South African National Health And Nutrition Examination Survey (SANHANES-1)

FUNDERS

SANHANES TEAM

Purpose

The South African National Health And Nutrition Examination Survey (SANHANES) was established as a repeated population health survey in order to address the changing health needs in the country and provide a broader and more comprehensive platform to study the health and nutritional status of the nation on a regular basis.

SANHANES

Objectives

To investigate the:

- Knowledge, attitudes and behaviour of South Africans with respect to non-communicable and communicable diseases.
- Nutritional status of South Africans as it relates to food security, dietary intake/behaviour including the consumption of alcohol, and body weight management.
- Behavioural (smoking, diet, physical inactivity) and social determinants of health and nutrition (demographic, socioeconomic status and geolocation) and relate these to the health and nutritional status of the SA population.
- General perceptions of health and health care services.

SANHANES

METHODS

SANHANES

Study Design

- SANHANES-1 was a cross-sectional survey providing baseline data for repeated surveys and also for future longitudinal (prospective) analysis.
  - A prospective cohort approach will be able to address the relationships between medical, nutritional and behavioural/societal risk factors assessed in the first survey phase (SANHANES-1) and subsequent morbidity, mortality and changes in risk factors at the national level.

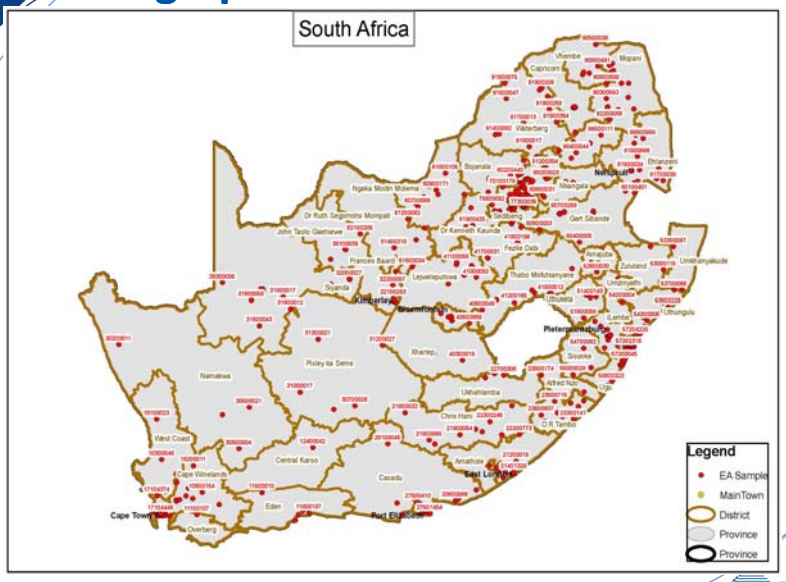
SANHANES

Population and Sampling

- Individuals of all age groups living in SA households, excluding those living in institutions
- Multi-stage disproportionate, stratified cluster sampling
- 500 enumeration areas (EA)
- 20 households per EA
- All persons in the household were eligible to participate

SANHANES

Geographic distribution of EAs selected



SANHANES

Data collection

- SANHANES-1 obtained data through:
- Interviews based on questionnaires administered by fieldworkers
- Clinical examination by doctors, nurses and clinic assistants (free-of-charge) in a variety of settings measuring:
  - Physical examinations: blood pressure, step fitness test, anthropometry
  - Laboratory tests: blood samples for biomarker testing (full blood count, HbA1c, cholesterol, triglycerides, C-reactive protein, cotinine, vitamin A, ferritin)

SANHANES

Data management and analyses

- Questionnaire data: Children (0-14 years), adults (15 years and older) double entered and verified using Census Survey Processing System
- Clinical Examination data: custom-designed forms
- Laboratory data: blood samples for biomarker analysis using for serum lipids, ferritin [Roche Modular, Immulite 2000, BioRad D10, Abbott Architect]); High Performance Liquid Chromatography (HPLC) (HbA1c, vitamin A, cotinine)
- Analytical quality control documentation indicated that the coefficient of variation for the analyses ranged from 0.5–3.75%
- All data were analysed using SPSS and STATA
- Data were weighed and benchmarked against the 2012 mid-year population estimate

SANHANES

Laboratory tests

PATHCARE Laboratories

LANCET Laboratories

SANHANES

RESULTS

SANHANES

Individual level of participation in SANHANES-1

8 168 valid households were realised in the survey and 77.2% agreed to be interviewed

27 580 individuals were eligible

92.6%

25 532 completed interviews

43.6%

12 025 completed a physical examination

29.3%

8078 blood specimens were collected

SANHANES

Representativity of the sample compared to 2012 mid-year estimates

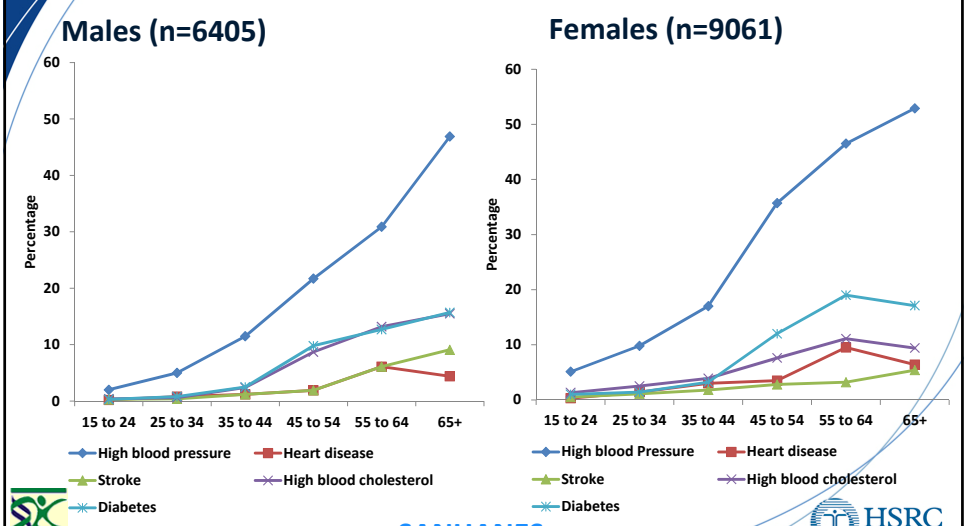
Demographics	Weighted sample		Midyear population 2012	
	n	%	n	%
Age				
0–14	15 460 322	29.6	15 459 959	29.6
15–24	10 130 722	19.4	10 130 660	19.4
25–34	9 009 761	17.2	9 009 713	17.2
35–44	7 041 054	13.5	7 041 024	13.5
45–54	4 840 748	9.3	4 840 720	9.3
55–64	3 153 832	6.0	3 153 804	6.0
65+	2 639 079	5.0	2 639 066	5.0
Total	52 275 518	100.0	52 274 945	100.0
Race				
African	41 624 748	79.6	41 624 670	79.6
White	4 622 376	8.8	4 622 373	8.8
Coloured	4 716 488	9.0	4 716 471	9.0
Asian/Indian	1 311 441	2.5	1 311 431	2.5
Total	52 275 053	100.0	52 274 945	100.0

SANHANES

Non-Communicable Diseases

SANHANES

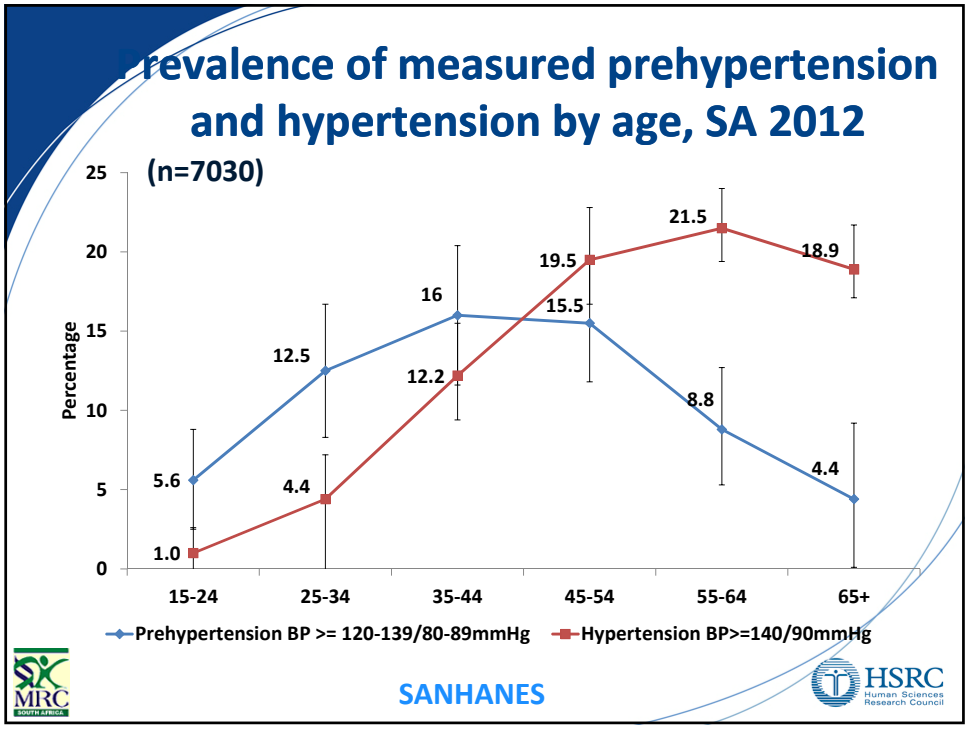
Rates (%) of self-reported personal history of NCDs by sex and age, SA 2012

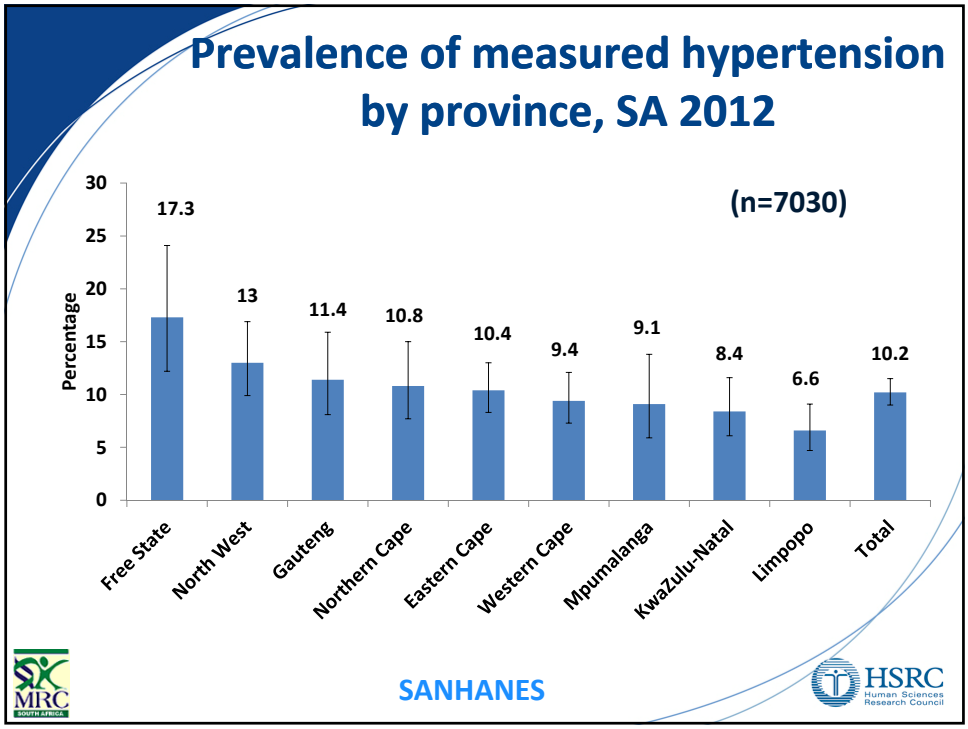


SANHANES

Clinical Examination: Hypertension

SANHANES

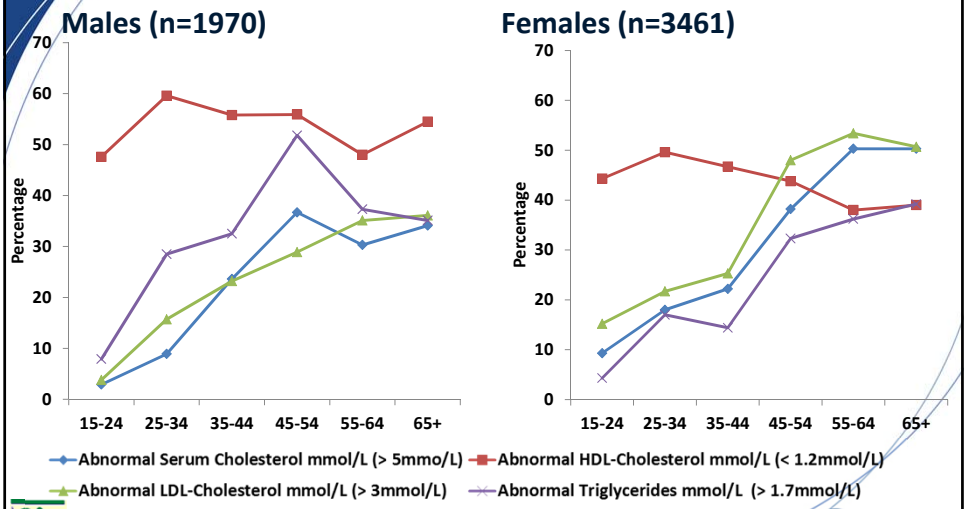

Prevalence of measured prehypertension and hypertension by age, SA 2012
(n=7030)
Percentage
25
20
15
10
5
0
5.6
12.5
16
15.5
8.8
4.4
1.0
4.4
12.2
19.5
21.5
18.9
15-24
25-34
35-44
45-54
55-64
65+
Prehypertension BP >= 120-139/80-89mmHg
Hypertension BP>=140/90mmHg
SANHANES
MRC
HSRC
Human Sciences Research Council


Prevalence of measured hypertension by province, SA 2012
(n=7030)
Percentage
30
25
20
15
10
5
0
17.3
13
11.4
10.8
10.4
9.4
9.1
8.4
6.6
10.2
Free State
North West
Gauteng
Northern Cape
Eastern Cape
Western Cape
Mpumalanga
KwaZulu-Natal
Limpopo
Total
SANHANES
MRC
HSRC
Human Sciences Research Council

Clinical Examination: Hyperlipidaemia

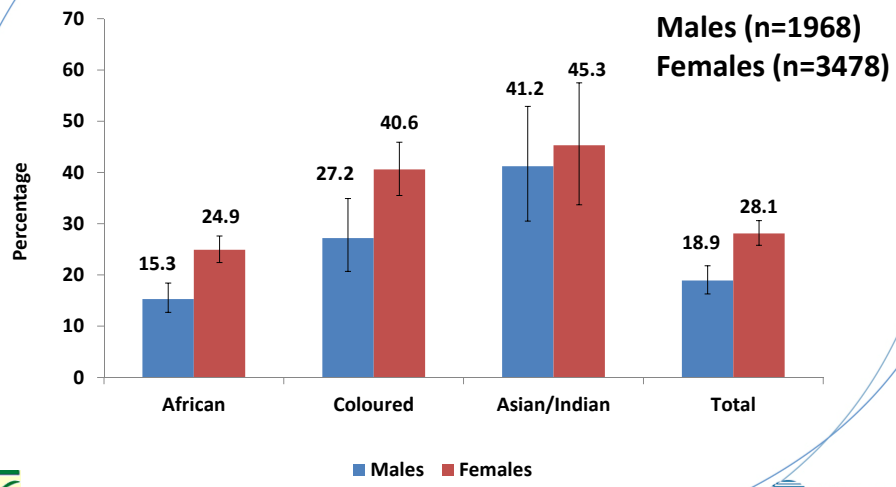
SANHANES

Prevalence of hyperlipidaemia by sex and age, SA 2012



SANHANES

Prevalence of hypercholesterolaemia (total cholesterol) by race, SA 2012

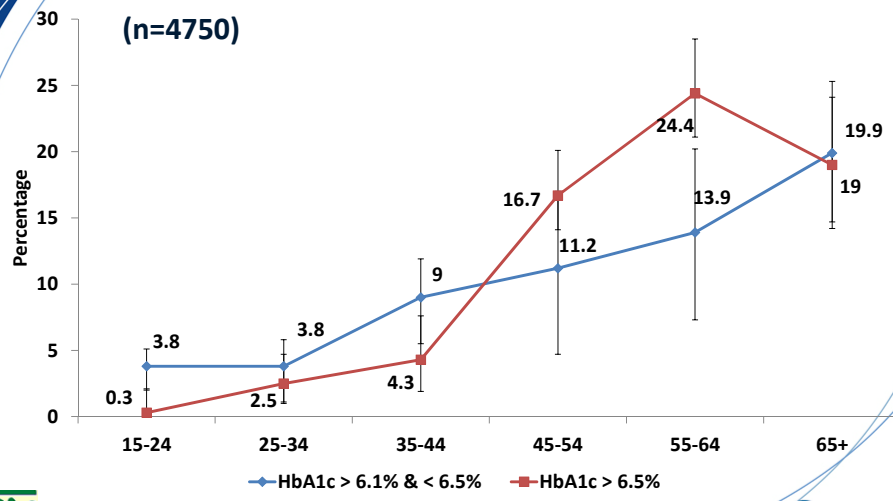


SANHANES

Clinical Examination: Diabetes (blood sugar)

SANHANES

Prevalence of impaired glucose homeostasis and diabetes by age, SA 2012

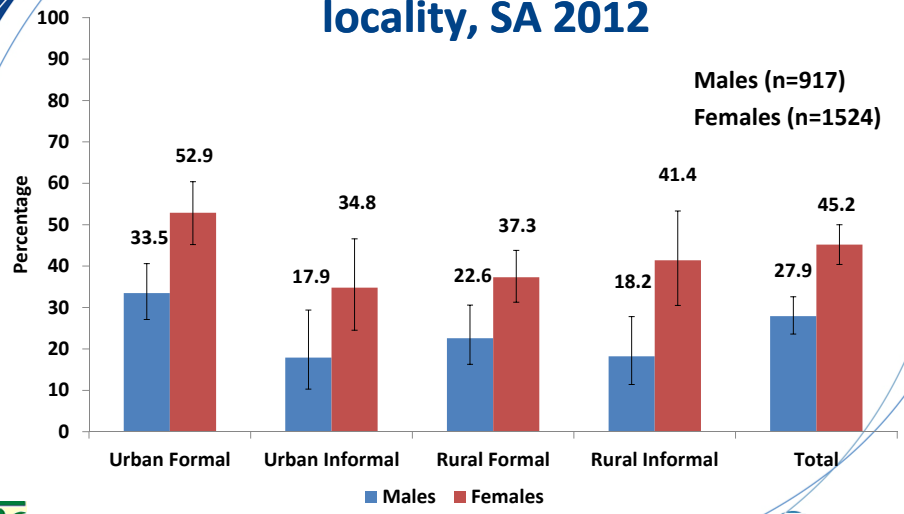


SANHANES

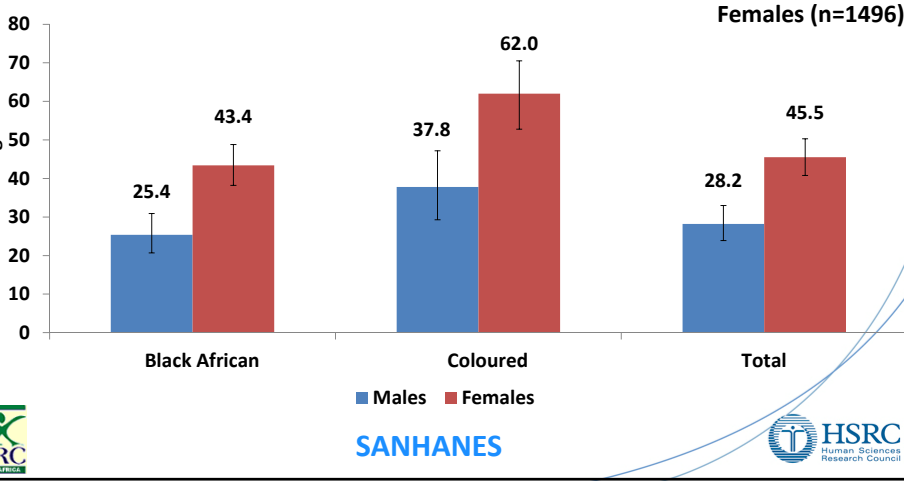
Physical activity

SANHANES

Prevalence of aerobic fitness: percentage aged 18-40 years old unfit by sex and locality, SA 2012



Prevalence of aerobic fitness: percentage aged 18-40 years old unfit by sex and race, SA 2012

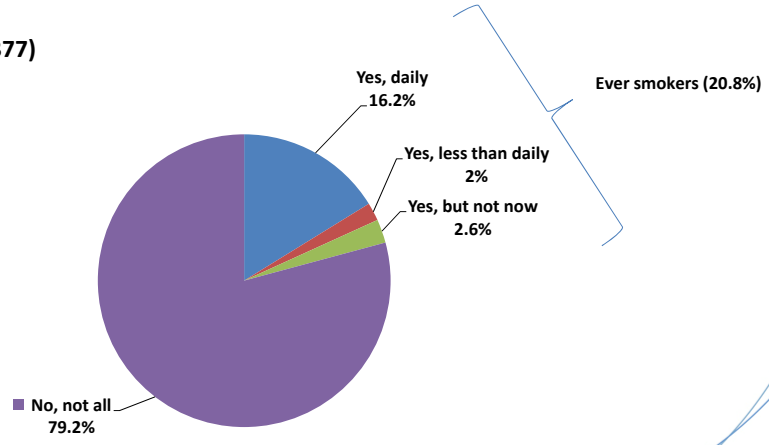


Tobacco Use

SANHANES

Prevalence of tobacco smoking (current smokers), SA 2012

(n=15 377)



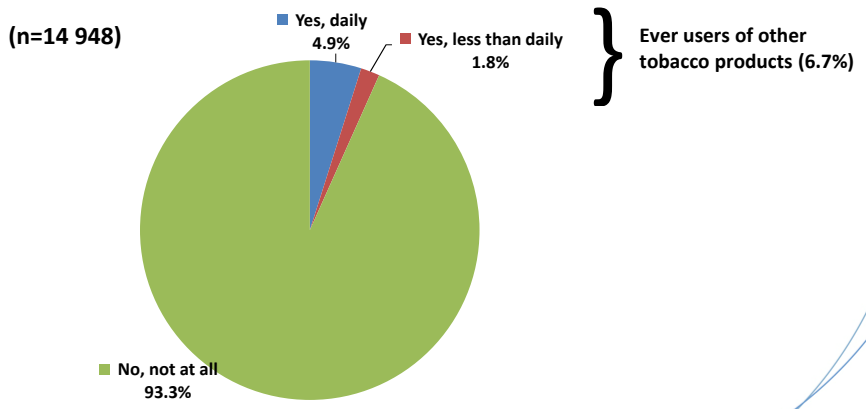
SANHANES

Mean age of tobacco initiation, smoking duration and number of cigarettes smoked per day (current smokers) , SA 2012

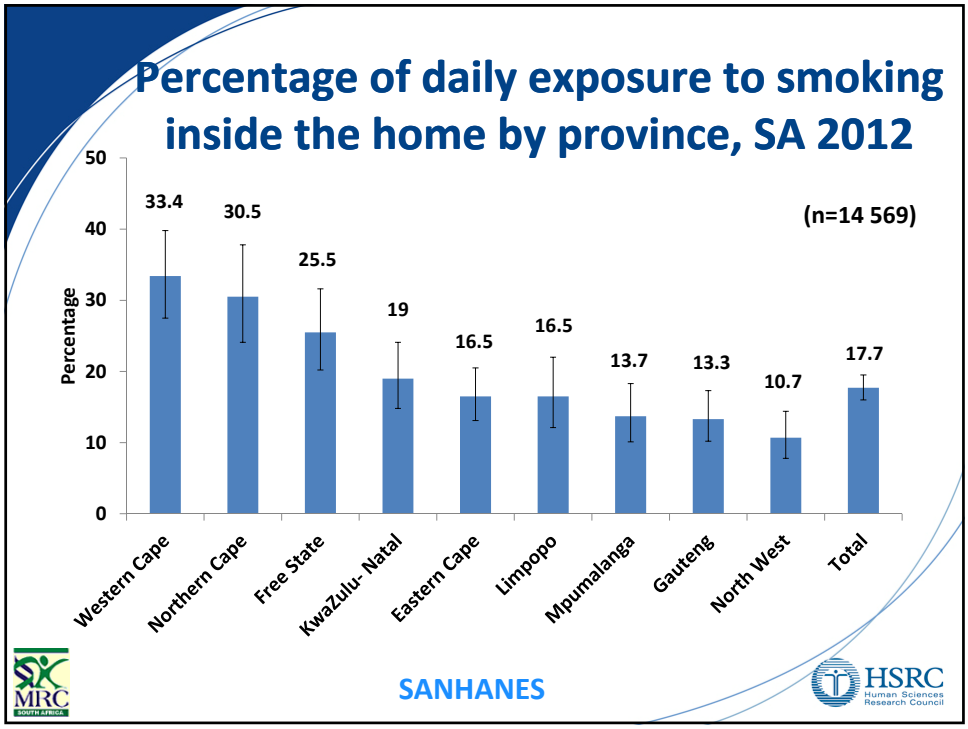
	Age of initiation of tobacco smoking (years)	Duration of smoking (years)	Mean number of cigarettes smoked per day
Males	17.9	17.5	8
Females	16.4	19.4	10
Total	17.4	17.9	8.5

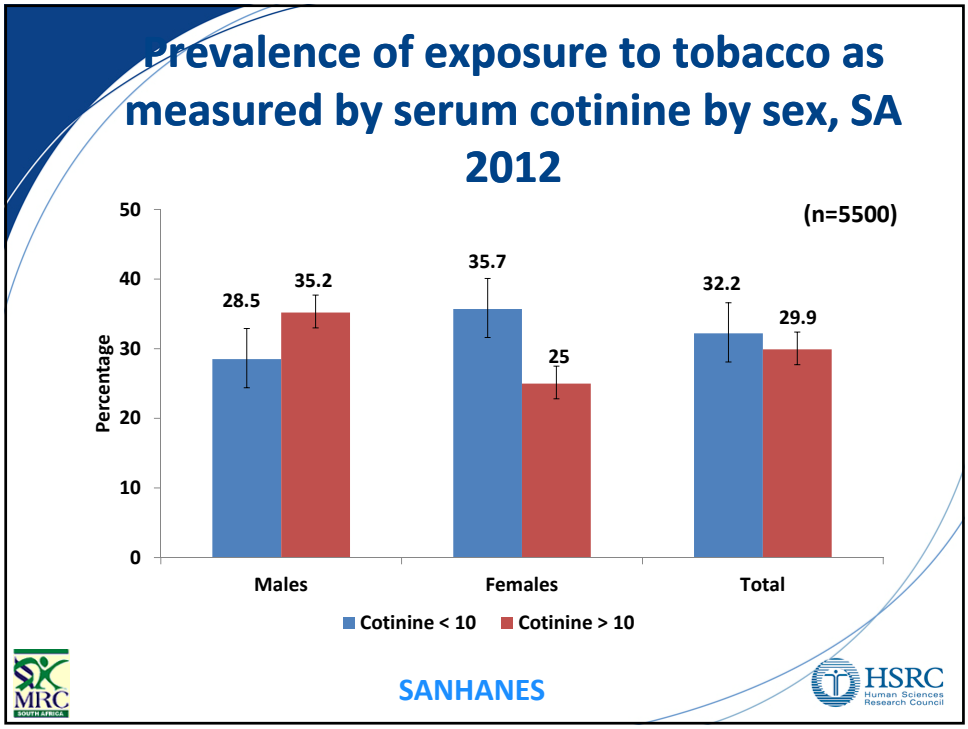
SANHANES

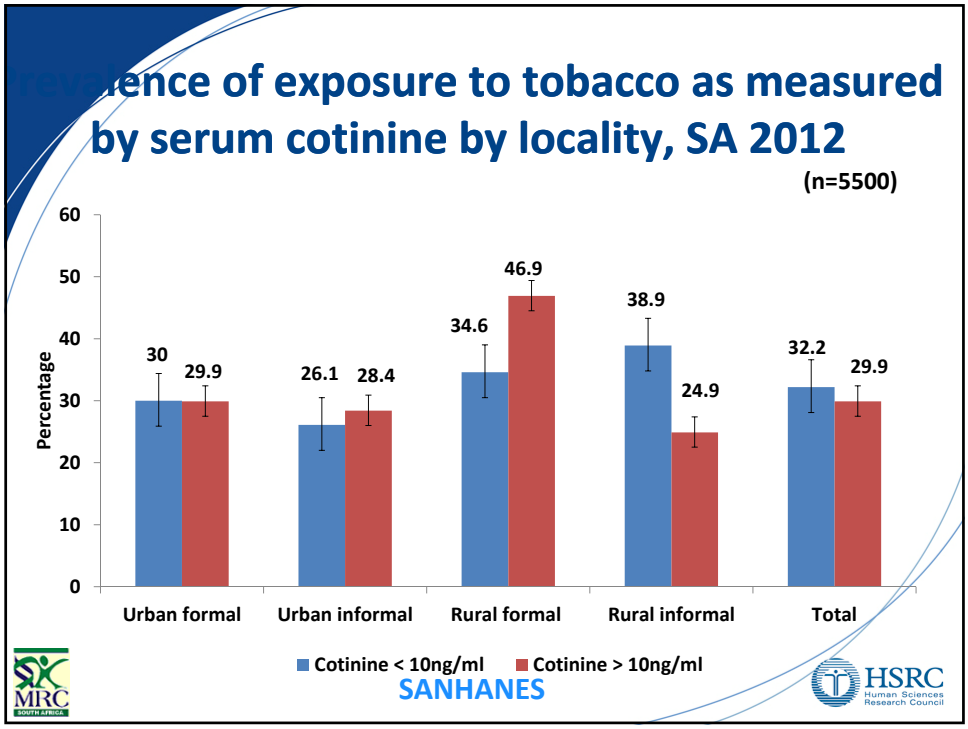
Prevalence of the use of other tobacco products (current smokers), SA 2012

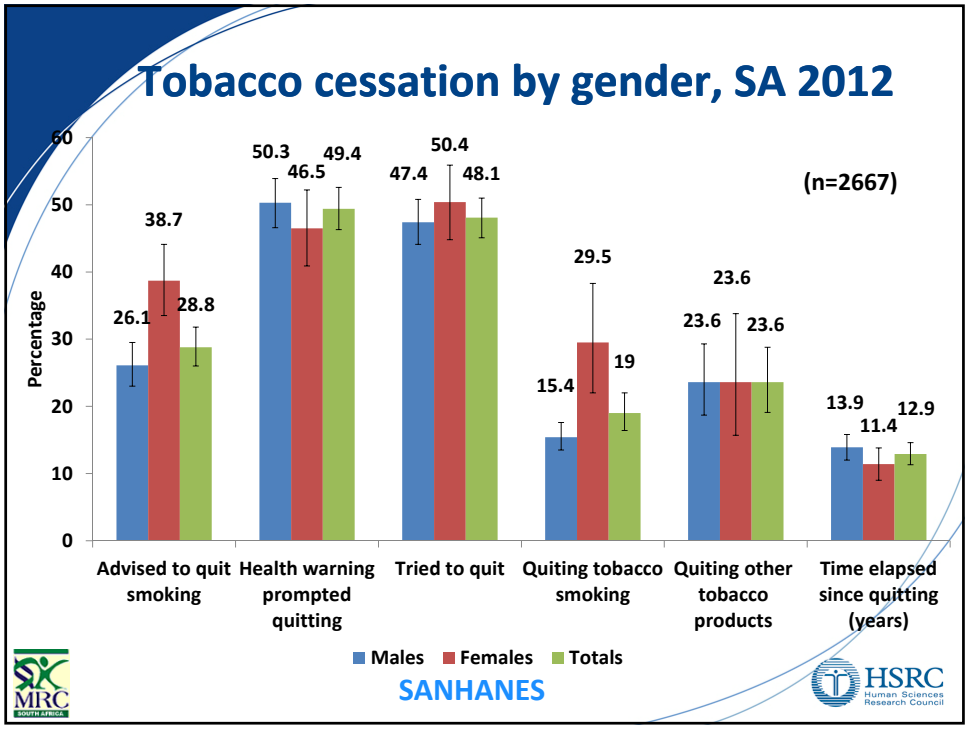


SANHANES


Percentage of daily exposure to smoking inside the home by province, SA 2012
(n=14 569)
Percentage
50
40
30
20
10
0
33.4
30.5
25.5
19
16.5
16.5
13.7
13.3
10.7
17.7
Western Cape
Northern Cape
Free State
KwaZulu- Natal
Eastern Cape
Limpopo
Mpumalanga
Gauteng
North West
Total
SANHANES
MRC
HSRC
Human Sciences Research Council


Prevalence of exposure to tobacco as measured by serum cotinine by sex, SA 2012
(n=5500)
Percentage
50
40
30
20
10
0
28.5
35.2
35.7
25
32.2
29.9
Males
Females
Total
Cotinine < 10
Cotinine > 10
SANHANES
MRC
HSRC
Human Sciences Research Council

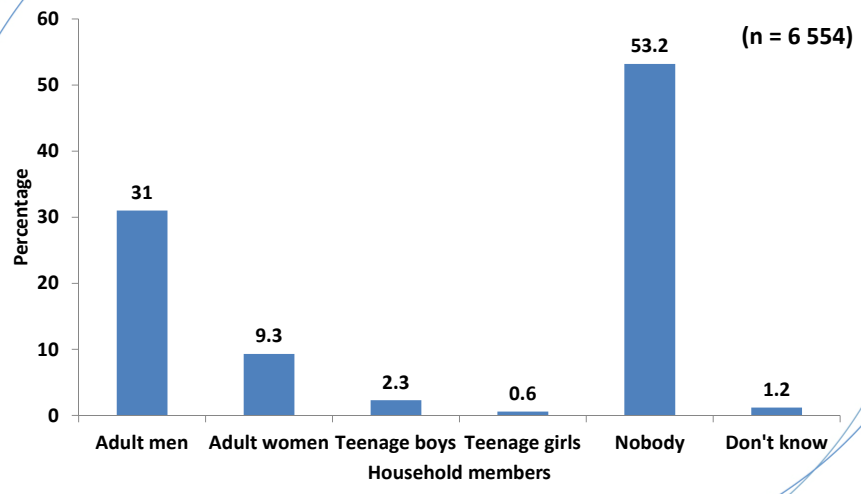

Prevalence of exposure to tobacco as measured by serum cotinine by locality, SA 2012
(n=5500)
Percentage
60
50
40
30
20
10
0
30
29.9
26.1
28.4
34.6
46.9
38.9
24.9
32.2
29.9
Urban formal
Urban informal
Rural formal
Rural informal
Total
Cotinine < 10ng/ml
Cotinine > 10ng/ml
SANHANES
MRC
HSRC
Human Sciences Research Council


Tobacco cessation by gender, SA 2012
(n=2667)
Percentage
60
50
40
30
20
10
0
26.1
38.7
28.8
50.3
46.5
49.4
47.4
50.4
48.1
15.4
29.5
19
23.6
23.6
23.6
13.9
11.4
12.9
Advised to quit smoking
Health warning prompted quitting
Tried to quit
Quiting tobacco smoking
Quiting other tobacco products
Time elapsed since quitting (years)
Males
Females
Totals
SANHANES
MRC
HSRC
Human Sciences Research Council

Household Alcohol Use

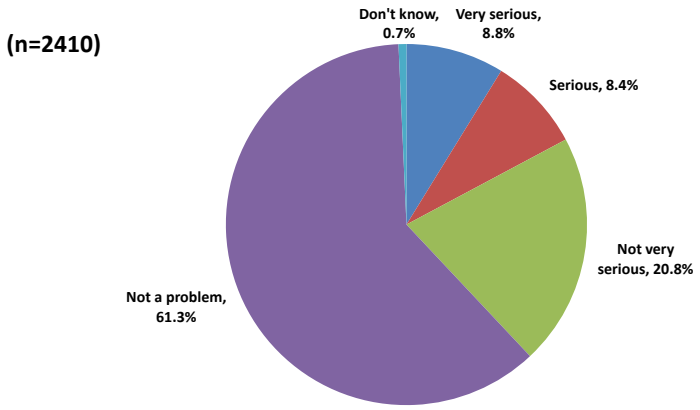
SANHANES

Perceptions of household alcohol consumption patterns, SA 2012



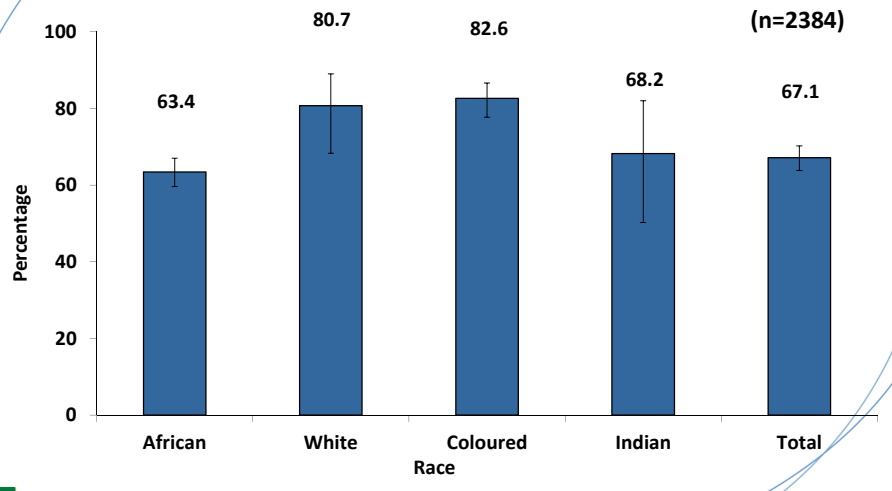
SANHANES

Perceived seriousness of problems of alcohol misuse amongst members of the household, SA 2012



SANHANES

Extent of snacking while drinking alcohol in households by race, SA 2012

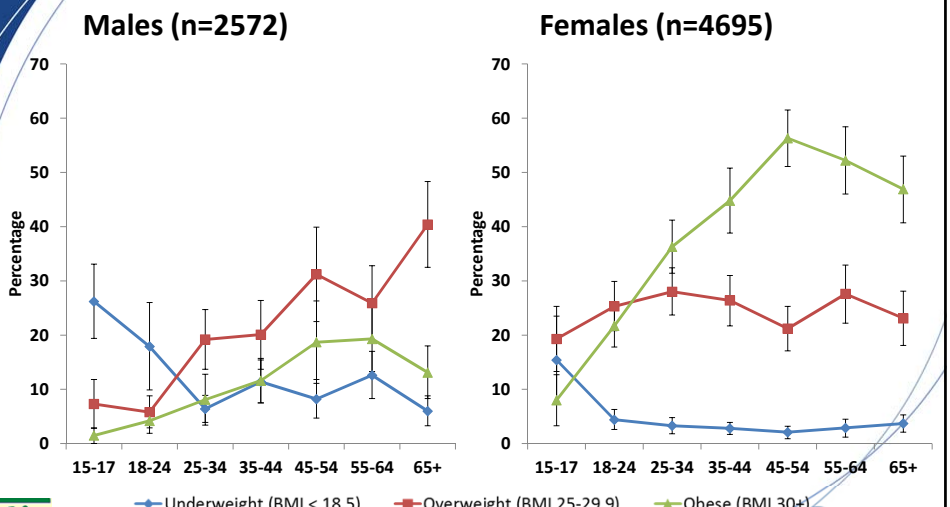


SANHANES

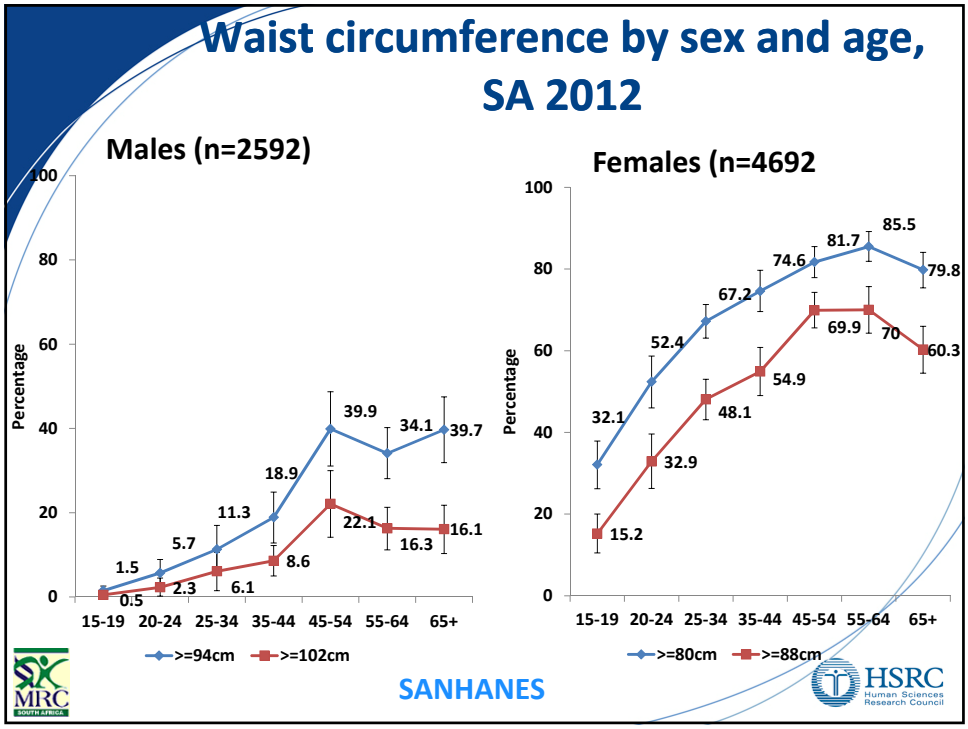
Anthropometry (adults)

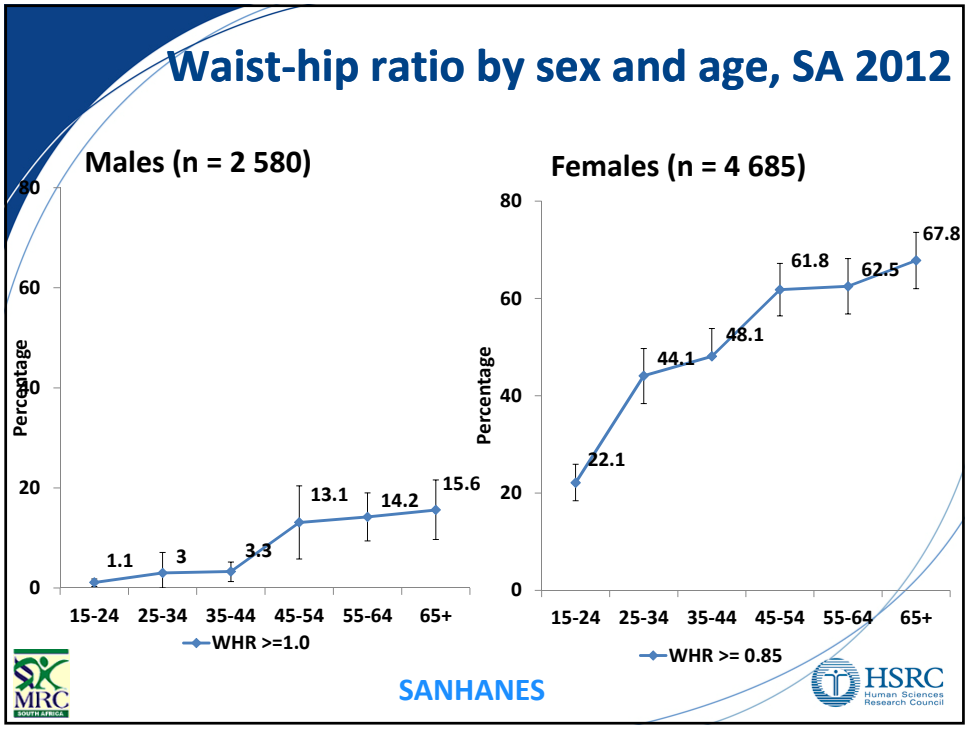
SANHANES

Prevalence of underweight, overweight and obesity by sex and age, SA 2012



SANHANES

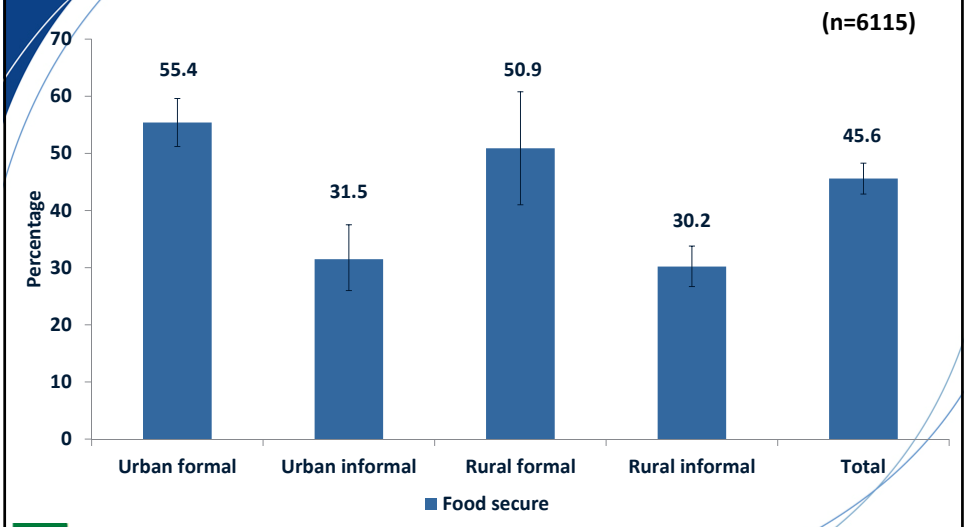

Waist circumference by sex and age, SA 2012
Males (n=2592)
Females (n=4692
Percentage
100
80
60
40
20
0
15-19 20-24 25-34 35-44 45-54 55-64 65+
1.5
0.5
5.7
2.3
11.3
6.1
18.9
8.6
39.9
22.1
34.1
16.3
39.7
16.1
32.1
15.2
52.4
32.9
67.2
48.1
74.6
54.9
81.7
69.9
85.5
70
79.8
60.3
>=94cm
>=102cm
>=80cm
>=88cm
SANHANES
MRC
HSRC
Human Sciences Research Council


Waist-hip ratio by sex and age, SA 2012
Males (n = 2 580)
Females (n = 4 685)
Percentage
80
60
40
20
0
15-24 25-34 35-44 45-54 55-64 65+
1.1
3
3.3
13.1
14.2
15.6
22.1
44.1
48.1
61.8
62.5
67.8
WHR >=1.0
WHR >= 0.85
SANHANES
MRC
HSRC
Human Sciences Research Council

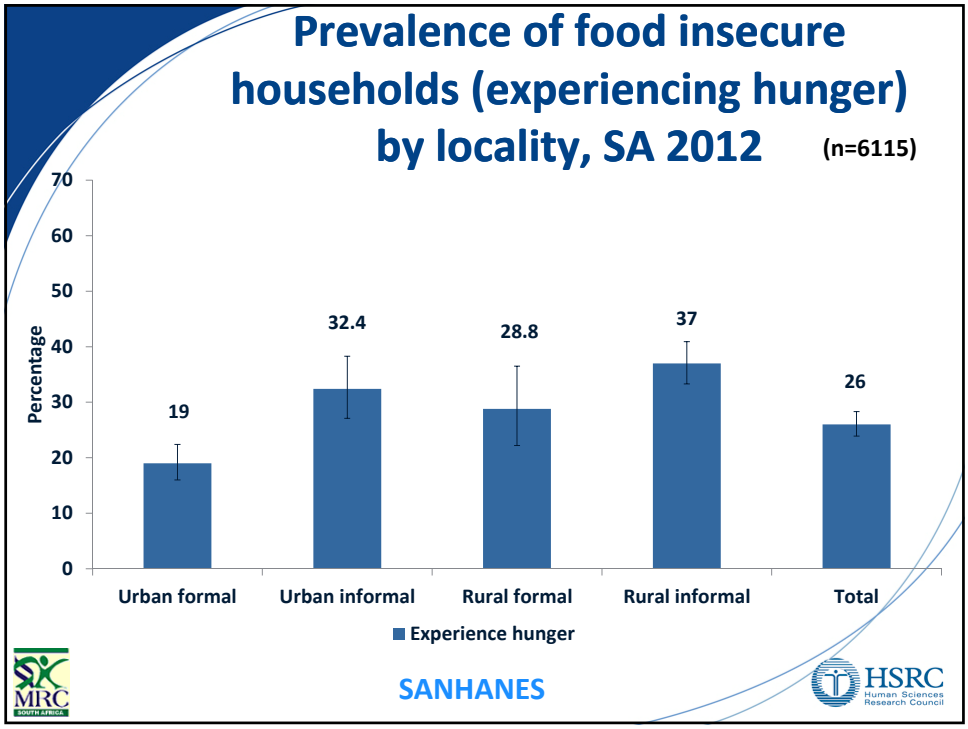
Food security

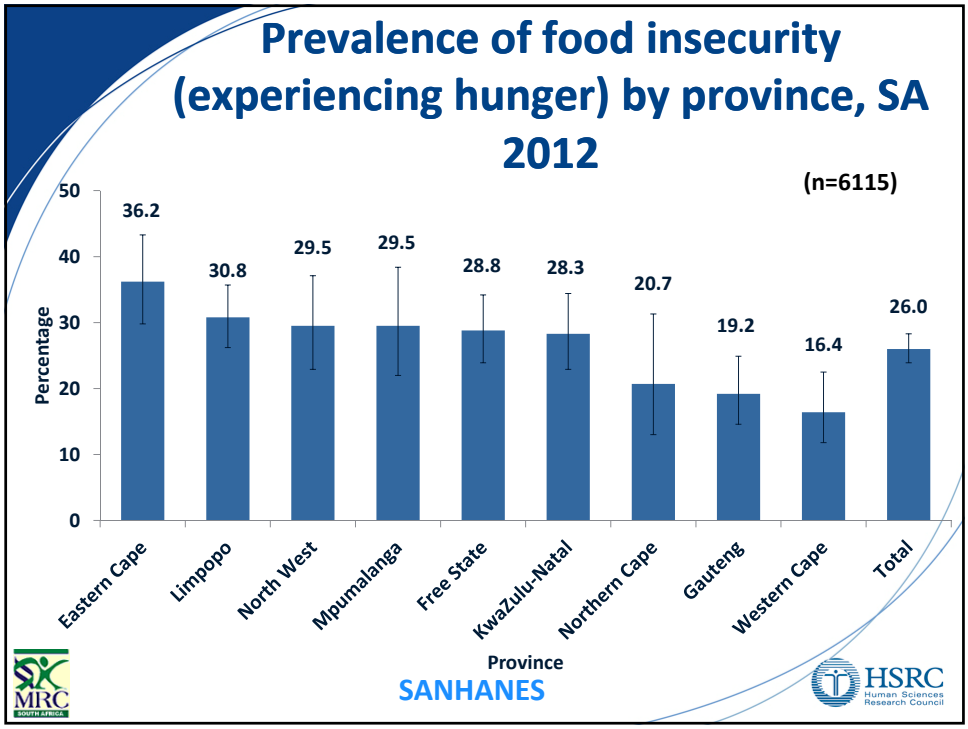
SANHANES

Prevalence of food secure households by locality, SA 2012



SANHANES

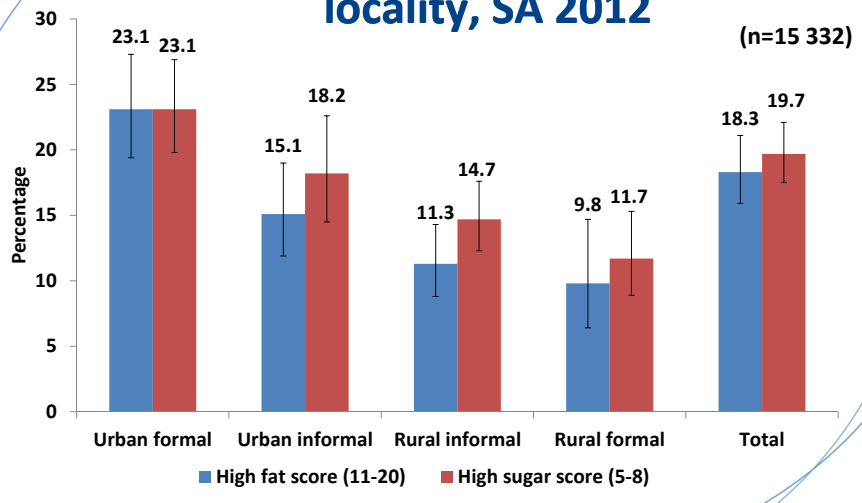

Prevalence of food insecure households (experiencing hunger) by locality, SA 2012
(n=6115)
Percentage
70
60
50
40
30
20
10
0
19
32.4
28.8
37
26
Urban formal
Urban informal
Rural formal
Rural informal
Total
Experience hunger
SANHANES
MRC
HSRC
Human Sciences Research Council


Prevalence of food insecurity (experiencing hunger) by province, SA 2012
(n=6115)
Percentage
50
40
30
20
10
0
36.2
30.8
29.5
29.5
28.8
28.3
20.7
19.2
16.4
26.0
Eastern Cape
Limpopo
North West
Mpumalanga
Free State
KwaZulu-Natal
Northern Cape
Gauteng
Western Cape
Total
Province
SANHANES
MRC
HSRC
Human Sciences Research Council

Trends in Food Security status: SA 1999-2012

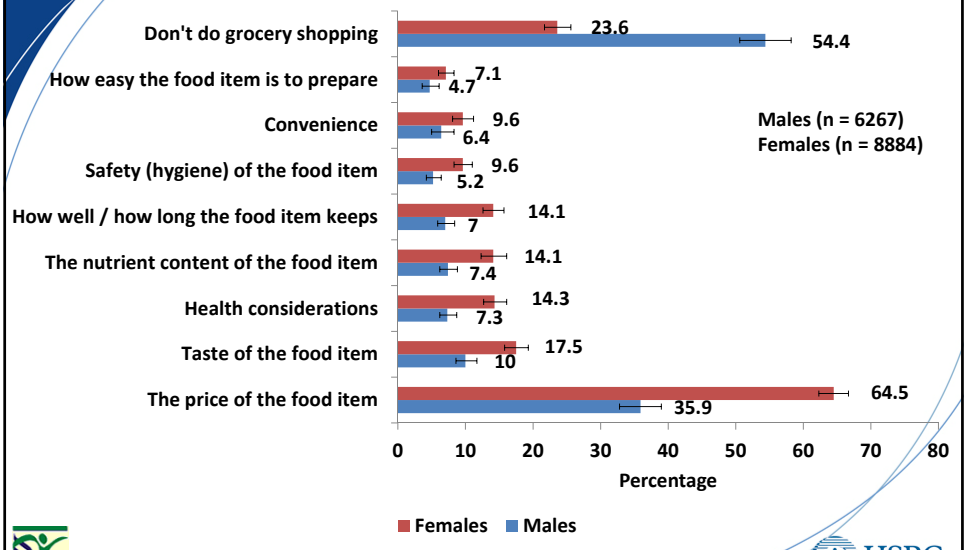
Variable	NFCS 1999	NFCS 2005	SASAS 2008	SANHANES-1, 2012
	(n = 2735)	(n = 2413)	(n = 1150)	(n = 6306)
	%	%	%	%
Food Secure	25	19.8	48	45.6
At risk of hunger	23	27.9	25	28.3
Experiencing hunger	52.3	52	25.9	26.0

Prevalence of dietary risk factors for NCDs (high fat and sugar intake) by locality, SA 2012



SANHANES

Factors influencing grocery shopping by sex, SA 2012

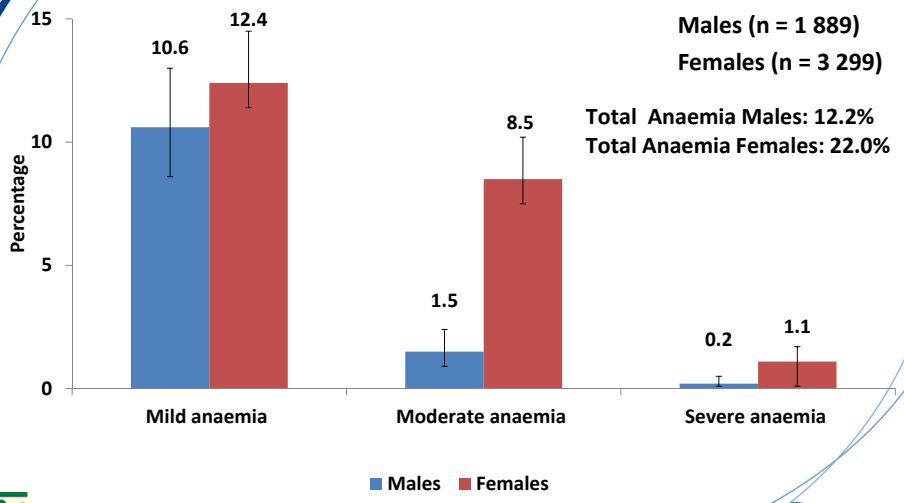


SANHANES

Nutritional status of adults

SANHANES

Prevalence of anaemia by sex, SA 2012



Males (n = 1 889)
Females (n = 3 299)

Total Anaemia Males: 12.2%
Total Anaemia Females: 22.0%

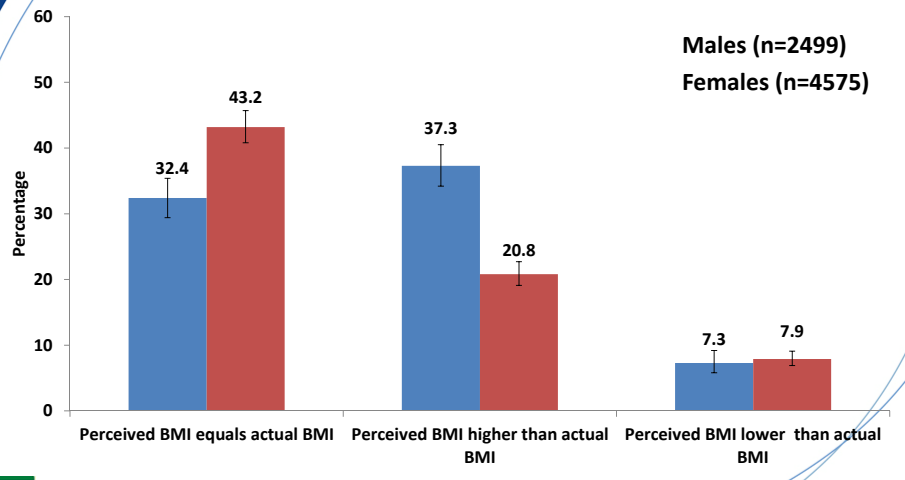
SANHANES

Trends in anaemia and iron status: women of reproductive age (16-35 years), SA 2005 - 2012

VARIABLE	NFCS-2005	SANHANES-1
Anaemia (Hb < 12 g/dL)	29.4%	23.1%
Iron depletion (Hb ≥ 12 g/dL and Ferritin < 15 ng/mL)	7.7%	5.9%
Iron deficiency anaemia (Hb <12 g/dL and Ferritin < 15 ng/mL)	10.5%	9.7%

SANHANES

Perceived versus actual BMI (15 years and older) by sex, SA 2012

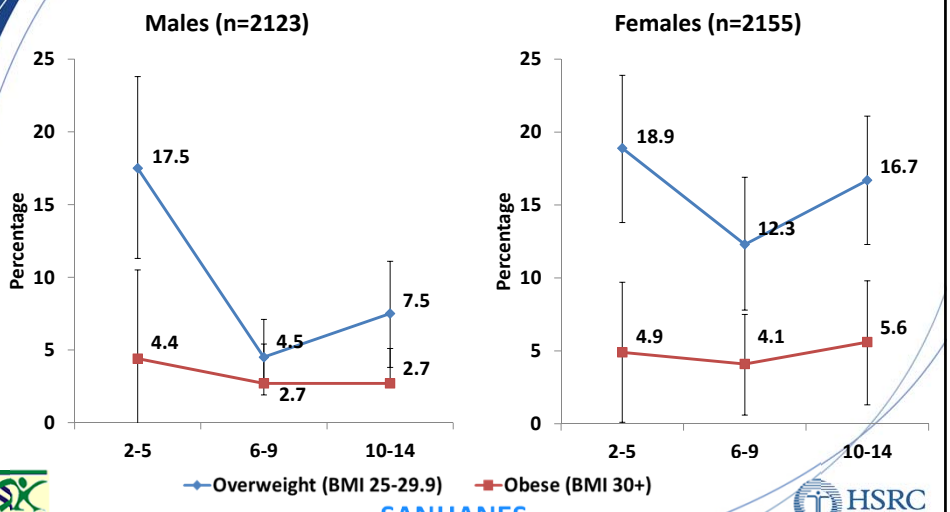


SANHANES

Anthropometry (children)

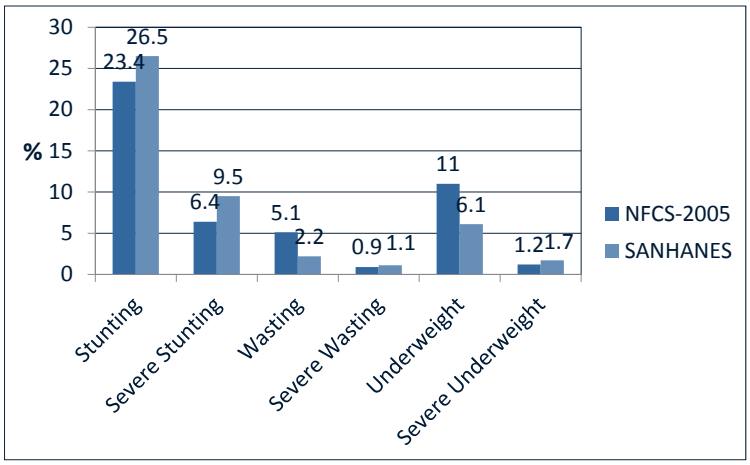
SANHANES

Prevalence of overweight and obesity of children aged 2-14 years by sex & age, SA 2012



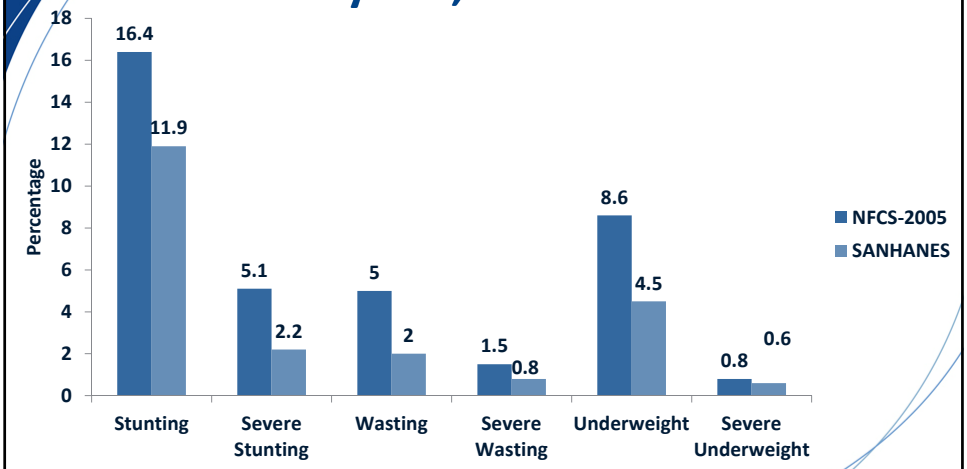
SANHANES

Trends in the prevalence of undernutrition in children aged 1-3 years, SA 2005-2012



SANHANES

Trends in the prevalence of undernutrition in children aged 4-6 years, SA 2005-2012



SANHANES

Child Health and Nutrition Status

SANHANES

Trends in vitamin A status in children under five years of age, SA 1994-2012

VARIABLE	SAVACG	NFCS-2005	SANHANES-1
Mean Vitamin A	0.84 µmol/L	0.62 µmol/L	0.75 µmol/L
Vitamin A deficiency (serum retinol < 0.70 µmol/L)	33.3%	63.6%	43.6%

SANHANES

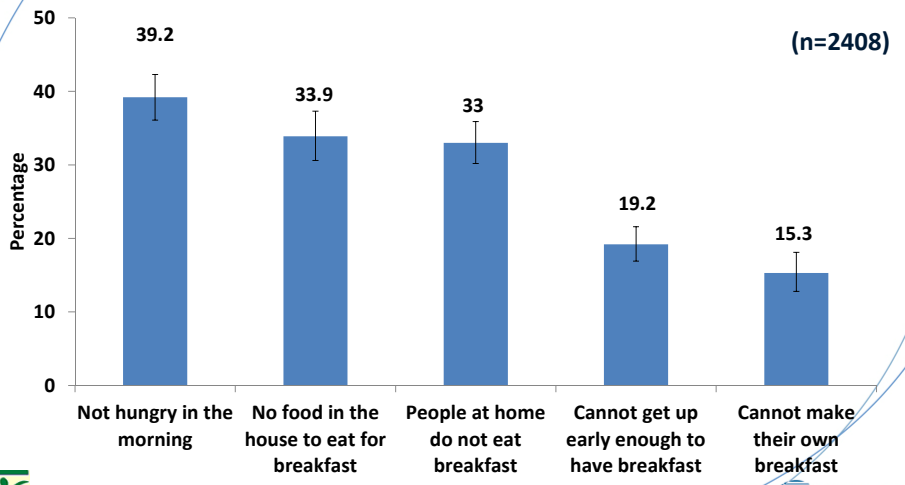
Trends in anaemia, and iron status in children under five years of age, SA 1994-2012

VARIABLE	SAVACG	NFCS-2005	SANHANES-1
Anaemia (Hb < 11 g/dL)	21.4%	28.9%	10.7%
Iron depletion (Hb ≥ 11 g/dL and Ferritin < 12 ng/mL)	4.8%	7.8%	8.1%
Iron deficiency anaemia (Hb <11 g/dL and Ferritin < 12 ng/mL)	5.0%	11.3%	1.9%

SANHANES

Dietary behaviour of children 10-14 years in relation to eating breakfast, SA 2012

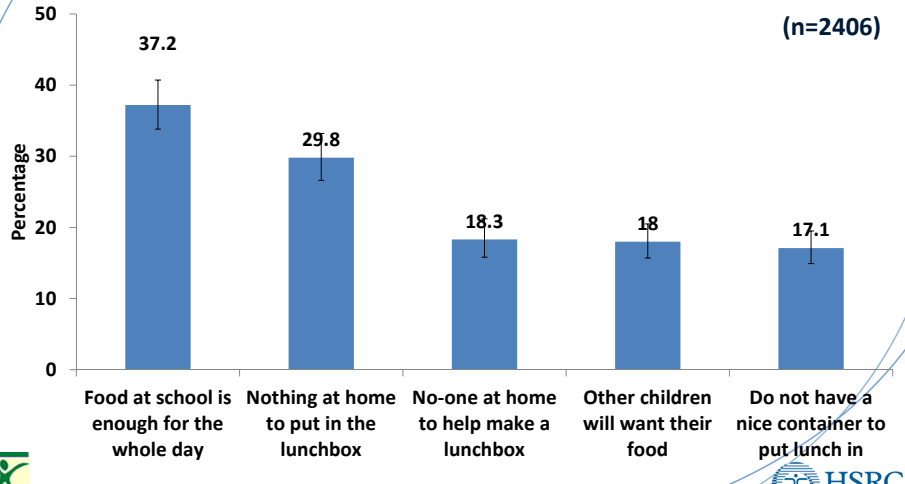
- 19% of children do not eat breakfast at home in the morning



SANHANES

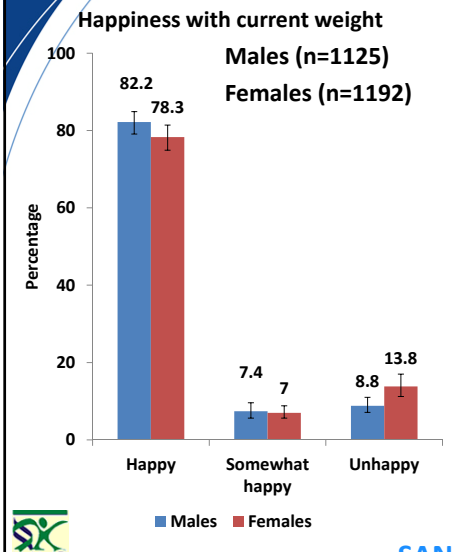
Dietary behaviour of children aged 10-14 years in relation to taking lunchboxes, SA 2012

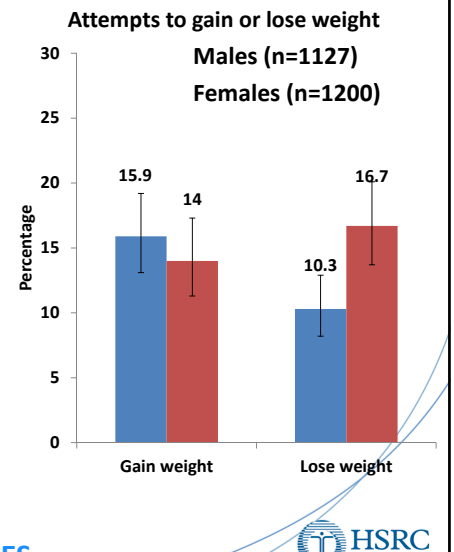
- 51% of children do not take a lunchbox to school



SANHANES

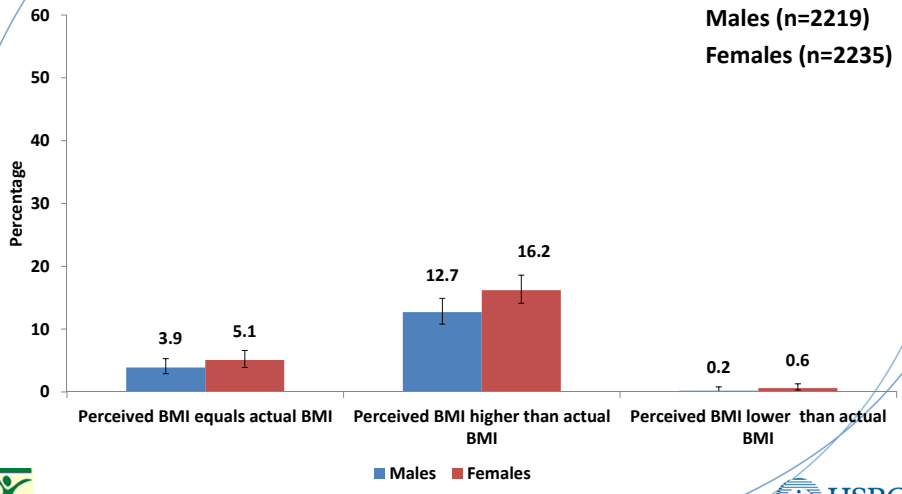
Body image of children aged 10-14 years, SA 2012





SANHANES

Perceived versus actual BMI of children 10-14 years by sex, SA 2012

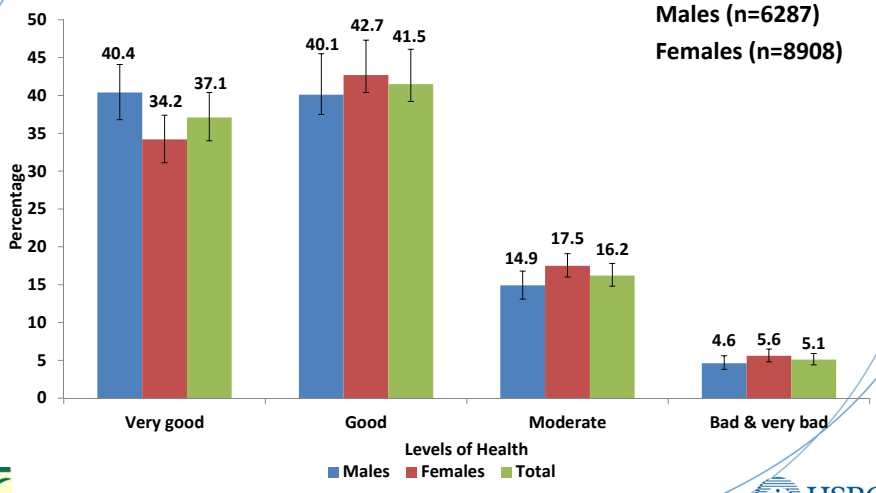


SANHANES

General Health Perception: Physical health

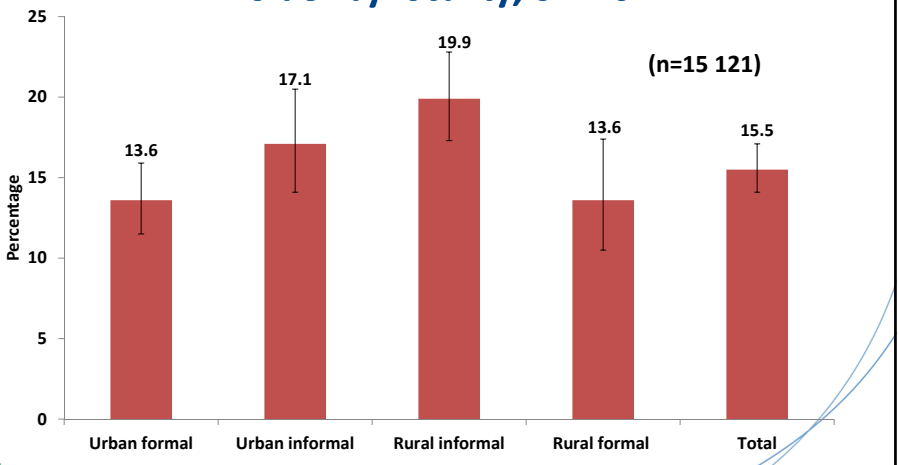
SANHANES

Self-rated health status of adults 15 years and older by sex , SA 2012



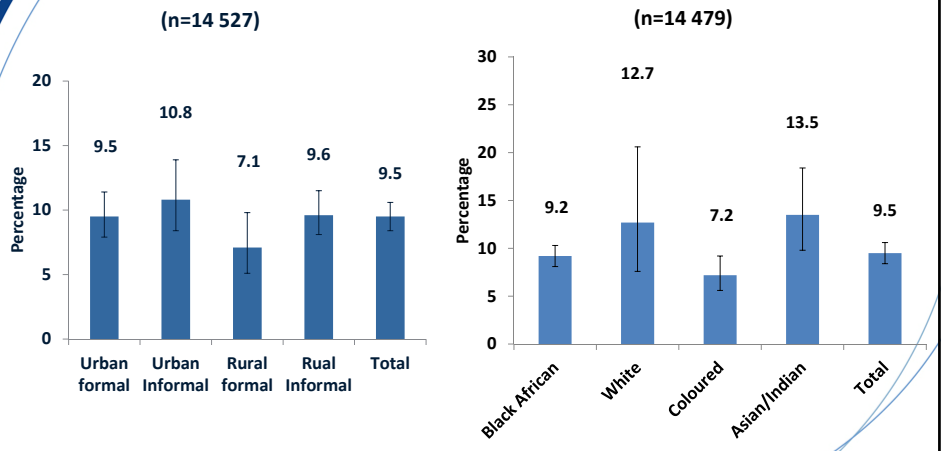
SANHANES

Self-rated difficulty with work or household activities in the last 30 days in adults 15 years and older by locality, SA 2012



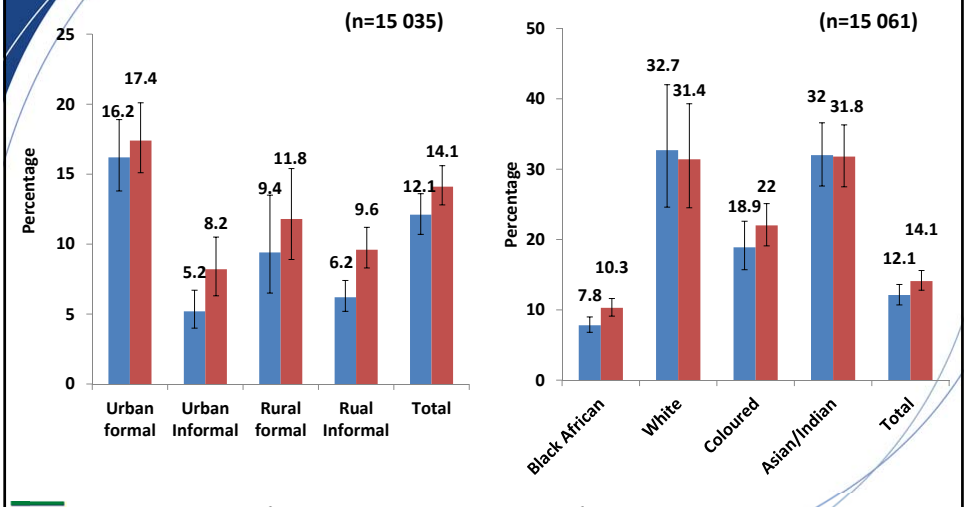
SANHANES

Self-reported prevalence of impaired hearing in adults 15 years and older by locality and race, SA 2012



SANHANES

Self-Reported prevalence of impaired vision (15 years and older) by locality and race, SA 2012

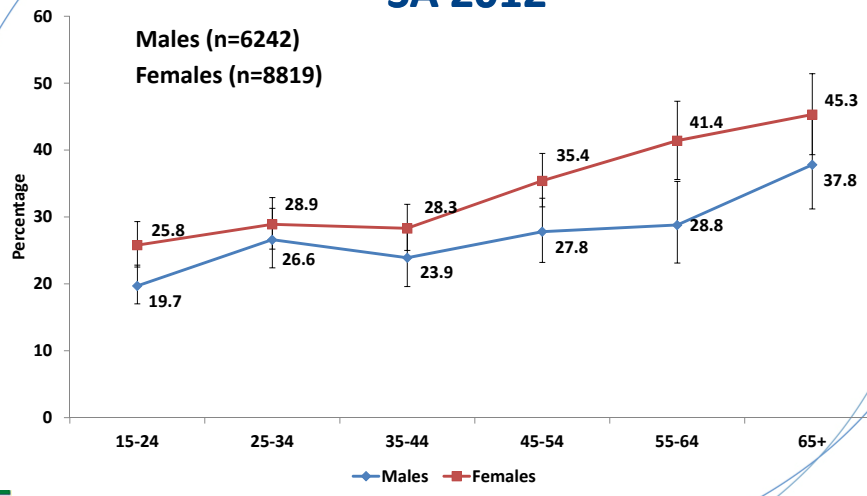


SANHANES

General Health Perception: Mental Health

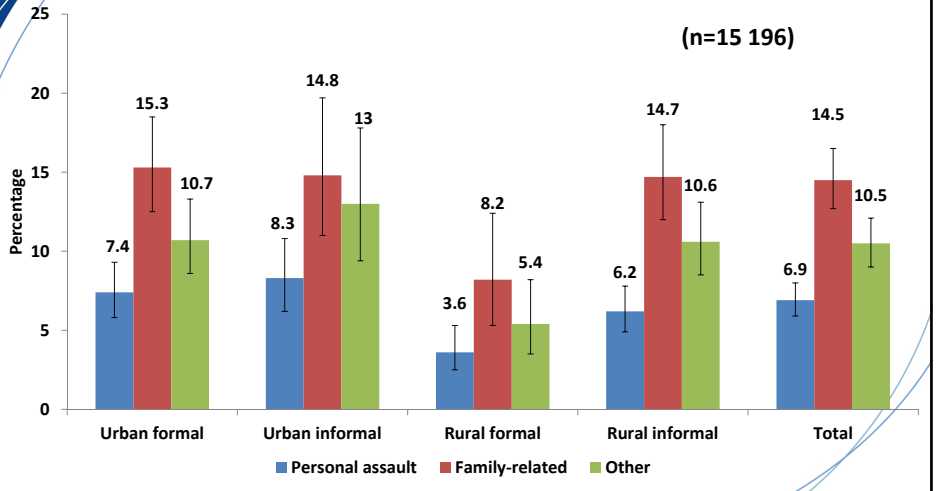
SANHANES

Prevalence of psychological distress in adults 15 years and older by sex and age, SA 2012



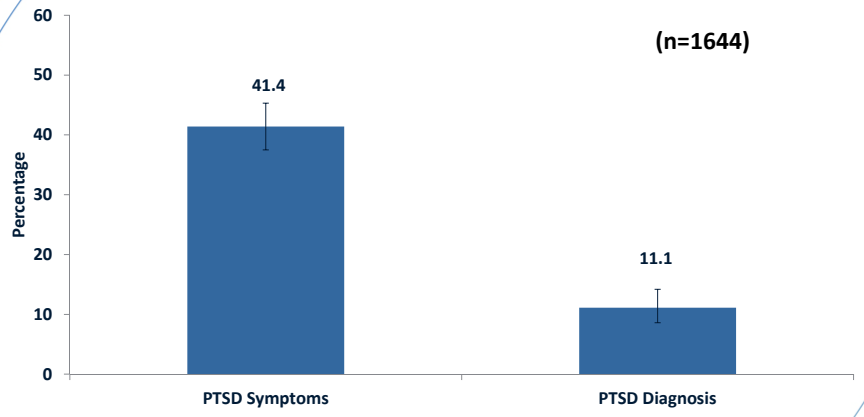
SANHANES

Experience of traumatic events by locality and type of trauma, SA 2012



SANHANES

Prevalence of symptoms and diagnosis of post traumatic stress disorder, SA 2012



- No significant differences for both symptoms and diagnosis by sex, age, province and race

SANHANES

Quality of Health Care Services

SANHANES

Satisfaction at outpatient health care facilities, SA 2012

Factor	Public		Private	
	Very good and good	Very bad and bad	Very good and good	Very bad and bad
Treated respectfully	80.4%	6.4%	95.5%	0.6%
Clarity of explanations	80.9%	5.6%	95.1%	1.1%
Involvement in decision making	77.6%	6.9%	92.6%	2.1%
Privacy	83.7%	4.8%	95.4%	1.2%
Choice of health care provider	79.5%	5.5%	92.4%	0.5%
Cleanliness	85.2%	3.7%	95.2%	0.2%
Availability of medication	77.6%	9.4%	96.0%	0.5%
Availability of tests	76.2%	8.1%	95.9%	0.4%
Waiting times	59.5%	24.4%	87.7%	4.5%

SANHANES

Satisfaction at in-patient health care facilities, SA 2012

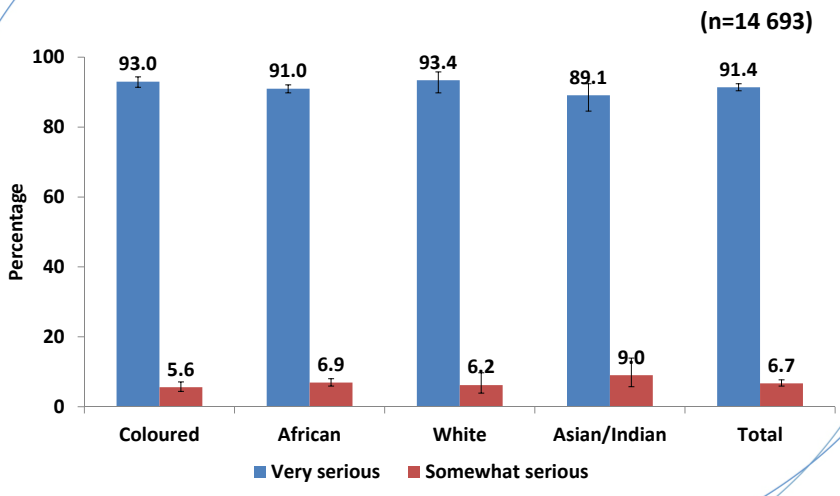
Factor	Public		Private	
	Very good and good	Very bad and bad	Very good and good	Very bad and bad
Treated respectfully	84.9%	4.6%	97.6%	0.7%
Clarity of explanations	85.0%	6.4%	96.8%	1.6%
Involvement in decision making	81.5%	9.0%	94.4%	2.8%
Privacy	81.6%	5.6%	97.4%	0.6%
Choice of health care provider	82.9%	4.2%	96.9%	1.6%
Cleanliness	84.9%	3.4%	97.9%	1.4%
Availability of medication	85.0%	3.9%	97.3%	0.5%
Availability of tests	84.5%	5.2%	98.8%	0.1%
Waiting times	72.4%	13.4%	93.0%	3.1%

SANHANES

Tuberculosis: Social Determinants

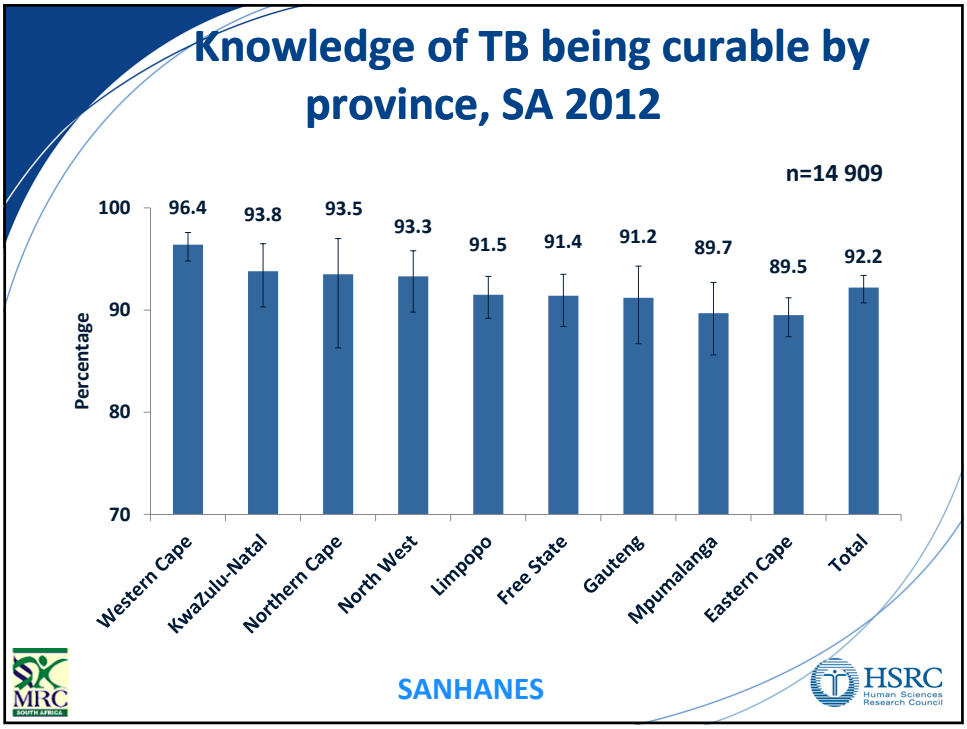
SANHANES

Perception of seriousness of TB by race, SA 2012

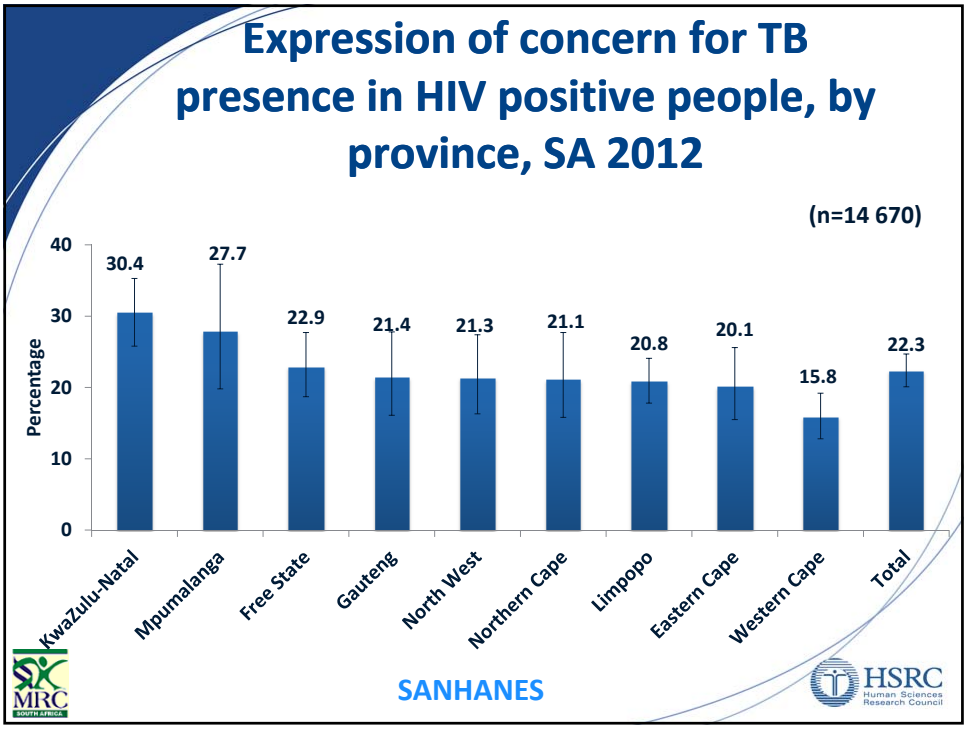


SANHANES

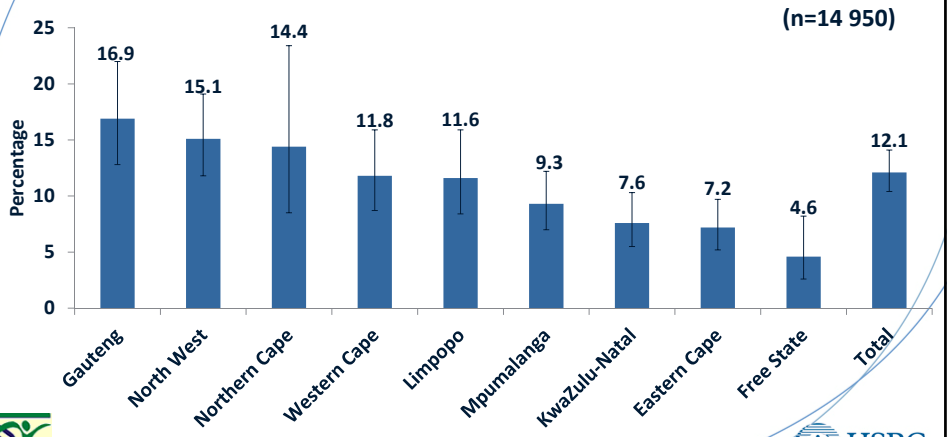
Knowledge of TB being curable by province, SA 2012



Expression of concern for TB presence in HIV positive people, by province, SA 2012



Prevalence of stigma associated with TB (avoidance of people with TB) by province, SA 2012



SANHANES

SUMMARY

SANHANES

Summary

The successfully completed SANHANES-1:

- Is representative of the population
- Provides baseline values and informs policy in a number of heath and nutrition domains
- Provides evidence on the impact of current interventions, and
- Creates the basis on which the population's health and nutritional status can be monitored longitudinally

Overall Summary

- South Africa indeed has a huge burden of disease that is fuelled by a multiplicity of risk factors requiring multi-sectoral action and healthy public policies
- The underlying socio-economic, cultural, behavioural and environmental determinants of health are significant
- Self-reported levels of morbidity are high

THANK YOU
THANK YOU