

Annex 3. Basic Sexual Concurrency Analyses (NCS 2009)

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This report briefly explains how concurrency is measured using the variables in the NCS 2009 survey, and presents the descriptive findings for the estimates of cumulative and point prevalence. Results stratified by sex and race are weighted by the variable *fweight*. Results stratified by sex, race and province are not weighted, so that the small numbers in some cells are visible.

Measurement of Concurrency

Concurrency is typically measured at the individual level using a binary classification (1=yes, 0=no), and summarized at the population level using prevalence (the percent of persons classified as having a concurrent partner). The timeframe over which concurrency is measured gives rise to two general forms of concurrency, "point" and "cumulative", and a number of associated measures:

Time frame	Individual level variables	Population level summaries
Point in time	Point degree – <i>pdeg</i> Point concurrency – <i>pconc</i> Point concurrency time series – <i>pconc(t)</i>	Point prevalence – <i>pprev</i> Point prevalence time series – <i>pprev(t)</i>
Any time during the last 12 mos	Cumulative concurrency count – <i>ccount</i> Cumulative concurrency – <i>cconc</i>	Cumulative annual prevalence – <i>cprev</i>

The data from any specific survey may allow for additional measures, or require more detailed coding, depending on the survey instrument. From the NCS 2009 survey, four different measures of the point prevalence of concurrency and one measure of cumulative annual concurrency (we shorten this to "cumulative concurrency" below) can be constructed.

- The first measure of point prevalence is taken directly from question 3.10 – "How many sexual partners do you currently have?" The number of current partners is *pdegsum*, and any respondent answering 2 or more partners is classified as having a point concurrency in the variable *pconcsun*.
- The second measure of point prevalence is taken from questions 3.xx.16 – "Do you expect to have sex with him/her again?" The number of partnerships for which the respondent answers "yes" is *pdegnet*, and any respondents answering yes to more than one partners is classified as having a point concurrency in the variable *pconnet*.
- The third measure of point prevalence, *pconcmay*, takes the maximum value of *pconcsun* and *pconnet*, which codes cases that are inconsistent on these two measures as concurrent.
- The fourth point prevalence measure and the one cumulative prevalence measure are constructed using a combination of the active status questions (3.xx.16 from above), and the date questions: 3.xx.5 – "When was the first time you had sex with him/her?" and 3.xx.11 –

“When was the last time you had sex with him/her?” These are used to construct the active interval for each partnership.

- From these intervals, we estimate point concurrency time series, $pnum(t)$ and $pconc(t)$ ($t = 0$ to 12), that count the number of active partnerships at each month t prior to the date of interview, and code respondents with 2 or more active partnerships at month t as concurrent for that month.
- The cumulative concurrency estimate is based on the overlap of all pairs of partnership intervals. There are five possible partners, so 10 possible pairs of partners. We count the number of interval pairs that are concurrent for each person, $ccount_t$, and respondents with at least one pair of overlapping partnership intervals are classified as having a cumulative concurrency in the variable $cconc$.

For all of the concurrency measures except those based on question 3.10, the potential for missing data, and for date ambiguity given the measurement scale (months), leads to some uncertainty in the classification of respondents. We track and label the level of certainty as follows:

0. No concurrency – the respondent has 2+ partners within the last year, but the dates for each partnership confirm that no relationships overlap
1. Dated concurrency – the date information from 2 or more partnerships confirm that at least one pair of partnerships overlap
2. Possible concurrency – the respondent has 2+ partners within the last year, but is either missing date information needed to establish interval overlap, or the start of the more recent partnership coincides with the end of the previous relationship.
96. Too few partners – the respondent had exactly 1 partner in the last year
97. No sex last year – the respondent has had sex, but not within the last year
98. Never had sex – the respondent has never had sex

Values 96-98 can be treated as 0, or as missing, depending on the denominator desired in the calculation of concurrency prevalence.

In this report, 96 and 97 were treated as 0 (no concurrency) and 98 as missing. The denominator for all percentages is the sexually active population.

Missing data: Throughout the point prevalence time series, less than 4% of the point concurrency variables for men had missing values, and for women, the missing percentage remained under 13% throughout. Missing cumulative concurrency values were assigned to less than 4% of men with 2+ partners in the last year, and almost 14% of women with multiple partners in the last year were assigned a missing cumulative concurrency value.

Data inconsistencies: Three types of data inconsistencies were analysed and it was generally found that inconsistent data were few.

Summary Results

Table 3.1 shows the concurrency estimates for the first three point prevalence measures, and for the cumulative annual prevalence measure, broken down by race and sex. The percents are based on the post-stratification population weights.

Table 3.1. Summary concurrency prevalence measures

	Point Prevalence				Cumulative Annual Prevalence		
	<i>pconcsun</i>	<i>pconcnct</i>		<i>pconcma</i>	Min*	Max**	
		<i>min*</i>	<i>max**</i>	<i>x</i>			
Men	African	12.4	11.7	12.8	14.8	17.4	18.7
	Coloured	3.8	4.6	4.8	5.0	6.9	7.0
	White	1.9	1.9	1.9	2.7	2.7	2.9
	Indian	2.9	2.9	2.9	2.9	3.7	3.7
Women	African	0.9	0.9	1.2	1.5	1.7	2.2
	Coloured	0.4	0.2	0.2	0.6	1.4	2.1
	White	-	-	0.6	0.6	-	0.6
	Indian	-	-	-	-	-	-

* Excludes "possible" category; ** Includes "possible" category

The results show large differences in the prevalence of reported concurrency by race, and by sex. **Rates are highest for African men by a substantial margin** – 3 to 4 times higher than the rates observed for Colored, and 5 to 6 times higher than the rates observed for Whites and Indians. **Rates for African women are higher than for other women, but the difference is much less dramatic, and the rates for all women are about 10 times lower than for men.**

Methodologically, the results show that there is some difference between the minimum and maximum estimates for both the point and cumulative measures. The range of uncertainty in the cumulative concurrency prevalence measure is relatively low. There is no uncertainty in the estimates for Indian men, because there was no missing data or ambiguous dating for the 146 men in the sample.

The detailed weighted numbers and percents for all of these variables are shown on the last pages of this annex in **tables 3.4 to 3.7**.

Figures 3.1 and 3.2 show the minimal and maximal point prevalence estimates at each month prior to the date of interview by sex. **Table 3.7** provides the minimum, maximum and mean summary statistics for each time series shown below.

Figure 3.1: Men's minimal and maximal point prevalence at each month prior to interview

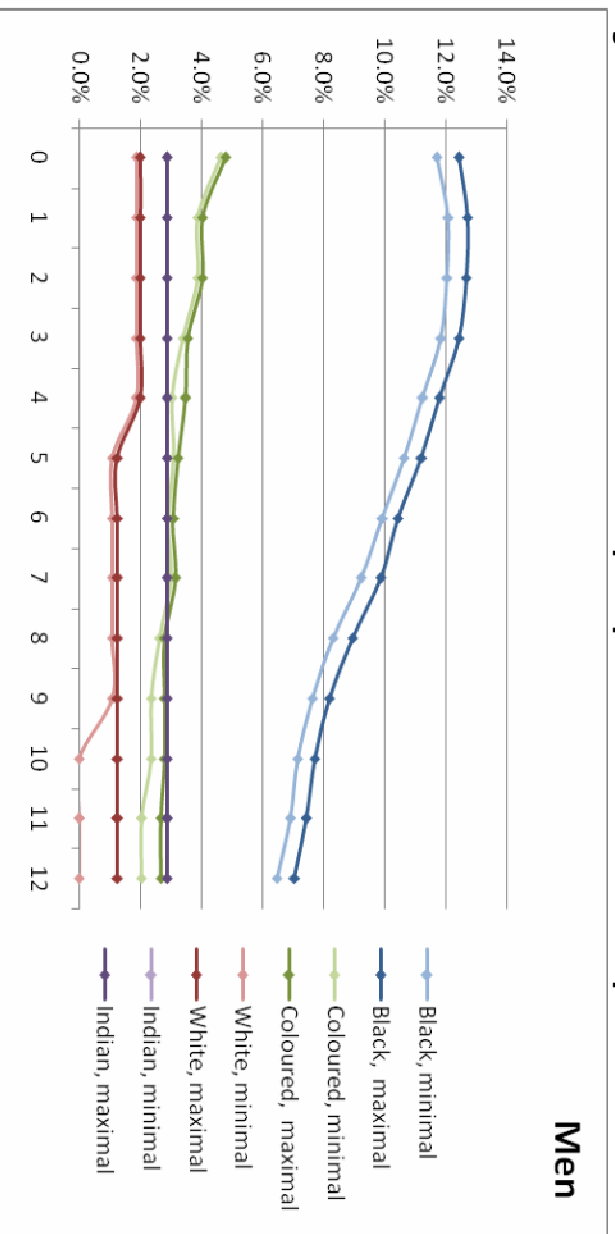


Figure 3.2: Women's minimal and maximal point prevalence at each month prior to interview

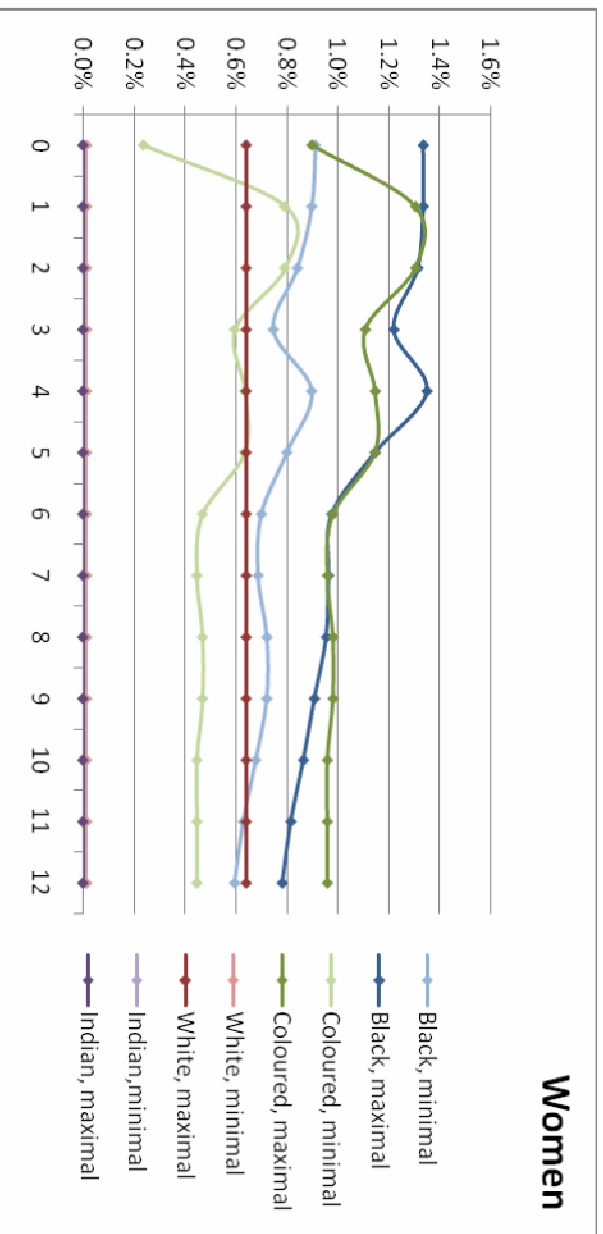


Table 3.2. Cumulative concurrency broken down by race, sex and province.

Note: unweighted data shown to identify cells with small N. Cells with less than 15 cases shown in grey type

		Report								
race Q1.2 Race of respondent	province A. Province	Mean						N		
		sex Sex of Respondent						sex Sex of Respondent		
		0 Female		1 Male		Total		0 Female	1 Male	Total
		cprev min	cprev max	cprev min	cprev max	cprev min	cprev max			
1 African	1 Eastern Cape	1.8	1.8	16.0	16.3	6.8	6.9	567	306	873
	2 Free State	1.2	1.2	13.0	13.4	5.7	5.8	423	261	684
	3 Gauteng	2.4	3.0	19.1	20.1	11.2	12.0	623	692	1315
	4 KwaZulu-Natal	1.5	1.9	23.6	24.3	12.2	12.7	591	551	1142
	5 Limpopo	.5	.9	16.2	17.0	7.8	8.3	573	495	1068
	6 Mpumalanga	.2	.4	17.3	17.3	8.2	8.4	482	428	910
	7 North West	1.6	2.4	16.6	17.7	7.8	8.8	253	181	434
	8 Northern Cape	1.5	2.9	8.2	9.8	4.6	6.2	137	122	259
	9 Western Cape	4.8	5.4	9.2	10.6	6.9	8.0	147	142	289
	Total	1.5	1.8	17.4	18.1	8.7	9.2	3796	3178	6974
2 Coloured	1 Eastern Cape	1.3	1.3	5.4	7.1	3.0	3.8	76	56	132
	2 Free State	.0	.0	20.0	20.0	13.6	13.6	7	15	22
	3 Gauteng	.0	.0	16.0	16.0	5.4	5.4	49	25	74
	4 KwaZulu-Natal	.0	.0	12.5	12.5	6.3	6.3	8	8	16
	5 Limpopo	.0	.0	.0	.0	.0	.0	2	5	7
	6 Mpumalanga	.0	.0	.0	.0	.0	.0		3	3
	7 North West	.0	.0	.0	.0	.0	.0	8		8
	8 Northern Cape	1.8	1.8	6.6	6.6	3.6	3.6	273	166	439
	9 Western Cape	1.4	2.3	7.5	7.5	3.9	4.4	217	146	363
	Total	1.4	1.7	7.8	8.0	3.9	4.2	640	424	1064
3 White	1 Eastern Cape	.0	.0	.0	.0	.0	.0	7	6	13

	2 Free State	.0	.0	.0	.0	.0	.0	38	29	67
	3 Gauteng	.0	.0	3.2	3.2	1.1	1.1	60	31	91
	4 KwaZulu-Natal	.0	.0	.0	.0	.0	.0	6	9	15
	5 Limpopo	.0	.0	.0	.0	.0	.0	52	24	76
	6 Mpumalanga	3.6	3.6	11.1	11.1	5.4	5.4	28	9	37
	7 North West	.0	.0	50.0	50.0	14.3	14.3	5	2	7
	8 Northern Cape	.0	.0	.0	7.1	.0	2.7	23	14	37
	9 Western Cape	.0	5.3	5.0	5.0	2.6	5.1	19	20	39
	Total	.4	.8	2.8	3.5	1.3	1.8	238	144	382
4 Indian	1 Eastern Cape	.0	.0	100.0	100.0	100.0	100.0		1	1
	3 Gauteng	.0	.0	.0	.0	.0	.0	25	14	39
	4 KwaZulu-Natal	.0	.0	.0	.0	.0	.0	53	29	82
	7 North West	.0	.0	.0	.0	.0	.0		1	1
	9 Western Cape	.0	.0	50.0	50.0	50.0	50.0		2	2
	Total	.0	.0	4.3	4.3	1.6	1.6	78	47	125
Total	1 Eastern Cape	1.7	1.7	14.4	14.9	6.3	6.5	650	369	1019
	2 Free State	1.1	1.1	12.1	12.5	5.4	5.6	468	305	773
	3 Gauteng	2.0	2.5	18.0	18.9	10.0	10.7	757	762	1519
	4 KwaZulu-Natal	1.4	1.7	21.9	22.6	11.2	11.6	658	597	1255
	5 Limpopo	.5	.8	15.3	16.0	7.2	7.7	627	524	1151
	6 Mpumalanga	.4	.6	17.0	17.0	8.1	8.2	510	440	950
	7 North West	1.5	2.3	16.8	17.9	7.8	8.7	266	184	450
	8 Northern Cape	1.6	2.1	7.0	7.9	3.8	4.5	433	302	735
	9 Western Cape	2.6	3.7	8.4	9.0	5.2	6.1	383	310	693
	Total	1.4	1.7	15.6	16.2	7.7	8.2	4752	3793	8545

Table 3.3. Point prevalence of concurrency (based on pconcnct) by race, sex and province.

Note: unweighted data shown to identify cells with small N. Cells with less than 15 cases shown in grey type.

		Report								
race Q1.2 Race of respondent	province A. Province	Mean						N		
		sex Sex of Respondent						sex Sex of Respondent		
		0 Female		1 Male		Total		0 Female	1 Male	Total
		pprev min	pprev max	pprev min	pprev max	pprev min	pprev max			
1 African	1 Eastern Cape	.9	.9	11.4	12.4	4.6	4.9	567	306	873
	2 Free State	.5	.7	5.4	5.7	2.3	2.6	423	261	684
	3 Gauteng	1.0	1.6	11.0	13.6	6.2	7.9	623	692	1315
	4 KwaZulu-Natal	1.2	1.5	17.8	19.2	9.2	10.1	591	551	1142
	5 Limpopo	.3	.5	10.9	11.5	5.2	5.6	573	495	1068
	6 Mpumalanga	.2	.4	14.3	14.3	6.8	6.9	482	428	910
	7 North West	.8	.8	6.6	8.3	3.2	3.9	253	181	434
	8 Northern Cape	.7	2.2	4.1	4.9	2.3	3.5	137	122	259
	9 Western Cape	2.0	2.0	7.0	7.7	4.5	4.8	147	142	289
	Total	.8	1.1	11.5	12.7	5.6	6.4	3796	3178	6974
2 Coloured	1 Eastern Cape	1.3	1.3	1.8	3.6	1.5	2.3	76	56	132
	2 Free State	.0	.0	13.3	20.0	9.1	13.6	7	15	22
	3 Gauteng	.0	.0	12.0	12.0	4.1	4.1	49	25	74
	4 KwaZulu-Natal	.0	.0	12.5	12.5	6.3	6.3	8	8	16
	5 Limpopo	.0	.0	.0	.0	.0	.0	2	5	7
	6 Mpumalanga	.0	.0	.0	.0	.0	.0		3	3
	7 North West	.0	.0	.0	.0	.0	.0	8		8
	8 Northern Cape	.7	.7	4.2	4.2	2.1	2.1	273	166	439
	9 Western Cape	.0	.0	5.5	5.5	2.2	2.2	217	146	363
	Total	.5	.5	5.2	5.7	2.3	2.5	640	424	1064
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	2 Free State	.0	.0	.0	.0	.0	.0	38	29	67
	3 Gauteng	.0	.0	3.2	3.2	1.1	1.1	60	31	91
	4 KwaZulu-Natal	.0	.0	.0	.0	.0	.0	6	9	15
	5 Limpopo	.0	.0	.0	.0	.0	.0	52	24	76
	6 Mpumalanga	3.6	3.6	11.1	11.1	5.4	5.4	28	9	37
	7 North West	.0	.0	50.0	50.0	14.3	14.3	5	2	7
	8 Northern Cape	.0	.0	.0	.0	.0	.0	23	14	37
	9 Western Cape	.0	5.3	.0	.0	.0	2.6	19	20	39
	Total	.4	.8	2.1	2.1	1.0	1.3	238	144	382
4 Indian	1 Eastern Cape	.0	.0	.0	.0	.0	.0		1	1
	3 Gauteng	.0	.0	.0	.0	.0	.0	25	14	39
	4 KwaZulu-Natal	.0	.0	.0	.0	.0	.0	53	29	82
	7 North West	.0	.0	.0	.0	.0	.0		1	1
	9 Western Cape	.0	.0	50.0	50.0	50.0	50.0		2	2
	Total	.0	.0	2.1	2.1	.8	.8	78	47	125
Total	1 Eastern Cape	.9	.9	9.8	10.8	4.1	4.5	650	369	1019
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	8 Northern Cape	.7	1.2	4.0	4.3	2.0	2.4	433	302	735
	9 Western Cape	.8	1.0	6.1	6.5	3.2	3.5	383	310	693
	Total	.7	.9	10.3	11.4	5.0	5.6	4752	3793	8545

Table 3.4: Minimal and Maximal Estimates of Cumulative Concurrency by sex and race*

		Minimum Estimate		Maximum Estimate	
		Not concurrent	Concurrent	Not concurrent	Concurrent
Men	African	7,494,368 82.1%	1,638,004 17.4%	7,425,257 81.3%	1,707,115 18.7%
	Coloured	1,009,127 93.1%	75,063 6.9%	1,008,441 93.0%	75,749 7.0%
	White	941,017 97.3%	26,284 2.7%	939,730 97.1%	27,571 2.9%
	Indian	270,822 96.3%	10,421 3.7%	270,822 96.3%	10,421 3.7%
	Women	9,634,426 98.3%	170,658 1.7%	9,589,074 97.8%	216,010 2.2%
Women	African	1,163,072 98.6%	16,650 1.4%	1,155,247 97.9%	24,475 2.1%
	Coloured	1,378,112 100.0%	175 0.0%	1,369,451 99.4%	8,836 0.6%
	White	381,500 100.0%	0 0.0%	381,500 100.0%	0 0.0%
	Indian	270,822 96.3%	10,421 3.7%	270,822 96.3%	10,421 3.7%
	Women	9,634,426 98.3%	170,658 1.7%	9,589,074 97.8%	216,010 2.2%

*restricted to the sexually active population who reported race

Table 3.5: Minimal point prevalence estimates of concurrency on the day of interview by sex and race*

		<i>Pconsum</i>		<i>Pconcnct</i>		<i>Pconcmx</i>	
		Not concurrent	Concurrent	Not concurrent	Concurrent	Not concurrent	Concurrent
Men	African	8,004,452 87.6%	1,127,920 12.4%	8,060,898 88.3%	1,071,474 11.7%	7,838,918 85.8%	1,293,454 14.2%
	Coloured	1,043,247 96.2%	40,943 3.8%	1,033,849 95.4%	50,341 4.6%	1,030,637 95.1%	53,553 4.9%
	White	1,948,521 98.1%	18,780 1.9%	949,116 98.1%	18,185 1.9%	941,017 97.3%	26,284 2.7%
	Indian	273,166 97.1%	8,077 2.9%	273,166 97.1%	8,077 2.9%	273,166 97.1%	8,077 2.9%
	Women	9,717,631 99.1%	87,453 0.9%	9,715,549 99.1%	89,535 0.9%	9,677,389 98.7%	127,695 1.3%
Women	African	1,174,630 99.6%	5,092 0.4%	1,176,924 99.8%	2,798 0.2%	1,172,417 99.4%	7,305 0.6%
	White	1,378,287 100.0%	0 0.0%	1,378,112 100.0%	175 0.0%	1,378,112 100.0%	175 0.0%
	Indian	381,500 100.0%	0 0.0%	381,500 100.0%	0 0.0%	381,500 100.0%	0 0.0%
	Indian	270,822 96.3%	10,421 3.7%	270,822 96.3%	10,421 3.7%	270,822 96.3%	10,421 3.7%
	Women	9,634,426 98.3%	170,658 1.7%	9,589,074 97.8%	216,010 2.2%	9,634,426 98.3%	170,658 1.7%

*restricted to the sexually active population who reported race

