes [10].

Also missing from the research on TFY health are data on parental influence factors associated with parental social support. Research with LGB youth found that parents with unconditional love for their child embraced their child’s sexual orientation/identity and as a result felt a closer bond to their child, gaining cognitive flexibility instead of dissonance [11]. Parental acceptance is associated with protective factors against negative health consequences (i.e. drug/alcohol abuse, depression and suicidal attempts/ideation) and promotes positive health outcomes (i.e. healthy self-esteem, general health and higher quality of life) among LGBT youth [3]. Research has also found that parental acceptance results in parents being a primary source of social support for LGB youth [3,12]. For TFY, social support may be as instrumental as parental acceptance in preserving their well-being [5,13]. TFY need support beyond acceptance for things like health insurance, negotiating school and the expectations of teachers and administrators, and accessing transgender health services [14–16]. We hypothesize that parental social support may be closely tied to the ability of parents to accept their TFY’s gender identity; hence, parental social support may be as important as acceptance for TFY. Perhaps even more important, TFY may seek social support from parents only when they know their parents accept their gender identity.

This study was conducted to determine whether TFY with parental acceptance of their gender identity reported primary social support from parents. We also assessed whether there were significant differences between those with non-parental primary social support (NPPSS) and those with primary parental social support (PPSS) in psychological distress and the HIV risk factors of a history of sex work, age at sexual debut and condomless anal intercourse. Parental acceptance was measured by developing gender minority-specific constructs on parental influence factors associated with parental social support and rejection among TFY specifically. One study of transwomen of colour found that familial rejection led to an increased risk of homelessness [6]. As a result, some TFY turned to sex work to survive [9]. Though the trans sex work community can be an important source of social support, it may also facilitate engagement in high-risk sex work and risk for HIV and other poor health outcomes [10].

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Measures and data analysis
Social and demographic data measured were age, gender, race and education. Nativity was measured with the question, “Were you born in the U.S.?” Family religiosity was measured by, “How religious is your family?” Self-religiosity was measured by, “How important is religion in your life?” Possible responses for both family and self-religiosity were very religious, somewhat religious, not very religious and not religious at all. Lifetime history of employment was assessed by asking a question with a dichotomous yes/no answer: “Have you ever worked to support yourself?” Income was assessed by asking, “How much money did you make last month (including all sources)?” Childhood living situation was assessed with the question, “What best describes your living situation between birth and age 16?” Response categories were with parents of origin, with other caregiver or family, foster care system, legally adopted family, homeless and on my own, or other. History of housing instability was assessed with two questions. We asked, “Have you ever had unstable housing?” and “Have you ever run away from home and spent one night somewhere other than home when you parents or caregivers did not know where you were?” Responses for these two questions were dichotomous yes/no (0/1).

Current type of social support was measured by asking participants, “From whom do you get the most social support?” Participants who identified parents as their primary source of social support were coded as having PPSS, and participants who identified non-parents (e.g. friend, partners) as their primary source of social support were coded as having NPPSS. Outcomes measured were parental acceptance, psychological distress, history of sex work, age at sexual debut and condomless anal intercourse. Parental acceptance was measured by developing gender minority-specific constructs based on Ryan et al.’s work on family acceptance among sexual minority youth [3]. Ten items were measured for this analysis. Parental acceptance items included, for example, “Did any of your parents or caregivers ever talk about your trans identity with you?” and “Did any of your parents or caregivers ever express affection when you first talked about your trans identity?” Responses were dichotomous yes/no (1/0), and a sum score of parental acceptance was totalled. The measure we developed for gender minority-specific parental acceptance had a Cronbach’s alpha for parental acceptance of 0.775, indicating internal consistency of the measure with this sample. Psychological distress was measured with the 18-item version of the Brief Symptom Inventory (BSI-18), converting the BSI-18 Global Severity Index (GSI) to T-scores and using a validated clinical cut-off of T > 62 for symptomatic psychological distress in the past seven days [19–22]. The BSI-18
T-scores calculated in this study had high internal consistency (Cronbach's alpha = 0.91). Lifetime history of sex work was measured by asking, “Have you ever worked as a sex worker?” Responses were dichotomous yes/no (1/0). Age at sexual debut was determined by the question, “How old were you the first time you had consensual sex?” Participants reported their age in years. Condomless anal intercourse was assessed by asking participants about their most recent sexual partners and whether or not they had engaged in condomless anal intercourse with each partner. If participants reported any condomless anal intercourse with any partner, they were coded as having had condomless anal intercourse in the past six months.

Univariate and bivariate analyses were conducted using SAS, version 9.3 (Cary, NC). Chi-squared tests were conducted to assess significant differences between proportions. First, we described the sample’s social and demographic data and overall outcomes. Second, we examined outcomes – parental acceptance, psychological distress, history of sex work, sexual debut and condomless anal intercourse – by type of social support: PPSS and NPPSS. We hypothesized that PPSS was associated with positive means scores for parental acceptance. Unadjusted and adjusted models controlling for age group and race were run, with no qualitative differences in p-values; therefore, unadjusted models are provided in Table 3.

Results

Participant characteristics

Nearly one-quarter of participants (22.6%) were 16 to 19 years old, and 77.4% were 20 to 24 years old (Table 1). The majority of participants (44.2%) identified as female, followed by transgender (32.9%), and genderqueer/fluid/questioning (22.9%). The sample was racially diverse with 36.5% White, 21.9% Latina, 13.0% African American, 6.3% Asian, 7% other race and 15.3% mixed. Most (84.7%) were born in the United States. More than half of the participants (53.0%) reported that religion was not very important. Almost half of youth (45.9%) had at least some college education, and nearly three-fourths (73.4%) had a monthly income of less than US$1000. Many (57.1%) experienced unstable housing in their lifetime. About a quarter (26.7%) reported having a history of sex work, and the most frequent ages in which sexual debut occurred was 13 to 15 and 16 to 17 (28.6 and 28.2%, respectively). About one-third (37.2%) had reported any condomless anal intercourse in the past six months. Participants had a total of 742 sexual partnerships in the past six months, with an average of 3.23 sexual partners per youth. Most sexual partnerships were casual (n = 532, 71.7%), and the largest proportion identified their sexual partners as heterosexual (n = 327, 44.1%).

Parental acceptance

Parental acceptance in the overall sample was mixed (Table 2). Many participants reported that parents talked about their trans identity with them and that parents supported their gender identity despite feeling uncomfortable (58.8 and 62.1%, respectively). Many participants reported that their parents required other family members to respect them (53.5%), welcomed lesbian, gay, bisexual, transgender and intersex (LGBTI) friends and/or partners to their home (63.1%), and believed their children could have a happy future as a trans adult (56.8%). Conversely, nearly two out of five participants reported that their parents expressed affection when they first talked about their trans identity and that they advocated for them when they were mistreated because of their trans identity (39.9 and 41.5%, respectively). Additionally, fewer participants reported that their parents had not taken them to LGBTI organizations/events or connected them to LGBTI adult role models (18.6 and 15.0%, respectively).

The relationships between type of social support and parental acceptance, mental health, history of sex work and age at sexual debut

Of the 301 participants, 251 (83.4%) reported NPPSS and 49 (16.3%) reported PPSS (Table 3). Among those with NPPSS, 30.9% reported a friend as their primary source of social support, 15% reported a partner and 14.6% reported their chosen family. Other primary sources of social support came from siblings (6.6%), aunts/uncles/grandparents (2.6%), support groups (7.6%), mentors (2%) and other sources (4.3%). Overall, a greater proportion of those with PPSS than of those with NPPSS reported parental acceptance (80% of those with PPSS reported six or more positive responses on parental acceptance items vs. 47.4% of those with NPPSS, p = 0.003). Table 3 also describes differences in parental acceptance items by type of social support. A greater proportion of those with PPSS than of those with NPPSS reported having parents that expressed affection when they first talked about their gender identity (65.3% vs. 35.5%, p < 0.001). This relationship was consistent for all but three items. Compared with those who reported NPPSS, participants who reported PPSS were less likely to exhibit psychological distress (T > 62), but this finding was not statistically significant (2.0% vs. 12.5%, p = 0.057). No statistically significant differences were observed between type of social support and history of sex work, sexual debut or condomless anal intercourse.

Discussion

Parental acceptance may be the key to increasing parental social support systems for TFY. In our data, we found that TFY who reported having PPSS experienced greater parental acceptance than those who reported NPPSS. Many LGBT youth may not disclose their identity to their parents out of fear [23] and anticipated lack of acceptance. Such fears are relevant for TFY, as about half of youth in our study whose parents did know about their gender identity reported their parents were not accepting of their trans identity.

Interventions to increase parental acceptance of TFY may positively affect TFY’s access to parental social support, which could have protective effects on preventing risks for HIV and other poor health outcomes. A study of parental social support for TFY was associated with regular condom use during sex, while youth without parental social support reported less consistent condom use [1]. In research with other youth populations, emotional support from parents was associated with more consistent condom use [24,25] and sexual health [26]. Research suggests that parental social support is important to the gender transition of trans youth [27]. PPSS may also be protective of HIV risk for TFY; however, like in
research with LGBT youth [3], we did not see any associations between sexual risk and types of primary social support. More research that looks for such associations over time may be better at detecting the importance of PPSS on risk behaviour in this population.

Our data also suggest that PPSS may affect mental health. We found that psychological distress was observed in greater proportions among those with NPPSS than among those with PPSS. TFY without PPSS may be more likely to experience psychological distress resulting in increases in mental health disorders over the life course. Interventions to increase parental acceptance and PPSS may serve to reduce risk for mental health disorders.

This study was not without limitations. It was conducted in the San Francisco Bay Area and did not use a random sampling approach; therefore, results cannot be generalized to the population of TFY. It is also possible that youth in our sample had parental support but did not get categorized as such because they did not list parents as their primary source of support. Measuring parents as a primary source of support is a limitation in the way our data were collected, but we believe this analysis approach fits our investigation given the importance of parents as sources of sexual health information and healthy development. The directionality and associations cannot be further examined because the data are cross-sectional. Further, we did not use mediation hypotheses that may address mechanisms more specifically related to PPSS and health outcomes in this population. Lastly, the cross-sectional nature of the data limits our ability to determine if support can precede parental acceptance. However, our working emic theory is that parents are limited in their ability to provide their trans child support if they are not able to first accept the child’s gender identity. This is one of very few studies that delved into understanding the role of parents in HIV risk for TFY and as such provides an important building block to future research.

| Variable                        | n (%)          |
|---------------------------------|----------------|
|                                |                |
| **Table 1. Demographic characteristics among transfemale youth in the San Francisco Bay Area, 2012 to 2014** |
| Age (years)                     |                |
| 16–17                           | 22 (7.3)       |
| 18–19                           | 46 (15.3)      |
| 20–21                           | 71 (23.6)      |
| 22–23                           | 119 (39.5)     |
| 24                              | 43 (14.3)      |
| Gender                          |                |
| Female                          | 133 (44.2)     |
| Transgender female/transwoman/male to female | 99 (32.9) |
| Genderqueer or genderfluid      | 49 (16.3)      |
| Additional sex or gender        | 13 (4.3)       |
| Questioning                     | 4 (1.3)        |
| Race                            |                |
| Hispanic                        | 66 (21.9)      |
| White                           | 110 (36.5)     |
| Black                           | 39 (13.0)      |
| Asian                           | 19 (6.3)       |
| Other                           | 21 (7.0)       |
| Mixed                           | 46 (15.3)      |
| Education                       |                |
| Less than secondary school      | 61 (20.3)      |
| Secondary school                | 102 (33.9)     |
| Some university                 | 105 (34.9)     |
| University grad/grad            | 33 (11.0)      |
| Nativity                        |                |
| U.S. born                       | 254 (84.7)     |
| Foreign born                    | 46 (15.3)      |
| Family religiosity              |                |
| Very religious                  | 103 (34.4)     |
| Somewhat religious              | 103 (34.4)     |
| Not very religious/not religious at all | 93 (31.1) |
| Self-religiosity                |                |
| Very important                  | 60 (20.0)      |
| Somewhat important              | 81 (27.0)      |
| Not very important/not important at all | 159 (53.0) |
| Employment                      |                |
| Ever worked                     | 229 (76.1)     |
| Monthly income (US$)            |                |
| 0–500                           | 156 (52.3)     |
| 501–1000                        | 63 (21.1)      |
| 1001–1500                       | 29 (9.7)       |
| 1501–2000                       | 21 (7.0)       |
| 2000 +                          | 29 (8.3)       |
| Childhood living situation      |                |
| With parents of origin          | 246 (81.7)     |
| With other caregiver in family  | 25 (8.3)       |
| Foster care system              | 12 (4.0)       |
| Legally adopted family          | 10 (3.3)       |
| Homeless                        | 7 (2.3)        |
| Other                           | 1 (0.3)        |

Table 1 (Continued)

| Variable                        | n (%)          |
|---------------------------------|----------------|
|                                |                |
| History of housing instability  |                |
| Ever unstable housing          | 172 (57.1)     |
| Ever run away                  | 158 (52.7)     |
| Brief Symptom Inventory         |                |
| Psychological distress (T > 62) | 35 (11.6)      |
| History of sex work             |                |
| Yes                             | 70 (26.7)      |
| Age (years) at sexual debut     |                |
| Never had sex                   | 25 (8.3)       |
| 6–12                            | 33 (11.0)      |
| 13–15                           | 86 (28.6)      |
| 16–17                           | 85 (28.2)      |
| 18–19                           | 53 (17.6)      |
| 20–24                           | 19 (6.3)       |
| Condomless anal intercourse in past 6 months | 112 (37.2) |
Understanding the importance of parental acceptance in concordance with PPSS needs to be researched further in order to create interventions for parents to help connect and guide their transgender children. Additionally, services that focus on family support may provide important protective factors for TFY. A national report on homelessness among LGBT youth highlights promising interventions, including LGBT-affirming family counseling for runaway youth and their

Table 2. Parental acceptance among transfemale youth in the San Francisco Bay Area, 2012 to 2014

| Parental acceptance                                                                 | n (%)    |
|-------------------------------------------------------------------------------------|----------|
| Item 1: “talked about gender identity with you”                                     | 177 (58.8) |
| Item 2: “expressed affection when you first talked about your gender identity”     | 120 (39.9) |
| Item 3: “supported your gender identity despite feeling uncomfortable”              | 187 (62.1) |
| Item 4: “advocated for you when mistreated because of your gender identity”        | 125 (41.5) |
| Item 5: “required that other family respect you”                                    | 161 (53.5) |
| Item 6: “ever brought you to LGBTI organization or event”                          | 56 (18.6)  |
| Item 7: “connected you to LGBTI adult role model”                                   | 45 (15.0)  |
| Item 8: “welcomed LGBTI friends and/or partners to your home”                      | 190 (63.1) |
| Item 9: “supported your gender expression”                                         | 196 (65.1) |
| Item 10: “believe you could have a happy future as trans adult”                    | 171 (56.8) |

Table 3. Differences in parental acceptance, mental health, history of sex work and age at sexual debut by type of primary social support among transfemale youth in San Francisco, 2012 to 2014

| Social support type | Non-parent (n = 251) | Parent (n = 49) | Chi-squared | p     |
|---------------------|----------------------|----------------|-------------|-------|
| Item 1              | 144 (58.1)           | 33 (67.3)      | 1.1         | 0.293 |
| Item 2              | 88 (35.5)            | 32 (65.3)      | 13.9        | <0.001|
| Item 3              | 150 (60.5)           | 37 (75.5)      | 3.3         | 0.067 |
| Item 4              | 88 (35.5)            | 36 (73.5)      | 22.7        | <0.001|
| Item 5              | 123 (49.6)           | 38 (77.6)      | 11.8        | 0.001 |
| Item 6              | 41 (16.5)            | 15 (30.6)      | 4.4         | 0.035 |
| Item 7              | 33 (13.3)            | 12 (24.5)      | 3.2         | 0.076 |
| Item 8              | 146 (58.9)           | 44 (89.8)      | 15.7        | <0.001|
| Item 9              | 150 (60.5)           | 46 (93.9)      | 18.9        | <0.001|
| Item 10             | 128 (51.6)           | 43 (87.8)      | 20.4        | <0.001|
| Total positive (i.e. yes) responses for parental acceptance items                  |          |                |            |       |
| 0–1                 | 47 (27.2)            | 0 (0.0)        | 16.1        | 0.003 |
| 2–3                 | 21 (12.1)            | 3 (8.6)        |             |       |
| 4–5                 | 23 (13.3)            | 4 (11.4)       |             |       |
| 6–8                 | 65 (37.6)            | 21 (60.0)      |             |       |
| 9–10                | 17 (9.8)             | 7 (20.0)       |             |       |

HIV risk

| History of sex work | Non-parent (n = 251) | Parent (n = 49) | Chi-squared | p     |
|---------------------|----------------------|----------------|-------------|-------|
| Never had sex       | 18 (7.3)             | 4 (8.2)        | 4.6         | 0.466 |
| 6–12                | 28 (11.3)            | 16 (32.7)      |             |       |
| 13–15               | 70 (28.2)            | 16 (32.7)      |             |       |
| 16–17               | 68 (27.4)            | 5 (10.2)       |             |       |
| 18–19               | 48 (19.4)            | 2 (4.1)        |             |       |
| 20–24               | 16 (6.5)             | 6 (12.2)       |             |       |

Condomless anal intercourse

| Mental health        | Non-parent (n = 251) | Parent (n = 49) | Chi-squared | p     |
|----------------------|----------------------|----------------|-------------|-------|
| Brief symptom inventory (T > 62) | 31 (12.5)             | 1 (2.0)        | 3.6         | 0.057 |
families [28]. Education for parents on ways to be accepting and supportive of their trans children is urgently needed so parents can develop skills for connecting and supporting their children through important gender milestones.

Conclusions

The results from this study provide evidence of a link between primary social support from parents and parental acceptance. These data confirm our hypothesis that parental acceptance and parents as the primary source of social support are important factors in TFY's development. Future studies examining the relationship between changes in PPSS and changes in parental acceptance and health over time are needed to understand mechanisms that affect the HIV risk of TFY. Interventions focused on parental acceptance of their children's gender identity may have the most promise for creating PPSS systems for TFY.

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Competing interests

The authors have no competing interests to declare.

Authors' contributions

VL, SA and EW conceived and designed the analysis and contributed to the writing of the manuscript. YHC and HJ conducted the analyses. All authors have read and approved the final version.

Acknowledgements

The authors thank all participants in the SHINE study and the trans community in the San Francisco Bay Area.

Funding

This study was funded by award number R01MH095598 from the US National Institutes of Health.

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HIV prevention among transgender women in Latin America: implementation, gaps and challenges

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Abstract

Introduction: Transgender women are the population most vulnerable to HIV in Latin America, with prevalence between 18 and 38%. Although the region has improved antiretroviral coverage, there is an urgent need to strengthen HIV prevention for key populations to meet regional targets set by governments. We conducted an assessment on the state of HIV prevention among transgender women in Latin America.

Methods: We conducted a desk review of Global AIDS Response Progress Reports, national strategic plans, technical reports and peer-reviewed articles from 17 Latin American countries published through January 2015. The review was preceded by 12 semi-structured interviews with UNAIDS and Pan American Health Organization officers and a discussion group with transgender women leaders to guide the identification of documents. We assessed access to, implementation and coverage of programmes; legal frameworks; community participation; inclusion of new strategies; and alignment with international recommendations.

Results and discussion: Overall, prevention activities in the region focus on condom distribution, diagnosis of sexually transmitted infections and peer education, mostly delivered at health facilities, with limited community involvement. Argentina and Uruguay have implemented structural interventions to address social inclusion. Argentina, Brazil and Mexico have adopted early initiation of antiretroviral therapy and treatment as prevention strategies. The other countries do not have substantial tailored interventions and consider the trans population a sub-population of men who have sex with men in data collection and programme implementation. Limited coverage of services, discrimination and a deep-seated mistrust of the health system among transgender women are the main barriers to accessing HIV prevention services. Promising interventions include health services adapted to transgender women in Mexico; LGBT-friendly clinics in Argentina that incorporate community and health workers in mixed teams; task-shifting to community-based organizations; mobile HIV testing; and gender identity laws.

Conclusions: Transgender women in Latin America continue to have limited access to HIV prevention services, which presents a bottleneck for reaching prevention goals and incorporating new prevention interventions. Prevention programmes should be rights-based; offer tailored, holistic interventions; and involve transgender women in their design and implementation.

Keywords: transgender women; HIV prevention; prevention; Latin America; PrEP.
Response to HIV, developed by a working group that included organizations such as UNAIDS, WHO, PEPFAR, the World Bank and the Global Fund, among other academic and policy institutions [9]. It consists of evidence-based interventions for prevention, treatment, care and support for people living with HIV and AIDS. The framework includes the following components: basic programmatic activities (e.g. condom distribution, voluntary counselling and testing, behavioural interventions); social and programme enablers (e.g. laws to protect vulnerable populations, stigma reduction, programme communication, research and innovation); and synergy with development sectors (e.g. for access to education or poverty reduction).

In 2014, the WHO published the Consolidated Guidelines on HIV Prevention, Diagnosis, Treatment and Care for Key Populations [10]. This document recommends a combination of promising new strategies for prevention, such as pre-exposure prophylaxis and early antiretroviral treatment following an HIV diagnosis, behavioural interventions, increased access to testing, integration of health services and community participation to strengthen legal enabling environments and address the needs of key populations. Furthermore, the 2015 WHO guidelines recommend that all people living with HIV should be offered antiretroviral therapy regardless of their CD4 count [11]. In recent years, the use of the continuum of care model has allowed countries to track gaps in their national responses [12].

Adopted by Latin American countries, UNAIDS’ Fast Track strategy aims to accelerate action to end AIDS as a public health threat by 2030, by achieving the 90-90-90 targets — where 90% of all people living with HIV know their status; 90% of people diagnosed with HIV are on treatment; and 90% of people on treatment have achieved viral suppression [13]. Countries in the region have also committed to reducing new infections and to eliminating stigma and discrimination [14].

National governments outline their HIV responses in national strategic plans (NSPs) and monitor progress in Global AIDS Response Progress Reporting (GARPR, or “progress reports”) documents submitted to UNAIDS every year [3]. NSPs set a framework for the national response, coordinating stakeholders to assess the epidemiological and social HIV situation, identify the most vulnerable populations, define strategies and interventions and allocate resources for their implementation [15]. GARPRs are official documents produced by countries to monitor progress towards their established targets. Civil society and community organizations carry out various interventions that are integrated into public responses or complement them at the community level.

We aimed to understand how Latin American countries design and implement prevention programmes for transgender women, the current reach and impact of these programmes, the level of community participation, and how these responses align with the international recommendations on HIV prevention among key populations.

Methods
We conducted a desk review to assess the state of prevention programmes targeting transgender women in 17 countries of Latin America. We focused on the legal framework for the rights of transgender people; the design and implementation of programmes, access to and coverage of prevention services; use of new technologies; alignment of strategies to international recommendations; community participation; and best practices. We assessed national prevention strategies, considering combination prevention as a desired standard. The desk review was preceded by key informant interviews with representatives of UN agencies and transgender women leaders to guide the document search.

Key informants
We held 12 semi-structured telephone interviews with HIV advisors from UNAIDS and the Pan American Health Organization (PAHO) in the region. Informants were requested to 1) identify the main HIV prevention strategies for transgender women implemented in countries; 2) recommend programmatic documents, evaluations or other working documents that should be included in the review; and 3) identify strategies and interventions that could be considered best practices to improve HIV prevention among transgender women. Interviews were recorded and information analyzed descriptively.

In addition, a focus group discussion was held in Panama in October 2014 with 10 transgender women representatives from the REDLACTRANS, a regional network of national community-based organizations (CBOs) representing transgender women and advocating for their rights. Each country was represented by an elected delegate at REDLACTRANS. The participants — who came from Argentina, Bolivia, Chile, Costa Rica, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Panama, Paraguay and Uruguay — were asked to identify gaps and barriers in prevention services for transgender women, as well as what they considered effective strategies or best practices implemented in their countries. The discussion session was recorded and the information analyzed descriptively.

Desk review
We assessed the national responses described in HIV/AIDS NSPs and in the GARPR reports submitted by countries to UNAIDS [3,16]. Additional sources included publicly available reports, health surveys and needs assessments carried out in transgender populations by governmental and non-governmental organizations (NGOs) in the region. We used PubMed and LILACS to identify publications assessing the socio-epidemiological context and HIV prevention interventions for transgender women in Latin America.

We analyzed and critically reviewed documents to 1) identify the epidemiological and social context for transgender women (including the existence of laws or norms, social vulnerability); 2) identify prevention strategies focused on transgender women (as a separate population or, where absent, as part of the MSM population); 3) identify best practices reported by countries in GARPRs and programmatic reports, lessons learned and gaps related to the implementation of prevention strategies for transgender women.

Data collection and analysis were carried out between October 2014 and January 2015. We analyzed the information considering the national level for each response and comparing the situation and strategies implemented in the various countries from a regional perspective. We used key informant interviews to identify documents and strategies
referred as best practices. The results shown come from the desk review with the exception of the information on limitations and gaps, which also included the input of key informants from REDLACTRANS.

Results and discussion
We organized the results to show the main components of national responses considering protective legal frameworks, health sector strategies, access to services and incorporation or new recommendations. In addition, we present the main limitations and gaps in service provision in the region and alternative strategies identified in different countries to overcome existing barriers.

Protective laws and social environments for transgender women
Table 1 shows the countries in Latin America with laws protecting the civil rights of transgender women. Only Argentina, Mexico City and Uruguay have passed gender identity laws, allowing transgender people to change their name and sex in their identity documents, that is, their legal identity. Colombia and Panama have established judicial procedures allowing the change. All countries in South America with the exception of Peru and Paraguay have laws prohibiting discrimination on the basis of sexual orientation and gender identity. Examining the status of protective laws and social environments described in the progress reports, Central America is the sub-region with the most conservative legal framework for LGBT populations. Some countries, such as Costa Rica and Guatemala, have described in their progress reports how conservative groups represent a key obstacle for HIV prevention either by preventing the design and approval of laws and policies protecting the rights of the LGBT population or by obstructing the implementation of health programmes or sexual education programmes that address sexual diversity. In the border zone between Mexico and the United States, religious groups obstruct condom distribution to key populations and harm reduction programmes for intravenous drug users [17]. In Peru, conservative groups successfully lobbied to remove interventions related to sexual diversity and gender identity from the National Human Rights Plan approved in 2014 [18].

Health sector strategies
Table 2 summarizes the health sector’s main HIV prevention strategies for key populations of transgender women, according to NSPs and progress reports. Although every country in the region identifies transgender women as a key population for HIV in their progress reports, only Argentina, Brazil, Mexico and Uruguay have implemented substantially tailored interventions for this population. The rest of the countries in Latin America mainly treat transgender women as a sub-population of MSM in data analysis, programme design and implementation.

Prevention strategies are similar across countries in the region. In general, they are based on the following core elements: 1) information, education and communication activities; 2) condom promotion and distribution, STI diagnosis and control; 3) voluntary HIV counselling and testing (HCT); and 4) work with peer educators. The majority of prevention services are provided at primary care facilities focused on STI diagnosis and treatment, including HCT. Identified HIV cases are referred to treatment facilities, usually general hospitals. In some countries health personnel carry out outreach activities such as information campaigns or testing at social or sex work venues. In countries like Mexico, the largest clinics provide antiretroviral treatment and offer complementary services such as oral and mental health.

Table 1. Legislation for transgender women in Latin America

| South America | Gender identity law | Antidiscrimination law |
|---------------|---------------------|-----------------------|
| Argentina     | x                   | x                     |
| Bolivia       | –                   | x                     |
| Brazil        | –                   | x                     |
| Chile         | –                   | x                     |
| Colombia      | –                   | x                     |
| Ecuador       | –                   | x                     |
| Paraguay      | –                   | –                     |
| Peru          | –                   | –                     |
| Uruguay       | x                   | x                     |
| Venezuela     | –                   | x                     |

| Central America | Gender identity law | Antidiscrimination law |
|-----------------|---------------------|-----------------------|
| Costa Rica      | –                   | –                     |
| El Salvador     | –                   | –                     |
| Guatemala       | –                   | –                     |
| Honduras        | –                   | –                     |
| Nicaragua       | –                   | –                     |
| Panama          | –                   | –                     |
| Mexico          | x                  | x                     |

Note: Table 1 shows the laws of Latin American countries protecting the civil rights of transgender women. Gender identity laws are laws directed at transgender persons that allow individuals to change their name and sex of preference in their identity documents. Anti-discrimination laws are laws that prohibit discrimination on the basis of sexual orientation and gender identity. *Mexico City,* Panama and Colombia allows judicial processes for name and sex change.

Table 3 shows the countries that offer these primary care services for key populations. Those that do not offer these services at these facilities provide them through the regular public health system. There is a gap in prevention interventions that go beyond condom use and individual-level risk reduction.

Condom and lubricant distribution
As reported in the GARPRs, countries such as Argentina, Brazil and Mexico carry out mass condom purchases and distribution, making them available to key populations through health services, peer distribution at socialization and sex work venues and through CBOs. Elsewhere in the region, condom distribution for key populations occurs mainly in health centres, which have a more limited scope. The trans women key informants mentioned that the number of condoms distributed to health centres in Bolivia, El Salvador and Panama does not satisfy the demand of the population, especially those engaged in sex work. In a context of poverty and where sex work is one of the
| South America |
|---------------|
| **Argentina** |
| - Condom promotion and distribution, workshops and campaigns |
| - Educational material to promote access to prevention services |
| - HIV testing enhancement: updating of diagnostic algorithms to include rapid tests, communication campaigns and service provision in Centers of Prevention, Counseling and Testing (CePATS) |
| - Stigma reduction: *Consultorios amigables* ("friendly clinics"), training and sensitization of health personnel, communities and journalists |
| - Collaboration with CBOs to implement activities |
| - Comprehensive and tailored health services for the LGBT population |
| **Bolivia** |
| - Condom promotion and distribution at health facilities |
| - HCT and diagnosis and treatment of STIs at reference and surveillance clinics |
| - Work with peer health promoters |
| **Brazil** |
| - Condom and lubricant promotion and distribution |
| - HIV testing enhancement: updating of diagnostic algorithms to include rapid tests (oral and blood), partnerships with CBOs and NGOs, mobile units |
| - Treatment as prevention, test and offer/universal treatment, comprehensive PEP, demonstration studies on PrEP |
| - Comprehensive and tailored health services for key populations |
| **Chile** |
| - HIV prevention information and materials for MSM and trans women |
| - Condom promotion and distribution at health establishments |
| **Colombia** |
| - HIV prevention information material |
| - Condom promotion and distribution |
| **Ecuador** |
| - Condom promotion and distribution at health facilities |
| - HCT and diagnosis and treatment of STIs at reference and surveillance clinics |
| - Work with peer health promoters |
| **Paraguay** |
| - Condom promotion and distribution at health facilities |
| - Work with peer health promoters |
| **Peru** |
| - Condom promotion and distribution at health facilities |
| - HCT and diagnosis and treatment of STIs at reference and surveillance clinics |
| - Work with peer health promoters at health facilities |
| **Uruguay** |
| - Condom promotion and distribution |
| - Collaboration with CBOs to improve care through health services |
| **Venezuela** |
| - No information |

| Central America |
|-----------------|
| **Costa Rica** |
| - Condom promotion and distribution at health facilities |
| **El Salvador** |
| - Condom promotion and distribution at health facilities |
| - HCT and diagnosis and treatment of STIs at reference centres |
| - Community-based work with key populations to strengthen health services |
| **Guatemala** |
| - Condom promotion and distribution at health facilities |
| - HCT and diagnosis and treatment of STIs at reference centres |
| - HIV prevention information material |
| **Honduras** |
| - Condom promotion and distribution at health facilities |
| - HCT and diagnosis and treatment of STIs at reference centres |
| - Work with peer health promoters at health establishments |
| **Nicaragua** |
| - Communication campaigns on HIV prevention |
| - HCT and diagnosis and treatment of STIs at primary care facilities |
| **Panama** |
| - HIV prevention information and materials |
| - Condom promotion and distribution at health facilities |
| - HCT and diagnosis and treatment of STIs at reference centres |
few employment alternatives, having to buy condoms is a significant limitation to its usage. Information on lubricant distribution is limited, indicating the need for increased access to and availability of lubricants.

Access to HIV testing
Figure 1 shows access to HIV testing by MSM in the last 12 months as reported by countries in progress reports. Although it would be more useful to have MSM and trans-gender women as separate populations, most countries still include data on transgender women within MSM. Nonetheless this indicator is used as a proxy to measure access to prevention services among transgender women. It must be clarified that this indicator is constructed differently across the region, limiting the ability to compare data. Some countries report estimates of programmatic data (users of the service, divided by total estimated programme users), while others estimate the proportion of users divided by the total population. For example, Peru went from using as the denominator the estimated number of prevention programme users to using the estimated total number of MSM/transgender women in the country (i.e. 3% of the total male population between 18 and 45 years). This could explain the coverage rate of 5% shown for this country. In the majority of countries, less than 50% of MSM/transgender women have had an HIV test in the past 12 months. Various epidemiological surveillance studies provide information on transgender women’s access to testing and knowledge about HIV status. In a Mexico City study, only 26% of HIV-positive trans women were aware of their status [19], while in Peru this figure was 24% for

Table 2 (Continued)

| Prevention strategies for key populations |
|------------------------------------------|
| Mexico | - Condom promotion and distribution  |
|        | - HCT and diagnosis and treatment of STIs at reference centres |
|        | - Work with peer health promoters |
|        | - Comprehensive and tailored health services for MSM and trans women |

Note: Table 2 shows the main strategies described by countries in NSPs and progress reports for HIV prevention among MSM and/or transgender women; *MSM are included in this analysis because the majority of countries still treat transgender people as a sub-category of MSM in their data analysis and service provision; CBO, community-based organization; HCT, HIV counselling and testing; MSM, men who have sex with men; NGOs, non-governmental organizations; PEP, post-exposure prophylaxis.

Table 3. Primary care services for STI diagnosis and control among MSM* and transgender women in Latin America

| STI centres for key populations |
|---------------------------------|
| South America                  |
| Argentina                      | Friendly clinics/Centers of Prevention, Counseling and Testing (CePATS) |
| Bolivia                        | Centers for Information, Surveillance and Referrals (CDVIR) |
| Brazil                         | — |
| Chile                          | — |
| Colombia                       | — |
| Ecuador                        | Comprehensive Centers for Sexual Healthcare (CAISS) |
| Paraguay                       | — |
| Peru                           | STI Referral Centers (CERITS) |
| Uruguay                        | — |
| Venezuela                      | No information |
| Central America                |
| Costa Rica                     | — |
| El Salvador                    | HIV/STI Surveillance and Control Strategy (VICITS) |
| Guatemala                      | HIV/STI Surveillance and Control Strategy (VICITS) |
| Honduras                       | HIV/STI Surveillance and Control Strategy (VICITS) |
| Nicaragua                      | HIV/STI Surveillance and Control Strategy (VICITS) |
| Panama                         | HIV/STI Surveillance and Control Strategy (VICITS) |
| Mexico                         | HIV and STI Ambulatory Prevention and Care Clinics (CAPASITS), Clínica Especializada Condesa |

Note: Table 3 shows the countries that have primary care facilities focused on HCT and STI diagnosis and treatment for MSM and transgender women. Acronyms are shown in Spanish as used in official documents. *MSM are included in this analysis because the majority of countries still treat transgender people as a sub-category of MSM in their data analysis and service provision; HCT, HIV counselling and testing; MSM, men who have sex with men.
HIV-positive MSM/trans women [20]. Data across Latin America show that access to testing among transgender women is a major bottleneck for the provision of HIV prevention and care services. It is a critical step to reinforce in the continuum of care.

Incorporation of new prevention strategies: prevention based on antiretrovirals

The use of antiretrovirals for HIV prevention is still nascent in the region and is currently implemented by three countries. The main strategy consists of HIV testing and the offer to initiate early antiretroviral therapy (test and treat, or test and offer). Brazil began implementing this measure in December 2013 [21] and Argentina and Mexico incorporated it into their treatment guidelines in 2014 [22,23]. Brazil has also established the usage of post-exposure prophylaxis (PEP) for individuals who have engaged in a high risk sexual act (apart from cases of rape) [24]. Although it is available in various settings, no country in the region has incorporated PrEP as a public health strategy for HIV prevention (incorporated as an intervention in national responses). To date, Brazil is implementing two demonstration studies on the acceptability, feasibility and safety of PrEP for key populations [25].

Health services limitations and gaps

We present the main limitations on the provision of prevention services mentioned in progress reports and identified by transgender women from REDLACTRANS. Several of the limitations mentioned are inherent to the region’s public health systems (e.g. accessibility or limited supply). These overlap with issues in the lives of transgender women such as social exclusion and discrimination, which increase their vulnerability and diminish their engagement in prevention services.

Geographical accessibility

STI clinics are often limited to one or two per city, reducing their accessibility due to distance and time constraints.

Opening hours

In many cases the daytime hours are not suitable for transgender women who engage in sex work or even for those who have formal work during the day. Countries such as Argentina, Honduras and Ecuador identify this limitation in their NSPs and raise the need to tailor schedules to the population’s needs.

Limitations of the supply chain to ensure availability of drugs and supplies

This issue affects the health system as a whole and is a barrier not only for prevention services (absence or shortage of rapid tests, limited number of condoms for distribution), but also for HIV treatment (documented episodes of ARV stock-outs in several countries in the region).

Prevention and care services with no or limited integration

Once a new case of HIV is identified at a primary care facility, the referral to treatment centres (often hospitals) places the onus almost entirely on the client. Information systems are not prepared to track an individual through the entire continuum of care and usually do not address gender identity as a variable to document service provision for a transgender woman.

Regarding the quality of services, the following limitations were identified.

Lack of protocols on transgender health

The clinics providing HIV services may be the only contact transgender women have with health services, as a population with a high degree of social exclusion. There were few services identified for mental health, survivors of violence and referrals to other public sectors such as justice. Counselling tends to focus mainly on aspects of sexual behaviour. As described below, there are some initiatives seeking to fill this gap. PAHO has developed guidelines for the provision of comprehensive care for transgender persons, including aspects such as gender-affirming processes and hormone therapy [26].
Countries like Argentina have developed comprehensive care guidelines for transgender health [27].

**Discrimination in health facilities**

Discrimination is often caused by the lack of training of health personnel on sexual diversity and transgender health [28]. These situations include non-recognition of gender identity (e.g. use of the male name), stigmatization (e.g. focusing only on HIV or STIs, even if the individual is seeking care for another health problem) and even denial of attention and care [4,5,29,30].

**Limited community participation and outreach activities**

In general, community participation is limited to peer-led health promotion at health facilities targeting key populations, where some promoters are part of the staff. Key informants state that this participation is often insufficient or promoters have not been trained to disseminate prevention messages. In many countries, transgender women have not played a significant role in planning and implementation of interventions.

The social exclusion experienced by transgender women, together with the health system limitations mentioned above, perpetuate a parallel health culture centered on gender enhancement and sex work. Transgender women sex workers earn more money if they have a more voluptuous body, which can be achieved by the use of fillers. This culture is based on empirical practices, organized by peer referral and includes hormone self-medication with almost no medical follow-up and the extended use of liquid silicone/fillers [4,5]. It has been described in Argentina, Brazil, Mexico, Peru and Central America [5,19,29–31].

**Alternatives and best practices to improve prevention strategies in the region**

We found no experimentally evaluated prevention interventions in the scientific literature specifically related to transgender women in Latin America. Through progress reports, key informants from UN organizations and activists from REDLACTRANS, we identified strategies that have been implemented by governments, civil society organizations and/or CBOs to promote social inclusion, enhance access to services and increase community participation. These strategies are presented, showing specific examples that can be adopted by countries in the region to improve the delivery of HIV prevention services for transgender women.

**Structural interventions to promote social inclusion**

A study conducted by the Association of Transvestites, Transsexuals and Transgender Persons of Argentina and Fundación Huesped documented the positive impact of the gender identity law among trans women [32]. Of the 452 study participants, 57% had changed their gender in their identity document within 18 months of the law’s approval. Participants reported a reduction in experiences of stigma and discrimination in the public health system, educational system and with security forces. Changing one’s identity was associated with an increase in transgender people returning to the educational system and seeking formal work. Nonetheless, access to the benefits of the law has not been homogenous among transgender women: those who were sex workers and had undergone gender-affirming processes were more likely to have changed their gender identity. Immigrants were less likely to change their identity, highlighting migration as another vulnerability factor faced by transgender women. The data suggest that those who are more empowered were the first to access the benefits of the law [33]. Argentina has also implemented labour inclusion programmes for transgender persons [34].

Uruguay has focused on increasing social inclusion among transgender women. In addition to the gender identity law, the Ministry of Social Development has implemented the following measures since 2012: gender quotas and labour programmes including affirmative action for transgender people, access to food assistance programmes for transgender people living in extreme poverty, raising awareness of public servants on issues of transgender identity, implementation of an observatory to document cases of discrimination and human rights violations, and partnerships with academic institutions to improve the understanding of social vulnerability and design interventions [35].

**Provision of services that meet the population priorities**

Clínica Especializada Condesa in Mexico, one of the largest clinics for key populations in the country, provides tailored services for transgender women to encourage access to HIV services. The intervention includes the provision of free hormone therapy and the training of health personnel to provide transgender health services. Within a year of implementation, the clinic had almost 700 transgender patients, with a higher retention in HIV care than other populations; 90% of those who tested HIV-negative were retested every six months. Some transgender women were also treated for complications due to hormone overdosing and the use of fillers [36].

**Adaptation of existing services to provide tailored care for key populations**

Consultorios amigables ("friendly clinics") in Argentina are key population-friendly health clinics that tailor existing services to LGBT health needs, thus welcoming sexual minorities into the public health system. The clinics require existing services in primary care clinics and hospitals to be reorganized: a dedicated multidisciplinary team (including medical providers, nurses, social workers and LGBT community personnel) is hired and trained; day and night-time hours are offered; primary care services beyond HIV are integrated; and linkages are made with other public institutions (e.g. justice, education, social development) [37].

**Mobile HIV testing to enhance access**

Two projects implementing mobile units that offer rapid HIV testing at social and sex work venues in Lima, Peru, and Esquintla, Nicaragua, compared the population attending mobile units to those accessing testing through health facilities [38,39]. In both cities, those tested by the mobile units had a larger proportion of transgender women and first-time testers. In Lima, mobile units received more people who had engaged in transactional sex and had used drugs or alcohol during the last sexual intercourse. This strategy facilitates reaching a high-risk population that does not necessarily go to

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http://www.jiasociety.org/index.php/jias/article/view/20799 | http://dx.doi.org/10.7448/IAS.19.3.20799
health centres and offers alternatives to ministries of health to complement the services offered to key populations at health facilities.

**Partnering with CBOs to provide services**

Since 2014 Brazil has been implementing the project *Viva melhor sabendo* (“Live Better Knowing”) through CBOs, offering oral rapid testing to transgender women and other key populations in communities. HIV testing uptake has increased by reaching out to key populations where they are, as many of them, particularly transgender women, do not attend health facilities. The initiative consists of a grant award mechanism implemented by the MoH, which allocates funding to NGOs and CBOs throughout the country. Oral tests are conducted by trained CBO or NGO staff, who also distribute condoms, lubricants and prevention brochures. People diagnosed with HIV are accompanied to the nearest health facility. As of April 2015, the programme had carried out 28,400 tests, nearly half of which were for first-time testers; 19% of those who tested positive were transgender women [40]. The initiative is a model to increase early case detection and linkage to care.

**Use of rapid tests for HIV diagnosis**

The use of rapid tests can overcome barriers to testing, such as long waiting periods or the need for a second visit to obtain results. It can also facilitate the implementation of mobile strategies for diagnosis [41]. Countries such as Argentina, Brazil and Mexico have adapted their HIV diagnosis guidelines to incorporate the use of rapid tests [42]. Although we did not identify assessments on the impact of this strategy in the region, international literature has shown the effectiveness of rapid tests to increase HIV diagnosis [43].

**Conclusions**

**Prevention among transgender women in Latin America: rights-based versus disease control**

With the exception of Argentina, Brazil, Mexico and Uruguay, the approach to HIV prevention among transgender women is focused on disease control without considering the social determinants of the epidemic. The main strategies implemented by governments consist in condom provision, HIV/STI diagnosis and, in some cases, peer-led health promotion. Community involvement in planning and implementation of interventions is very limited. In several countries of the region, the combination of weak public health systems (with limited human resources and gaps in the integration of prevention and care services) and the high level of social exclusion and mistrust of the health system among transgender women results in insufficient coverage and limited access to prevention services. One of the main gaps identified is transgender women’s access to testing, with subsequent effects on the detection of new cases and their link to care and treatment. Furthermore, prevention and care services are not integrated in the majority of countries in the region.

There are also differences between the strategies outlined in planning documents and those that are actually implemented. For example, Ecuador’s NSP describes a human rights approach in its HIV response, acknowledging health as a right and recognizing the social vulnerability of key populations, including transgender women. However, prevention efforts are still based on conventional strategies such as condom distribution and HIV testing through health services. In many countries, the NSP is not a rights-based strategy, but a strategy of the ministry of health’s national AIDS programme. Although national programmes coordinate with other public sectors, these linkages are not formalized in official strategies. Argentina, Brazil, Mexico and Uruguay have shown major progress in achieving an integrated HIV response. The national governments of Argentina and Uruguay have driven policies to guarantee the rights of the LGBT population, addressing health issues (including HIV) through a lens of social inclusion. In both countries there are programmes to promote employment of transgender people and provide assistance to transgender people in poverty. The friendly clinics in Argentina have created welcoming spaces within existing health centres, which increase LGBT people’s access. Uruguay has sought to improve service provision for transgender persons starting with the municipal health network. Argentina, Brazil and Mexico have adopted a test and offer strategy, albeit with the significant limitation of treatment services that are provided only at health facilities, to which many transgender people have limited access.

Brazil and Mexico have advanced in adapting prevention strategies to international recommendations. Besides offering treatment regardless of CD4 count, they implement harm reduction programmes for drug users following international recommendations. Brazil has incorporated the most comprehensive PEP strategy in the region and is currently assessing the use of PrEP as a public health strategy. Brazil’s approach highly prioritizes interventions in key populations that account for the bulk of new infections, including transgender women [21]. It also includes structural interventions such as empowering CBOs to carry out HIV testing. However, in recent years Brazil’s HIV response has faced setbacks due to a resurgence of religious and conservative groups that take a particular moral standing on LGBT and HIV issues [44].

**Final remarks**

Although all Latin American countries recognize transgender women as a key population for HIV on official documents such as strategic plans and progress reports, very few have tailored programmes and interventions specifically for this population. The majority of countries still implement prevention interventions for MSM and transgender women as a single population. Additionally, prevention continues to be predominantly focused on disease control, aiming to reduce risk at the individual level rather than having a rights-based combination prevention approach.

In most countries the programmatic data collected still includes transgender women as a sub-population within the MSM category, which presents an immense obstacle for the design, implementation, monitoring and evaluation of appropriate interventions for transgender women. This obstacle should be noted as a major constraint in national responses. The paucity of data on transgender women in general is a cause and a consequence of the lack of effective responses to this population. Data on transgender men are nearly nonexistent, highlighting a major gap in our knowledge of how
HIV affects this sub-group. Additionally there are very few existing indicators to assess the performance of prevention programmes in the region.

Most prevention strategies for key populations are provided at the level of primary care services and focused on STI diagnosis and control. In many cases, these clinics constitute the main, and sole, point of entry to the health system for transgender women. However, there is a very limited offering of transgender-specific health services at these facilities, which, when compounded by discrimination faced in health settings, creates significant barriers to accessing HIV prevention, especially HIV testing. Interventions such as training and raising awareness of health providers and decision-makers are key to improve the delivery of services. At the same time, it is necessary to increase community participation to tailor interventions and implement activities to improve their coverage and effectiveness [45–48].

Access to testing is the main bottleneck in the continuum of care in the region and can be a setback for the implementation of new prevention technologies such as PrEP, which requires that users have continuous access to testing. In the same way, the implementation of test and treat or test and offer requires strengthening of existing public health and community systems with adequate human resources, efficient supply chains, interventions that can identify and reach the populations most at risk with adequate coverage, integration of prevention and treatment services, and an integrated information system across the continuum of care.

To meet the ambitious prevention targets adopted by the region, a multisectoral response is needed, based on human rights and addressing social determinants such as exclusion (including exclusion from health services), stigma and discrimination. Health services must be adapted to the specific needs of the transgender population—and other key populations—and consider their comprehensive health needs, beyond HIV. Healthcare workers need adequate training to be able to address the specific vulnerabilities of transgender women. This assessment has allowed us to identify promising and alternative strategies to overcome these barriers, from the national to the local level and with the active collaboration of the transgender community, which can serve as an example to other countries in the region. Countries must seek to adapt the international recommendations and the best practices described above to their context.

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Competing interests
The authors declare no competing interests.

Authors’ contributions
ASS and SE designed the protocol, wrote the first manuscript draft, coordinated and incorporated input from co-authors and completed the manuscript. GdR, CF and RM provided substantial comments to the earlier drafts. All authors have read and approved the final version of the paper.

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How Peru introduced a plan for comprehensive HIV prevention and care for transwomen

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Abstract

Introduction: As a group, transwomen in Peru have the highest prevalence of HIV (>20%) in the country, but they have little access to HIV prevention, testing and care services. Until recently, Peru’s national HIV programme did not recognize transwomen and had remained essentially static for decades. This changed in December 2014, when the Ministry of Health expressed its commitment to improve programming for transwomen and to involve transwomen organizations by prioritizing the development of a “Targeted Strategy Plan of STIs/HIV/AIDS Prevention and Comprehensive Care for Transwomen.”

Discussion: A policy dialogue between key stakeholders – Peru’s Ministry of Health, academic scientists, civil society, transgender leaders and international agencies – created the conditions for a change in Peru’s national HIV policy for transwomen. Supported by the effective engagement of all sectors, the Ministry of Health launched a plan to provide comprehensive HIV prevention and care for transwomen. The five-year plan includes new national guidelines for HIV prevention, care and support. The plan also incorporates several strategies to address structural factors that contribute to the vulnerability of transwomen. We identified three key factors that created the right conditions for this change in Peru’s HIV policy. These factors include (1) the availability of solid evidence, based on scientific research; (2) ongoing efforts within the transwomen community to become better advocates of their own rights; and (3) a dialogue involving honest discussions between stakeholders about possibilities of changing the nation’s HIV policy.

Conclusions: The creation of Peru’s national plan for HIV prevention and care for transwomen shows that long-term processes, focused on human rights for transwomen in Peru, can lead to organizational and public-policy change.

Keywords: HIV prevention; transwomen; evidence synthesis; structural vulnerability; policy dialogue; Peru.

Received 11 November 2015; Revised 28 April 2016; Accepted 2 May 2016; Published 17 July 2016

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Introduction

Research and the recognition of transwomen

In many parts of the world, transwomen are nearly 50 times more likely to acquire HIV than are members of the general population [1]. In Peru, the HIV epidemic is concentrated among men who have sex with men (MSM) and transwomen, who were originally grouped within the MSM category. Targeted studies [2,3] have shown that transwomen in Peru have a high prevalence of HIV (24–30%); their vulnerability is especially evident in the capital city of Lima, where transwomen have an HIV prevalence of 30%, compared to 0.23% among the general population [2] and 12.4% among the MSM in the country [3].

In general, the high incidence of HIV among transwomen has been linked to biological risks (e.g. receptive anal sex), behavioural risks (e.g. condom-less sex, a high number of partners and transactional sex) and structural factors (e.g. discrimination and no legal recognition of their gender identity) [4–6]. These factors are also evident among the population of transwomen in Peru, estimated to be nearly 23,000 in 2010 [7]. Violence against transwomen, often perpetrated by government security forces, is not uncommon in Peru [8,9]. In Lima, the majority of transwomen come from poor or extremely poor households, nearly half (46%) are between 25 and 35 years old, and nearly one in five (18%) migrated to Lima from the Peruvian Amazon to engage in sex work [2].

The absence of laws, policies and regulations that recognize transwomen exacerbates their social and structural exclusion [2,10–12]. All of these factors contribute to a high unmet need for HIV prevention, care and support for transwomen in Peru [13–16]. Indeed, until recently, Peru’s national HIV programme did not recognize transwomen and had remained essentially static for decades. In the mid-1990s, two important strategies increased the visibility of vulnerable populations: (1) a programme of periodic medical check-ups for sex workers and MSM and (2) a strategy that trained peer-group members to promote safer sex. Another important step was taken in 2004 with the launch of a national antiretroviral treatment programme that...
ensured free access to antiretroviral therapy for the entire population. In the ensuing years, transwomen were still considered to be MSM, but the community had begun to mobilize and demand the recognition of their gender identity.

The role of national consultations
Although transwomen organizations have existed since the early 2000s, it was not until 2007 that a distinct transwomen social movement started to gain some visibility. This was manifested by the first “National Consultation on Sex Work, Human Rights and HIV and AIDS” before the year ended. The discussions during the Consultation considered the social and health situations of transwomen, and the structural determinants of their vulnerability to HIV/AIDS [13,17].

The 2007 Consultation also helped to initiate a collaboration (which lasted until 2012) between transwomen community organizations, UNAIDS, UNFPA and academic researchers [13]. These collaborations had two major components: (1) developing the transwomen community and building the capacity of transwomen organizations throughout Peru and (2) increasing the awareness of decision-makers and authorities in several Peruvian cities about the plight of transwomen. As a result of these collaborations, the national transwomen movement became a stakeholder in HIV and human rights issues, and authorities became aware of the movement’s claims [13].

By 2014, it became evident that Peru’s response to HIV among MSM and transwomen needed an update that included a combination of prevention strategies [17]. The Ministry of Health organized a “National Consultation on Combination HIV Prevention,” in partnership with Cayetano Heredia University (UPCH) and UNAIDS. This 2014 Consultation was an important milestone that opened a dialogue between stakeholders and community leaders on the future of HIV prevention in Peru. The dialogue resulted in a broad set of recommendations, including (1) HIV-prevention programmes should meet the particular needs of each key population, including the different modes of HIV transmission among these groups; (2) The assessment of a study’s outcome must consider structural interventions (e.g. law reform and enforcement to eliminate stigma, discrimination and violence); (3) Health providers need a better understanding of how transwomen perceive health and the barriers they face in accessing health services; and (4) The support of grassroots organizations and the transwomen community should be a critical part of the design and implementation of health care strategies.

A new plan
In December 2014, the Ministry of Health expressed its commitment to improve programming for transwomen and involve transwomen organizations by prioritizing the development of a “Targeted Strategy Plan of STIs/HIV/AIDS Prevention and Comprehensive Care for Transwomen.” The national HIV/STI programme at the Ministry of Health formed a working group, experts from the Ministry, academia, UNAIDS and transwomen organizations, who were important contributors to the new plan.

The plan established the following goals: (1) strengthen the diagnostic and treatment capacity of the referral centres to provide primary care to transwomen; (2) establish a specific technical and programmatic policy framework to address the primary health needs of transwomen; (3) create two centres of excellence to provide comprehensive care for transwomen; (4) strengthen information management and health monitoring and surveillance of transwomen; (5) provide access to STI/HIV diagnostic, treatment and care services for transwomen; and (6) strengthen the participation of transwomen organizations.

The working group’s first action was to map the social space of transwomen in the cities of Lima and Callao with the aim of describing the population’s geographical distribution, identifying problems and understanding the relationships between transwomen and members of other populations. The results of the mapping played an important role in the assessment of Peru’s HIV strategy and helped to define a plan to reduce the transmission of HIV/STIs among transwomen in Lima and Callao.

Some other activities are also planned for the near future. The capacity of health services will be improved by regulations that address the primary health needs of transwomen according to current scientific evidence and the recommendations by the World Health Organization. Transwomen will gain greater access to health services through the implementation of mobile health care services and improvements to health facility infrastructures. Two centres of excellence will implement a comprehensive approach to health care for transwomen by providing STI/HIV/AIDS prevention and control, mental health services, cancer prevention and medically supervised hormone therapy for body modifications. These centres will collaborate with public and private specialized institutions, and with the participation of transwomen organizations and community groups.

Discussion
The development of Peru’s HIV plan for transwomen shows that significant changes in public policy can be achieved by the concerted (and long-term) efforts of researchers, transwomen and policy makers. We identified three key elements in this process: (1) the availability of relevant data from a variety of sources, including strategic data to support programmatic change; (2) ongoing strengthening of transwomen communities through capacity building for advocacy and political participation; and (3) a policy dialogue to identify and address the needs of transwomen in a feasible and sustainable way.

Public health care initiatives for transgender people have been implemented in some other Latin American countries. For instance, specialized centres for transgender health and “friendly” health care centres in public hospitals have been implemented in Mexico, Argentina and Uruguay, with the aim of providing comprehensive health care and serving as bridges to other health systems services [18,19]. Brazil and Argentina have developed specific policies that guarantee access to health care for LGBT people, and so provide a normative framework based on evidence and human rights [20,21].

As specialized health care centres for transwomen are created, the health care system could be adapted to address the needs and demands of transwomen by developing
guidelines and training health providers [22]. Policy development and community involvement are key elements of change because normative frameworks are needed to move from well-intentioned initiatives to public commitments, while the community’s participation helps to create health services that are grounded in the community’s needs and expectations.

It is clear that HIV-prevention programmes for transwomen must tackle the stigma that affects their lives and increases their vulnerability to HIV. A structural approach to stigma analyses the process of stigmatization at the junction of culture, power and difference [23], and it recognizes that social conditions and institutional policies and practices limit the opportunities and resources among stigmatized people [24,25]. For transwomen, the stigma associated with HIV is intertwined with the stigma of a non-conforming gender identity. This is evident in the relationship that the Peruvian government has established with the transwomen community, which is firmly defined by HIV epidemic.

Political leaders and the transwomen community agree that the health strategies for transwomen must go beyond HIV prevention and care, and address transwomen’s demands for comprehensive care. An HIV-prevention strategy tailored to transwomen must address the dual forms of stigma they encounter, while finding a balance between addressing HIV and the population’s other needs. It must also promote fundamental changes in the legal and social contexts that make transwomen so vulnerable to HIV [26].

It may be useful to consider the experience of “friendly” health centres in Argentina and the health centres that are free from “homo-lesbo-trans-phobia” in Uruguay [18,19], both of which offer comprehensive health care. These centres were originally part of HIV and STI programmes, but they distanced themselves from the “HIV label” because the communities do not want to be identified solely as a key population. The recognition of this need is critical and denying its importance may be a barrier that prevents transwomen from trusting the health system. It may be feasible to use HIV/STI services as an entryway to integrate transwomen within the health system, but it is only a first step in a complex process toward comprehensive health care for the community.

The sustainability of any programme for transwomen in Peru is also an important consideration. The realm of politics in Peru is highly unstable, and several stakeholders have identified this issue as the primary barrier to the implementation of a combination prevention programme for transwomen and MSM. Discriminatory attitudes, fears and poor support have typified the government’s past responses to the demands of transwomen and MSM [27,28]. An effective HIV policy must be reliable, and it must be greeted with a positive response from the health system. It may be feasible to use HIV/STI services as an entryway to integrate transwomen within the health system, but it is only a first step in a complex process toward comprehensive health care for the community.

Conclusions

Evidence-informed political will and multisector policy dialogue were key elements in the creation of the “Targeted Strategy Plan of STIs/HIV/AIDS Prevention and Comprehensive Care for Transwomen” in Peru. The active participation of diverse stakeholders in policy dialogues is a “critical enabler” for an effective HIV response. Formal policy dialogues must be complemented by informal exchanges that take place over the course of a decade or more. The long-term collaboration between government, civil society, international organizations, academic researchers and the transwomen community was essential for the creation of a comprehensive HIV plan that is based on sound public health practices and human rights. We hope these elements will also help to promote a synergistic collaboration between the health system and community organizations and ultimately lead to the first comprehensive health policy (beyond HIV) for transwomen and other key populations in Peru.

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Competing interests
None of the authors have competing interests to declare.

Authors’ contributions
All authors have read and approved the final manuscript. XS conceived the main ideas of the paper and was in charge of the manuscript writing. ANC contributed to developing the discussion section and tailoring the manuscript to the format required. JV collaborated giving ideas, suggestions and recommendations according to her experience as member of the transwomen community. RC, CB and PC provided comments to earlier drafts of the document. CFC conceived the structure of the paper, worked with XS on several iterations, suggested references and completed the main ideas.

Acknowledgements
The authors acknowledge the Ministry of Health, UNAIDS and Red-Trans-Peru for their sponsorship of, and participation in the policy dialogue that significantly contributed to the HIV/STI Prevention and Comprehensive Care Strategy Plan for Transwomen.

Funding
CFC, XS and ANC were funded through R21 MH1002135: Developing a State-of-the-Art Combination HIV Prevention Program for MSM/transwomen in Peru.

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Transgender social inclusion and equality: a pivotal path to development

Vivek Divan, Clifton Cortez, Marina Smelyanskaya and JoAnne Keatley

Abstract

Introduction: The rights of trans people are protected by a range of international and regional mechanisms. Yet, punitive national laws, policies and practices targeting transgender people, including complex procedures for changing identification documents, strip transgender people of their rights and limit access to justice. This results in gross violations of human rights on the part of state perpetrators and society at large. Transgender people’s experience globally is that of extreme social exclusion that translates into increased vulnerability to HIV, other diseases, including mental health conditions, limited access to education and employment, and loss of opportunities for economic and social advancement. In addition, hatred and aggression towards a group of individuals who do not conform to social norms around gender manifest in frequent episodes of extreme violence towards transgender people. This violence often goes unpunished.

Discussion: The United Nations Development Programme (UNDP) views its work in the area of HIV through the lens of human rights and advances a range of development solutions such as poverty reduction, improved governance, active citizenship, and access to justice. This work directly relates to advancing the rights of transgender people. This manuscript lays out the various aspects of health, human rights, and development that frame transgender people’s issues and outlines best practice solutions from transgender communities and governments around the globe on how to address these complex concerns. The examples provided in the manuscript can help guide UN agencies, governments, and transgender activists in achieving better standards of health, access to justice, and social inclusion for transgender communities everywhere.

Conclusions: The manuscript provides a call to action for countries to urgently address the violations of human rights of transgender people in order to honour international obligations, stem HIV epidemics, promote gender equality, strengthen social and economic development, and put a stop to untruthed violence.

Keywords: Trans people health; trans people rights; sustainable development; HIV & development; SDGs; transgender.

Introduction

Those who have traditionally been marginalized by society and who face extreme vulnerability to HIV find that it is their marginalization – social, legal, and economic – which needs to be addressed as the highest priority if a response to HIV is to be meaningful and effective. Trans people’s experiences suggest that although HIV is a serious concern for those who acquire it, the suffering it causes is compounded by the routine indignity, inequality, discrimination, and violence that they encounter. Trans people, and particularly trans women, have articulated this often in the context of HIV [1].

For a reader who is not trans, imagine a world in which the core of your being goes unrecognized – within the family, if and when you step into school, when you seek employment, or when you need social services such as health and housing. You have no way to easily access any of the institutions and services that others take for granted because of this denial of your existence, worsened by the absence of identity documents required to participate in society. Additionally, because of your outward appearance, you may be subject to discrimination, violence, or the fear of it. In such circumstances, how could you possibly partake in social and economic development? How could your dignity and wellbeing – physical, mental, and emotional – be ensured? And how could you access crucial and appropriate information and services for HIV and other health needs?

Trans people experience these realities every day of their lives. Yet, like all other human beings, trans people have fundamental rights – to life, liberty, equality, health, privacy, speech, and expression [2], but constantly face denial of these fundamental rights because of the rejection of the trans person’s right to their gender identity. In these circumstances, there can be no attainment of the goal of universal equitable development as set out in the 2030 Agenda for Sustainable Development [3], and no effort to stem the tide of the HIV epidemic among trans people can succeed if their identity and human rights are denied.

Discussion

The human rights gap – stigma, discrimination, violence

The ways in which marginalization impacts a trans person’s life are interconnected; stigma and transphobia drive isolation,
poverty, violence, lack of social and economic support systems, and compromised health outcomes. Each circumstance relates to and often exacerbates the other [4].

Trans people who express their gender identity from an early age are often rejected by their families [5]. If not cast out from their homes, they are shunned within households resulting in lack of opportunities for education and with no attempts to ensure attention to their mental and physical health needs. Those who express their gender identities later in life often face rejection by mainstream society and social service institutions, as they go about undoing gender socialization [6]. Hostile environments that fail to understand trans people’s needs threaten their safety and are ill-equipped to offer sensitive health and social services.

Such discriminatory and exclusionary environments fuel social vulnerability over a lifetime; trans people have few opportunities to pursue education, and greater odds of being unemployed, thereby experiencing inordinately high levels of homelessness [6] and poverty [7]. Trans students experience resentment, prejudice, and threatening environments in schools [8], which leads to significant drop-out rates, with few trans people advancing to higher education [9].

Workplace-related research on lesbian, gay, bisexual, and trans (LGBT) individuals reveals that trans workers are the most marginalized and are excluded from gainful employment, with discrimination occurring at all phases of the employment process, including recruitment, training opportunities, employee benefits, and access to job advancement [10]. This environment inculcates pessimism and internalized transphobia in trans people, discouraging them from applying for jobs [11]. These extreme limitations in employment can push trans people towards jobs that have limited potential for growth and development, such as beauticians, entertainers or sex workers [12]. Unemployment and low-paying or high risk and unstable jobs feed into the cycle of poverty and homelessness. When homeless trans people seek shelter, they are housed as per their sex at birth and not their experienced gender, and are subject to abuse and humiliation by staff and residents [13]. In these environments, many trans people choose not to take shelter [14].

Legal systems often entrench this marginalization, feed inequality, and perpetuate violence against trans people. All people are entitled to their basic human rights, and nations are obligated to provide for these under international law, including guarantees of non-discrimination and the right to privacy [2]. However, trans people’s human rights concerns, combined with lesbian, gay, and bisexual sexual orientation issues. However, trans people’s human rights concerns, grounded in their gender identity, are inherently different and necessitate their own set of approaches.

**Imperatives for trans social inclusion**

In order to overcome the human rights barriers trans people confront, certain measures are imperative and should be self-evident, given the standards that States are obliged to provide under international law to all human beings. Paying attention to these is key to effectively addressing the systemic marginalization that trans people experience. Such action can have immeasurable benefits, including the full participation of trans people in human development processes as well as positive health and HIV outcomes. For trans people, the change must begin with the most fundamental element – acknowledgement of their gender identity.
The right to gender recognition

For trans people, their very recognition as human beings requires a guarantee of a composite of entitlements that others take for granted – core rights that recognize their legal personhood. As the Global Commission on HIV and the Law pointed out, “In many countries from Mexico to Malaysia, by law or by practice, transgender persons are denied acknowledge[ment] as legal persons. A basic part of their identity – gender – is unrecognized” [19]. This recognition of their gender is core to having their inherent dignity respected and, among other rights, their right to health including protection from HIV. When denied, trans people face severe impediments in accessing appropriate health information and care. Recognizing a trans person’s gender requires respecting the right of that person to identify – irrespective of the sex assigned to them at birth – as male, female, or a gender that does not fit within the male-female binary, a “third” gender as it were, as has been expressed by many traditionally existing trans communities such as hijras in India [27]. This is an essential requirement for trans people to attain full personhood and citizenship. The guarantee of gender recognition in official government-issued documents – passports and other identification cards that are required to open bank accounts, apply to educational institutions, enter into housing or other contracts or for jobs, to vote, travel, or receive health services or state subsidies – provides access to a slew of activities that are otherwise denied while being taken for granted by cisgender people.¹ Such recognition results in fuller civic participation of and by trans people. It is a concrete step in ensuring their social integration, economic advancement, and a formal acceptance of their legal equality. It can immeasurably support their empowerment and act as an acknowledgement of their dignity and human worth, changing the way they are perceived by their families, by society in general, and by police, government actors, and healthcare personnel whom they encounter in daily life. UN treaty bodies have acknowledged this vital right of trans people to be recognized. The UN High Commissioner for Human Rights has recommended that States “facilitate legal recognition of the preferred gender of transgender persons and establish arrangements to permit relevant identity documents to be reissued reflecting preferred gender and name, without infringements of other human rights” [28].

Freedom from violence & discrimination

Systemic strategies to reduce the violence against trans people need to occur at multiple levels, including making perpetrators accountable, facilitating legal and policy reform that removes criminality, and general advocacy to sensitize the ill-informed about trans issues and concerns. Strengthening the capacity of trans collectives and organizations to claim their rights can also act as a counter to the impunity of violence. When trans people are provided legal aid and access to judicial processes, accountability can be enforced against perpetrators. Sensitizing the police to make them partners in this work can be crucial. When political will is absent to support such attempts in highly adverse settings, trans organizations and allies can consider using international human rights mechanisms, such as shadow reports made to UN human rights processes like the Universal Periodic Review, to bring focus to issues of anti-trans violence and other human rights violations against trans people.

Providing equal access to housing, education, public facilities and employment opportunities, and developing and implementing anti-discrimination laws and policies that protect trans people in these contexts, including guaranteeing their safety and security, are essential to ensure that trans individuals are treated as equal human beings.

The right to health

For trans people, their right to health can only be assured if services are provided in a non-stigmatizing, non-discriminatory, and informed environment. This requires working to educate the healthcare sector about gender identity and expression, and zero tolerance for conduct that excludes trans people. Derogatory comments, breaches of confidentiality from providers, and denial of services on the basis of gender identity or HIV status are some of the manifestations of prejudice. The right to non-discrimination that is guaranteed to all human beings under international law must be enforced against actions that violate this principle in the healthcare system. Yet, a multi-pronged approach that supports this affirmation of trans equality together with a sensitized workforce that is capable of delivering gender-affirming surgical and HIV health services is necessary.

Building on the commitments made by the UN General Assembly in response to the HIV epidemic [29], the World Health Organization (WHO) developed good practice recommendations in relation to stigma and discrimination faced by key populations, including trans people [30]. These recommendations urge countries to introduce rights-based laws and policies and advise that, “Monitoring and oversight are important to ensure that standards are implemented and maintained.” Additionally, mechanisms should be made available “to anonymously report occurrences of stigma and/or discrimination when [trans people] try to obtain health services” [30].

Fostering stigma-free environments has been successfully demonstrated – where partnerships between trans individuals and community health nurses have improved HIV-related health outcomes [31], or where clinical sites welcome trans people and conduct thorough and appropriate physical exams, manage hormones with particular attention to ART, and engage trans individuals in HIV education [32].

Advancing trans human rights and health

For all the challenges faced by trans people in the context of their human rights and health, promising interventions and policy progress have shown that positive change is possible, although this must be implemented at scale to have significant impact. Change has occurred due to the efforts of trans advocates and human rights champions, often in critical alliances with civil society supporters as well as sensitized judiciaries, legislatures, bureaucrats, and health sector functionaries.

¹Cisgender people identify and present in a way that is congruent with their birth-assigned sex. Cisgender males are birth-assigned males who identify and present themselves as male.
Key strides have been made in the context of gender recognition in some parts of the world. In the legislatures, this trend began in 2012 with Argentina passing the Gender Identity and Health Comprehensive Care for Transgender People Act, which provided gender recognition to trans people without psychiatric, medical, or judicial evaluation, and the right to access free and voluntary transitional healthcare [33,34]. In 2015, Malta passed the Gender Identity, Gender Expression and Sex Characteristics Act, which provides a self-determined, speedy, and accessible gender recognition process. The law protects against discrimination in the government and private sectors. It also de-pathologizes gender identity by stating that people “shall not be required to provide proof of a surgical procedure for total or partial genital reassignment, hormonal therapies or any other psychiatric, psychological or medical treatment.” It presumes the capacity of minors to exercise choice in opting for gender reassignment, while recognizing parental participation and the minor's best interests. It stipulates the establishment of a working group on trans healthcare to research international best practices [35]. Pursuant to its passing the Maltese Ministry of Education working with activists also developed policy guidelines to accommodate trans, gender variant, and intersex children in the educational system [36]. Other countries, such as the Republic of Ireland and Poland, have also passed gender identity and gender expression laws, albeit of varying substance but intended to recognize the right of trans people to personhood [37,38]. Denmark passed legislation that eliminated the coercive requirement for sterilization or surgery as a prerequisite to change legal gender identity [39].

Trans activists and allies have also used the judicial process to claim the right to gender recognition. In South Asia, claims to recognition of a gender beyond the male–female binary have been upheld — in 2007, the Supreme Court of Nepal directed the government to recognize a third gender in citizenship documents in order to vest rights that accrue from citizenship to metis [40]; in Pakistan, the Supreme Court directed the government to provide a third gender option in national identity cards for trans people to be able to vote [41]; in 2014, the Indian Supreme Court passed a judgement directing the government to officially recognize trans people as a third gender and to formulate special programmes to support their needs [42]. These developments in law, while hopeful, are too recent to yet discern any resultant trends in improvements in trans peoples’ lives, more broadly.

More localized innovative efforts have also been made by trans organizations to counter violence, stigma, and discrimination. For instance in South Africa, Gender DynamiX, a non-governmental organization worked with the police to change the South African Police Services’ standard operating procedures in 2013. The procedures are intended to ensure the safety, dignity, and respect of trans people who are in conflict with the law, and prescribe several trans-friendly safeguards — the search of trans people as per the sex on their identity documents, irrespective of genital surgery, and detention of trans people in separate facilities with the ability to report abuse, including removal of wigs and other gender-affirming prosthetics. Provision is made for implementation of the procedures through sensitization workshops with the police [43]. In Australia, the Transgender Anti-Violence Project was started as a collaboration between the Gender Centre in Sydney and the New South Wales Police Force, the City of Sydney and Inner City Legal Centre in 2011. It provides education, referrals, and advocacy in relation to violence based on gender identity, and support for trans people when reporting violence, assistance in organizing legal aid and appearances in court [44]. Measures have also been taken to tackle discrimination faced by trans people, in recognition of their human rights — in 2015, Japan’s Ministry of Education ordered schools to accept trans students according to their preferred gender identity [45]; in 2014 in Quezon City, the Philippines the municipal council passed the “Gender Fair City” ordinance to ensure non-discrimination of LGBT people in education, the workplace, media depictions, and political life. This law prohibits bullying and requires gender-neutral bathrooms in public spaces and at work [46]; in Ecuador, Alfil Association worked on making healthcare accessible to trans people, including training and sensitization meetings for health workers and setting up a provincial health clinic for trans people in collaboration with the Ministry of Health, staffed by government physicians who had undergone the training; and Transbantu Zambia set up a small community house providing temporary shelter for trans people, assisting them in difficult times or while undergoing hormone therapy. Similar housing support has been provided by community organizations with limited resources in Jamaica and Indonesia.2

Conclusions
Towards sustainable development: time for change
Although there are other examples of human rights progress for trans people, much of this change is isolated, non-systemic, and insufficient. Trans people continue to live in extremely hostile contexts. What is required is change and progress at scale. The international community’s recent commitment towards Sustainable Development Goals (SDGs) presents an opportunity to catalyze and expand positive interventions [3].

Preventing human rights violations and social exclusion is key to sustainable and equitable development. This is true for trans people as much as other human beings, just as the achievement of all 17 SDGs is of paramount importance to all people, including trans people. Of these SDGs, the underpinning support for trans people’s health and human rights is contained in SDG 3 – “Ensure healthy lives and promote well-being for all at all ages,” SDG 10 – “Reduce inequality within and among countries,” and SDG 16 – “Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.”

The SDGs are guided by the UN Charter and grounded in the Universal Declaration of Human Rights. They envisage processes that are “people-centered, gender-sensitive, respect human rights and have a particular focus on the poorest, most vulnerable and those furthest behind” and a “just, equitable,

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2These illustrations are based on information gathered in the process of developing a tool to operationalize the Consolidated Guidelines on HIV prevention, diagnosis, treatment and care for key populations (WHO, 2014), through interviews with and questionnaires sent to trans activists. See also reference 31.
tolerant, open and socially inclusive world in which the needs of the most vulnerable are met.” [3]. They reiterate universal respect for human rights and dignity, justice and non-discrimination, and a world of equal opportunity permitting the full realization of human potential for all irrespective of race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth, disability, or other status. The relationship between the SDGs and trans people’s concerns has been robustly articulated in the context of inclusive development [47].

UN Member States have unequivocally agreed to this new common agenda for the immediate future. The SDGs demand an unambiguous, farsighted, and inclusive demonstration of political will. Their language clearly reflects the most urgent needs of trans people, for whom freedom from violence and discrimination, the right to health and legal gender recognition are inextricably linked.

Specifically in regard to trans people, the SDGs are a call to immediate action on several fronts: governments need to engage with trans people to understand their concerns, unequivocally support the right of trans people to legal gender recognition, support the documentation of human rights violations against them, provide efficient and accountable processes whereby violations can be safely reported and action taken, guarantee the prevention of such violations, and ensure that the whole gamut of robust health and HIV services are made available to trans people. Only then can trans people begin to imagine a world that respects their core personhood, and a world in which dignity, equality, and wellbeing become realities in their lives.

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Competing interests
The authors have declared that no competing interests exist.

Authors’ contributions
The concept for this manuscript was a result of collaborative work between all four authors. JD provided key ideas for content and led the writing for the manuscript. CC provided thought leadership and contributed writing, particularly on the SDGs, while MS provided writing and editorial input, as well as other support. JK advised on content and provided writing and editorial input and guidance. All authors have read and approved the final version.

Acknowledgements and funding
The authors are grateful for the work of courageous trans activists around the world who have overcome tremendous challenges and continue to battle disparities as they bring about positive change. Many encouraging examples cited in this manuscript would be impossible without their contribution. The authors also thank Jack Byrne, an expert on trans health and human rights, whose work on the UNDP Discussion Paper on Transgender Health and Human Rights (2013) served as an inspiration for this piece, and Joanne Keatley’s effort to provide writing, editorial comment, and oversight. UNDP staff and consultants, who contributed time to this manuscript, were supported by UNDP.

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Commentary article

Putting the t in tools: a roadmap for implementation of new global and regional transgender guidance

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Abstract

Transgender (trans) activists and global health partners have collaborated to develop new tools and guidance for assessing and addressing HIV and other health needs within trans populations. Trans women experience a heavy burden of HIV and other sexually transmitted infections (STIs), high incidence of violence and difficulties accessing gender-affirming services. At the same time, little has been published on trans men’s health, HIV issues, needs and experiences. Young trans people are especially marginalized and vulnerable, with few programmes and services specifically tailored to their needs. Trans-specific data and guidance are needed to adapt the global response to HIV to meet the needs of the trans population. While the needs of this group have only recently received attention, global, regional and other technical guidance documents are being developed to address these gaps. Regional blueprints for comprehensive care for trans people in Latin America, the Caribbean, and Asia and the Pacific are now available. These tools – supported by the Pan American Health Organization, World Health Organization, US President’s Emergency Plan for AIDS Relief and the United Nations Development Programme, in collaboration with regional trans groups – provide a contextual map, indicating opportunities for interventions in health, HIV, violence, stigma and discrimination, social protection and human rights. Global guidance includes the World Health Organization’s Policy Brief: Transgender People and HIV, and the interagency publication, Implementing Comprehensive HIV and STI Programmes with Transgender People. Community empowerment and capacity building are the focus of the new tools for global and regional transgender guidance. The goal is to strengthen and ensure community-led responses to the HIV challenge in trans populations. This article describes the new tools and guidance and considers the steps needed to use them to appropriately support and engage transgender populations within national AIDS, STI, and sexual and reproductive health responses and programmes. The time to use these tools and guidance for advocacy, strategic planning, capacity building, programme design and training is now.

Keywords: Trans; transgender; HIV; regional blueprint; tools; TRANSIT; MSM.

Introduction

In just the past five years, the global health community has gone from almost no mention of transgender health and rights to an awakening recognition of the importance of addressing transgender (trans) people as a key population independent of men who have sex with men (MSM). Although some countries supported trans programming through the Global Fund’s 2010 Strategy in Relation to Sexual Orientation and Gender Identities [1], a shift occurred when the findings from the first HIV prevalence meta-analysis on trans women became available. Presented at the 2012 International AIDS Conference in Washington, DC, the results showed that transgender women were 49 times more likely to acquire HIV than the general population – a finding that, along with strong personal statements from noted trans activists, finally garnered global recognition among public health professionals [2,3]. That same year, the Global Commission on HIV and the Law published HIV and the Law: Risks, Rights & Health, which provided specific recommendations to ensure access to equitable healthcare for trans people [4]. In 2013, the US President’s Emergency Plan for AIDS Relief (PEPFAR) designated transgender persons as a key population independent of MSM in the development of the Technical Considerations for Country Operational Plan [5]. Then, in 2014, the WHO included separate recommendations for trans populations within its Consolidated Guidelines on HIV Prevention, Diagnosis, Treatment and Care for Key Populations [6], as it did again in the 2015 supplement, Tool to Set and Monitor Targets for HIV Prevention, Diagnosis, Treatment and Care for Key Populations [7].

This change was long overdue. Trans women experience a heavy burden of HIV and other sexually transmitted infections (STIs) [2], high incidence of violence [8–11] and difficulties accessing and being retained in gender-affirming services [12,13]. The available literature has little material on trans men’s health, HIV issues, needs and experiences [14–17]. Young trans people and trans sex workers are especially marginalized and vulnerable, with few programmes and services specifically tailored for their needs [18–26].
While recognition of the need to focus increased attention on the trans community took far too long, tools to inform programmes and policies that better serve trans people have been quickly developed. In 2016, we not only have the support documents described above, we have a set of global and regional tools that offer guidance for assessing and addressing HIV and other health needs in trans communities. Even more important than the fact of their existence, the process of creating these tools set a new standard for collaboration between trans activists and global development partners. The resulting products were informed by trans expertise and experience and can be equally owned and implemented by donors, programme managers, activists and trans community members. In this article, we present this set of complementary tools, describe the process of their development and call for their broad and immediate implementation.

Discussion
Regional tools for Latin America, the Caribbean, and Asia and the Pacific
Three regional blueprints for meeting the comprehensive health and rights needs of transgender people were recently developed [8,27,28]. All were designed to address the regional needs and diversity within trans communities and were developed under the leadership of trans people in collaboration with development partners. The blueprints describe the broader, holistic needs of trans people and cover topics including gender affirmation in all forms of trans-competent care, transition, HIV-related guidance, social protection and human rights. The regional blueprints are meant for guidance, adaptation and translation (not adoption). For example, they include medical algorithms from expert clinical guidance but do not specify recommended dosages or drug names [29,30]. They are designed to inform and be used by a wide range of stakeholders, including trans community members, advocates, public-health practitioners, clinicians, donors and governments.

The regional Por la Salud de las Personas Trans: Elementos para el desarrollo de la atención integral de personas trans y sus comunidades en Latinoamérica y el Caribe (‘Blueprint for the Provision of Comprehensive Care for Trans Persons and Their Communities in Latin America and the Caribbean’) (2013) [27] and the Blueprint for the Provision of Comprehensive Care for Trans Persons and Their Communities in the Caribbean and Other Anglophone Countries (2014) [8] were conceived at the same time. The Pan American Health Organization hired two writers – one of them a member of the trans community – to lead the creation of a document for policymakers and healthcare professionals. The writers developed a framework that was reviewed and revised by trans activists and health experts at an initial meeting. Additional consultations were planned to capture the day-to-day needs of trans people throughout the region.

During consultation planning it was determined that two blueprints were needed to be responsive to the differences between Latin America and the Caribbean. For the Latin American blueprint, consultations were held in Central America, South America and Mexico with trans community members, non-governmental organizations and donors, and representatives of national ministries of health (MOHs). The participants clarified terminology, developed a list of regionally appropriate definitions and highlighted priority medical topics. As trans ownership increased, community members began to talk about the document as their own and the audience and intention of the document shifted. The end result was an advocacy and educational tool that could also be used by members of the trans community. Once the Latin American blueprint was complete, it was translated to English and Caribbean trans community members and other stakeholders provided feedback during a meeting in Trinidad. As a result of their input, the completed Caribbean document acknowledges the more restrictive legal environment and includes local case studies.

The Latin America and Caribbean (LAC) regional blueprints have been widely used. Trans activists affiliated with REDLACTRANS and involved in the blueprints’ development used the documents and the process of their creation to advocate to and partner with MOHs in Bolivia, Guatemala, El Salvador, Peru and Argentina. In each country, MOH officials are now training healthcare providers to offer trans-competent services. Discussions with health officials in Brazil, Trinidad and Tobago, and the Dominican Republic are ongoing. In Argentina, the Latin America blueprint was adapted for national needs and re-branded [31]. At the regional level, the blueprints form the basis of culturally and clinically appropriate guidance in both Latin America [32] and the Caribbean [33].

The Blueprint for the Provision of Comprehensive Care for Trans Persons and Trans Communities in Asia and the Pacific (2015) [28] was built on the model of the LAC blueprints but took unique shape based on the diverse needs and context of trans people in the region. As with the other regional blueprints, its focus is strengthening health and human rights responses. It emphasizes gender identity recognition and the provision of gender-affirming health services and fills a gap in information on medical transitioning.

As in LAC, trans leadership was important from the inception of the Asia and the Pacific regional blueprint. The Asia Pacific Transgender Network (APTN) was the key regional community partner in collaboration with the United Nations Development Programme (through the Multi-Country South Asia Global Fund HIV Programme and the Being LGBT in Asia initiative) and the PEPFAR/USAID-funded Health Policy Project. APTN facilitated the participation of trans people from all over Asia and the Pacific, people with diverse languages, cultures, histories and identities [34] who were actively involved in trans health and rights promotion. A trans man authored and led the process of developing the blueprint, which allowed the document to describe important issues in the voice of the community. A trans woman from Asia coordinated efforts among the various stakeholders, including trans leaders and communities. The highly consultative process created ownership of the document and, even before completion, the blueprint was used for advocacy purposes. Furthermore, the blueprint has shaped local activists’ thinking on entry points for advancing human rights for trans people regionally and has created a
platform for advocates, programmers, governments and donors to plan for implementation.

Global tools
When the regional blueprints were conceived, there was no global guidance document specific to trans people and HIV. This situation has changed. Two trans-specific global tools have recently been developed: the World Health Organization’s (WHO) Policy Brief: Transgender People and HIV (2015) [35] and Implementing Comprehensive HIV and STI Programmes with Transgender People (2016) [36]. Both were informed by the WHO’s 2014 consolidated guidelines [6], including its annex, Values and Preferences of Transgender People: A Qualitative Study [12]. They were also influenced by the principles, development processes and content in the regional blueprints. These documents are more focused on HIV and transgender women, based on the epidemiology, than the regional blueprints. Both tools make note of the critical intersection between health access and human rights.

Policy Brief: Transgender People and HIV
This policy brief summarizes transgender-specific essential information and existing WHO recommendations, such as those in the consolidated guidelines. It was developed by WHO in collaboration with the International Reference Group on Trans People and HIV (IRGT). While the WHO has endorsed all the regional blueprints, the policy brief is the source for WHO-endorsed global trans-specific HIV guidance. It makes the case for serving the trans community, reminds decision makers that trans people have the right to health services and shares essential strategies. It is designed for policymakers and those conducting higher level advocacy, for example, with national governments. It directs readers to resource documents, such as the regional blueprints, for information on implementation.

Implementing Comprehensive HIV and STI Programmes with Transgender People (Trans Implementation Tool or TransIT)
This is one of a series of global implementation tools for key populations affected by HIV. Under development during 2014 and 2015, TransIT was published in early 2016. It provides how-to guidance on the delivery of HIV programmes with and for transgender people, particularly trans women who are disproportionately burdened with HIV. Taking the current best and promising practices in HIV programming for transgender people from the WHO consolidated guidelines and informed by the WHO policy brief, the implementation tool lays out practical approaches for setting up programmes and services that are built on a strong foundation of community engagement and empowerment. There is guidance on addressing stigma and discrimination; realizing and achieving human rights for trans people; delivering gender-affirming services that address HIV, other STIs, violence prevention and response, sexual and reproductive health needs, and co-infections and co-morbidities; service delivery approaches; and programme management.

TransIT was developed with input from many key partners and experts and with leadership from the trans community (including the IRGT), development partners, policymakers, public health practitioners and clinicians. Trans community members wrote portions of the tool and provided extensive feedback, which was obtained through a collaborative process and community consultation with participants from around the world.

Due to a lack of data and guidance on the AIDS epidemic among trans men and women, trans persons have been doing what marginalized people have done throughout history: they have been resilient [37,38]. They have comforted one another when faced with the deaths of their friends and loved ones; they have coped with violence in their communities; and they have fostered their own support networks in the midst of anger and isolation from family, religious groups and healthcare providers. They have raised their voices to the global silence, demanding action. The tools highlighted in this article are not just documents; they represent the voices of human beings who demand an equal right to health and well-being.

Although these tools represent an important step forward, there is more work to be done. LAC and Asia/Pacific countries lead regional efforts to address the health and human rights needs of trans people, but countries in the global North do not assign sufficient resources to this issue, as evidenced by poor health outcomes. Moreover, there is still “programming silence” in most of Africa, Central Asia and the Middle East. Given that local movements and networks may be nascent or non-existent and violence is an ever-present threat in these regions, it is important to use the new global tools to build the rationale with data and sensitization in these areas. This does not mean letting the situation lie dormant; it means engaging and including trans communities, building capacity and galvanizing advocacy efforts, including with funders, so that region-specific activities can be implemented. Given that sub-Saharan Africa is at the heart of the global HIV pandemic, future momentum should be focused there. In particular, advocates should point to the global HIV burden and human rights abuses, highlighting the connection between the two in the trans community.

Advocacy
Regional networks and international trans groups already exist. In the process of addressing HIV, donors have convened trans advocates and country stakeholders to review the regional and global tools. This process must continue to evolve and flow into policy discussions at the country level. Most importantly, regional and country leaders should support and advocate for the inclusion of trans people as key populations in HIV national strategic plans and programmes supported by the Global Fund.

Strategic planning and capacity building
Donors should help develop leadership and build the capacity of regional and national networks that will meaningfully introduce trans voices into strategic planning processes. Points of entry include the Global Fund Country Coordinating Mechanisms and the development of country operation plans by PEPFAR and other agencies. The new tools, including the WHO target setting and monitoring tool [7], provide a clear framework that communities and donors can use together for strategic planning processes linked to funding decisions.
Programme design
Local case studies are highlighted, particularly in TransIT and the blueprints, and provide useful programme models that can be adopted through regional exchanges (i.e., south-to-south sharing) and technical capacity development via the regional and local networks.

Training
All health facility staff need sensitization and training to develop clinical and cultural competency—topics covered in detail in the regional tools. For trans people, gender-affirming care is an effective link to HIV services [12,39], particularly because stigma, discrimination and violence may mean that HIV is not the first priority for trans people.

Conclusions
The process of developing new tools for global and regional trans guidance has empowered leaders, blossomed networks and created new opportunities to focus our HIV prevention efforts for greater impact and epidemic control. In this new era of the UNAIDS 90-90-90 targets for HIV testing, treatment and care [40], we as trans community members, advocates, public-health practitioners, donors and governments must first reach trans people not yet engaged in programming and build trust. While we need better information, both on epidemiology and on the implementation of trans programmes, we cannot afford to wait for more data in order to act. We already know what to do. We need to focus on advocacy, strategic planning, capacity building, programme design and training. We need to strengthen and scale up the existing regional efforts in Asia, the Pacific and LAC. These programmes are ready to take steps toward improved quality and scale-up. Finally, we need to begin new efforts in other regions—offering trans-competent services while supporting and/or nascent trans organizations and movements. Now is the time for action.

Acknowledgements
The authors would like to honour all the trans community members and networks, as well as their health professionals and allies, who supported the production of the data, tools, guidance, reports and consultations cited within this article. The authors would also like to acknowledge Sidney Harrison Moore for editing support.

Funding
There was no funder for this commentary.

Disclaimer
Author views do not necessarily express the views of their organizations.

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About the journal
The Journal of the International AIDS Society, an official journal of the Society, provides a peer-reviewed, open access forum for essential and innovative HIV research, across all disciplines. All articles published by the Journal of the International AIDS Society are freely accessible online. The editorial decisions are made independently by the journal's editors-in-chief.

Email: editorial@jiasociety.org
Website: http://www.jiasociety.org
eISSN: 1758-2652

Publisher
International AIDS Society
Avenue de France 23
1202 Geneva, Switzerland
Tel: +41 (0) 22 710 0800
Email: info@iasociety.org
Website: http://www.iasociety.org

Indexing/abstracting
The Journal of the International AIDS Society is indexed in a variety of databases including PubMed, PubMed Central, MEDLINE, Science Citation Index Expanded and Google Scholar. The journal’s impact factor is 6.256 (*2015 Journal Citation Report® Science Edition - a Thomson Reuters product).

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