

# Southern Africa Labour and Development Research Unit



The effects of different dimensions of HIV-related stigma  
on HIV testing uptake among young men and women in  
Cape Town, South Africa

*by*

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# The effects of different dimensions of HIV-related stigma on HIV testing uptake among young men and women in Cape Town, South Africa

Brendan Maughan-Brown and Laura Nyblade

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## Abstract

Although HIV-related stigma is known, in general, to deter HIV-testing, the extent to which different dimensions of stigma independently influence testing behaviour is poorly understood. We used data on young black men ( $n=553$ ) and women ( $n=674$ ) from the 2009 Cape Area Panel Study to examine the independent effects of stigmatising attitudes, perceived stigma and observed-enacted stigma on HIV-testing. Multivariate logistic regression models showed that stigma had a strong relationship with HIV-testing among women, but not men. Women who held stigmatising attitudes were *more* likely to have been tested (OR 3,  $p<0.01$ ), while perceived stigma (OR 0.61,  $p<0.1$ ) and observed-enacted stigma (OR 0.42,  $p<0.01$ ) reduced the odds significantly of women having had an HIV test. Our findings highlight that different dimensions of stigma may have opposite effects on HIV testing, and point towards the need for interventions that limit the impact of enacted and perceived stigma on HIV-testing among women.

**Keywords:** HIV/AIDS; stigmatisation; HIV-testing; Africa; women

## Introduction

The recent HIV Prevention Trials Network 052 study (HPTN 052) demonstrated that early antiretroviral treatment can reduce onward sexual HIV transmission in the clinical trial setting [1]. This has led some to advocate treatment as prevention (TasP) as a cornerstone of combination HIV-prevention [2]. Implicit to the success of TasP is the identification of individuals living with HIV through HIV testing, and the detection of new cases through repeat testing [3-5]. This task poses a significant challenge as many people are hard to reach and resistant to HIV testing [6].

Several previous studies indicate that HIV-related stigma could present a particularly pervasive impediment to HIV testing [7-17]. The majority of these studies assessed the relationship between stigma and testing using general stigma indexes that combine two or more aspects of HIV-related stigma [18]. Therefore, while there is consensus that stigma in general deters testing, the mechanisms behind this relationship, and consequently the optimal intervention strategy, remain unclear.

Three stigma-related constructs may play significant roles in HIV-testing decisions. First, HIV-related stigmatising attitudes, sometimes referred to as symbolic stigma, which are based on negative moral judgements of individuals perceived to have been infected with HIV through what is assumed to be immoral and/or irresponsible behaviour and is informed by the social meanings attached to HIV and the people who are living with HIV [19]. Stigmatising attitudes allow individuals to distance themselves from the risk of HIV infection through a blaming or “othering” response, through which the contraction of HIV is blamed on characteristics associated with “other” people [20,21]. Therefore, via this heightened sense of invulnerability to HIV, stigmatising attitudes may reduce the perceived need for an HIV test and, consequently, uptake of HIV testing services [22].

Second, perceived HIV-related stigma – perceptions on the part of individuals about the nature and level of stigma in the broader social environment – may also influence HIV testing. This is a generalised perception of how people in one’s community feel and react towards people living with HIV [23,24]. As perceived stigma is a product of social learning it may be informed, or exacerbated, by reports and stories of stigmatising experiences [25]. Perceived stigma may discourage HIV testing due to fears of facing discrimination should one test HIV positive. The third stigma-related construct that may influence HIV testing is observed-enacted stigma (observed discrimination), which refers to manifestations of stigmatisation towards people living with HIV that are witnessed by individuals. Observed-enacted stigma may also discourage HIV testing, due to fears of facing discrimination should one test HIV positive.

The extent to which stigmatising attitudes, perceived stigma and observed-enacted stigma independently influence HIV testing behaviour is poorly understood. We do not know, for example, whether perceived stigma that is informed solely by stories is enough to affect HIV testing behaviours or whether direct encounters with stigmatising behaviours are necessary to influence this outcome. This paper adds to our understanding by examining the independent effects of different components of HIV-related stigma on HIV testing among young black men and women in South Africa.

## **Methods**

### *Data*

We used data from the Cape Area Panel Study (CAPS) [26]. The aim of CAPS was to follow the lives of a large and representative sample of adolescents in Cape Town as they undergo the multiple transitions from adolescence to adulthood. The first wave of CAPS (in 2002) surveyed a representative sample of 4,752 young adults (ages 14 to 22) living in Cape Town, South Africa. Respondents were re-interviewed (face-to-face in participants' first language) up to four more times, in 2003/2004, 2005, 2006 and most recently in 2009 (wave 5), with the cohort then aged 20-30. We use data primarily from the 2009 wave, unless otherwise noted, as data on all three stigma constructs used in this paper were only collected during the 2009 wave. Respondents were initially selected using a two-stage sample, 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, and in the second stage households were randomly selected from clusters to achieve a representative sample. We restricted the analysis to black respondents given far higher HIV rates among this population group [27]. Analyses were also restricted to individuals who reported having had full penetrative sexual intercourse and individuals without missing data on any variables included in the analysis. Participants who, in any wave of the survey, self-reported being HIV-positive (men: n=7 or 1%; women: n=48 or 6%) were excluded from analyses. The sample initially (in 2002) comprised 2152 blacks and 1328 (62%) were re-interviewed in 2009. The final estimation sample for this analysis included 553 men and 674 women. Ethical approval was granted by the University of Cape Town and University of Michigan.

The stigma questions in CAPS were designed through a three-stage process. First, relevant questions were taken from the available stigma literature, which depended on which wave of CAPS was being designed. Second, these questions were piloted to test transferability from other regions and to ensure they were clearly understood in the local context. Third, each pilot was followed up with a focus group consisting of the same participants to discuss important aspects of stigma that were not covered by the initial set of questions. New questions were developed and piloted. Prior to the face-to-face interviews, each of the

stigma-related questions was translated into the first language of the participants and focus groups were conducted with fieldworkers to evaluate the interpretability of the questions and the validity of the translations. The questions were clearly understood by everyone and interpretations were consistent with the intended construct.

### *Variables*

The key dependent variable of interest (HIV testing) used in this analysis was measured in 2009 by asking respondents: "Have you ever been tested for HIV?"

To measure *HIV-related stigmatising attitudes*, participants were asked three questions in 2009: (1) Do you think HIV/AIDS is a punishment for sleeping around?; (2) Do you think that many people who get HIV infected through sex have only themselves to blame?; and (3) Do you think that some people with HIV/AIDS want to infect other people with the virus? Response options to these questions fell on a 4-point Likert scale: definitely yes, probably yes, probably no and definitely no. Previous factor analysis of the CAPS stigma questions showed that these three questions factored together and formed a different construct to the questions designed to measure negative behavioural intentions and fear of infection [28].

Perceived stigma was measured with the following questions: (1) Do you think people say unkind things about HIV positive people?; (2) Do you think people with HIV/AIDS often get treated unfairly or badly by others?; and (3) Do you think most people with HIV/AIDS are supported by their families when they disclose their HIV status? Responses to the first item were given on the 4-point Likert scale and responses to the other items were measured as yes/no.

Observed-enacted stigma was measured with: (1) Have you personally heard other people saying nasty things about people living with HIV/AIDS?; (2) Have you personally seen other people treating someone with HIV unfairly or badly?; and (3) Do you personally know anyone with HIV who was rejected by any member of their family when they disclosed his/her HIV status? Responses were measured as yes/no.

For each stigma construct, we created a new binary stigma variable where respondents who responded "yes" to at least one of the three items making up each of the three types of stigma were given a one, and those who responded no to all 3 items, a zero. In addition, for each type of stigma, an index (0-3) was created by summing the affirmative responses to each of the three questions for that type of stigma. Cronbach's alpha scores ( $\alpha$ ) for the three questions forming each index were as follows: stigmatising attitudes (men: 0.66, women: 0.53); perceived stigma (men: 0.63, women: 0.50); observed-enacted stigma (men: 0.59, women: 0.82). Relatively low scores, in general, were expected as there were few items in each construct and each item measured different aspects of a complex social phenomenon (stigmatising attitudes), and different types of perceived and observed-enacted stigma. Hence, a high degree of internal consistency was unlikely [29]. Punishment and blame, for

example, are two different aspects within the construct of stigmatising attitudes. Similarly, observing gossip is a different experience to observing rejection from a family member, but both are observations of enacted stigma.

Control variables included age, years of education, marital status and logged monthly household income. We used several additional control variables to account for potential drivers of HIV testing that could also influence stigma. First, self-perceived risk of HIV, which was measured using the question “Do you think you have no risk, a small risk, a moderate risk or a great risk of getting the AIDS virus?” Regarding HIV-related knowledge, a binary variable was created to represent individuals who answered both these questions correctly: “Can HIV/AIDS be transmitted from a mother to her child?” and “Is it possible for a healthy-looking person to have HIV?” Finally, a binary variable was formed to identify participants who reported knowing anyone living with HIV.

### *Analysis*

We first analysed descriptive statistics for the outcome and control variables. Bivariate logistic regression was then used to assess the relationship between HIV-testing history and each of the three stigma constructs, both for the binary (yes to at least one of 3 items) and index variables. Finally, multivariate logistic regression analyses were employed to assess the independent effects of the different stigma constructs (both binary and index variables) on HIV testing, while controlling for other factors. Inclusion of all three stigma constructs in the same model was a valid strategy because a fairly strong correlation was only found between perceived and observed-enacted stigma, and the Pearson correlation coefficient (men: 0.46; women: 0.58) was not large enough to warrant a different approach. In the first multivariate model, the binary variables for stigmatising attitudes, perceived stigma and observed-enacted stigma were included. Results from this model indicate whether individuals who reported any stigma were different from those who did not in terms of HIV testing history. In the second model, the binary stigma variables were replaced with the stigma index variables to assess how testing behaviour was related to increasing numbers of stigma items reported.

All analyses were conducted separately for men and women as determinants of HIV testing uptake in South Africa have been found to vary by gender [30]. All standard errors were corrected for heteroskedasticity. All analyses were conducted with Stata 12.0 (Stata Corporation, College Station, Texas, United States of America).

## **Results**

Table 1 presents sample proportions and means. Among young black adults in Cape Town, 63% of men and 69% of women had been tested for HIV by 2009. A total of 55% of men and

38% of women endorsed at least one stigmatising attitude item. The most frequently endorsed stigmatising attitude item for men was that some people with HIV want to infect others with the virus, and for women was that people who get HIV through sex have only themselves to blame. Significantly more men than women expressed judgemental attitudes for each of the stigmatising attitudes items ( $p < 0.01$ ).

In contrast, there was no statistically significant difference on any of the perceived stigma items between men and women. Almost half the sample believed that people say unkind things about people living with HIV and the majority endorsed at least one perceived stigma item. In terms of observed-enacted stigma, significantly ( $p < 0.01$ ) greater proportions of women than men reported first hand observations of all manifestations of enacted stigma, but especially the more severe manifestations. The majority of men who reported observed-enacted stigma had only heard other people saying unkind things about people living with HIV. On the other hand, significantly more women had also seen people living with HIV being treated badly or unfairly by others and knew someone who was rejected by a family member.

Table 2 displays the results of bivariate logistic regression models with ever had an HIV test (by 2009) as the outcome variable. Among men, stigmatising attitudes were not significantly associated with HIV testing, for either the binary (yes to at least one item) or the index variable. A positive relationship was found between HIV testing and any perceived stigma ( $p < 0.05$ ) and the observed-enacted stigma index variable ( $p < 0.05$ ). Among women all the stigma variables were significantly ( $p < 0.01$ ) associated with HIV testing, but not all in the same direction. Stigmatising attitudes were positively associated with HIV testing, while those who reported perceived and observed-enacted stigma were less likely to have been tested.

Table 3 presents multivariate regression estimates for men and women. Among men (Models 3.1 and 3.2) none of the stigma variables showed a statistically significant association with HIV-testing. Among women, endorsement of any stigmatising attitude significantly increased the odds ( $OR = 2.99$ ;  $p < 0.01$ ) of having had an HIV test (Model 3.3). In contrast, any perceived stigma ( $OR = 0.61$ ;  $p < 0.1$ ) and any observed-enacted stigma ( $OR = 0.42$ ;  $p < 0.01$ ) decreased the odds of having been tested. Model 3.4 indicates that for every additional item for which stigmatising attitudes were expressed, the odds of a woman having been tested increased by a factor of 2 ( $p < 0.01$ ). And for each additional affirmative response to a perceived stigma and observed-enacted stigma item the odds of being tested decreased by 0.74 ( $p < 0.05$ ) and 0.65 ( $p < 0.01$ ) respectively. Overall, as expected, a positive association was found between HIV testing and HIV knowledge and knowing anyone living with HIV. Finally, among women, higher self-perceived risk of HIV infection was negatively associated with HIV testing.

The results presented above were substantively similar in analyses that included each item of the different stigma constructs in separate multivariate models, controlling for the other stigma constructs and potential confounding variables in each model. This is important as it indicates that the odds ratio for each of the variables we created, by combining responses to three items, was not driven by one item that had a particular strong relationship with HIV-testing behaviours. There was only one exception. The odds ratio for the relationship between perceived lack of support from family members of people living with HIV and HIV-testing among women was not statistically significant (OR: 0.86;  $p = 0.57$ ). This indicates that inclusion of this variable may have led to an underestimation of the effect that perceived gossip and perceptions that people living with HIV are treated badly or unfairly by others had on HIV-testing behaviours among women.

The results presented above were also substantively similar in analyses conducted to check the robustness of the findings using three variants of our sample (results available upon request). First, we excluded individuals who had tested for HIV by the 2006 survey (men:  $n=189$ ; women:  $n=407$ ). This analysis provides an indication of whether our results hold among individuals who tested more recently (between 2006 and 2009), which is important because we do not know the timing of HIV tests. Second, individuals who reported having had a sexually transmitted disease (men:  $n=144$ ; women:  $n=148$ ) were excluded. Third, we excluded women who had ever been pregnant ( $n=301$ ). The offer of HIV testing in a medical setting in South Africa is routine for individuals who are diagnosed with a sexual transmitted disease and for pregnant women. We excluded these individuals as the relationship between stigma and HIV testing has been found to vary between provider-initiated testing and patient-initiated testing [14].

## Discussion

There is a general consensus that HIV-related stigma deters HIV-testing uptake and therefore impedes HIV prevention and treatment efficacy, such as treatment as prevention. However, the mechanism(s) behind the relationship between stigma and testing remain unclear. It is therefore important to gain more understanding of the independent effects of different constructs of HIV-related stigma on HIV-testing uptake and whether this relationship varies from one group to another.

Using data from a sample of young black men and women in Cape Town, South Africa, a population highly affected by HIV [31], we find that stigma is strongly associated with HIV-testing history among women, but not men. Furthermore, among women, different constructs of stigma had opposite effects on HIV testing. Women who held stigmatising attitudes were *more* likely to have been tested, while perceived and observed-enacted stigma reduced the odds significantly of women having had an HIV test. Importantly,

perceived stigma was found to have an impact on HIV testing that was independent of the effect of observed-enacted stigma. This suggests that perceived stigma, even when based solely on stories, can deter women from HIV testing.

Overall, the results from our study indicate a stigmatising environment for people living with HIV in Cape Town with a significant proportion of men and women reporting stigmatising attitudes and having personally observed-enacted stigma. This concurs with previous findings that stigmatising experiences were common among people living with HIV in Cape Town [32]. It is therefore not surprising that perceived stigma within this population was high, with the majority of men and women reporting the perception that people living with HIV face stigma in the broader social environment. It is also not surprising that perceived stigma and observed-enacted stigma discouraged HIV testing among women, presumably due to fears of facing discrimination should they test HIV positive.

A key question then is why perceived and observed-enacted stigma did not appear to deter HIV testing among young black men. One possibility relates to the fact that young black men in Cape Town are around three times less likely than young black women to be infected with HIV [31]. Furthermore, as shown in our data and elsewhere, young men are less likely than young women to have been tested for HIV [33]. So young men in this study may not perceive HIV or HIV-related stigma to be a threat to them and therefore are not that fearful of an HIV test because they do not see many of their male friends or peers with HIV or experiencing stigma. Young women on the other hand may be much more likely to perceive HIV and stigma as a threat and therefore be more reluctant to test. Our data offer some support for this explanation as significantly smaller proportions of men reported observed-enacted stigma than women, and relatively few men had observed the more severe manifestations of stigma: people being treated badly/unfairly or rejected by their family. The differential HIV rates among young men and women, in addition to women being more likely to test first within a partnership due to routine testing in antenatal clinics, as well as women's subordinate status in South Africa, may also enable men to deflect the blame of HIV infection to women [34-36].

Another potential explanation for this finding is that young men are more able to avoid stigma. Men may have more resources than women to seek private testing and treatment, and thus be better able to hide their HIV status and avoid stigma. We recommend further research to examine the underlying mechanisms behind the gender differences in our findings, which could elicit insights into how to reduce the impact of stigma on HIV testing among young women.

Another key question is why women holding more stigmatising attitudes were *more* likely to have been tested for HIV. This runs counter to the hypothesis that stigmatising attitudes allow individuals to distance themselves from the risk of HIV infection through a blaming or

“othering” response, and therefore reduce the perceived need for an HIV test [22]. One potential explanation for this finding is that stigmatising attitudes may reduce anxiety about having an HIV test – as individuals who hold stigmatising attitudes assume they will test HIV negative – and increase the willingness to accept an HIV test. Further research is required into the mechanism(s) behind this result because reverse causality cannot be ruled out: women who previously tested HIV-negative may have a higher propensity to perceive HIV as a disease of other people and therefore to endorse stigmatising attitudes.

The findings from this study have important implications for how we may reduce the negative impact of HIV-related stigma on HIV-testing behaviour. Discriminatory behaviours (i.e. enacted stigma) directed at people living with HIV need to be reduced as first hand observation of enacted stigma acts as a strong deterrent to HIV testing among women. Furthermore, reports and stories about acts of HIV-related enacted stigma will contribute to individuals perceiving that people living with HIV are stigmatised, which in turn impacts HIV testing. Key to the reduction of enacted stigma is the reduction of both negative moral judgements and fears of HIV transmission via casual contact [28,37,38]. Therefore, although the relationship between stigmatising attitudes and HIV testing may be positive, addressing stigmatising attitudes remains important for removing barriers to HIV testing.

There are several limitations in our study. First, we cannot exclude the potential of unmeasured confounders correlated both with the stigma variables and testing outcome as a possible consequence of study design constraints. Second, also complicating causal inference is the fact that our analysis was limited to cross-sectional data as the set of stigma measures used in this paper were only collected in the 2009 wave. As mentioned above, we are therefore uncertain whether stigmatising attitudes increased the odds of women testing for HIV, or if testing negative for HIV increased the probability of holding stigmatising attitudes. We are also uncertain whether the strong negative relationship we found between self-perceived HIV risk and testing reflects the fact that women with high perceived risk are less likely to have been tested or whether women who had already been tested, and tested negative, significantly reduced their self-perceived risk of HIV. Third, all data were self-reported and may suffer from social desirability bias. Fourth, in terms of the sample, although 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. Fifth, these results are for a specific population of young adults and it is unclear whether they can be generalized to other, and older, populations. Finally, participants in this cohort study were asked questions about HIV in surveys prior to the 2009 interview. We do not know whether, or in what way, these experiences influenced participants’ knowledge, attitudes and beliefs about HIV, and therefore whether they influenced the generalizability of our results. However, no specific information or messaging about HIV was provided to participants, so we do not believe participation in the study had a major impact on our outcomes.

## **Conclusions**

Results of this study demonstrate that different stigma constructs may play different roles in influencing outcomes such as the uptake of HIV testing, and that the effects of stigma may vary by gender. These findings highlight the importance of measuring and analysing the different constructs of stigma separately, and considering the potential for differential outcomes by gender in future research. Our findings also point towards the need for interventions designed specifically to limit the degree to which stigma in the broader social environment discourages the uptake of HIV testing among young women.

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**Table 1. Sample characteristics and stigma measures by gender.**

	<b>Men (n = 553)</b>	<b>Women (n = 674)</b>	<b>p-value of difference</b>
	<b>Mean (SD)/%</b>	<b>Mean (SD)/%</b>	
<b><i>Ever had an HIV test</i></b>	63%	69%	p<0.05
<b>Demographics</b>			
Age	24.6 (2.7)	24.6 (2.5)	p=0.85
Education (years)	10.4 (1.9)	10.7 (1.6)	p<0.01
Married	4%	12%	p<0.01
Household per capita monthly income	^R917 (1116)	R720 (838)	p<0.01
<b>Stigmatising Attitudes</b>			
HIV is a punishment for sleeping around	21%	8%	p<0.01
People who get HIV through sex have only themselves to blame	31%	23%	p<0.01
Some people living with HIV want to infect others with HIV	35%	22%	p<0.01
Any stigmatising attitudes (yes to at least one of the above)	55%	38%	p<0.01
<b>Perceived stigma</b>			
People say unkind things about people living with HIV	47%	45%	p=0.47
People with HIV often get treated badly or unfairly	34%	39%	p=0.11
People with HIV are not supported by their families	12%	14%	p=0.27
Any perceived stigma (yes to at least one of the above)	57%	62%	p=0.08
<b>Observed-enacted stigma</b>			
Heard people say nasty things about people living with HIV	31%	41%	p<0.01
Seen other people treating someone with HIV unfairly or badly	13%	29%	p<0.01
Know someone with HIV who was rejected by a family member	6%	22%	p<0.01
Any observed-enacted stigma (yes to at least one of the above)	35%	45%	p<0.01
<b>Other variables</b>			
Correct knowledge on both HIV-related questions	40%	44%	p=0.22
Doesn't perceived any risk of getting HIV	39%	25%	p<0.01
Knows any people living with HIV	50%	55%	p=0.18

Notes: Standard deviation (SD) in parentheses

^The South Africa Rand to US Dollar exchange was 0.129 in July 2009, so R917 was equivalent to \$118

**Table 2. Bivariate logistic regressions of associations between HIV-testing and HIV-related stigma among men and women.**

	Men (n = 553)			Women (n = 674)		
	OR (SE)	95% CI		OR (SE)	95% CI	
		Lower	Upper		Lower	Upper
Any stigmatising attitudes (yes to at least one item)	1.21 (0.21)	0.86	1.71	2.87 (0.55)***	1.98	4.16
Stigmatising attitudes index (0-3)	1.00 (0.09)	0.84	1.21	1.98 (0.29)***	1.49	2.65
Any perceived stigma (yes to at least one item)	1.44 (0.26)*	1.02	2.04	0.41 (0.08)***	0.28	0.59
Perceived stigma index (0-3)	1.16 (0.11)	0.96	1.39	0.57 (0.06)***	0.48	0.70
Any observed-enacted stigma (yes to at least one item)	1.22 (0.23)	0.85	1.76	0.30 (0.05)***	0.21	0.42
Observed-enacted stigma index (0-3)	1.28 (0.15) **	1.02	1.60	0.53 (0.04)***	0.46	0.71

Notes: Robust standard error (SE) in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3. Multivariate logistic regressions of associations with HIV-testing history among young black adults in Cape Town, South Africa.**

Model	Men (n = 553) OR (95% CI)		Women (n = 674) OR (95% CI)	
	3.1	3.2	3.3	3.4
Any stigmatising attitudes	1.06 (0.71 - 1.57)	na	2.99*** (1.99 - 4.50)	na
Any perceived stigma	1.11 (0.72 - 1.69)	na	0.61* (0.37 - 1.01)	na
Any observed-enacted stigma	0.92 (0.60 - 1.42)	na	0.42*** (0.27 - 0.66)	na
Stigmatising attitudes index (0-3)	na	0.95 (0.77 - 1.16)	na	1.97*** (1.45 - 2.70)
Perceived stigma index (0-3)	na	0.97 (0.77 - 1.22)	na	0.74** (0.57 - 0.95)
Observed-enacted stigma index (0-3)	na	1.11 (0.85 - 1.45)	na	0.65*** (0.53 - 0.78)
Age	0.98 (0.92 - 1.05)	0.98 (0.92 - 1.05)	1.04 (0.97 - 1.12)	1.05 (0.98 - 1.13)
Education (years)	1.13** (1.03 - 1.24)	1.12** (1.02 - 1.23)	0.98 (0.88 - 1.10)	0.98 (0.87 - 1.10)
Logged per capita monthly household income	1 (1.00 - 1.00)	1 (1.00 - 1.00)	1 (1.00 - 1.00)	1 (1.00 - 1.00)
Correct knowledge on both HIV-related questions	1.57** (1.04 - 2.35)	1.60** (1.07 - 2.42)	1.35 (0.94 - 1.96)	1.25 (0.86 - 1.81)
Know anyone living with HIV	1.50** (1.02 - 2.20)	1.42* (0.96 - 2.10)	1.45* (0.99 - 2.11)	1.48** (1.02 - 2.16)
Self-perceived HIV risk (2009)				
None	Reference	Reference	Reference	Reference
Low	1.18 (0.76 - 1.83)	1.22 (0.78 - 1.88)	0.55** (0.31 - 0.97)	0.61* (0.35 - 1.07)
Moderate or high	0.79 (0.45 - 1.37)	0.78 (0.45 - 1.35)	0.24*** (0.14 - 0.41)	0.29*** (0.17 - 0.49)
Don't know	0.48** (0.27 - 0.86)	0.45*** (0.25 - 0.81)	0.48** (0.25 - 0.92)	0.53* (0.27 - 1.01)
Pseudo R-squared	0.05	0.05	0.26	0.26

Notes: 95% Confidence interval (CI) in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

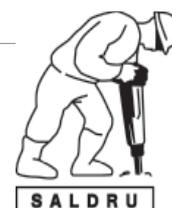
na Not applicable in this model

# southern africa labour and development research unit

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The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.



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