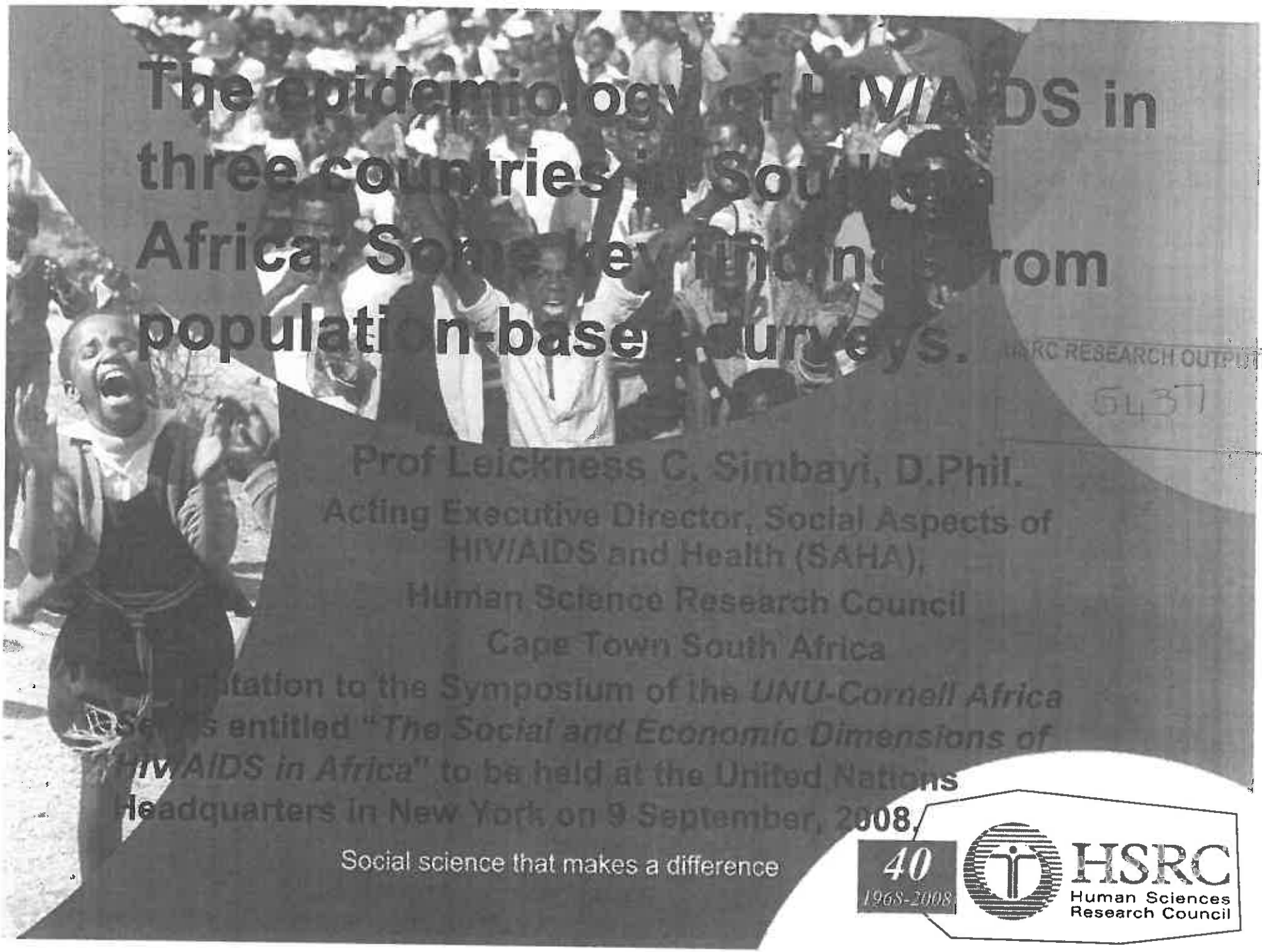

The epidemiology of HIV/AIDS in three countries in Southern Africa: Some key findings from population-based surveys.

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Presentation to the Symposium of the *UNU-Cornell Africa* series entitled "*The Social and Economic Dimensions of HIV/AIDS in Africa*" to be held at the United Nations Headquarters in New York on 9 September, 2008.

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Overview of the presentation

- Aim of the presentation
- Background to the study
- The use of the population-based survey methodology and second-generation surveillance approach in HIV surveillance
- HIV prevalence results by age and sex from all three countries as well as HIV incidence results from South Africa only
- Behavioural and social determinants of HIV prevalence from all three countries as well as HIV incidence and male circumcision* in the case of South Africa only
- Conclusions

* Using 2002 data

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Aim of the presentation

- To share some findings on HIV prevalence, HIV incidence* and behavioural data from three cross-sectional national population-based HIV surveys using the second-generation surveillance approach which were conducted most recently in three Southern African countries.

  - The three surveys are:
    - Botswana – AIDS Indicator Survey 2004 (BAIS II)
    - South Africa – HSRC Survey 2005
    - Swaziland – DHS 2006-7

- Male circumcision data from the HSRC Survey 2002 will also be presented.

*South Africa only

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Background to the study

Global update on the numbers of adults and children estimated to be living with HIV in 2007

Total: 33.2 (30.6–36.1) million

Source: UNAIDS/WHO, 2007

Background (contd)

- The majority of people who are infected and affected by HIV/AIDS are Africans, living in Sub-Saharan Africa and especially in the Southern Africa region.

- Although Sub-Saharan Africa has about 10% of the world's population, it is the most seriously affected region, with AIDS remaining the leading cause of death.

- In many parts of the world HIV infections are mainly located in high risk groups such as gay men and injecting drug users but the main route of HIV infection in Southern Africa is through heterosexual sex.

- There has also been a feminisation of the epidemic in the region with nearly 61% of those infected being females. This feminisation is more pronounced especially amongst young women.

Background (contd)

- There is also generally a low prevalence rate of male circumcision found in many countries in the region.

- In nine of the Southern African countries including Botswana South Africa and Swaziland, the three countries that are the main focus of this presentation, over 12% of the adult population is infected with HIV.

- South Africa alone carries the largest burden of any single country in the world with an estimated 5.5 million PLWHA (14% of the global burden) with a prevalence rate of 16% among adults aged 15-49 years of age.

  - This represents about 20% of the African total
  - One out of every six PLWHA in the world

Background (contd)

- Swaziland and Botswana, which are both South Africa's neighbours, have the highest and second highest prevalence rates in the world respectively.

- Although all the three countries have recently seen some notable breakthroughs in implementation of HIV prevention, ARV treatment and care of PLWHA, more people still continue to be infected with HIV.

The use of the population-based survey methodology and second-generation surveillance approach in HIV surveillance

- In the past UNAIDS' national HIV prevalence estimates were based on modelling using an earlier version on the Epidemic Projection Package (EPP) which mainly used data from ANC sentinel surveys conducted among pregnant women only.
- One of the consequences of using ANC data from pregnant women was that they tended to overestimate HIV prevalence rates in countries with generalised epidemics. This also resulted in overestimating the total global burden of HIV.
- Recently, there has been improvement in the data obtained especially using population-based surveys such as the DHS+ and the HSRC variant which was used in Botswana, South Africa and Swaziland.
- Better modelling methods has resulted in more accurate estimates especially in countries which have high prevalence rates of over 20% and this has led to some adjustments to national and global estimates over the past 4 years.

The use of the population-based survey methodology and second-generation surveillance approach in HIV surveillance (contd)

- In the South African study, HIV incidence was also tested using the BED capture EIA test, the first time this has been done at a national level.

- An added advantage of some population-based surveys which employ the second-generation surveillance approach recommended by UNAIDS and WHO which combines biological and behavioural surveys is that they allow for better understanding of the determinants of HIV infection and/or HIV incidence among members of the general population.

- ORC Macro International's MEASURE Demographic and Health Surveys Plus (DHS+) model of population-based surveys based on the second-generation surveillance approach mainly focuses on the sexually reproductive age group of people 15-49 years of age (all females in all households and all males in alternate households) in randomly selected enumerator areas (EAs) and households.

The use of the population-based survey methodology and second-generation surveillance approach in HIV surveillance (contd)

- The HSRC's variant to the DHS+ model which was used in the three studies that were conducted in Botswana, South Africa and Swaziland randomly selects only one participant from each following three age groups in each household from selected EAs:
  - Children aged 2-14 years,
  - Youth aged 15-24 years and
  - Adults aged 25 years and older

- The HSRC is currently conducting the third in the time series of the national population-based surveys (2002, 2005, 2008).

- We are also planning to undertake at least two more such surveys in 2011 and then in 2014.

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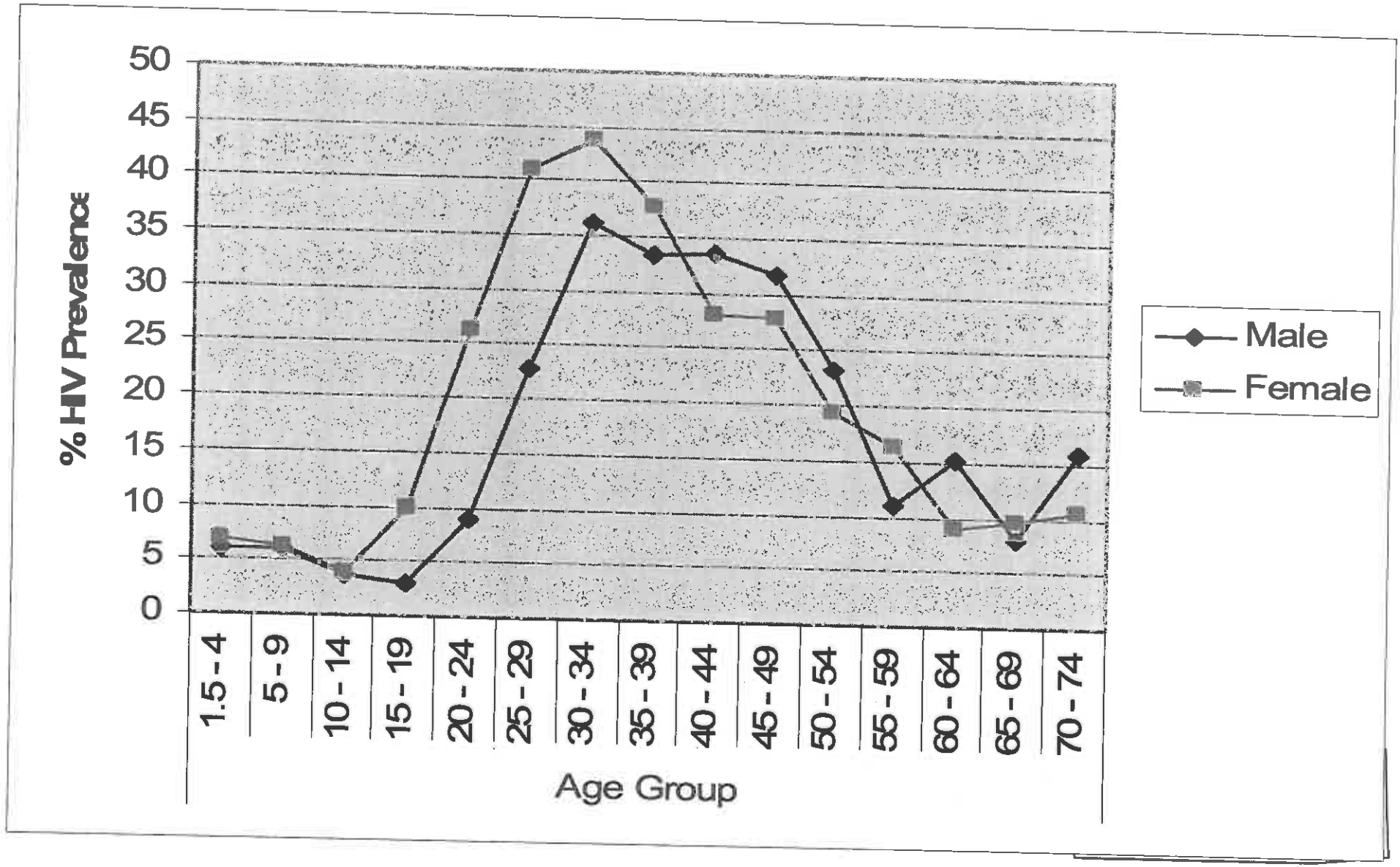
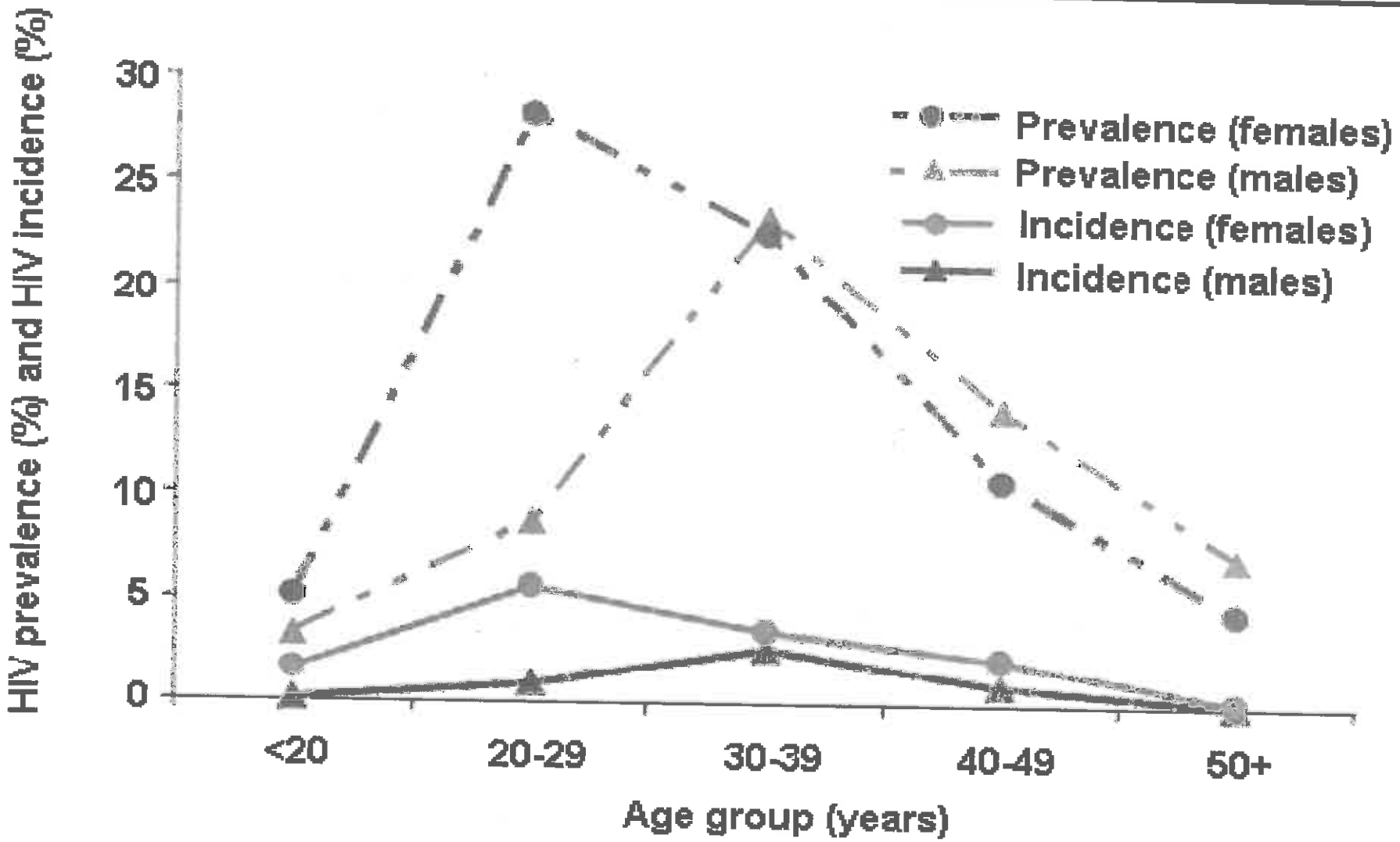
Prevalence of HIV by age and sex Botswana 2004



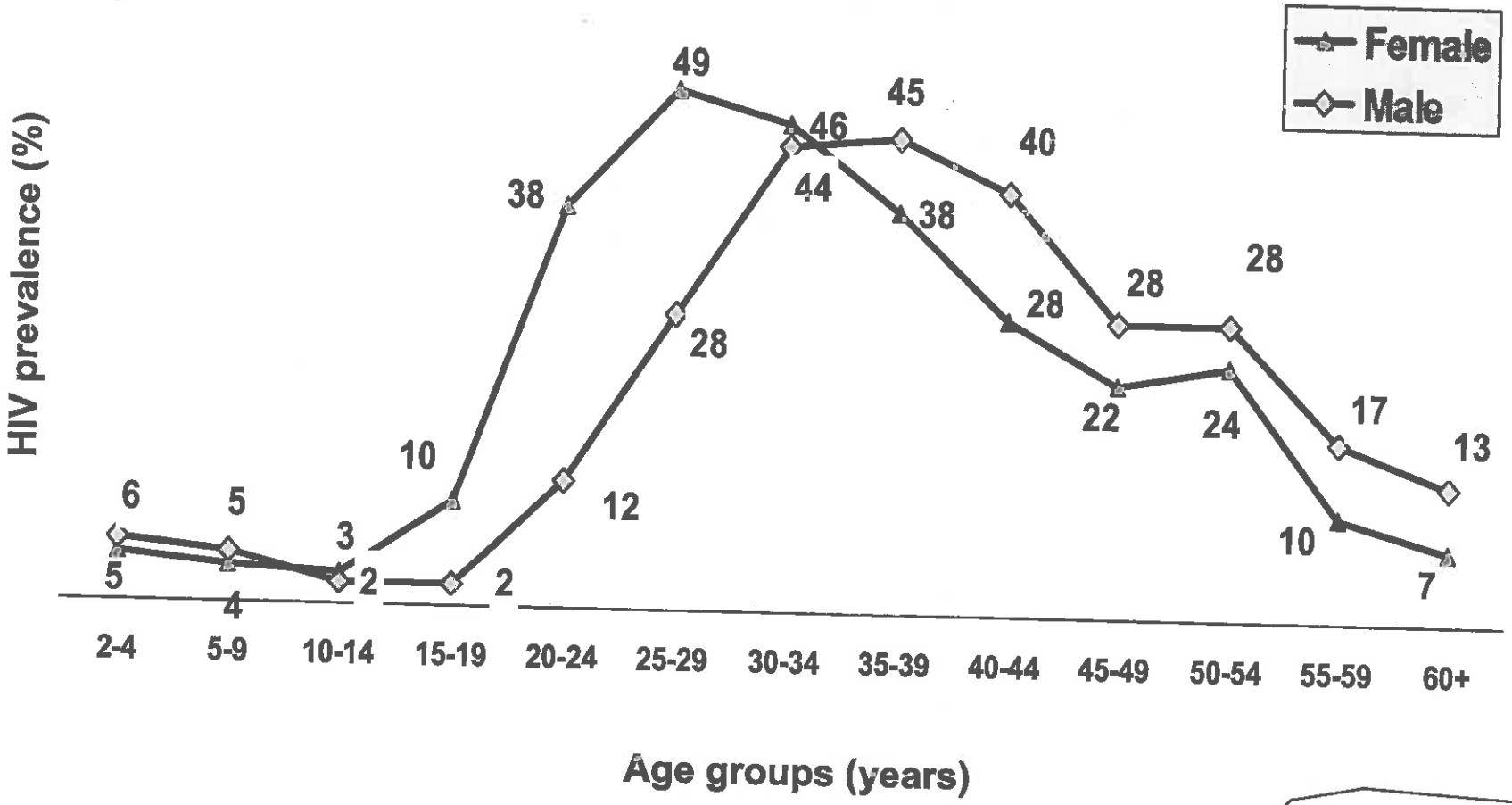
HIV prevalence and HIV incidence by age and sex, South Africa 2005

(Source: Rehle, Shisana, et al., SAMJ, 2007).



Prevalence of HIV by age and sex, Swaziland 2004

(Source of data plotted: SDHS 2006-7)

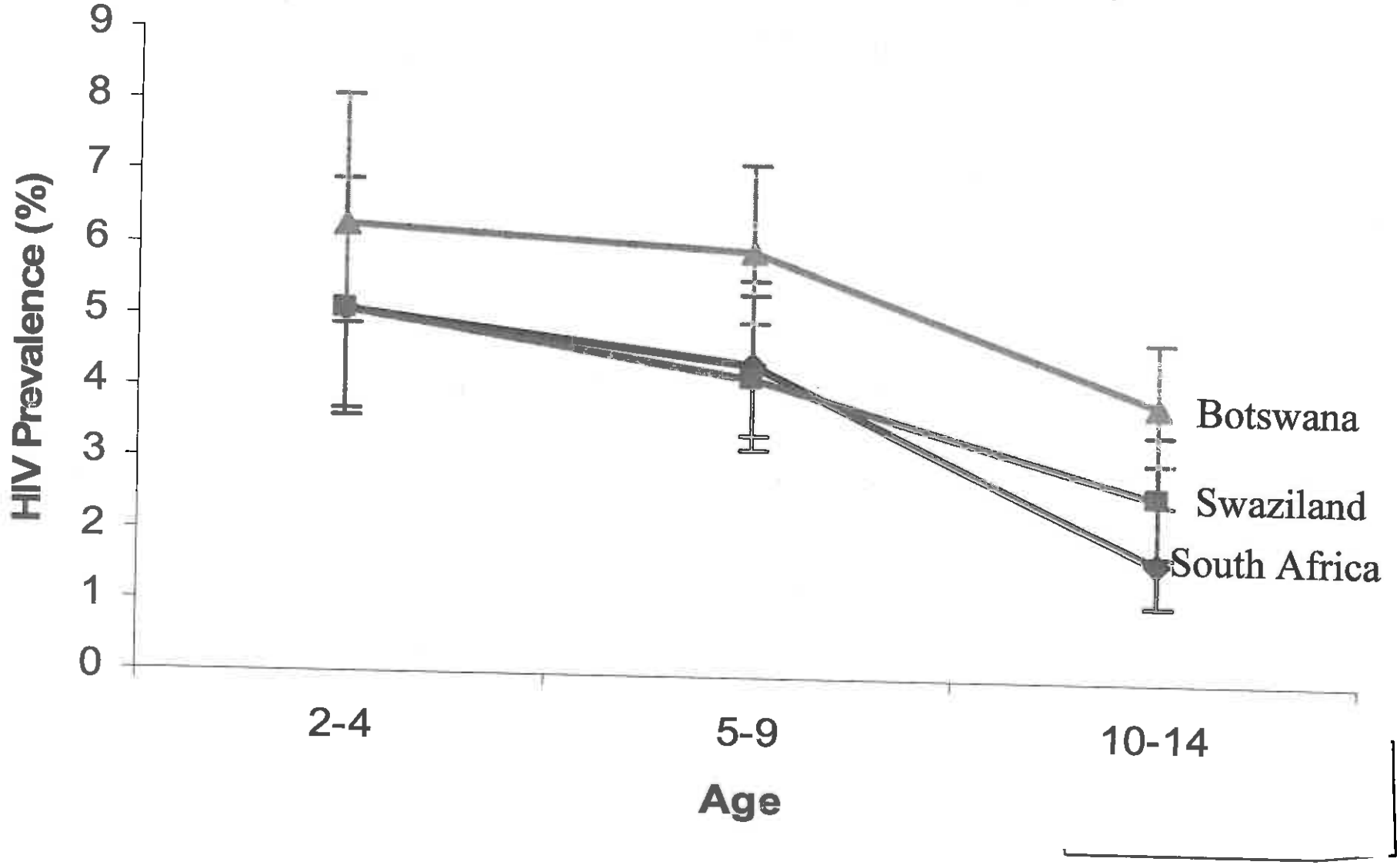


Summary of HIV prevalence rates found among various age groups in Botswana, South Africa and Swaziland

Age group (years)	Botswana (BAIS II)	South Africa (HSRC 2005)	Swaziland (DHS 2006/7)
1.5/2-4	6.30%	5.10%	5.10%
4-9	4.20%	4.40%	4.20%
10-14	2.60%	1.70%	2.50%
15-49	25.30%	16.20%	25.90%
50+	13%	5.70%	16.0%

Summary of HIV prevalence rates found among children aged 2-14 years in Botswana, Swaziland and South Africa

(Source: Swaziland DHS 2006-7. Preliminary report, 2007)



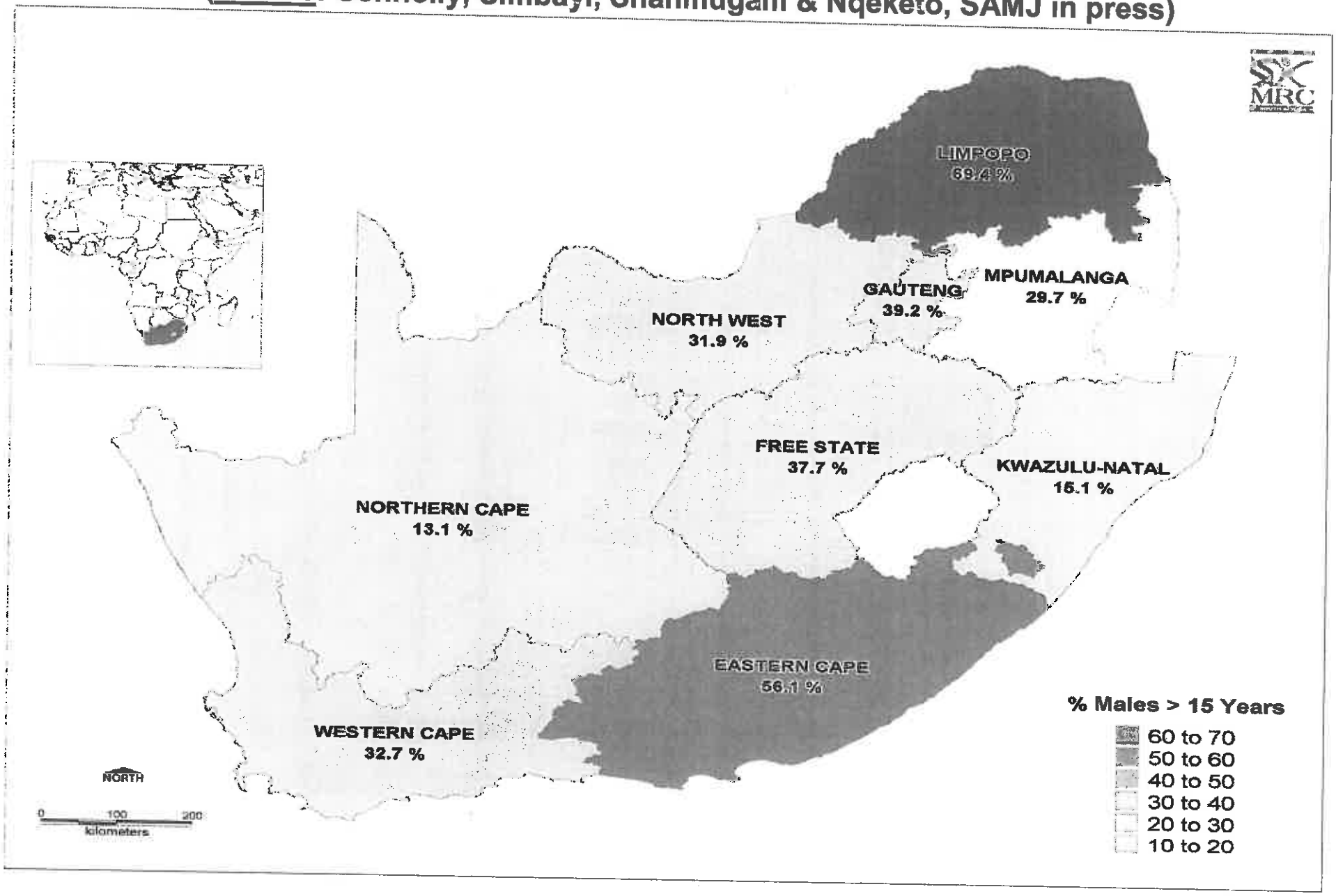
HIV prevalence and incidence by self-reported socio-behavioural factors (age group 15 - 49 years)

(*Source: Rehle, Shisana et al., SAMJ, 2007).*

Variable	Survey sample (N)	HIV prevalence (%) (95% CI)	HIV incidence (% per year) (95% CI)
Marital status			
Single	5 306	16.6 (14.9 - 18.5)	3.0 (1.9 - 4.1)
Married	3 240	14.3 (12.3 - 16.6)	1.3 (0.5 - 2.1)
Widowed	227	34.0 (25.5 - 43.7)	5.8 (0.0 - 13.8)
Divorced	318	15.1 (9.5 - 23.0)	0.5 (0.0 - 1.6)
Sexual history			
Never had sex	1 747	4.3 (2.7 - 7.0)	1.5 (0.0 - 3.0)
No sex in the past 12 months	1 358	18.0 (14.9 - 21.5)	2.4 (0.8 - 4.1)
Sexually active in the past 12 months	5 803	18.7 (17.0 - 20.6)	2.4 (1.5 - 3.3)
Current pregnancy	215	37.0 (24.9 - 51.0)	5.2 (0.0 - 12.9)
Number of sexual partners			
One sex partner in the past 12 months	5 233	18.4 (16.7 - 20.4)	2.1 (1.3 - 3.0)
More than one sex partner in the past 12 months	468	21.3 (15.9 - 28.0)	3.1 (0.0 - 6.4)
Condom use at last sex			
15 - 24 years			
Yes	1 011	14.3 [(11.0 - 18.4)	2.9 (0.5 - 5.2)
No	392	20.8 (15.3 - 27.8)	6.1 (0.0 - 12.9)
25 - 49 years			
Yes	1 049	24.9 (21.1 - 29.1)	2.2 (0.4 - 4.0)
No	1 068	16.0 (12.3 - 20.6)	1.9 (0.0 - 3.7)

Percentage of males circumcised by province in South Africa 2002.

(Source: Connolly, Simbayi, Shanmugam & Nqeketo, SAMJ in press)



Age of circumcision and HIV prevalence among men, South Africa 2002.

Sub-group	Not circumcised		Circumcised			
			<=12 yrs		13+	
	n	HIV prevalence (%)	n	HIV prevalence (%)	n	HIV prevalence (%)
All men in the study	1669	11.00%	264	6.80%*	602	13.50%*
Sexually active men	1316	12.00%	203	8.90%**	568	13.60%**
Africans and Coloured sexually active men	996	15.00%	121	13.20%	538	14.10%

* Total circumcised = 11.1%; ** Total circumcised = 12.3%

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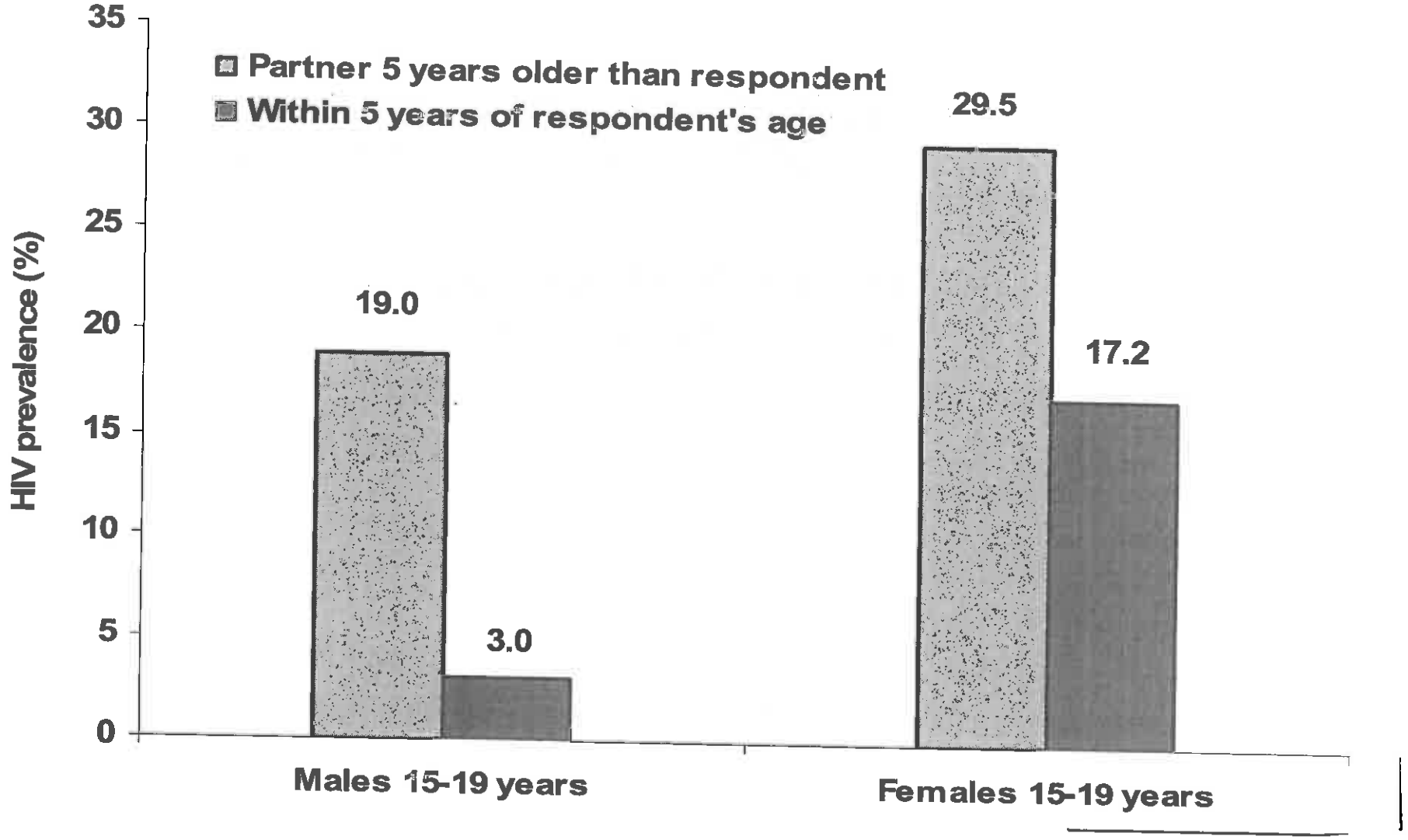
Perceived vulnerability to HIV infection in South Africa

- In spite of the large burden of HIV/AIDS in the country the following findings were obtained:
  - 66% of respondents think they are at not at risk for HIV
  - 20.8% of those who thought they were at high risk were found to be HIV positive
  - 51% of HIV positive respondents thought they would probably or definitely not get infected with HIV

HIV prevalence and age mixing among adults in Botswana

- Overall, the HIV prevalence rate among those who were 10 years older or younger than themselves were found to be higher (32.2%) than among those who were in relationships in which their age difference was less than 10 years (27.0%).

HIV prevalence and age mixing in youth aged 15-19 years, South Africa



Summary of knowledge and attitudes concerning HIV/AIDS in Botswana, South Africa and Swaziland

Country	Knowledge of HIV/AIDS		Willingness to care for a family member living with HIV/AIDS (%)
	Heard of HIV/AIDS (%)	Knew at least one way HIV is transmitted and/or prevented (%)	
Botswana	92.7	82	92.3
South Africa	- (Almost universal?)	90	90.7
Swaziland	96	88.9	-

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Awareness of VCT services and HIV testing history in Botswana, South Africa and Swaziland

Country	Awareness of VCT services (%)	HIV testing history	
		Ever tested (%)	Last 12 months (%)
Botswana	- (N.B. Routine testing used since 2002)	25.4	19
South Africa	78.8	30.3	12
Swaziland	85	29.7	15.4

Disclosure of HIV status by people living with HIV/AIDS in Botswana

- 61% of those who knew their HIV-positive status indicated that they had disclosed their status to a family member.

- 47% of them had disclosed to their sexual partner

Summary of sexual behavioural practices concerning HIV/AIDS in Botswana, South Africa and Swaziland

Country	Age of Sexual Debut (years)	Multiple sexual partners		Condom use	
		Males	Females	During last sexual intercourse	Consistently
Botswana	-	-	-	62.3	54.5
South Africa	17	16.3	2.6	48.3	-
Swaziland	18-19 (females only)	22.9	2.3	56.4	-

Comparison between 2002 and 2005 HSRC surveys in reported condom use during last sex act for different age groups by sex in South Africa.

Age group	Males (%)		Females (%)	
	2002	2005	2002	2005
15-24 yrs	57.1	84.8	46.0	73.0
25-49 yrs	26.7	53.4	19.7	55.3
50 yrs+	8.2	25.2	5.6	18.7

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Comparison between 2002 and 2005 HSRC surveys in awareness of HIV status and condom use, South Africa

HIV status	Condom use HIV positive 2002	2005	Condom use HIV negative 2002	2005
Know status from test taken within 2 years	33%	66.2%	26%	50.8%

Conclusions

- The HIV/AIDS situation in all the three South African countries is alarming as hyperendemics exist which involve over 15% of the adults in the general population being infected with HIV in all of three of them.

- Females are significantly more vulnerable to HIV infection and incidence levels are high amongst women, female youth and younger adults, and pregnant women.
  - Efforts involving structural interventions which address social values and norms concerning cultural and economic factors underlying gender inequalities are imperative.

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Conclusions

- HIV prevalence amongst both children under the age of 15 years and the elderly who are aged ≥50 years are clearly some new areas of concern.
  - Urgent efforts are needed to curb these sub-epidemics as well as provide appropriate treatment and care especially for the children.
  - Older people in particular must be warned that they too are at risk of HIV.
  - There is a need to advocate for inclusion of children and older people in surveillance and modelling of the HIV/AIDS epidemic so that they are also included in the policies and planning for HIV/AIDS programmes.

Conclusions (contd)

- There is still a false sense of security exists especially in South Africa.
  - There is therefore an urgent need to intervene by keeping highlighting the fact that everyone in these countries is at risk of infection.

- Behavioural responses to the HIV epidemic especially among youth have been positive and are increasing in relation to both condom use and VCT.
  - Adults need to be encouraged to undergo regular HIV tests and to use condoms more like the youth are doing.
  - Sexually active youth must be strongly to avoid having older partners than they are and also having multiple concurrent sexual partnerships as both behaviours increase their risk of HIV infection.

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Conclusions (contd)

- Positive Prevention which targets PLWHA who know their status is an important tool for HIV prevention especially in this era of expanding access to ARVs in the Southern Africa region.
  - There is a need for a concerted effort to take maximum advantage of the wider availability and ever increasing access to ARV treatment in the region to avoid any risk compensation (or behavioural disinhibition or treatment optimism) from also widely occurring as this might reverse the gains that are now being made in the fight against HIV/AIDS throughout the Southern Africa region.
  - PLWHA should also be encouraged to disclose about their status to family members and sexual partners for it provides them with much needed social support and also promotes prevention.

Conclusions (contd)

- Evidence-based biomedical, behavioural and multi-level or structural interventions are needed to make further inroads in the fight against HIV/AIDS throughout the Southern Africa region
  - For example, medical male circumcision and various theory-based behavioural prevention interventions that have been shown to be efficacious must be scaled up.

- The HSRC's variant to the Measure DHS+ model of population-based survey methodology that employs the second-generation surveillance approach which includes all age groups (and also HIV incidence testing) in informing both national and regional responses to the HIV/AIDS epidemic is useful for undertaking more thorough HIV surveillance.
  - Other African countries with high HIV prevalence including SADC countries like Mozambique are also interested is using the HSRC's approach also working together with ORC Macro International as was done in Sw[illegible]nd

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Useful resources

- Central Statistics Office. (2004). *BAIS II Popular Report 2004*. Gaborone Botswana: Government Printers.

- Central Statistics Office. (2007). *Swaziland Demographic and Health Survey 2006-07*. Mbabane Swaziland: CSO.

- Shisana, O., Rehle, T., Simbayi, L.C., Parker, W., Zuma, K., Bhana, A., Connolly, C., Jooste, S., Pillay, V. et al. (2005). *South African National HIV Prevalence, HIV Incidence, Behaviour and Communication Survey 2005*. Cape Town: HSRC Press.

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