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Investigating inconsistencies between the reported and predicted lifetime number of sexual partners in Cape Town, South Africa.

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In 2011, South Africa (SA) was one of the countries with the world's highest prevalence of HIV/AIDS (1). Common indicators such as the number of new sexual partners in a given year and the lifetime number of sexual partners are used in several analyses to predict the risk of contracting HIV. However, are these indicators consistent?

A cross-sectional sexual behaviour study was conducted using a touch screen questionnaire that utilized an audio computer-assisted self-interviews application (ACASI) to obtain sexual history data. The study was conducted in three disadvantaged communities – a predominantly black community, and other two racially diverse communities which consist of black Africans and the coloured population. These two races are investigated because they have the highest prevalence of HIV in SA (2).

We performed a negative binomial regression analysis of the number of new sexual partners reported in the year before the survey, as a function of age. For the purpose of this study, the 16-40 year old population was divided into sub-population by race and gender: black men, black women, coloured men and coloured women. The analysis was conducted separately for each sub-population. A synthetic cohort approach was used to estimate the expected lifetime number of sexual partners based on the reported number of new sexual partners in the last year, and this was compared to the reported lifetime number of sexual partners (Figure 1). A synthetic cohort is a hypothetical cohort of people who would be subject at each age to the age-specific rates (rates of acquiring new sexual partners) of one specific period. In our case, the specific period is the 12-month period in 2011-2012 prior to the cross-sectional survey (the exact calendar time period is not the same for all respondents because they were not all interviewed on the same day, but variation is minimal).

The median age of the 352 participants was 29 years. About 23% were men and 73% were women. There were 18% black men and 59% black women, 5% were coloured men and 18% were coloured women. The total number of partners last year varied from zero to 11 and the lifetime number of sexual partners varied from one to 15. In Figure 1, the blue line is the predicted number of lifetime partners, derived from the negative binomial regression model, fitted to self-reported lifetime partner data (red line).

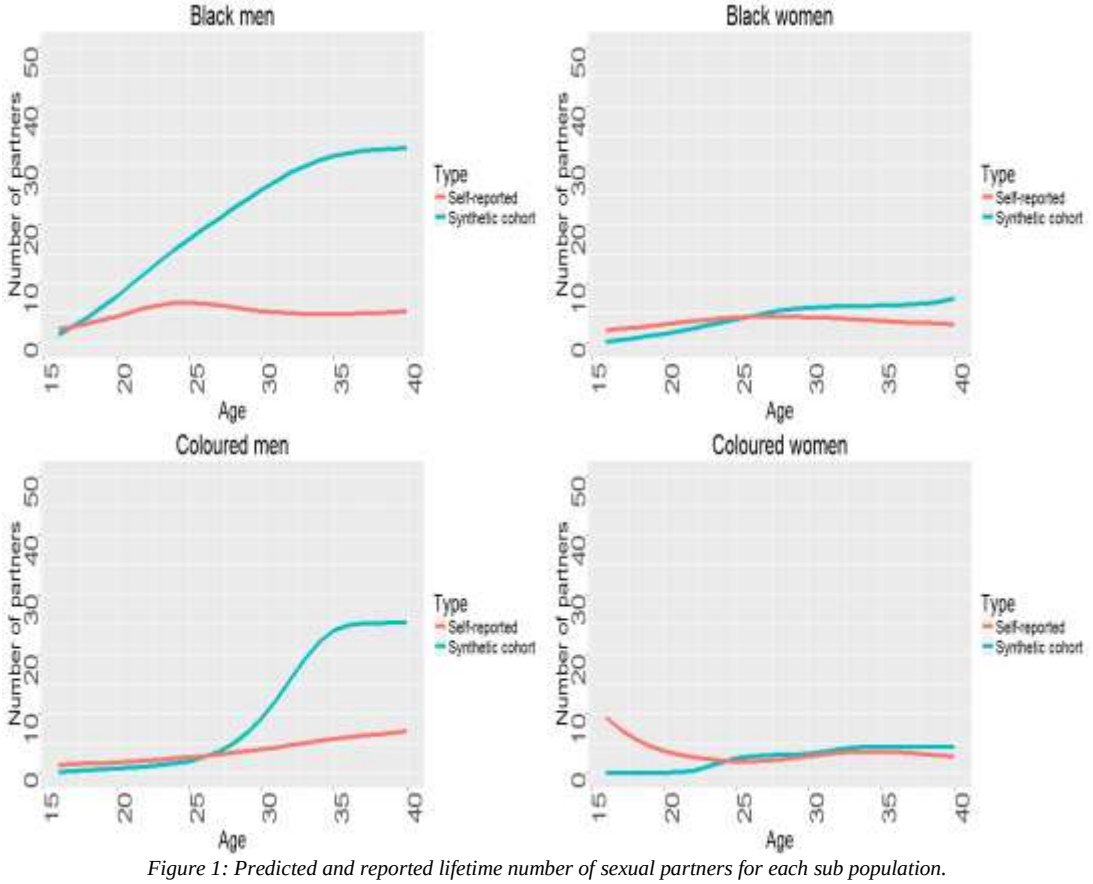

Figure 1: Predicted and reported lifetime number of sexual partners for each sub population.

In the sub-population for black men and coloured men, there is a huge discrepancy between the expected lifetime number of partners and the reported lifetime number of partners compared to the women. This may be due to the fact that men over-report and women under-report their number of sexual partners (3), which may be due to social desirability bias. Sexual behavioural studies are necessary to understand sexual networks and transmission dynamics of HIV. The present study draws attention to the fact that these indicators, number of new sexual partners in the last year and the lifetime number of sexual partners, are inconsistent and therefore inaccurate indicators of sexual risk behaviour especially for men.

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Table 1: ART policies in 114 countries (Last updated: May 2016). This list is contingent upon publication or published national guidelines.

	2003-05	2006-08	2009	2010	2011	2012	2013	2014	2015
Irrespective of CD4 count						**Netherlands, USA DHHS**	**Australia, Brazil, France, South Korea, Turkey**	**Mexico, Romania, Spain, Thailand**	**Argentina, Britain, Maldives**
≤500 (consider for ≥500)	USA DHHS			**Italy**			**Hong Kong**		
≤500				**Algeria**			WHO, Bolivia, Chile, Colombia, Democratic Republic of Congo, Ecuador, Ethiopia, Fiji, Haiti, Honduras, Madagascar, Mali, Oman, Rwanda, Tunisia, Uganda, Zambia, Zimbabwe	WHO, Bangladesh, Bhutan, Burundi, Nepal, Cameroon, Gabon, El Salvador, Kenya, Lesotho, Malawi, Mauritania, Myanmar, Namibia, Sudan, Poland, South Africa, South Sudan, Sri Lanka, Tanzania, Uruguay, Venezuela	WHO, Cambodia, Pakistan, Swaziland, Viet Nam
≤350 (consider for ≤500)			**Guyana***		**Guinea**	**Belize**		Austria*, Costa Rica, Finland, Germany*, Greece*, Norway*	
≤350		**Burkina Faso, Djibouti, Ghana, Sierra Leone**	**Croatia, Niger, Moldova, Papua New Guinea, Portugal, Nicaragua, Sweden**	WHO, Morocco, Nigeria, Ukraine	WHO, Jamaica, Kazakhstan, Panama, Switzerland, Timor-Leste	WHO, Botswana, Benin, China, Guatemala, Peru	Canada, Cote d'Ivoire, Dominican Republic, India, Paraguay	Angola, Indonesia, Latvia, Malaysia, Mozambique	
≤300		**Macedonia**							
≤200 (consider for ≤350)	**Cape Verde, Estonia**	WHO, Afghanistan, Belarus, Russia	WHO, Cuba						
≤200	WHO, Senegal	Comoros, Lao People's Democratic Republic, Liberia	Philippines						

*Austria, Germany, Greece, Guyana and Norway additionally recommend *considering* ART at CD4 count ≥500 cells/mm^3.
Countries in grey boxes are consistent with WHO guidelines in a given year while countries in bold were recommended early ART compared to WHO recommendation.