

# Concurrent sexual partnerships among young adults in Cape Town, South Africa: how is concurrency changing?

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**Abstract.** *Background:* The current debate about the role of concurrent sexual partnerships in the spread of HIV is influenced by limited or weak empirical data on concurrency. There is still uncertainty about the most basic statistics and little is known about how concurrency is changing. *Methods:* Longitudinal data ( $n=2958$ ) with repeated concurrency measures were employed to examine the prevalence of individual concurrency (someone has other partners during their most recent sexual partnership) and perceived partner concurrency (someone perceives his or her partner to have other partners) by population group and gender in 2005 and 2009. Individual fixed-effects logit regression models were created to examine factors associated with changes in individual concurrency among Black men and women. *Results:* The prevalence of individual concurrency increased among Black men who reported having had sex (from 33% in 2005 to 39% in 2009), remained constant among Black women (14%), decreased among Coloured (mixed-race) men (from 16% to 8%) and remained low among Coloured women (2% in 2005 and 1% in 2009). Overall, a small decrease in perceived partner concurrency was observed. Changes in individual concurrency were positively associated with changes in perceived partner concurrency among men and women. Among Black women, decreases in household income and finding employment increased the odds of reporting a positive change in individual concurrency. *Conclusions:* Race and gender differences in concurrency should be taken into account in future research and HIV prevention initiatives. High and increasing levels of concurrency within most recent partnerships among Black men highlight this group as a potential focus for such efforts.

**Additional keywords:** longitudinal panel study, prevalence, sexual behaviour, Southern Africa.

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## Introduction

After three decades, we are still uncertain about the main drivers of the HIV epidemic in sub-Saharan Africa and thus where best to place HIV prevention efforts.<sup>1</sup> Some researchers believe that the evidence suggests that concurrent sexual partnerships are a significant factor in the transmission of HIV in regions such as southern Africa, and advocate for concurrency reduction as a key prevention tool.<sup>2–5</sup> Others, however, argue that the empirical evidence is not strong enough to support this hypothesis and to justify such advocacy.<sup>6–8</sup>

There is still uncertainty about the most basic statistics, such as the prevalence of concurrency among different populations. For example, mathematical models by Morris and Kretzschmar,<sup>9,10</sup> which feature strongly in the concurrency debate, have been criticised for using levels of concurrency (14% of men and 1.3% of women) that some argue are unrealistically high.<sup>7</sup> Even less is known about how concurrency is changing in response to HIV prevention messages and shifts in the social context surrounding HIV/AIDS. This paper, therefore, fills an important gap in research by using individual-level panel data to discern and

quantify trends in the prevalence of concurrency during the most recent sexual partnerships among different populations of young adults in Cape Town, and by examining the potential determinants of these changes.

Many definitions of concurrency have been used in the literature, so it is important to clarify what is being measured in this analysis. Consistent with the UNAIDS definition, concurrency is defined as any overlap of one or more sexual partners.<sup>11</sup> Importantly, concurrency is measured at any time during the most recent sexual partnerships and therefore cannot be directly compared with measures based on specific periods of time.

Concurrency is divided into two categories in this paper: (1) individual concurrency includes people who have more than one partner themselves; and (2) perceived partner concurrency describes the situation where someone perceives his or her partner to have other partners. Although perceptions of another person's sexual behaviour may not provide an accurate indication of the prevalence of actual partner concurrency, this measure is important, as perceptions of partner concurrency may influence changes in individual concurrency.<sup>12</sup>

There are several other factors that could have influenced changes in concurrency. It has been argued that sexual behaviour in sub-Saharan Africa has changed in response to the HIV epidemic.<sup>13–15</sup> Sandøy *et al.* suggested that the decline in concurrency reported among young urban and older rural men in Zambia between 1998 and 2003 might be attributable to campaigns promoting fidelity, as well as the impact of HIV becoming more visible.<sup>15</sup>

Ethnographic research conducted in South Africa points towards socioeconomic status as another factor that could influence levels and changes in concurrency, as concurrent partners can be used as a means of attaining necessities and luxury goods.<sup>16–18</sup> In the present analysis, the relationship between socioeconomic status and changes in concurrency is assessed separately among men and women, as the dynamics may vary by gender. For men, an increase in income may enable individuals to attract and maintain more partners, but among women, a decrease in income may encourage the formation of concurrent partners for material or financial gain. Other factors found to be significantly associated with concurrency and multiple partners, which are examined in this paper, are marital status,<sup>19</sup> alcohol consumption<sup>12,20</sup> and power differences within relationships.<sup>21</sup>

## Methods

The data for this paper come from the Cape Area Panel Study (CAPS). The first wave of CAPS (in 2002) surveyed (face-to-face) a representative sample of 4752 young adults (14–22 years old) living in Cape Town. A two-stage sample was used, stratified by the three main population groups: Black, Coloured and White ('Coloured' is a common and socially acceptable term in South Africa for individuals of mixed race). In the first stage, clusters were selected categorised by predominant population group; in the second stage, households were randomly selected from clusters to achieve a representative sample. Respondents were reinterviewed (face-to-face) up to four more times, in 2003–04, 2005, 2006 and most recently in 2009 (Wave 5), with the panel then aged 20–30 years. The sample initially comprised 4157 Blacks and Coloureds and 2762 (i.e. 66%) were reinterviewed in 2009. Whites were excluded from this analysis due to high levels of attrition. Ethical approval was granted by the University of Cape Town and the University of Michigan.

The data for this paper come primarily from Waves 3 (2005) and 5 (2009). The questionnaires for both these waves included a sexual partner history table that repeated the same concurrency measures. Individual concurrency data were collected with the question 'Did you have any other sexual partners during the time that you and (partner) were having a sexual relationship?' Perceived partner concurrency was measured via 'As far as you know, did (partner) have any other sexual partners during the time that you and he or she were having a sexual relationship?' Binary variables of concurrency were created based on information regarding the respondents' most recent sexual partner at each interview.

The UNAIDS-recommended method to measure the cumulative prevalence of concurrent partnerships – more than one overlapping sexual partnership at any point in the past year<sup>11</sup>

– was not applied because exact start and end dates of partnerships were not available. The prevalence of concurrency measured here will therefore be greater than if the UNAIDS method had been used because concurrent sexual partnerships that occurred more than 12 months before data collection will be included in the measure.

CAPS collected a range of information on socioeconomic status, sexual partners, HIV knowledge and health that are used in the models. Socioeconomic status measures included years of education completed, employment status and monthly per capita household income (deciles). Two variables were created to assess relationship characteristics: marital status and the age difference between the respondent and his or her most recent partner. The variable for age differences between partners was included as this partnership characteristic is likely to influence relationship power differences. As a measure of personal experience of the impact of HIV, a binary measure for each survey year was created to indicate whether the respondent knew someone who had died of AIDS. At each interview, alcohol consumption was identified via the question 'Over the past month, have you consumed any alcohol?' Finally, health was measured at the time of each survey via the question 'In general, how is your health? Would you say it is excellent, very good, good, fair or poor?'

## Analysis

Measures of individual concurrency and perceived partner concurrency in 2005 and 2009 for all survey participants are presented first to provide an indication of population level prevalence and change. The prevalence of concurrency during the most recent sexual partnerships was measured for the whole sample, among individuals who were sexually experienced (i.e. had reported having penetrative sex) and among individuals who reported one or more sexual partners in the 12 months before the interview.

The trends in concurrency identified by comparing participants' data at each survey may not necessarily measure population-level changes due to the affects of attrition or because of aging participants. To assess the impact of these factors, a probit regression analysis of attrition was first conducted with individual and perceived partner concurrency in 2005 as the dependent variables and whether the respondent was reinterviewed in 2009 or not as the independent variable. The attrition analysis controlled for age, years of education, completion of Grade 12, enrolment in school, logged monthly per capita household income and employment status.

Second, the panel participants were, on average, 4 years older in 2009 than in 2005 and therefore changes in concurrency could simply be associated with aging. An aging panel may influence detected trends in concurrency if the propensity to engage in concurrency changes as individuals get older. Furthermore, if we assume that partnership duration increases as people age, then we may expect concurrency to have increased, because in longer partnerships there is more exposure to having concurrent partnerships than in shorter partnerships. Partnership duration may also have influenced the measurement of concurrency if someone reported individual concurrency in 2005 and had the same partner from 2005 to 2009. A sensitivity analysis of

concurrency was therefore conducted among sexually experienced individuals with the sample restricted to the 20- to 25-year-old participants in 2005 and 2009. In 2005, CAPS participants were 17–25 years old and in 2009 they were 20–30 years old. In this analysis, the older participants in 2005 (20–25 years old) were therefore being compared with the younger participants in 2009 (20–25 years old), with the majority of study participants being within the 20- to 25-year-old age range in only 2005 or 2009.

Detailed individual level data on transitions in concurrency between 2005 and 2009 among the sexually experienced sample were then examined. These data provide an indication of the proportion of each subpopulation who reported a change towards having a concurrent partnership between 2005 and 2009, and those who no longer reported concurrent partnerships after 2005. This adds to the analysis by showing the extent of changes in each direction rather than simply the net changes in concurrency.

Finally, individual fixed-effects logit regression models were used to explore factors associated with changes in individual concurrency over time.<sup>22</sup> As relatively small numbers of Coloured individuals reported a change in individual concurrency, the regression analysis was conducted only for Black men and women. The dependent variable in each model was an indicator of whether individual concurrency increased (= 1) or decreased (= 0). In the first models, the independent variables (described above) were included as difference scores. In the second models, the difference score for each predictor variable was replaced by two separate variables: one representing an increase in that factor between 2005 and 2009, and the other a decrease. This specification provides an indication of whether the associations between individual concurrency and the independent variables identified in the first models were driven by a decrease or increase in the independent variables, or both.

All analyses were conducted with Stata ver. 12.0 (Stata Corporation, College Station, TX, USA). All standard errors were corrected for heteroskedasticity and odds ratios are presented.

## Results

Descriptive statistics for the CAPS sample are presented in Table 1. Black and Coloured participants were of similar average age and education, but Coloureds, on average, reported twice as much per capita household income. Most of both populations was sexually experienced by 2009 (Blacks: 98%, Coloureds: 88%) and reported one or more sexual partners in the 12 months prior to the 2009 survey (Blacks: 88%, Coloureds: 78%).

### *Prevalence of concurrent sexual partnerships*

Levels of concurrency are displayed in Table 2. In 2005, among sexually experienced individuals (those who reported having had sex), individual concurrency during the most recent sexual partnerships was highest among Black men (33%), similar among Black women and Coloured men (14% and 16% respectively) and lowest among coloured women (2%). Between 2005 and 2009, individual concurrency increased among sexually experienced Black men (to 39%), remained similar among Black women (14%), decreased among Coloured men (to 8%) and remained very low among Coloured women (1%). Results were similar among the full sample of respondents and among the participants who reported having had sex in the 12 months before each survey (data not shown here).

In 2009, the percentage of individuals perceiving their partner to have other partners was higher among Blacks (men: 13%; women: 20%) than among Coloureds (men: 3%; women: 7%). Overall, a small decrease in perceived partner concurrency was observed. The attrition analysis (details

**Table 1. Sample demographics**

	Year	Black sample		Coloured sample	
		<i>n</i>	Mean (s.d.)	<i>n</i>	Mean (s.d.)
Wave 3	2005	1515		1679	
Wave 5	2009	1328		1434	
Female	2005	1515	0.55	1679	0.53
	2009	1328	0.56	1434	0.54
Age	2009	1328	24.7 (2.6)	1434	24.35 (2.5)
Completed education, years	2009	1324	10.5 (1.8)	1426	10.3 (2.0)
Monthly per capita household income	2009	1314	R812 <sup>A</sup> (970)	1412	R1637 (1428)
Reported penetrative sex	2005	1500	0.88	1612	0.63
	2009	1328	0.98	1432	0.87
Had sex in past 12 months	2005	1379	0.82	1481	0.55
	2009	1276	0.88	1361	0.78
Age at first sex	2009	1279	16.1 (1.8)	1194	17.6 (2.4)
Years sexually active	2009	1299	8.5 (3.0)	1380	6.0 (3.9)

<sup>A</sup>The South Africa Rand to US Dollar exchange was 0.129 on 1 July 2009, so R812 was equivalent to US\$105.

available upon request) found that individual and perceived partner concurrency in 2005 were similar among participants who left the sample compared with those who were reinterviewed in 2009, indicating that attrition was unlikely to have biased measures of concurrency in 2009.

The data in Table 2 also show that the identified trends in concurrency among the full sample of sexually experienced individuals were similar to those found among the sexually experienced 20- to 25-year-old participants in 2005 and 2009. These results suggest that the trends within the full panel were not driven by changes in sexual behaviour associated with aging. In addition, as relatively few 20- to 25-year-olds are in relationships longer than 4 years – 20% of Black men in 2005, for example – these results also suggest that partner stability is unlikely to be responsible for the identified trends in concurrency.

Table 3 presents individual level data on transitions in concurrency between 2005 and 2009 among sexually experienced respondents who were interviewed in both years.

Individual concurrency status changed most among Black men: 26% reported an increase; 18% reported a change in the opposite direction. The net change in concurrency among Black women and Coloured men was a product of changes in concurrency status among just over a fifth of each sample. In contrast, very few Coloured women (3%) changed concurrency status. In terms of perceived partner concurrency, changes were more pronounced among Blacks than Coloureds, with 24% and 32% of Black men and women, respectively, reporting a change in their perception that their partner had other partners.

*Determinants of changes in individual concurrency*

Table 4 displays individual fixed-effects regression estimates for changes in individual concurrency among sexually experienced Black men and women. Among Black men (Model 4.1), changes in individual concurrency were positively associated with changes in perceived partner concurrency ( $P < 0.01$ ). Model 4.2 indicates that men who reported in 2009 that their most

**Table 2. Comparison of individual and perceived partner concurrency reported in 2005 and 2009 among sexually experienced individuals by race and gender**

In 2009, the difference in means of *all* concurrency indicators between Black men and Black women, Black men and Coloured men, Coloured men and Coloured women, and Black women and Coloured women were statistically significant ( $P < 0.01$ ; unpaired *t*-tests). \*,  $P < 0.1$ ; \*\*,  $P < 0.05$ ; \*\*\*,  $P < 0.01$  significance level (based on unpaired *t*-tests)

	Year	Black men		Black women		Coloured men		Coloured women	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Individual concurrency</b>									
All sexually experienced participants	2005	554	33	709	14	446	16	492	2
	2009	551	39**	725	14	572	8***	660	1
20-to 25-year-old participants	2005	357	33	442	15	306	15	365	2
	2009	316	42**	438	13	363	11*	419	1
<b>Perceived partner concurrency</b>									
All sexually experienced participants	2005	541	17	703	24	443	6	492	9
	2009	551	13**	725	20*	572	3**	660	7
20- to 25-year-old participants	2005	355	17	438	26	304	6	365	8
	2009	316	14	438	21*	363	3*	419	6

**Table 3. Changes in individual and perceived partner concurrency between 2005 and 2009 among sexually experienced individuals**

‘-’, ‘0’ and ‘+’ transitions represent the percentage of respondents who reported a drop in concurrency, the same concurrency status (either no or yes) and a change to having concurrent partners between 2005 and 2009. \*,  $P < 0.1$ ; \*\*,  $P < 0.05$ ; \*\*\*  $P < 0.01$  significance level (based on paired *t*-tests)

	<i>n</i>	2005	Transition (%)			2009	Change
			-	0	+		
<b>Individual concurrency</b>							
Black men	379	32%	18	56	26	41%	+8%**
Black women	549	13%	9	79	12	15%	+2%
Coloured men	360	15%	13	78	9	11%	-4%*
Coloured women	396	2%	2	97	1	1%	-1%*
<b>Perceived partner concurrency</b>							
Black men	380	17%	15	76	9	11%	-8%**
Black women	549	23%	17	68	15	22%	-1%
Coloured men	360	6%	5	93	2	3%	-3%**
Coloured women	396	9%	8	85	7	8%	-1%

**Table 4. Individual fixed-effects regression models for changes in individual concurrency between 2005 and 2009 among sexually experienced individuals**OR, odds ratio; CI, confidence interval; NA, not applicable; \*,  $P < 0.1$ ; \*\*,  $P < 0.05$ ; \*\*\*,  $P < 0.01$ 

Model:	Black men		Black women	
	4.1	4.2	4.3	4.4
Characteristics: changes from 2005 to 2009	OR <sup>A</sup> (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Perceived partner concurrency	5.57*** (2.4–12.7)		7.83*** (3.27–18.73)	
Positive change		4.64* (0.92–23.42)		12.83*** (2.66–61.84)
Negative change		0.14*** (0.05–0.40)		0.16** (0.04–0.67)
Got married	NA <sup>B</sup>	NA	1.37 (0.27–6.86)	1.76 (0.28–10.88)
Education (increase in years)	0.65 (0.34–1.24)	0.62 (0.32–1.22)	1.15 (0.65–2.04)	0.96 (0.46–2.00)
Employment status	1.05 (0.54–2.06)		2.44* (1.00–5.99)	
Found employment		0.83 (0.33–2.07)		3.97** (1.05–14.97)
Lost employment		0.91 (0.22–0.84)		0.99 (0.13–7.33)
Monthly per capita household income (deciles)	0.96 (0.84–1.09)		0.87 (0.71–1.06)	
Increased		0.96 (0.77–1.20)		0.90 (0.54–1.48)
Decreased		1.05 (0.83–1.32)		1.54* (0.99–2.39)
Health status	1.06 (0.80–1.42)		0.93 (0.67–1.28)	
Improved		0.94 (0.38–2.33)		0.27* (0.07–1.11)
Worsened		0.52 (0.17–1.57)		0.32 (0.07–1.38)
Age difference to sexual partner, years	1.02 (0.93–1.11)		0.99 (0.88–1.12)	
Increase in age difference		1.87 (0.58–6.08)		0.42 (0.08–2.11)
Decrease in age difference		1.86 (0.63–5.46)		0.64 (0.14–2.97)
Know someone who died of AIDS	0.94 (0.37–2.40)	0.85 (0.32–2.24)	0.32** (0.11–0.98)	0.31* (0.09–1.00)
Alcohol consumption	1.24 (0.66–2.34)		1.10 (0.42–2.92)	
Positive change		1.95 (0.81–4.71)		3.75 (0.67–21.07)
Negative change		1.57 (0.43–5.72)		2.29 (0.36–14.38)
Constant	2.08*** (1.22–3.55)	1.45 (0.44–4.71)	1.16 (0.62–2.19)	1.84 (0.29–11.74)
<i>n</i>	143	143	102	102
Pseudo- <i>R</i> <sup>2</sup>	0.14	0.17	0.30	0.36

<sup>A</sup>Odds ratios from logit regression models.<sup>B</sup>Marital status is not applicable in this model, given the low rates of marriage among this sample of Black men (1% in 2005 and 4% ( $n = 22$ ) in 2009).

recent partner had had other partners, but that this was not the case in 2005, had more than four times the odds of reporting an increase in individual concurrency ( $P < 0.1$ ). Men who reported a decrease in perceived partner concurrency were significantly less likely to report an increase in individual concurrency (0.14 times as likely,  $P < 0.01$ ).

Among Black women (Model 4.3), a positive association was found between changes in individual concurrency and perceived partner concurrency ( $P < 0.01$ ) and changes in employment status ( $P < 0.1$ ). A negative association was found between changes in individual concurrency and having had someone they knew die of AIDS ( $P < 0.05$ ).

The results from Model 4.4 indicate that the odds of Black women reporting a positive change in individual concurrency status were significantly greater if women reported a change towards perceiving that their most recent partner had another partner ( $P < 0.01$ ), and were significantly reduced if they reported a change away from perceiving that their most recent partner had other partners ( $P < 0.05$ ). Black women who found employment between 2005 and 2009 had almost four times the odds of reporting a positive change in individual

concurrency while they were with their most recent partner ( $P < 0.05$ ), but losing a job did not appear to affect individual concurrency. The odds ratio of 0.31 for the variable “knowing someone who died of AIDS” indicates that for women who had this experienced between 2005 and 2009, the odds of reporting an increase in individual concurrency were roughly three times lower ( $P = 0.050$ ). Finally, women who reported a decrease in relative monthly household income had 1.5 times the odds of reporting an increase in concurrency per decrease in income decile ( $P < 0.1$ ), but the effect of an increase in income on individual concurrency was not statistically significant. The relationship between income and concurrency remained substantively the same when actual monthly per capita household income (with 2005 values adjusted for inflation) was included in the model instead of deciles of monthly per capita income (results available upon request).

## Discussion

Substantial race and gender differences were observed in the percentage of individuals reporting concurrency during their



most recent sexual partnership and changes in concurrent sexual partnerships among young adults in Cape Town, South Africa, between 2005 and 2009. In 2009, a significant proportion of sexually experienced Black men (39%) reported individual concurrency during their most recent sexual partnership and 14% of sexually experienced Black women. This accords with qualitative research in Cape Town that found perceptions among Black participants that concurrency is common.<sup>23</sup> The prevalence of concurrency among young Black men reported in this paper does not appear unrealistic, given that another study in South Africa (rural KwaZulu-Natal province) found that 38% of 15- to 24-year-old sexually active Black men were engaged in concurrent sexual partnerships.<sup>24</sup>

Individual concurrency increased among Black men but remaining relatively constant among Black women, and decreased among Coloureds. These changes in measures of concurrency within this panel study could reflect real changes but could also be a product of changes in the study sample due to survey attrition or reinterviewing participants who were previously unavailable, or a product of an aging sample. Additional analysis indicated that these factors are unlikely to have driven the results.

The consistent levels of individual concurrency among Black women and increases among Black men indicate that, overall, this form of multiple partnering has not responded to the HIV/AIDS epidemic in the same way as has been suggested happened in Zambia.<sup>15</sup> In contrast, perceived partner concurrency declined slightly. This may indicate that individuals, on average, are becoming a bit more selective about their partners, choosing partners not perceived to have other partners. It may also indicate, especially given the increase in the more reliable indicator of individual concurrency and increased messages on the negative health effects of concurrency, that partners who have other partners are becoming more careful about hiding this behaviour. The latter would have negative implications for perceptions of risky sexual behaviour within partnerships and warrants further research.

The substantial population group difference in levels of concurrency has implications for mathematical models of the impact of concurrency and how these models are interpreted. Models by Morris and Kretzschmar, for example, have been criticised for using levels of concurrency (14% of men and 1.3% of women) that some argue are unrealistically high.<sup>7</sup> The findings in this paper suggest that their models may be unrealistically high in some populations, but unrealistically low in others.

Models exploring factors associated with changes in individual concurrency indicate that perceiving your partner to have other partners is a significant factor in predicting individual concurrency. This may imply that 'reactive concurrency'<sup>25</sup> plays a role in decisions to have additional partners: if my partner has other partners then so will I, and if my partner stops having other partners then so will I. But it could be that people who have concurrent partners gravitate to others who have concurrent partners. The positive relationship between individual and perceived partner concurrency implies that reducing concurrency among individuals may have a multiplicative affect on concurrency reduction within the broader sexual network. The importance of this is emphasised by the

nonlinear effects of concurrency on a sexual network, which mean that small changes in partnership configuration may have large effects on epidemic potential (i.e. small reductions in concurrency may have a large impact on the spread of infection).<sup>26</sup>

Although the link between socioeconomic status and multiple partnering, especially among women, has been suggested in theory and found in qualitative research,<sup>27</sup> few quantitative studies have shown a relationship between wealth or income and concurrent sexual partnerships. The findings in this paper show that decreases in monthly household income among Black women were associated with increases in concurrent sexual partnerships. This indicates that initiatives among Black women to reduce the impact of a loss of income could play a role in reducing levels of concurrency.

Among Black women, finding employment was associated with engaging in concurrency. Elsewhere, employment among young women has been associated with increased reporting of unprotected sexual intercourse.<sup>28</sup> Employment may, among other things such as changing perceptions of gender roles, increase social interactions and provide women with additional opportunities to meet potential concurrent partners. Finally, with regard to factors associated with changes in individual concurrency, Black women who knew someone who died of AIDS were less likely to report an increase in concurrency. Knowing someone who is sick with AIDS may lead to an increase in awareness about HIV and the associated risks, and experiencing the death of someone due to AIDS may (re)introduce HIV as a salient issue in someone's life and discourage risk-taking.

There are several limitations to this study. First, sexual behaviour was self-reported and interviews were conducted face-to-face. Social desirability bias (the tendency of respondents to answer questions in a manner that will be viewed favourably by others) may therefore have led to measurement error. With the aim to reduce social desirability bias, CAPS matched African fieldworkers to African respondents by gender, but the extent to which this reduced social desirability bias is unknown. Second, the measure of concurrency used in this paper only enabled a broad definition of concurrency. It does not provide any indication on the length of concurrent partnerships nor the precise timing of concurrency. Third, omitted variables may have influenced the relationship between changes in concurrency and the factors presented. For example, sexual dissatisfaction within partnerships is a common rationale for concurrency.<sup>27</sup> Other factors such as substance use (beyond alcohol use), incarceration and migration are also associated with concurrency.<sup>20,29</sup> Fourth, although the sample was initially representative in 2002, we cannot be certain that the sample was representative in 2009 due to survey attrition and migration into and out of Cape Town. Finally, our results are for a specific population group of young adults and it is unclear whether they can be generalised to other and older populations.

## Conclusions

Race and gender differences in levels and changes in concurrency should be taken into account in future research and HIV prevention initiatives. High and increasing levels of

concurrency within the most recent partnerships among Black men highlight this group as a potential focus for such efforts. Such initiatives should take into account that a reduction in individual concurrency was not observed among Black individuals, despite previous HIV prevention initiatives.

### Conflicts of interest

None declared.

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