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# Enhancing Benefits or Increasing Harms: Community Responses for HIV Among Men Who Have Sex With Men, Transgender Women, Female Sex Workers, and People Who Inject Drugs

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**Abstract:** Studies completed over the past 15 years have consistently demonstrated the importance of community-level determinants in potentiating or mitigating risks for the acquisition and transmission of HIV. Structural determinants are especially important in mediating HIV risk among key populations, including men who have sex with men, people who inject drugs, sex workers of all genders, and transgender women. The objective of this systematic review was to synthesize the evidence characterizing the community-level determinants that potentiate or mitigate HIV-related outcomes for key populations. The results of the review suggest that although health communication programs represent community-level strategies that have demonstrated the effectiveness in increasing the uptake of HIV testing and decreasing the experienced stigma among people living with HIV, there are limited studies focused on key populations in low- and middle-income settings. Moreover, interpretation from the 22 studies that met inclusion and exclusion criteria reinforce the importance of the continued measurement of community-level determinants of HIV risks and of the innovation in tools to effectively address these risks as components of the next generation of the HIV response. Consequently, the next generation of effective HIV prevention science research must improve our

understanding of the multiple levels of HIV risk factors, while programming for key populations must address each of these risk levels. Failure to do so will cost lives, harm communities, and undermine the gains of the HIV response.

**Key Words:** HIV, epidemiology, sex work, men who have sex with men, transgender, drug use

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## INTRODUCTION

Studies completed over the past 15 years have consistently demonstrated the importance of risk factors transcending the individual level in potentiating or mitigating risks for the acquisition and transmission of HIV.<sup>1</sup> Although the definition of who and/or what constitutes a “community” is contested, the definitions typically include network ties, relationships between organizations and groups, and geographical/political regions.<sup>2</sup> Moreover, cultural, economic, religious, geographic lines, prison walls, or any combination of the above may bind communities. Community-level risk determinants reflect inequities in social, economic, organizational, and political power and contextualize proximal risk factors for HIV infection, such as unprotected intercourse with serodiscordant viremic partners, sharing of injection equipment, and lack of treatment uptake during antenatal services for women living with HIV.<sup>1,3,4</sup> Community-level determinants generally act by limiting or facilitating access to HIV prevention, treatment, and care services or commodities, including education, condoms, condom-compatible lubricants, antiretroviral therapy (ART), safe working spaces, safe injection devices, and protection and acceptability by the general community of such harm-reduction interventions for specific populations. Moreover, stigma and discrimination in health care settings can present significant barriers to HIV prevention, treatment, care, and support.<sup>5–7</sup> The disproportionate adverse HIV-related and sexually transmitted infection–related outcomes for individuals who are affected by these determinants of HIV risk have been well documented.<sup>5,8–10</sup>

Community determinants are especially important among key populations, including men who have sex with

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men (MSM), people who inject drugs (PWID), sex workers of all genders, and transgender women. Community-level determinants have had more impact, arguably, on these populations than on others affected by HIV because they generally face multiple stigmas and social opprobrium: They share social harms based on HIV burdens, but they also face the additional stigmas related to their identities (eg, sexuality or gender nonconformity), practices (such as substance use), or occupations (such as sex work). Because many of these identities, occupations, and practices are criminalized and stigmatized, these persons often face legal, police, and policy barriers to services that add to the community-level harms they face. This stigma and its manifestations can markedly increase risks for HIV acquisition and lack of access to services. Conversely, there is a growing literature base of both empirical studies and mathematical modeling approaches<sup>11,12</sup> supporting the value of community empowerment as a means of decreasing risks among key populations.

Intersectional perspectives on stigma explore the inequities associated with multiple converging identities such as HIV serostatus, sexual orientation, gender identity, and substance use.<sup>13,14</sup> For instance, MSM often experience *sexual stigma*, the devaluing and systemic social and institutional exclusion of sexual minorities<sup>10</sup> and can additionally experience stigma based on being involved in sex work and/or having low socioeconomic status. *HIV-related stigma* refers to social processes of devaluing and discrimination directed toward people living with HIV or associated with HIV and also toward groups blamed for the HIV epidemic, such as MSM and sex workers.<sup>6</sup> Transgender persons may experience *transphobia*, negative attitudes and discriminatory treatment, and *cisnormativity*, the systematic and sociocultural devaluation of transgender persons.<sup>15</sup> Additionally, substance users, particularly those who inject drugs and often have visible signs of use (track marks, scarring, and the like), commonly face marked discrimination in both communities and health care settings. They are often deemed unworthy of care. Among all key populations living with HIV infection, PWID generally experience the lowest levels of ART coverage.<sup>16</sup> Subgroups of these populations may face compounded stigma; for example, MSM who are living with HIV may suffer from sexual stigma within the general community and HIV-related stigma within the general and MSM communities.<sup>17</sup> Similarly, transgender persons may suffer from sexual stigma from the general community, transphobia from MSM communities, and HIV-related stigma if they are living with HIV.<sup>18</sup>

Although health communication programs represent community-level strategies that have effectiveness in increasing the uptake of HIV testing and decreasing the experienced stigma among people living with HIV, there are limited studies focused on key populations in low- and middle-income settings.<sup>19–21</sup> However, the data available suggest that manifestations of community-level risks, including stigma, may limit the uptake of health communication programs for key populations.<sup>19,22,23</sup> Moreover, previous studies have demonstrated that pejorative public discourse, including derogatory labels for MSM, female sex workers (FSW), PWID, and transgender populations, limit the effectiveness of health communication programs intended to support these populations.<sup>24–26</sup>

The objective of the analyses presented here was to systematically synthesize the evidence characterizing the community-level determinants that potentiate or mitigate HIV-related outcomes for key populations.

## METHODS

We performed a systematic search of the literature on community-level determinants of HIV risks and benefits for key populations. The literature review was conducted in PubMed. Search terms included MESH or other associated terms for HIV cross-referenced with MESH or other associated terms for sex workers, gay men and other men who have sex with men, transgender women, and PWID, further cross-referenced with MESH or other associated terms for community- or social-level determinants. Thus, studies were included in the review if the search terms suggested that they addressed HIV infection or HIV-related risk behaviors and community- or social-level associations for FSW, MSM, or PWID. Our review covered the literature published between 2000 and February 2014. Articles were limited to English-language studies conducted in low- and middle-income countries. Article citations were organized, uploaded, and reviewed using the reference management program Endnote X7 (Thomson Reuters).

First and second reviewers conducted screening of titles found in the search. If either one or both of the 2 reviewers selected a title for abstract review, the abstract was obtained. Both reviewers independently assessed the abstract. If either or both reviewers selected the abstract, the article was retrieved for full review.

Data are included in Table 1 if the article provided information related to community-level associations with HIV and gave study sample size. The full-text review covered 132 articles. Of these, 22 fit the inclusion criteria. In Table 1, studies are organized by HIV-related outcome. The detailed search protocol will be published as **Supplemental Digital Content** (available at <http://links.lww.com/QAI/A541>).

## RESULTS

### Overview

Community- and social-level determinants of HIV transmission have been defined in the modified social ecological model for HIV risk in vulnerable populations (Fig. 1).<sup>3</sup> Table 1 presents the results of the literature review identifying community- and social-level factors associated with prevalent HIV infections and HIV-related outcomes among MSM, transgender women, FSW, and PWID. Adverse community determinants that emerged in the review as significantly associated with HIV infection or HIV risk/protective behaviors included (1) lack of access to safe and competent HIV prevention, treatment, and care services; (2) insufficient key population-specific health promotion, such as encouraging condom use with sex-positive messaging; and (3) the reinforcement of stigma and discrimination. Significant beneficial community determinants included social network characteristics such as the provision of social support, reinforcement of protective social norms, and measures of social capital, including social cohesion, participation, and inclusion.<sup>3</sup>

**TABLE 1.** Community-Level Associations With HIV, HIV Risk Behaviors, or HIV Prevention Participation Among Key Populations, 2000–2014

Community-Level Association	HIV-Related Outcome	Measure of Association	Study Population
Ever having been exposed to homophobic abuse	HIV infection	Adjusted odds ratio	MSM
Network providing emotional support	HIV infection	Adjusted odds ratio	Males who inject drugs
Network providing material support	HIV infection	Adjusted odds ratio	Males who inject drugs
Not having a friend to talk to	HIV infection	Adjusted odds ratio	Male sex workers
Having a confidant	HIV infection	Odds ratio	MSM
Number of arrests for drug track marks (measured for each increase of 5 arrests)	HIV infection	Adjusted odds ratio	PWID
Last injection was with a group of people	HIV infection	Adjusted odds ratio	PWID
Peer discussion of condom use	Consistent condom use in the last 3 sexual intercourses with a stable partner	Adjusted odds ratio	FEW
Peer support for condom use	Consistent condom use in the last 3 sexual intercourses with a stable partner	Adjusted odds ratio	FEW
Venue supports for HIV prevention	Consistent condom use in the last 3 sexual intercourses with a stable partner	Adjusted odds ratio	FEW
Peer discussion of condom use	Consistent condom use in the last 3 sexual intercourses with a nonstable partner	Adjusted odds ratio	FEW
Peer support for condom use	Consistent condom use in the last 3 sexual intercourses with a nonstable partner	Adjusted odds ratio	FEW
Venue supports for HIV prevention	Consistent condom use in the last 3 sexual intercourses with a nonstable partner	Adjusted odds ratio	FEW
Believes in MSM collective efficacy	Consistent use of condom and water-based lubricant	Odds ratio	MSM
Having a confidant	Consistent use of condom and water-based lubricant	Odds ratio	MSM
Higher social support	Inconsistent condom use during sex work in the past 6 months	Adjusted odds ratio	Females who inject drugs and are sex workers
Not receiving HIV-related interventions	Inconsistent condom use during sex work in the past 6 months	Adjusted odds ratio	Females who inject drugs and are sex workers
Environmental support	Consistent condom use	Adjusted odds ratio	FSW
Social cohesion	Consistent condom use with all partners	Adjusted odds ratio	FSW
Social participation	Always using condoms with nonpaying partners	Adjusted odds ratio	FSW
Collective efficacy	Consistent condom use with regular clients	Adjusted odds ratio	FSW
Collective action	Consistent condom use with regular clients	Adjusted odds ratio	FSW
Collective efficacy	Consistent condom use with a paying partner	Adjusted odds ratio	High-risk MSM and transgender
Participation in any public event at the risk of being identified as high-risk MSM	Consistent condom use with a paying partner	Adjusted odds ratio	High-risk MSM and transgender
Social norm scale of supporting condom use	Inconsistent condom use during commercial sex in the past 6 months	Adjusted odds ratio	FSW
Stigma related to sex work	Recent HIV testing	Adjusted odds ratio	FSW
Social participation	HIV testing in the previous year	Adjusted odds ratio	FSW
Lack of social support	Testing for HIV multiple times versus testing 1 time	Adjusted odds ratio	MSM
Shame, blame, and social isolation	Never having an HIV test	Odds ratio	MSM
Victimization at school or work	Fear of being tested for HIV	Adjusted odds ratio	MSM
Ever been refused health care services	Avoiding HIV testing	Odds ratio	PWID
Collective efficacy	STI treatment from a government facility in the past year	Adjusted odds ratio	FSW
Being out as MSM	Having participated in an HIV prevention program in previous year	Adjusted odds ratio	MSM
Knowing 10 or more gays in the city	Participation in HIV prevention programs	Adjusted odds ratio	MSM
Knowing 10 or more gays in the city	Participation in HIV prevention programs	Adjusted odds ratio	MSM
Experiences of homophobia	UAI	Adjusted odds ratio	MSM
Experiences of homonegativity	Risk of UAI within male–male partnerships	Incidence rate ratio	MSM
Higher homophobic stigma	UAI	Odds ratio	MSM
Few/no friends who encourage condom use	URAI	Weighted odds ratio	MSM

Community-Level Association	Sampling Frame	Sample Size	Magnitude (95% Confidence Interval)	Location	Lead Author
Ever having been exposed to homophobic abuse	RDS	300	4.32 (1.33 to 13.98)	Kampala, Uganda	Hladik <sup>27</sup>
Network providing emotional support	Street outreach	1078	0.48 (0.34 to 0.69)	Chennai, India	Latkin <sup>28</sup>
Network providing material support	Street outreach	1078	1.61 (1.17 to 2.20)	Chennai, India	Latkin <sup>28</sup>

(continued on next page)

**TABLE 1. (Continued) Community-Level Associations With HIV, HIV Risk Behaviors, or HIV Prevention Participation Among Key Populations, 2000–2014**

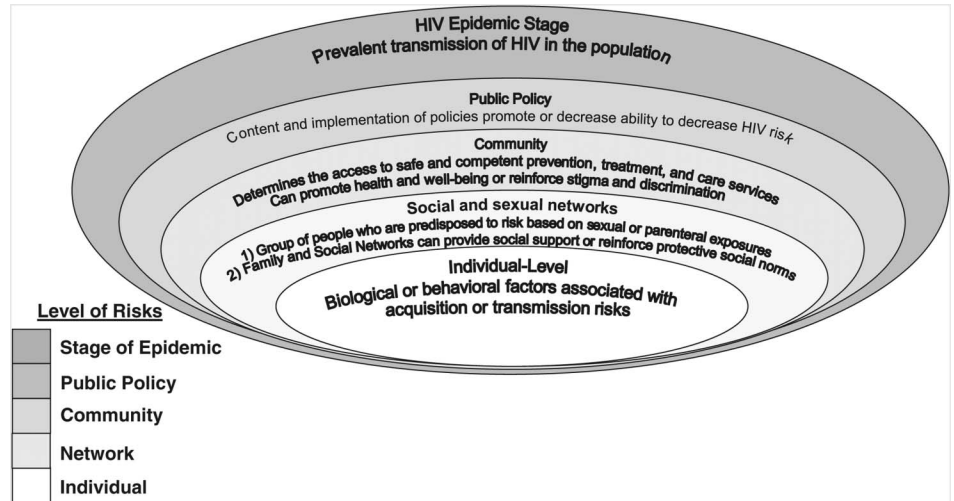
Community-Level Association	Sampling Frame	Sample Size	Magnitude (95% Confidence Interval)	Location	Lead Author
Not having a friend to talk to	Cross-sectional venue-daytime sampling	181	2.47 (1.11 to 5.34)	Bangkok, Thailand	Toledo <sup>29</sup>
Having a confidant	Community organization sampling frame	119	0.36 (0.13 to 0.97)	Dakar, Senegal	Drame <sup>30</sup>
Number of arrests for drug track marks (measured for each increase of 5 arrests)	RDS	1056	1.12 (1.01 to 1.25)	Tijuana, Mexico	Strathdee <sup>31</sup>
Last injection was with a group of people	Multistage cluster sampling	400	1.80 (1.10 to 3.10)	Sargodha, Pakistan	Emmanuel <sup>32</sup>
Peer discussion of condom use	Venue based	1860	1.06; <i>P</i> < 0.01	Shanghai, China	Yang <sup>33</sup>
Peer support for condom use	Venue based	1860	1.21; <i>P</i> < 0.01	Shanghai, China	Yang <sup>33</sup>
Venue supports for HIV prevention	Venue based	1860	1.04; <i>P</i> < 0.01	Shanghai, China	Yang <sup>33</sup>
Peer discussion of condom use	Venue based	1922	1.07; <i>P</i> < 0.01	Shanghai, China	Yang <sup>33</sup>
Peer support for condom use	Venue based	1922	1.20; <i>P</i> < 0.01	Shanghai, China	Yang <sup>33</sup>
Venue supports for HIV prevention	Venue based	1922	1.03; <i>P</i> < 0.01	Shanghai, China	Yang <sup>33</sup>
Believes in MSM collective efficacy	Community organization sampling frame	119	0.42 (0.19 to 0.91)	Dakar, Senegal	Drame <sup>30</sup>
Having a confidant	Community organization sampling frame	119	2.50 (1.13 to 5.51)	Dakar, Senegal	Drame <sup>30</sup>
Higher social support	Snowball sampling	234	0.86 (0.76 to 0.97)	Dazhou, China	Gu <sup>34</sup>
Not receiving HIV-related interventions	Snowball sampling	234	2.99 (1.15 to 7.77)	Dazhou, China	Gu <sup>34</sup>
Environmental support	Venue based	310	1.50 (1.10 to 2.00)	Liuzhou, China	Hong <sup>35</sup>
Social cohesion	RDS	325	2.25 (1.30 to 3.90)	Swaziland	Fonner <sup>36</sup>
Social participation	RDS	325	1.99 (1.13 to 3.51)	Swaziland	Fonner <sup>36</sup>
Collective efficacy	Cluster and time–location cluster sampling	3557	1.30 (1.10 to 1.70)	Andhra Pradesh, India	Saggurti <sup>37</sup>
Collective action	Cluster and time–location cluster sampling	3557	1.30 (1.10 to 1.80)	Andhra Pradesh, India	Saggurti <sup>37</sup>
Collective efficacy	Cluster and time–location cluster sampling	2399	1.90 (1.50 to 2.30)	Andhra Pradesh, India	Saggurti <sup>37</sup>
Participation in any public event at the risk of being identified as high-risk MSM	Cluster and time–location cluster sampling	2399	2.70 (2.00 to 3.60)	Andhra Pradesh, India	Saggurti <sup>37</sup>
Social norm scale of supporting condom use	Snowball sampling	281	0.58 (0.47 to 0.72)	Dazhou and Hengyang, China	Gu <sup>38</sup>
Stigma related to sex work	Outreach service recruitment	139	1.33 (1.10 to 1.60)	St Petersburg, Russia	King <sup>39</sup>
Social participation	RDS	325	2.39 (1.36 to 4.02)	Swaziland	Fonner <sup>36</sup>
Lack of social support	Venue based and social event outreach	203	1.86 (1.06 to 3.26)	Pretoria, South Africa	Knox <sup>40</sup>
Shame, blame, and social isolation	RDS	500	6.40 (2.39 to 17.17)	Beijing, China	Hu <sup>41</sup>
Victimization at school or work	Purposive sampling	280	2.34 (1.25 to 4.34)	South Africa	Nel <sup>42</sup>
Ever been refused health care services	Peer outreach and word of mouth	350	6.72 (3.06 to 14.74)	Bangkok, Thailand	Ti <sup>43</sup>
Collective efficacy	Cluster and time–location cluster sampling	3557	3.30 (2.10 to 5.10)	Andhra Pradesh, India	Saggurti <sup>37</sup>
Being out as MSM	Snowball sampling	210	2.71; <i>P</i> = 0.004	Chennai, India	Thomas <sup>44</sup>
Knowing 10 or more gays in the city	RDS	498	2.13 (1.22 to 3.73)	Chongqing, China	Ma <sup>45</sup>
Knowing 10 or more gays in the city	RDS	500	2.26 (1.28 to 3.96)	Beijing, China	Ma <sup>45</sup>
Experiences of homophobia	Snowball sampling	477	1.60 (1.32 to 1.94)	Shanghai, China	Choi <sup>46</sup>
Experiences of homonegativity	RDS	377	3.98 (1.04 to 15.26)	Soweto, South Africa	Arnold <sup>47</sup>
Higher homophobic stigma	Outreach	316	1.84; <i>P</i> = 0.039	Cape Town, South Africa	Tucker <sup>48</sup>
Few/no friends who encourage condom use	RDS	3449	1.75 (1.51 to 2.01)	10 Brazilian cities	Rocha <sup>49</sup>

FEW, female entertainment workers; RDS, respondent-driven sampling; STI, sexually transmitted infection; UAI, unprotected anal intercourse; URAI, unprotected receptive anal intercourse.

## Men Who Have Sex With Men

Across low- and middle-income countries, MSM have nearly 20 times higher odds of HIV infection than the general population of reproductive-age adults.<sup>8</sup> Community norms and values that stigmatize same-sex sexual behavior present significant barriers to accessing HIV prevention services.<sup>5–7,9,50</sup>

Health workers may not have relevant clinical skills and experience serving MSM, or they may be overtly discriminatory. Reduced utilization of health and HIV services by MSM, due to actual or perceived discrimination, may limit knowledge of the risks of unprotected anal intercourse and access to prevention methods. This is evident in the literature because



**FIGURE 1.** Modified Social Ecological Model of HIV Risks for Key Populations.

sexual stigma has been associated with sexual risk behavior among MSM.<sup>40,51–53</sup>

Statistically significant community and social associations with beneficial HIV-related outcomes include having a confidant, believing in collective efficacy, participating in a public event, being out as an MSM, and knowing other MSM in one’s city<sup>30,37,44,45</sup> (Table 1). These social factors can encourage consistent condom use and participation in HIV prevention programs, and they are associated with decreased HIV infection.

Moreover, stigma and discrimination, such as (1) exposure to homophobic abuse, homophobia, or homonegativity, (2) a lack of social support, (3) shame, blame, and social isolation, and (4) victimization at school or work, have all been associated with negative HIV-related outcomes.<sup>27,40–42,46–48</sup> Research indicates that due to social exclusion, expulsion from schools and higher education, and limited opportunities for other employment, sexual and gender minorities are more likely to be homeless or to engage in survival or commercial sex work.<sup>54,55</sup>

Health care related stigma has been reported among MSM in several studies, including studies in Southern Africa, Uganda,<sup>18</sup> Malawi, Botswana, and Namibia, where there was a strong association between experiencing discrimination on the basis of sexuality and fear of health care services.<sup>56</sup> Even where homosexuality is legal, such as South Africa, MSM continue reporting challenges in access to health care services that are heteronormative and lack health components designed specifically for MSM.<sup>57</sup> Outside the health sector, broader community-level determinants have been observed in studies among MSM in Lesotho and Swaziland. Study participants commonly report violent physical assaults because of their sexuality—76.2% abuses in Lesotho, for example. However, tailored community-based programs led by MSM have yielded greater feelings of connection, social support, and self-esteem among community members.<sup>58</sup> In Cameroon, men who were living with HIV were more likely to have obtained health services, thanks mainly to a dynamic community-based organization in the study city that provides

HIV prevention, care, and treatment specifically for the lesbian, gay, bisexual, and transgender population (adjusted odds ratio, 4.9; 95% confidence interval, 1.6 to 14.6).<sup>59,60</sup> In Senegal, a pilot community-driven MSM cohort study demonstrated the value, in terms of retention and psychosocial community support, of interventions conducted jointly by the community and research team.<sup>30</sup>

One of the most extreme manifestations of community-level stigma affecting MSM is criminalization of same-sex practices. Such laws are critical barriers to HIV reduction and have been associated with reduced health awareness, increased fear of health care, perpetuated discrimination and stigma, violence, limited health care treatment options, reduced effectiveness of health care delivery, and higher HIV incidence and prevalence. Currently, in sub-Saharan Africa, there are 38 countries, and in the Caribbean, there are 10 countries that criminalize same-sex practices.<sup>61</sup> Criminalization not only encourages stigma but also feeds cultures of violence, which in turn worsen health conditions for MSM and entire communities. Law enforcement officials often choose to ignore antigay violence; some countries have reported that, instead, police themselves engage in violence against MSM. A recent review estimated that the odds of HIV infection in MSM populations relative to general populations are nearly twice as high in African and Caribbean countries that criminalize same-sex practices than in those countries where such practices are legal.<sup>62</sup>

The effects of criminalization are far reaching and continue to thwart HIV reduction efforts. Organizations serving MSM have repeatedly been denied registration, and HIV treatment and care programs can be shut down due to registration problems. With the increased arrests and detention of health care providers supporting MSM, the sustainability of existing programs and organizations is threatened. In Uganda, for example, a lesbian, gay, bisexual, and transgender clinic that opened in 2012 was continuously under threat for suspicion of “promoting homosexuality.”<sup>63</sup> Legislation passed in the Ugandan and Nigerian parliaments in late 2013 and early 2014 extends criminalization to

outreach efforts, thus placing health care providers and outreach workers at the immediate risk of imprisonment.<sup>64</sup> Criminalization can also put communities and individuals at the risk of “vigilante” attacks from members of the general community. Because MSM are viewed as criminals, authority figures can stir up mobs to “take the law into their own hands” and attack facilities that are seen as serving the illegal communities of MSM. Community-level hostility has led to attacks on health care facilities in Kenya,<sup>65,66</sup> and there is fear of repeated attacks after the Anti-Homosexuality Act became law in neighboring Uganda.<sup>67</sup> Indeed, soon after the law was passed in Uganda, police raided a clinic and research facility serving MSM in Kampala under suspicion of “recruiting homosexuals.” A worker was arrested and files seized. The clinic was subsequently closed because it was deemed dangerous to both staff and clients.<sup>68,69</sup> This leads to limited clinic attendance and unwillingness to participate in research because of fears of inadvertent disclosure of sexual practices or identity.

### Transgender Populations

Transgender women have elevated HIV infection risks in comparison with other adults in the general population. Our systematic review and meta-analysis (2013) found a pooled HIV prevalence among transgender women in 10 low- and middle-income countries of 21.6%, which is more than 40 times higher than the rates of HIV infection among other adults across 15 countries.<sup>70</sup>

Several structural factors explain the vulnerabilities of transgender women to HIV. They include high levels of targeted violence and pervasive discrimination in housing, employment, education, and health care.<sup>71–75</sup> At the social and structural levels, discrimination and social marginalization limit access to information, services, and economic opportunities for transgender persons.<sup>76,77</sup> An ethnographic study of transgender people (*hijra*) in Bangladesh described them as pushed to the extreme margin of society, lacking any socio-political power.<sup>78,79</sup> Being gender nonconforming, *hijra* and many other transgender people around the world experience repeated physical, verbal, and sexual abuse.<sup>79,80</sup> In addition, social exclusion diminishes self-esteem and sense of social responsibility, thus impeding the uptake of safer sex messages for transgender women on reducing HIV-related risk.<sup>81</sup>

A recurrent theme for transgender women is the lack of legal access to official identification cards and passports that reflect the person’s gender rather than their genetic makeup. In Colombia, several studies have demonstrated that centers in the national health care system specifically exclude transgender women, in part, because they often lack national identification cards.<sup>82</sup> Lack of access to legal identification cards has also been associated with indiscriminate arrests of transgender women and with police brutality.<sup>82</sup>

The denial of care and government-sponsored brutality limit the provision and uptake of HIV prevention, treatment, and care services for transgender women.<sup>82</sup> The organization Transrespect versus Transphobia Worldwide (TvT) has cataloged the murder of nearly 1400 transgender people across the world since 2008. More than 200 murders were reported

in the past year. Given the difficulty of collecting these data, this is a very conservative estimate.<sup>83</sup>

Transgender populations have been routinely ignored in the large numbers of health-related research projects conducted throughout sub-Saharan Africa. Across the continent, transgender women are often treated as a subcategory of MSM, resulting in the incorrect assumptions that their needs are identical to those of other MSM.<sup>18</sup> Consequently, there is a nearly complete dearth of information related to HIV among transgender people in sub-Saharan Africa.<sup>70,84</sup> Concurrently, transgender community groups are emerging across the continent, including Gender DynamiX in South Africa (<http://www.genderdynamix.org.za/>). Better approaches to researching transgender communities have been recommended, including sampling frameworks that focus on transgender women rather than male-identified MSM, and 2-step gender identity assessment. Although transgender communities have been traditionally more hidden than sexual minorities, given the aforementioned and layered stigmas, understanding their needs is critical as part of a comprehensive HIV response.<sup>85</sup>

### Female Sex Workers

FSW continue to experience a high burden of HIV across geographic regions and epidemic structures. A recent review and meta-analyses found FSW to be 13.5 times more likely to be living with HIV than the general population of women of reproductive age in low- and middle-income settings.<sup>86</sup> Increasingly, research has demonstrated the key role of social and community determinants in shaping HIV risk and protections among FSW. Individual and societal stigma toward FSW is very prevalent in many settings, driven and reinforced by criminalization, and social and cultural perspectives of sex work as contravening gender and sexual norms. Sex work-related stigma has been linked with lower odds of using HIV testing and care services<sup>39</sup> and with elevated HIV risk.<sup>87</sup> Denial of ART and other health services for FSW and discrimination from health care providers have been reported qualitatively in a number of countries in sub-Saharan Africa.<sup>88,89</sup> Gender inequities and low levels of education and literacy have also been linked to increased HIV risks among FSW through reduced condom use with clients and nonpaying partners.<sup>87,90,91</sup>

Widespread violence and abuse of FSW continue worldwide, with links to elevated HIV risks demonstrated.<sup>92</sup> Some or all aspects of sex work are criminalized in the majority of settings globally, thus reducing or eliminating sex workers’ access to police, legal, and social protection, and keeping them away from HIV and social support services for the fear of being identified as a sex worker. As a result, FSW operate in highly criminalized and stigmatized environments where violence or the threat of violence greatly reduces their ability to negotiate male condom use and other safer sex behaviors with clients.<sup>93–97</sup>

Community and social factors can also play a key role in reducing HIV risks among FSW (Table 1). Peer support and engagement, including peer outreach and education, can promote HIV prevention by shifting norms concerning

condom use and sexual risk. Adapted health services designed to provide tailored medical care for FSW, often integrated into antenatal or general health services to avoid stigma and community exposure, have proved to be effective settings to engage women who sell sex in the first step of the HIV continuum of care.<sup>98,99</sup> Measures of collective efficacy and social cohesion (eg, mutual trust and support between workers) have been linked independently and through venue-level policy supports to increased condom use in a number of settings. At a community level, social participation and collective action, as part of a broader process of organizing sex workers and community empowerment, can significantly reduce HIV risks among FSW<sup>33,35–37</sup>—notable examples include the Sonagachi and Avahan models in India. Community empowerment has also helped to reduce HIV risks by lowering levels of violence against FSW.

### People Who Inject Drugs

There were fewer studies meeting inclusion and exclusion criteria examining quantitative community-level associations with HIV risk among PWID than studies conducted among other key populations. However, a community network providing emotional support helped to decrease the odds of HIV infection among males who inject drugs in India,<sup>28</sup> and greater social support was associated with a decrease in inconsistent condom use among FSWs who inject drugs in China.<sup>34</sup> Supportive social environments can decrease HIV risk behaviors and encourage better access to HIV prevention services for PWID, as well as for MSM and FSW.<sup>100</sup> Strathdee et al,<sup>100</sup> using data from population-based studies in Ukraine, used mathematical models to demonstrate that reductions in beatings by the police could reduce HIV incidence—principally by reducing needle sharing among communities of PWID afraid to use needle and syringe exchanges for the fear of police abuses. Community responses involving harm reduction and providing safe injection facilities have reduced the most common form of non-AIDS mortality in opioid injectors—overdose.<sup>101</sup>

Injecting drug use is criminalized in virtually every country worldwide. But where the basic package of HIV prevention and care services recommended by the World Health Organization is in place, HIV incidence rates in this population are very low—well under 1/100 person-years. These services show some of the highest proven efficacy and effectiveness for HIV prevention globally. They include needle and syringe exchange, opioid substitution therapy, and ART for PWID living with HIV infection.<sup>54</sup> In contrast, where these services are not available, usually because of punitive policies, and where PWID face community harassment, exclusion from health care, and lack of access to basic services, HIV rates continue to be very high.<sup>102</sup> It is this reality that is primarily responsible for the fact that the eastern Europe and central Asia region is one of the just 2 regions worldwide where HIV epidemics are expanding.

Services for PWID are a component of global HIV, which, the evidence demonstrates, is relatively easy to address with strong community engagement and support. Absent such efforts, however, or where they are actively being suppressed,

as in Russia in 2014, HIV burdens increase rapidly among PWID.<sup>102</sup> This was demonstrated recently after the transfer of power of Crimea from Ukraine to Russia, when the provision of methadone and other combination prevention services for PWID was stopped. Although these services had been in place for more than 10 years with the support of the government of Ukraine and responsible for a decline of nearly 30% in incident cases of HIV among PWID, they were stopped on the first day of being under Russian control. The adverse manifestations in terms of the quality of care and health outcomes among PWID in these regions, secondary to the termination of these services, will likely be immediate and sustained.<sup>103</sup>

### CONCLUSION

The data presented here highlight the importance of the continued measurement of community-level determinants of HIV risks and the innovation of tools addressing these risks as components of the next generation of the HIV response. Although this review demonstrated the great heterogeneity in the studies evaluating the benefits and harms of community-level determinants for key populations, the evidence collectively suggests that these responses are urgently needed if the calls to “end the AIDS epidemic” are to be anything more than mere rhetoric. The studies presented here seem to suggest that if HIV services are offered to key populations in ways consistent with human dignity, safety, and good clinical and public health practices, uptake improves, and HIV spread can be markedly reduced. Unfortunately, even in recent epidemiologic research and surveillance studies, evaluating risks among key populations commonly do not collect community-level data but instead focus almost exclusively on individual-level determinants such as levels of HIV-related knowledge, condom usage, and numbers of sexual partners. The lack of evidence on determinants at the community level impedes the development and scale-up of evidence-based and human rights–affirming HIV prevention, treatment, and care programs.

With advances in ART-based prevention and treatment strategies, the “what” of the tools needed to end the HIV pandemic has been defined. However, the “how” remains an open question—especially for key populations, given the limited population-level information on the effectiveness of HIV prevention, treatment, and care programs. Thus, the next generation of effective HIV prevention science research must improve our understanding of the multiple levels of HIV risk factors, while programming for key populations must address each of these risk levels. Failure to do so will cost lives, harm communities, and undermine the gains of the HIV response to date.

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