

## Uncertainty in key population size estimates in sub-Saharan Africa



See [Articles](#) page e1400

Key populations contribute substantially to the disproportionate burden of HIV in sub-Saharan Africa, accounting for about 25% of the total new HIV infections in 2022.<sup>1</sup> Despite their increased risk of HIV, social and structural barriers have continued to limit them from seeking and receiving appropriate HIV prevention, treatment, and care services.<sup>2</sup> Consequently, key populations are lagging in the remarkable progress towards attaining control of the HIV epidemic in sub-Saharan Africa.<sup>3</sup>

The urgent need to address the gaps in service coverage among key populations, particularly in repressive and low-income settings, requires insight into their population size for data-driven planning and equitable resource allocation.<sup>4</sup> However, obtaining precise size estimates of this highly stigmatised and usually hidden population in sub-Saharan Africa remains challenging.<sup>5</sup> Although several methods are used for key population size estimation, there is a wide variation in the quality of the available estimates.<sup>6</sup> Hence, the use of multiple data sources and a robust statistical analytical approach has been recommended for more accurate estimates.<sup>7</sup>

In *The Lancet Global Health*, Oliver Stevens and colleagues<sup>8</sup> have conducted a comprehensive analysis using multiple data sources that cumulatively had more than 3000 observations from 126 key population size estimates, 217 HIV prevalence, and 62 antiretroviral therapy (ART) studies to estimate key population size, HIV prevalence, and ART coverage between 2010 and 2023 in 39 sub-Saharan Africa countries. For comparability, the authors matched the key populations with the general population by gender, year, and urban area, and used Bayesian mixed-effects spatial regression models for the analysis. The results showed that key populations, including female sex workers, men who have sex with men, people who inject drugs (PWID), and transgender women represented 1.2% (95% credible intervals [CrI] 0.9–1.6) of the total population aged 15–49 years and 6.1% (4.5–8.2) of the people living with HIV. As expected, the authors noted that HIV prevalence among key populations was four to six times higher than the general population

prevalence, and ART coverage was lower than the general population. The study further reported low and unequal ART coverage rates among key populations, with the highest rate among female sex workers (74%) and the lowest among transgender women (54%). Interestingly, HIV prevalence was highest among female sex workers (21%) and lowest among PWID (11%), with variations across the countries.<sup>8</sup>

By consolidating and synthesising available data, the study by Stevens and colleagues<sup>8</sup> adds to the existing evidence base on size estimates and highlights the burden of HIV and suboptimal treatment coverage among key populations, presenting useful regional-level, subregional-level, and country-level data to support key population programming in sub-Saharan Africa. However, the wide uncertainties in the extrapolated estimates, as acknowledged by the authors, are a source of concern. Evidence from this study sheds light on the disparities in data availability for key populations among countries and by sex and gender. For example, PWID were restricted to males in this study, sex workers to females, and transgender people mostly to transgender women. Even though these groups are more predominant, their counterparts also bear considerable HIV risk and should not be ignored.

We agree with the authors' suggestion for improved surveillance of key populations in sub-Saharan Africa through periodic population surveys and routine programme data, which is crucial for more accurate estimates and effective programme planning and monitoring. However, improving surveillance will require strengthening the health information management systems in the already overburdened and under-resourced health systems in sub-Saharan Africa. We also recommend broadening key population size estimates in sub-Saharan Africa to include other groups such as people in prisons and other closed settings, key populations with overlapping behaviours (eg, men who have sex with men who inject drugs), and sexual partners of key populations. The continued treatment gaps among key populations in sub-Saharan Africa call for more implementation research to identify

contextually appropriate and effective strategies to increase ART coverage. More importantly, relevant stakeholders at multiple levels should be adequately engaged and supported to improve country ownership and the strategic use of key population size estimates in sub-Saharan Africa.<sup>9,10</sup>

Overall, this study underscores the need for focused efforts to ensure equitable and universal access to HIV prevention and treatment interventions for key populations in sub-Saharan Africa to achieve the global goal of ending the HIV epidemic by 2030. The findings serve as a call to action for policy makers, health-care providers, and researchers to prioritise key populations in HIV programming and surveillance efforts. With reliable data and inclusive policies that protect the rights and dignity of key populations, sub-Saharan Africa can make substantial strides towards achieving equitable access to HIV interventions for all.

We declare no competing interests.

Copyright © 2024 The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY-NC 4.0 license.

\**Babayemi O Olakunde, Daniel A Adeyinka*  
**[babayemi.olakunde@unthsc.edu](mailto:babayemi.olakunde@unthsc.edu)**

Department of Prevention and Community Health, School of Public Health, University of North Health Texas Health Science Center, Fort Worth, TX 76107,

USA (BOO); IVAN Research Institute, Enugu, Nigeria (BOO); Department of Research, Saskatchewan Health Authority, Saskatoon, SK, Canada (DAA); National AIDS and STI Control Programme, Department of Public Health, Federal Ministry of Health, Abuja, Nigeria (DAA)

- 1 UNAIDS. New HIV infections data among key populations: proportions in 2010 and 2022. 2024. <https://www.unaids.org/en/resources/documents/2024/new-hiv-infections-data-among-key-populations-proportions> (accessed June 4, 2024).
- 2 Moyo E, Moyo P, Murewanhema G, Mhango M, Chitungo I, Dzinamarira T. Key populations and Sub-Saharan Africa's HIV response. *Front Public Health* 2023; **11**: 1079990.
- 3 Barr D, P Garnett G, Mayer KH, Morrison M. Key populations are the future of the African HIV/AIDS pandemic. *J Int AIDS Soc* 2021; **24**: e25750.
- 4 Abdul-Quader AS, Baughman AL, Hladik W. Estimating the size of key populations: current status and future possibilities. *Curr Opin HIV AIDS* 2014; **9**: 107–14.
- 5 Xu C, Jing F, Lu Y, et al. Summarizing methods for estimating population size for key populations: a global scoping review for human immunodeficiency virus research. *AIDS Res Ther* 2022; **19**: 9.
- 6 Sabin K, Zhao J, Garcia Calleja JM, et al. Availability and quality of size estimations of female sex workers, men who have sex with men, people who inject drugs and transgender women in low- and middle-income countries. *PLoS One* 2016; **11**: e0155150.
- 7 Neal JJ, Prybylski D, Sanchez T, Hladik W. Population size estimation methods: searching for the holy grail. *JMIR Public Health Surveill* 2020; **6**: e25076.
- 8 Stevens O, Sabin K, Anderson RL, et al. Population size, HIV prevalence, and antiretroviral therapy coverage among key populations in sub-Saharan Africa: collation and synthesis of survey data 2010–23. *Lancet Glob Health* 2024; **12**: e1400–12.
- 9 Viswasam N, Lyons CE, MacAllister J, et al. The uptake of population size estimation studies for key populations in guiding HIV responses on the African continent. *PLoS One* 2020; **15**: e0228634.
- 10 Semá Baltazar C, Boothe M, Chitsondzo Langa D, et al. Recognizing the hidden: strengthening the HIV surveillance system among key and priority populations in Mozambique. *BMC Public Health* 2021; **21**: 91.