

## CHAPTER 9

### ADOLESCENT HEALTH

#### 9.1 Introduction

Adolescence constitutes a special phase of human development as it represents the transition between childhood and adulthood. It is a phase marked by substantial biological, physical and hormonal changes as well as social adjustments. These in turn have profound implications on one's emotional stability as they bring with them needs and urges that significantly impact on behaviour. Adolescence is also often marked by a crisis of identity as teenagers seek acceptance in the adult world and try to prove both to peers and to themselves that they are old enough "to do certain things". Such "things" can range from dating and driving, to taking alcohol, drugs and experimenting with sex and guns, putting not only their health in danger but their very life and future. Adolescence is not only a time of experimentation with high risk behaviours but also a time when life-long habits that have a bearing on health are started. Demographically, this section of the population is important as it is one of the largest 5-year age cohorts as a result of the demographic transition and the decline in fertility. Furthermore, it is facing one of the most devastating epidemics that, at this stage, can only be prevented by avoiding risky sexual behaviour.

There are grave health risks associated with early sexual activity like early pregnancy with its associated problems and complications such as increased maternal mortality and increased infant morbidity, social, psychological and economical effects. Moreover, sexually transmitted diseases including HIV/AIDS are a serious risk to adolescents. This risk is increased by their early sexual activity, as they are more likely to change sexual partners. In addition, they lack information and reproductive and sexual health services. This is compounded by their low socio-economic status, with lowers their negotiation abilities for safer sex.

It is therefore important to measure the health and risk-taking behaviours among adolescents including the magnitude of problems such as unprotected sex, teenage pregnancy and substance abuse. For the purpose of this chapter, adolescents are people aged between 15 and 19 years and include the 2,373 young women interviewed with the women questionnaire and the 1,058 men and 1,069 women interviewed with the adult questionnaire. Some researchers use the age range 10-19 to define adolescence (Bongaarts and Cohen, 1998) but this survey has limited information regarding the young adolescents.

Particularly relevant questions include the areas of reproductive health, knowledge of HIV/AIDS, intentional and unintentional injuries, smoking and alcohol use. In addition, the anthropometric profile and the extent of hypertension and lung disease are included. Questions on drug abuse did not form part of the survey questionnaire.

#### 9.2 Sexual Behaviour

Information on the sexual behavior of the adolescent is important in formulating appropriate interventions on adolescent reproductive and sexual health services. The age at which sex is initiated, the number of partners and teenage pregnancy are all important aspects that need to be monitored.

### ***Sexual Relations***

The survey found that most adolescent women have never been married (96 percent) and that the majority of the unmarried adolescents (63 percent) did not have a sexual partner in the 12 months preceding the survey. Twenty-nine percent of the unmarried adolescents reported that they had a regular sexual partner while 7 percent reported an occasional partner. Thirteen percent of unmarried adolescents, reported that the last person with whom they had sexual intercourse was a casual acquaintance - the highest percentage of sexual intercourse with a casual partner of all age groups. This indicates risky sexual behaviour, which makes adolescents more vulnerable to sexually transmitted diseases.

Only a few adolescents reported having had sex with two or more partners in the preceding 12 months and the mean number of partners is 0.4. Fewer than one in five adolescents reported being sexually active in the month preceding the survey. This low reporting of multiple partners is similar to the findings of the 1996 Demographic and Health Survey of Tanzania and there may be under-reporting due to the sensitive nature of the question. This low reporting is however in contrast with world trends where more sexually active female adolescents report having more than one partner.

### ***Age at first intercourse***

Table 5.5 in Chapter 5 shows the percentage of women ever having sexual intercourse by exact specified ages and median age at first sexual intercourse. In this survey 9 percent of adolescents surveyed commenced sexual intercourse before age 15. Table 5.5 also shows that the median age for sexual debut for ages 20-49 is 18.2 years. This means that half of the women had their sexual debut while they were adolescents, making it a critical time for reproductive and sexual health interventions. The median age at first sex has gone down slightly. The median age in the 20-24 year age group was the lowest at 17.8 years as compared to older women whose age at first sexual intercourse is at a slightly older age i.e. 18.4 years.

Age at first sexual intercourse for urban women was a slightly older age than rural women (see Table 5.6). Age at first sexual intercourse for women in the Northern Province was earlier (17.7) than in any other province. Age at first sexual intercourse for women aged 20-49 in the Western Cape was later (19.0) than in the other provinces. Women with the highest educational level had their first sexual intercourse at the latest age across all age groups. Interestingly, women with no education at all, had sexual intercourse at a later age than those who had education of Sub A to standard 5. For all age groups, African women had their first sexual intercourse at a younger age than the other population groups.

Findings from other local and international studies suggest that age at first sexual intercourse is younger than that documented in this survey. A study in the Northern Province (Health Systems Development Unit, 1997) reported that sexual debut appeared to peak between 14 and 16 years for males and females. In Swaziland, documented age of first sexual intercourse is 15-17 years while 52 percent of adolescent females are sexually active and 80 percent of teenagers have multiple sexual partners. Fifty-five percent of adolescents interviewed had never had sexual intercourse. This differs from what has been documented in Sub-Saharan Africa where 50 percent of women give birth before age 20 which is similar to global trends where most adolescents become sexually active before their 20s.

## Teenage pregnancy

Table 9.1 shows the percentage of women aged 15-19 who have given birth and who have ever been pregnant, according to selected background characteristics. The proportion of adolescents who have ever been pregnant rises rapidly with age, from 2 percent at age 15 to 35 percent at age 19. The data show considerable variation in adolescent fertility by region, education and population group. Rural adolescents tend to start childbearing earlier than urban adolescents (21 percent compared to 13 percent). Gauteng has the lowest proportion (10 percent) of women aged 15-19 who had ever been pregnant, while Mpumalanga has the highest proportion (25 percent). Other provinces with high levels of early pregnancy are Northern Province, Eastern Cape, and the Northern Cape. There is a strong negative association between education and teenage pregnancy. Coloured teenagers have the highest levels of adolescent pregnancy (19 percent) while whites and Asians had the lowest levels (2 percent and 4 percent respectively). It should be noted, however, that the sample sizes for Asians and whites are small.

**Table 9.1 Adolescent pregnancy and motherhood**

Percentage of women 15-19 who are mothers or have ever been pregnant, by selected background characteristics, South Africa 1998

Background characteristics	Percentage who:		Number of women
	Are mothers	Have ever been pregnant	
<b>Age</b>			
15	2.0	2.4	468
16	5.2	7.9	458
17	10.7	14.2	444
18	19.8	24.6	474
19	30.2	35.1	406
<b>Residence</b>			
Urban	10.5	12.5	1,197
Non-urban	16.3	20.9	1,052
<b>Province</b>			
Western Cape	13.7	16.4	195
Eastern Cape	14.8	18.2	369
Northern Cape	15.2	18.0	44
Free State	8.4	12.6	136
KwaZulu-Natal	13.8	16.7	457
North West	11.0	13.4	164
Gauteng	8.9	9.5	377
Mpumalanga	18.8	25.2	190
Northern	14.9	20.0	318
<b>Education</b>			
No education	*	*	19
Sub A - Std 3	24.7	29.2	114
Std 4 - Std 5	13.8	17.4	336
Std 6 - Std 9	12.9	16.3	1,542
Std 10	7.9	10.1	177
Higher	4.0	4.0	60
<b>Population group</b>			
African	14.2	17.8	1,802
Afr. urban	11.6	13.7	812
Afr. non-urban	16.4	21.1	990
Coloured	15.7	19.3	208
White	2.2	2.2	162
Asian	2.9	4.3	66
<b>Total</b>	<b>13.2</b>	<b>16.4</b>	<b>2,249</b>

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

### **9.3 Contraception and Use of Condoms**

Contraceptive use is quite high among sexually active women aged 15-19 (66 percent). The injectable contraceptive is by far the most commonly used form of contraception (51 percent) followed by the pill (9 percent). Only 4 percent of sexually active adolescents use condoms as a form of family planning. However, it can be seen from Table 5.7 that almost 20 percent of adolescent women used a condom at their last sexual encounter. Although condom use in this age group is higher than in all the other age groups, it is still not high enough for the purpose of preventing the spread of sexually transmitted diseases.

Adolescent women who have ever used a contraceptive obtained their information largely from their mothers (39 percent), a nurse (20 percent) or a friend (17 percent). The median age of starting to use contraceptives in this group was 16.5 years and 40 percent of the adolescents did so with the help of their parents.

### **9.4 Incidence of Intentional and Unintentional Injury**

The trauma profiles of children under the age of 15 and adolescents aged 15 to 19 years are notably different. Adolescent trauma usually has a profile of injuries similar to that of adults, while children under 15 years old usually have much lower rates of intentional injuries. In Cape Town in 1990, 1 in 13 children and 1 in 9 adolescents required medical attention for the treatment of injuries (Steenkamp, 1996).

Information about injuries experienced in the month prior to the survey, was obtained in the household schedule from a total of 5,164 adolescents aged between 15 and 19 years old. It is reported that 47 adolescents sustained an injury severe enough to require medical attention in the month preceding the study. From Figure 9.1 it can be clearly seen that the adolescent injury profile is more like that of the adult. The overall injury rate for the month preceding the survey for adolescents is 911 per 100,000 compared with 468 per 100,000 for children and 1,292 per 100 000 for adults. This can be extrapolated to 8,384 per 100,000 adolescents or 1 in 12 requiring medical attention for an injury annually.

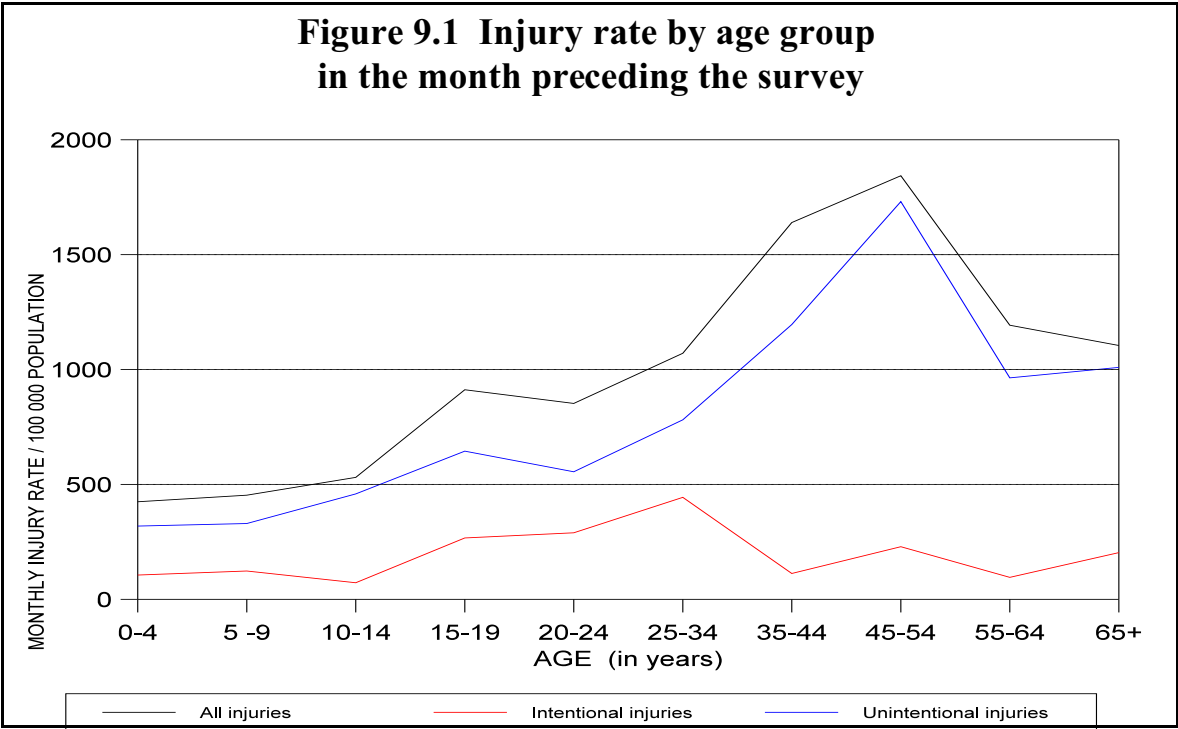
Seventy percent of the adolescent injuries were the result of accidents such as burns, falls, motor vehicle collisions or sports injuries. However, nearly one-third were due to assaults or were self-inflicted. Table 9.2 shows that the injury rate among male adolescents is almost twice that of adolescent girls. In younger children the distribution of injuries between boys and girls is much less pronounced but as children reach puberty there is an increase in injuries among boys, particularly intentional injuries. The profiles of injuries among adolescents are similar to those of adults suggesting that behavioural patterns strongly influence trauma causation.

**Table 9.2 Adolescent injury rates**

The incidence of intentional and unintentional injuries reported to have occurred in the month preceding the survey among household residents aged 15-19 years by sex and residence, South Africa 1998

Sex/Residence	Injury rate per 100,000 adolescents			Number
	All injuries	Intentional injuries	Unintentional	
<b>Sex</b>				
Male	1,109	311	798	2,765
Female	683	216	467	2,397
<b>Residence</b>				
Urban	1,316	221	1,096	2,696
Non-urban	469	317	151	2,468
Total	911	267	644	5,164

Table 9.2 also shows that the injury rate in urban areas is three times higher than in non-urban areas and that the majority of these injuries are unintentional, i.e. the result of traffic collisions, falls, burns etc. It is disturbing to note that the rate of intentional injuries is higher in non-urban than in urban areas.



Furthermore, the Northern Province has disturbingly high levels of intentional injuries among adolescents. No injuries were reported for adolescents in KwaZulu-Natal which may reflect a systematic bias in the way the interviewers in that province operationalised the injury questions. The prevention and control of child and adolescent injuries should be a national priority since injuries are a leading cause of mortality and morbidity among South African children aged 4 to 19 years. These injuries result in significant costs not only to the individual but to their families, the community, the health services and ultimately society as a whole.

The aetiology of childhood injuries is complex and its prevalence is a symptom of poor standards of health, informal housing, poor adult supervision and economic status (Butchart and Peden, 1997) The long-term improvement in injury in South Africa lies with primary prevention. Although young children cannot be expected to take responsibility for their own safety, adolescents should be taught, alongside their parents or supervisors, about injury prevention and conflict management so that they can become responsible young adults.

## **9.5 Patterns of Exposure to Tobacco**

### ***Introduction***

The use of tobacco products during adolescence usually leads to a lifelong addiction. Once children start smoking, nicotine dependence will ensure that they continue for the next 30 or 40 years. Tobacco will kill up to half of all smokers who start young and continue throughout their lives, and half of these will die before the age of 69 years (Peto R, *et al.*1994).

Children begin smoking for many reasons but peer pressure and the desire to look “grown-up” are important reasons for starting smoking. Internal US tobacco industry documents obtained during litigation, reveal the industry’s attitude towards children. They show how important the youth market is to the industry and how the industry studied child psychology so that advertising may use peer pressure and “symbols of adulthood” to influence youngsters to smoke. One such document from R.J.Reynolds Tobacco Company states: “They represent tomorrow’s cigarette business. As this 14-24 age group matures, they will account for a key share of the total cigarette volume for at least the next 25 years.” It goes on to recommend that if the company is to retain market share it must: “Direct advertising appeal to the younger smokers.” (R.J. Reynolds Tobacco Co. 1974). Such advertising must “create the perception that Camel smokers . . . project a cool attitude, which is admired by their peers. . .” (R.J. Reynolds Tobacco Co. 1986).

In South Africa, as in many parts of the world, cigarette advertising associates tobacco with success, adventure and sexual attractiveness. Such images ensure that adolescents whose developmental stage is driven by a need to belong and find acceptance in their peer group and with members of the opposite sex will be attracted to experimentation with cigarettes. This is all that is required to establish a pattern of nicotine addiction and decades of using tobacco products.

This section reports on tobacco use among adolescents aged 15-19 years; on their perceptions of the harms of smoking; their attempts to stop smoking and of their passive exposure to other people’s smoking.

### ***Tobacco use of adolescents aged 15-19 years***

Tables 9.3 and 9.4 show the prevalence of tobacco use among boys and girls and the age of initiation of the habit by age, residence and other background characteristics. About twice as many boys as girls have

ever used tobacco products (17 percent of boys vs. 9 percent of girls), although, among the 15 year-olds, almost as many girls (5 percent) as boys (6 percent) have experimented with tobacco products.

About 14 percent of boys and 6 percent of girls are current smokers. Current smoking in those aged 15, was 4 percent in boys and 2 percent in girls and increased with age to a peak among 19-year-olds of 22 percent for boys and 10 percent for girls - a five-fold and four-fold increase among boys and girls respectively. There was a marked difference in smoking prevalence between urban and non-urban adolescents, which is much larger for girls (8 percent of urban and 3 percent of non-urban girls currently smoke) than boys (17 percent of urban and 11 percent of non-urban boys currently smoke). Girls in standard ten or in higher education were three times more likely to smoke than other girls and their current smoking prevalence was similar to that of boys in standard ten (17 percent for boys and 16 percent for girls). Current smoking prevalence for African boys was less than half than it was for the other Asian, coloured or white boys. Smoking is extremely rare among African girls, unlike their age mates of other population groups. One in three white adolescent girls smokes, as does one in five coloured girls and one in ten Asian girls.

**Table 9.3 Tobacco use by adolescent men**

Percentage of males aged 15-19 years who ever used tobacco products, who ever smoked daily and who currently smoke daily or occasionally, and of those who ever smoked daily, the percentage who smoke manufactured cigarettes and the mean starting age, according to background characteristics, South Africa 1998

Background characteristic	Among men 15 -19, percentage who:					Number	Among those who ever smoked daily*			
	Ever used tobacco products	Ever smoked tobacco daily*	Currently smoke daily	Currently smoke occasionally	Smoke daily or occasionally		Percentage who smoke manufactured cigarettes	Mean age when starting smoking	STD Error	Number
<b>Age</b>										
15	6.3	6.3	2.8	1.3	4.1	199	*	*	*	13
16	15.0	13.4	8.9	1.3	10.2	223	97.8	13.8	0.28	30
17	17.0	16.5	10.3	4.3	14.6	243	84.7	14.9	0.17	40
18	21.8	21.8	17.0	3.0	20.0	221	91.3	15.1	0.37	48
19	25.0	24.4	17.4	5.0	22.4	173	87.0	15.2	0.37	42
<b>Residence</b>										
Urban	20.4	19.6	12.9	3.7	16.6	574	93.1	14.6	0.22	112
Non-urban	12.7	12.5	9.1	2.0	11.1	485	84.9	15.1	0.22	61
<b>Province</b>										
Western Cape	23.0	21.8	16.9	3.7	20.5	109	*	*	*	24
Eastern Cape	26.2	26.2	15.6	8.5	24.1	134	92.4	15.0	0.27	35
Northern Cape	28.7	28.7	23.0	4.5	27.5	21	*	*	*	6
Free State	9.5	8.4	4.3	2.1	6.4	77	*	*	*	6
KwaZulu-Natal	8.5	7.9	4.0	0.6	4.6	178	*	*	*	14
North West	15.2	15.2	12.6	1.7	14.3	108	*	*	*	16
Gauteng	24.0	22.6	15.5	2.8	18.3	187	(87.5)	(14.5)	(0.50)	42
Mpumalanga	14.6	14.6	12.1	1.7	13.8	86	*	*	*	13
Northern	10.1	10.1	6.6	2.1	8.7	158	*	*	*	16
<b>Education</b>										
No education	*	*	*	*	*	14	*	*	*	1
Sub A - Std 3	16.1	15.1	11.3	1.4	12.7	83	*	*	*	12
Std 4 - Std 5	14.5	14.5	9.4	2.6	12.0	194	(100.0)	(14.7)	(0.33)	28
Std 6 - Std 9	16.6	16.0	11.2	2.7	13.9	673	89.3	15.0	0.18	108
Std 10	21.4	20.2	13.7	3.1	16.8	78	*	*	*	16
Higher	*	*	*	*	*	16	*	*	*	7
<b>Population group</b>										
African	12.6	12.3	8.3	2.4	10.7	856	86.9	15.2	0.17	105
Afr.urban	13.5	13.1	8.5	2.8	11.3	389	89.9	15.2	0.26	51
Afr. non-urban	11.8	11.6	8.1	2.1	10.2	467	84.1	15.1	0.23	54
Coloured	28.8	28.8	25.9	2.7	28.6	104	(89.4)	(14.5)	(0.42)	30
White	42.8	37.8	19.0	8.6	27.6	73	(100.0)	(13.7)	(0.46)	27
Asian	(36.0)	(36.0)	(21.5)	(6.6)	(28.1)	25	*	*	*	9
Total	16.8	16.3	11.1	2.9	14.0	1,058	90.2	14.8	0.16	173

Note: STD Error = Standard deviation of the mean

An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

**Table 9.4 Tobacco use by adolescent women**

Percentage of females aged 15-19 years who ever used tobacco products, who ever smoked daily and who currently smoke daily or occasionally, and of those who currently smoke daily or occasionally, the percentage who smoke manufactured cigarettes and the mean starting age, according to background characteristics, South Africa 1998

Background characteristic	Among females 15 - 19, percentage who:					Number	Among those who ever smoked daily*			
	Ever used tobacco products	Ever smoked tobacco daily*	Currently smoke daily	Currently smoke occasionally	Smoke daily or occasionally		Percentage who smoke manufactured cigarettes	Mean age when starting smoking	STD Error	Number
<b>Age</b>										
15	5.4	4.6	1.6	0.8	2.4	233	*	*	*	11
16	5.4	5.4	2.7	0.5	3.2	210	*	*	*	11
17	7.8	6.9	2.8	2.2	5.0	212	*	*	*	15
18	12.9	10.6	8.5	0.7	9.2	213	*	*	*	23
19	15.3	12.2	6.9	2.6	9.5	198	*	*	*	24
<b>Residence</b>										
Urban	13.4	11.9	6.3	2.0	8.3	598	90.7	14.9	0.29	71
Non-urban	3.9	2.7	2.1	0.6	2.6	469	*	*	*	13
<b>Province</b>										
Western Cape	25.3	25.3	20.9	2.9	23.8	87	*	*	*	22
Eastern Cape	3.2	3.2	2.0	1.2	3.2	160	*	*	*	5
Northern Cape	18.7	15.0	10.0	2.0	12.0	22	*	*	*	3
Free State	8.7	2.5	1.2	1.2	2.4	64	*	*	*	2
KwaZulu-Natal	2.9	2.9	1.0	1.0	2.0	209	*	*	*	6
North West	3.5	1.2	0.0	1.2	1.2	80	*	*	*	1
Gauteng	20.8	18.3	9.7	1.2	10.9	214	(93.7)	(15.0)	(0.47)	39
Mpumalanga	1.7	1.0	0.0	0.0	0.0	87	*	*	*	1
Northern	4.7	3.0	0.0	2.3	2.3	143	*	*	*	4
<b>Education</b>										
No education	*	*	*	*	*	20	*	*	*	0
Sub A - Std 3	9.2	3.8	2.7	1.1	3.8	45	*	*	*	2
Std 4 - Std 5	4.2	3.7	3.1	0.4	3.5	166	*	*	*	6
Std 6 - Std 9	8.7	7.2	3.6	1.4	5.0	733	87.5	14.7	0.30	53
Std 10	15.7	15.7	12.6	3.1	15.7	70	*	*	*	11
Higher	(35.7)	(35.7)	(16.5)	(3.1)	(19.6)	33	*	*	*	12
<b>Population Group</b>										
African	2.3	1.0	0.4	0.3	0.7	832	*	*	*	8
Afr. urban	3.3	1.7	0.7	0.6	1.3	388	*	*	*	7
Afr. non-urban	1.6	0.3	0.2	0.1	0.3	444	*	*	*	1
Coloured	27.2	24.2	16.9	2.6	19.5	96	*	*	*	23
White	47.6	47.3	27.3	6.2	33.5	97	(100)	(14.8)	(0.41)	46
Asian	(15.3)	(15.3)	(2.4)	(7.8)	(10.3)	42	*	*	*	6

Total	9.2	7.9	4.4	1.3	5.7	1,069	85.2	14.9	0.24	83
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Note: STD Error = Standard deviation of the mean

Parenthesis indicate that a figure is based on 25-49 respondents. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

### ***Perceptions about tobacco and cessation patterns of adolescents***

About 95 percent of adolescents believe that smoking is deleterious to health and this belief remains uniformly high and does not vary with any of the background characteristics. Of those who had smoked every day, 65 percent of adolescent males and 72 percent of adolescent females had attempted to stop smoking. Only 14 percent of boys and 39 percent of the girls actually managed to do so. This highlights a finding, also observed in adults, that most smokers have tried to quit, but that only a small proportion succeed.

### ***Adolescents' exposure to environmental tobacco smoke (ETS)***

Of those adolescents who have never experimented with tobacco products, 37 percent of boys and 34 percent of girls live with smokers in their homes, while 40 percent of all boys and 37 percent of all girls live with smokers in the home. This occurs markedly more frequently in urban settings compared to non-urban settings (45 percent vs. 29 percent, urban vs. non-urban). There are also marked differences among provinces, with more children being exposed to ETS in the Western and Northern Cape (where over 60 percent of the youngsters live in homes with smokers) and the lowest rate of exposure was in KwaZulu-Natal (25 percent). Remarkably high rates of exposure (over 70 percent for both boys and girls) are found in the coloured community and the lowest rates in the non-urban African community, although even in this community about a quarter of the non-smoking adolescents are exposed to ETS.

## **9.6 Alcohol Use/Misuse by Adolescents**

### ***Introduction***

By the time young people reach mid-adolescence many have begun to use alcohol, often irresponsibly. Alcohol misuse by adolescents has been linked to several negative consequences, including absenteeism from school, school failure, road-related injuries and fatalities, and teenage pregnancy. A recent review of epidemiological research on risky drinking in South Africa (Parry and Bennetts, 1998) suggested that levels of risky drinking for young persons are only slightly lower than for adults. The SADHS included eight questions to assess lifetime and current use of alcohol, weekend and weekday consumption, and a four-item measure of alcohol dependence. The findings based on the latter measure are not reported as this instrument was designed for adult respondents.

### ***Drinking patterns***

Fifteen percent of male adolescents (15-19 years old) and 7 percent of female adolescents acknowledge that they currently consume alcohol (Table 9.5). For both sexes, the rate is 11 percent, which translates to almost 406 000 persons in South Africa 15-19 years old who acknowledge currently consuming alcohol. Rates of current drinking differ substantially by population group and sex, with the highest levels reported by white

males (53 percent), followed by white females (38 percent), and coloured males (19 percent). The lowest rates were reported by African females (3 percent). The numbers were too low to accurately assess current drinking rates among either Asian males or females. Current drinking levels also appear to be positively associated with age for both males and females.

For male adolescents aged 15-19, the highest current drinking levels were reported in the Western Cape and Northern Cape (21 percent-24 percent), and the lowest levels were reported in the Northern Province (7 percent). No statistics on current drinking were reported for the North West and for the Free State provinces because of the small numbers in the 15-19 year age group for these provinces included in the SADHS. Rates of lifetime consumption of alcohol (“Ever drunk alcohol?”) were 25 percent for males and 15 percent for females aged 15-19 years (Table 9.5). The age, population group, and urban/non-urban differences described above for current drinking rates are very similar for lifetime consumption of alcohol.

The current drinking rates are less than were reported in previous research. Research conducted in 1997, for example, among a representative sample of high school students in standard 9 in the Cape Peninsula reported last month use of alcohol of 41 percent-58 percent for white, coloured and African males, and 9 percent-61 percent for white, coloured and African females (Flisher, Parry, Evans, Lombard, and Müller, 1997). Comparing national or even provincial statistics with an urban area such as Cape Town may, however, not be entirely appropriate. The relative differences between the various population and sex groupings appear to be very similar in both the Flisher *et al.* study and this survey, with the highest rates of current drinking reported among white and coloured males and females, and with substantially lower usage acknowledged by African females. An HSRC study conducted in 1994 reported current drinking levels of 39 percent-40 percent among African males 10-21 years of age, 23 percent among rural African females 10-21 years of age, and 32 percent among urban African females of the same age (Rocha-Silva, de Miranda, & Erasmus, 1996). Similar to the findings of the HSRC survey (Rocha-Silva *et al.*, 1996), current drinking levels in the African subgroup appear to be higher in the urban sample than in the non-urban group. The lower reported rates observed in the SADHS are likely to reflect different methods used rather than any reduction in drinking rates over the past few years. In particular, the HSRC surveys defined “current drinking” as “drinking in the past 12 months” which is a larger reference period than epidemiologists typically use.

### ***Risky drinking***

Risky drinking was defined as drinking five or more standard drinks per day for males and three or more drinks per day for females. These levels were defined as “hazardous/harmful” by the Australian National Health and Medical Research Council (1992).

Rates of risky drinking were substantially greater at weekends than on weekdays, with 1-3 percent of current drinkers 15-19 years of age reporting risky drinking on weekdays and roughly one-quarter (24-27 percent) of current drinkers 15-19 years of age drinking at risky levels over weekends (Table 9.5). While drinking rates (lifetime and current) are higher for males in urban than non-urban populations, risky drinking appears to be higher among non-urban populations. Recent comparative data from national surveys are only available for Africans. The rates of risky drinking reported by African males (3 percent on weekdays and 21 percent over weekends) is somewhat higher than that reported by Rocha-Silva *et al.* (1996) in their 1994 study of persons 10-21 years of age (4 percent in urban areas and 8 percent in rural areas). Rocha-Silva *et al.* also found rates of risky drinking substantially higher in rural (non-urban) areas. Rocha-Silva *et al.* (1996) reported risky drinking for African females (10-21 years of age) at 3 percent for both urban and rural populations. The rates of risky drinking for females in the SADHS are higher, but this is likely to be partly due to the differential levels of risky drinking used for males and females.



**Table 9.5 Risky drinking and alcohol dependency among adolescents**

Percentage of males and females aged 15-19 years reporting lifetime use of alcohol and current use of alcohol, and the percentage of current drinkers engaging in risky drinking on weekdays and on weekends by background characteristics, South Africa 1998

Background characteristics	Adolescents aged 15-19						Current drinkers					
	Ever drank alcohol		Drink now		Number		Risky drinking - weekdays <sup>1</sup>		Risky drinking - weekends <sup>1</sup>		Number	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
<b>Age</b>												
15	12.4	8.2	(5.5)	*	199	232	*	*	*	*	24	19
16	21.1	10.2	(12.0)	*	223	210	(0.0)	*	(17.2)	*	47	21
17	23.5	16.8	(13.2)	(7.6)	243	207	(7.4)	*	(29.8)	*	57	35
18	28.6	18.9	(15.1)	(8.0)	219	212	(0.0)	*	(32.7)	*	63	40
19	43.8	21.9	29.2	(9.8)	173	198	5.2	*	22.2	*	76	43
<b>Residence</b>												
Urban	28.8	21.2	18.6	10.6	574	593	2.5	2.2	20.5	23.4	165	126
Non-urban	21.2	7.1	(9.6)	(2.7)	483	466	(5.1)	*	(32.2)	*	102	33
<b>Province</b>												
Western Cape	33.1	36.4	(20.7)	*	110	86	*	*	*	*	36	32
Eastern Cape	28.9	7.1	17.8	*	134	159	*	*	*	*	39	11
Northern Cape	28.4	18.1	(21.6)	*	21	23	*	*	*	*	6	4
Free State	20.0	11.3	*	*	77	64	*	*	*	*	15	7
KwaZulu-Natal	21.7	8.7	(9.1)	*	178	208	*	*	*	*	39	18
North West	19.8	9.7	*	*	108	80	*	*	*	*	21	7
Gauteng	30.8	28.6	*	*	187	211	(7.1)	(0.0)	(28.6)	(18.2)	58	60
Mpumalanga	30.3	10.6	16.1	*	85	87	*	*	*	*	26	9
Northern	17.6	6.5	*	*	157	140	*	*	*	*	28	9
<b>Population group</b>												
African	20.0	6.9	10.6	2.9	854	825	2.6	*	21.4	*	171	57
Afr. urban	20.0	8.8	12.2	(3.4)	389	385	(0.0)	*	(12.7)	*	78	34
Afr. non-urban	20.1	5.3	9.2	(2.5)	465	440	(5.5)	*	(31.0)	*	93	23
Coloured	32.9	33.8	(19.7)	(13.0)	104	95	*	*	*	*	34	32
White	70.1	65.1	(52.9)	(37.5)	73	97	(0.0)	(0.0)	(21.7)	(25.3)	51	63
Asian	(39.8)	(14.8)	*	*	25	42	*	*	*	*	10	6
Total	25.3	15.0	14.5	7.1	1,057	1,060	3.3	1.8	24.1	27.3	267	159

1 - defined for males as drinking  $\geq 5$  drinks per day, and for females as drinking  $\geq 3$  drinks per day

Note: Parenthesis indicate that a figure is based on 25-49 respondents. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.



## 9.7 Anthropometry of Adolescents

### *Weight, height and mid-upper arm circumference*

Tables 9.6 and 9.7 show the mean weight, height and upper arm circumference (MUAC) for male and female adolescents, respectively according to background characteristics. Although men are on average about 7cm taller than women, there are generally few differences in mean height by age, residence and province for either men and women. However, there are differences among men in weight and height by province and by educational attainment and in MUAC by education. The tallest and heaviest men are from Gauteng and Western Cape provinces and are those with the highest education. The tallest women are from North West, Gauteng and Free State provinces, while the biggest are from Western Cape, KwaZulu-Natal, and Gauteng. Differences in weight and height are more pronounced by population group for both men and women. White men and women are the tallest and heaviest compared to other groups.

The MUAC of women is higher than for men, which means that women generally carry more fat tissue than men. Among women, Asian women have the lowest MUAC, while among men, urban Africans have the lowest.

**Table 9.6 Anthropometric measurements for adolescent men**

The mean and standard error of weight in kg, height in m and mid-upper arm circumference (MUAC) in cm of males aged 15-19 by background characteristics, South Africa 1998

Background characteristic	Weight (kg)			Height (m)			Mid-upper arm circumference (cm) MUAC		
	Mean	STD Error	Number	Mean	STD Error	Number	Mean	STD Error	Number
<b>Age</b>									
15	50.9	0.97	199	1.60	0.88	199	23.8	0.25	199
16	55.7	0.82	222	1.66	0.77	222	25.0	0.24	222
17	56.9	0.63	238	1.68	0.62	239	25.2	0.23	237
18	59.3	0.75	220	1.69	0.56	220	25.9	0.24	220
19	60.9	1.28	173	1.69	0.77	171	26.5	0.29	171
<b>Residence</b>									
Urban	58.9	0.66	572	1.68	0.51	572	25.9	0.19	569
Non-urban	54.1	0.45	481	1.65	0.46	481	24.5	0.15	480
<b>Province</b>									
Western Cape	61.0	1.78	110	1.68	1.27	108	26.4	0.39	108
Eastern Cape	56.1	0.64	134	1.65	0.59	134	25.4	0.25	134
Northern Cape	52.7	1.04	21	1.66	0.78	2	24.0	0.38	21
Free State	54.0	1.11	78	1.65	0.88	77	24.3	0.28	77
KwaZulu-Natal	56.0	1.03	175	1.65	0.88	176	25.2	0.39	176
North West	56.3	1.67	108	1.63	1.43	108	25.7	0.38	107
Gauteng	59.3	1.23	187	1.69	1.04	187	25.7	0.38	185
Mpumalanga	55.1	0.87	84	1.67	0.80	84	24.8	0.28	84
Northern	55.0	0.88	157	1.67	0.88	157	24.3	0.28	157
<b>Education</b>									
No education	*	*	12	*	*	*	12	*	12
Sub A - Std 3	50.0	0.91	82	1.61	0.88	82	23.6	0.35	82
Std 4 - Std 5	55.0	0.89	193	1.64	0.84	193	24.7	0.19	191
Std 6 - Std 9	57.0	0.49	669	1.67	0.44	669	25.3	0.16	668
Std 10	63.0	2.3	77	1.7	1.07	77	27.0	0.43	77
Higher	*	*	15	*	*	15	*	*	15
<b>Population Group</b>									
African	55.4	0.39	852	1.65	0.36	852	25.0	0.13	848
Afr. urban	57.4	0.66	387	1.66	0.57	387	24.4	0.22	462
Afr. non-urban	54.0	0.42	463	1.64	0.45	463	25.6	0.15	386
Coloured	60.0	1.85	104	1.68	0.98	102	25.7	0.33	102
White	66.8	2.15	73	1.76	1.32	72	27.2	0.60	73
Asian	(58.0)	(3.34)	25	(1.72)	(1.73)	25	(27.0)	(1.03)	25
Total	57.0	0.43	1,053	1.66	0.36	1,052	25.2	0.13	1,049

Note: STD Error = Standard deviation of the mean

Parenthesis indicate that a figure is based on 25-49 respondents. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed

**Table 9.7 Anthropometric measurements for adolescent women**

The mean weight, height, and mid-upper arm circumference (MUAC) of females aged 15 - 19 according to the background characteristics in South Africa, 1998

Background characteristic	Weight (kg)			Height (m)			Mid-upper arm circumference (cm) MUAC		
	Mean	STD Error	Number	Mean	STD Error	Number	Mean	STD Error	Number
<b>Age</b>									
15	54.8	0.81	231	1.58	0.50	232	25.5	0.24	232
16	55.6	0.89	209	1.58	0.65	208	25.7	0.25	208
17	58.3	1.35	209	1.58	0.55	210	26.2	0.27	208
18	59.4	0.84	208	1.59	0.61	209	27.0	0.31	207
19	60.4	1.11	194	1.60	0.63	194	27.4	0.33	194
<b>Residence</b>									
Urban	58.4	0.65	592	1.60	0.32	592	26.5	0.2	588
Non-urban	56.6	0.68	459	1.57	0.42	461	26.1	0.18	461
<b>Province</b>									
Western Cape	60.6	1.91	86	1.58	0.93	86	27.2	0.64	84
Eastern Cape	58.3	0.73	155	1.57	0.51	158	26.8	0.22	158
Northern Cape	52.3	1.36	22	1.56	0.70	22	24.6	0.47	22
Free State	57.4	1.49	63	1.59	0.85	63	25.3	0.35	63
KwaZulu-Natal	59.0	1.46	208	1.57	0.65	207	26.6	0.33	207
North West	55.3	0.93	80	1.60	0.87	80	26.3	0.4	79
Gauteng	58.8	1.19	214	1.60	0.67	214	26.6	0.42	211
Mpumalanga	55.7	1.02	87	1.58	0.79	86	25.5	0.31	87
Northern	54.3	1	136	1.58	0.73	137	25.5	0.3	137
<b>Education</b>									
No education	*	*	14	*	*	15	*	*	15
Sub A - Std 3	55.4	1.93	44	1.56	1.38	43	25.8	0.62	43
Std 4 - Std 5	58.0	1.44	164	1.57	0.65	164	26.2	0.3	164
Std 6 - Std 9	58.0	0.55	723	1.59	0.30	725	26.4	0.17	723
Std 10	60.3	1.49	70	1.61	0.89	70	27.0	0.48	68
Higher	(57.3)	(2.37)	31	(1.60)	(1.40)	31	(26.0)	(0.57)	31
<b>Population Group</b>									
African	57.3	0.48	817	1.58	0.29	820	26.3	0.15	818
African urban	58.1	0.68	384	1.60	0.38	385	26.5	0.25	382
African non-urban	57.0	0.70	433	1.57	0.41	436	26.1	0.18	435
Coloured	57.3	1.62	96	1.57	0.65	96	26.4	0.53	95
White	62.0	1.82	97	1.65	0.76	97	27.1	0.51	97
Asian	(53.0)	(4.08)	41	(1.58)	(0.89)	39	(24.3)	(0.92)	39
Total	58.0	0.47	1,051	1.59	0.26	1,053	26.3	0.14	1,049

Note: STD Error = Standard deviation of the mean

An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed

### ***Body mass index (BMI) and prevalence of obesity***

Tables 9.8 and 9.9 show the distribution of adolescent men and women by BMI according to background characteristics. BMI is a useful measure of nutritional status. It is calculated as the weight in kilograms divided by the square of the height in metres. From the tables it can be seen that the mean body mass index for women is higher than that for men (23.0 vs 21.0). The percentage of underweight males (28 percent) is markedly higher than that for women (12 percent). Conversely, more women than men are overweight. African non-urban men and Asian women are the least overweight groups. Nearly fifty percent of Asian females are underweight.

### ***Waist and hip circumference and waist/hip ratio (WHR)***

Tables 9.10 and 9.11 show the mean waist and hip circumferences and the waist/hip ratios for adolescent men and women, respectively. They also show the prevalence of men and women with a WHR equal to or greater than 1.0 for men and equal to or greater than 0.85 for women. In addition they also show the percentage of men and women whose waists measure 102 cm or more for men and 88 cm or more for women.

For both adolescent men and women the mean waist and hip circumference increase with age, and women have higher mean waist and hip circumferences compared to men (73.2 cm and 96.0 cm respectively vs. 72.1 cm and 88.5 cm for men). The lowest levels for both measurements were recorded in the Free State for men and in the Northern Province for women. For men, the mean waist and hip circumferences tend to increase with education, while for women the highest waist and lowest hip measurements were recorded for women with the lowest education. Differences by population group are more pronounced among men than among women. White men tend to have the highest measures for both waist and hip circumferences, while among women the differences are less pronounced, although the small number of Asian women have the lowest measures and differ significantly from other women.

A waist circumference higher than the cut-off point is often associated with Type-two diabetes, other cardiovascular risks and shortness of breath. More women than men have waist circumferences higher than the cut-off point (8 percent vs less than 1 percent for men). In terms of the waist/hip ratio, again more women (12 percent) than men (3 percent) have measurements above the cut-off points. A higher proportion of men in the North West and women in the Western Cape have WHRs higher than the cut-off points. More non-urban African men and women have the highest proportion of being above the cut-off points.

**Table 9.8 Body mass index (BMI) of adolescent men**

Mean and standard error of the BMI (kg/m<sup>2</sup>) and the percentage of males aged 15-19 by body mass index categories according to background characteristics, South Africa 1998

Background characteristic	Body mass index		BMI categories				Number
	Mean BMI	STD Error	Under-weight <18.5	Normal weight 18.5 - 24.9	Over-weight 25 - 29.9	Obese 30+	
<b>Age</b>							
15	20.0	0.27	42.9	50.1	4.8	1.7	199
16	20.3	0.24	28.3	64.1	6.6	0.9	222
17	20.3	0.20	26.6	67.2	4.5	1.7	238
18	20.9	0.27	22.5	68.3	5.6	3.6	220
19	21.0	0.31	20.0	73.0	5.0	2.1	171
<b>Residence</b>							
Urban	21.0	0.18	23.7	65.6	7.5	3.0	571
Non-urban	20.0	0.15	33.4	63.1	2.7	0.8	481
<b>Province</b>							
Western Cape	21.2	0.35	14.8	72.7	7.5	5.0	108
Eastern Cape	21.0	0.20	24.8	64.7	9.7	0.7	134
Northern Cape	19.1	0.28	43.7	56.3	0	0	21
Free State	20.0	0.33	41.8	53.1	4.1	1.0	77
KwaZulu-Natal	20.4	0.36	30.9	58.8	6.9	3.4	175
North West	22.0	0.50	31.2	59.8	3.5	4.6	108
Gauteng	21.0	0.34	15.5	77.4	7.1	0.0	187
Mpumalanga	20.0	0.35	31.4	64.9	1.8	2.0	84
Northern	20.0	0.28	39.6	59.0	0.7	0.7	157
<b>Education</b>							
No education	*	*	*	*	*	*	13
Sub A - Std 3	19.4	0.33	44.9	48.2	5.2	1.7	82
Std 4 - Std 5	21.0	0.22	31.3	63.2	4.7	0.3	193
Std 6 - Std 9	20.4	0.15	27.1	65.9	5.0	2.0	669
Std 10	21.2	0.42	12.5	74.5	8.6	4.4	76
Higher	*	*	*	*	*	*	16
<b>Population Group</b>							
African	20.4	0.14	29.7	63.3	4.8	2.1	852
African urban	21.0	0.23	24.7	64.3	7.2	3.5	389

African non-urban	20.0	0.16	33.8	62.5	2.8	0.9	463
Coloured	21.0	0.27	21.0	70.7	6.9	1.3	102
White	21.4	0.53	14.7	73.4	9.2	2.8	73
Asian	*	*	*	*	*	*	*
Total	21.0	0.12	28.1	64.5	5.3	2.0	1,051

Note: STD Error = Standard deviation of the mean

An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed

**Table 9.9 Body mass index (BMI) of adolescent women**

Mean and standard error of the BMI (kg/m<sup>2</sup>) and the percentage of females aged 15-19 by body mass index categories according to background characteristics, South Africa 1998

Background characteristic	Body mass index		BMI categories				Number
	Mean BMI	STD Error	Under-weight <18.5	Normal weight 18.5 - 24.9	Over-weight 25 - 29.9	Obese 30+	
<b>Age</b>							
15	22.1	0.29	16.8	65.6	14.5	2.7	231
16	22.1	0.29	14.8	65.6	17.0	2.6	208
17	23.6	0.34	13.3	63.0	15.9	6.9	209
18	23.8	0.32	5.2	66.0	21.4	7.2	207
19	23.7	0.41	8.0	61.5	19.9	10.6	194
<b>Residence</b>							
Urban	23.0	0.23	11.8	62.6	19.2	6.2	591
Non-urban	23.1	0.21	11.8	66.7	15.6	5.4	458
<b>Province</b>							
Western Cape	24.1	0.71	7.9	58.0	21.8	12.3	86
Eastern Cape	24.0	0.31	9.9	60.4	20.4	9.3	155
Northern Cape	21.3	0.41	22.7	62.2	12.9	2.1	22
Free State	23.0	0.52	11.3	64.7	19.0	5.1	63
KwaZulu-Natal	24.2	0.40	14.1	58.0	20.7	5.9	207
North West	22.0	0.32	17.8	65.5	13.1	3.6	80
Gauteng	23.0	0.42	6.2	67.8	22.3	3.7	214
Mpumalanga	23.0	0.38	12.4	69.6	12.6	4.7	86
Northern	22.0	0.39	16.2	73.7	6.0	4.1	136
<b>Education</b>							
No education	*	*	*	*	*	*	19
Sub A - Std 3	(23.0)	(0.64)	(9.5)	(71.6)	(11.7)	(7.2)	43
Std 4 - Std 5	24.1	0.35	10.4	65.6	17.4	4.9	163
Std 6 - Std 9	23.0	0.19	12.2	64.3	17.5	6.0	722
Std 10	23.2	0.61	13.2	53.4	26.0	7.4	70
Higher	(22.2)	(0.78)	(7.5)	(72.4)	(15.8)	(4.3)	31

**Population Group**

African	23.2	0.16	10.4	65.7	17.8	5.7	817
African urban	23.1	0.25	9.0	65.1	20.0	5.7	384
African non-urban	23.2	0.22	11.6	66.3	15.8	5.7	433
Coloured	23.1	0.58	13.3	60.1	20.0	6.6	96
White	23.0	0.61	7.6	65.6	21.4	5.4	97
Asian	(20.0)	(1.24)	(47.7)	(44.1)	(0.0)	(8.2)	40
Total	23.0	0.16	11.8	64.4	17.6	5.9	1,050

Note: STD Error = Standard deviation of the mean

An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

**Table 9.10 Waist and hip circumference of adolescent men**

Mean and standard error of the waist (cm), hip circumference (cm) and the waist/hip ratios (WHR) for men aged 15-19; as well as the prevalence of men with WHR  $\geq 1.0$  and waist circumference  $\geq 102$  cm in by background characteristics, South Africa 1998

Background characteristic	Waist circumference (cm)				Hip circumference (cm)			Waist hip ratio (WHR)			
	Mean	STD Error	Percentage with waist $\geq 102$ cm	Number	Mean	STD Error	Number	Mean	STD Error	Percentage with WHR $\geq 1.0$	Number
<b>Age</b>											
15	69.2	0.59	0.0	199	84.4	0.77	199	0.82	0.0	3.3	199
16	72.0	0.74	1.5	221	88.1	0.82	222	0.82	0.0	2.9	221
17	72.1	0.56	0.0	239	89.1	0.61	239	0.81	0.0	1.9	239
18	73.1	0.60	0.4	220	90.2	0.64	220	0.81	0.0	2.7	220
19	74.1	0.79	1.5	173	91.0	0.83	173	0.82	0.0	2.7	173
<b>Residence</b>											
Urban	72.4	0.47	0.8	573	90.2	0.52	573	0.80	0.0	1.9	573
Non-urban	72.0	0.40	0.5	480	87.0	0.41	481	0.83	0.0	3.5	480
<b>Province</b>											
Western Cape	73.0	1.22	0.0	110	90.0	1.64	110	0.81	0.0	2.5	110
Eastern Cape	73.0	0.48	0.0	134	90.0	0.54	134	0.81	0.0	3.1	134
Northern Cape	70.3	0.82	0.0	21	87.8	0.80	21	0.80	0.0	1.1	21
Free State	70.4	0.86	1.1	77	88.1	1.11	77	0.80	0.0	1.1	77
KwaZulu-Natal	72.0	0.74	0.6	176	88.3	0.73	176	0.82	0.0	2.3	176
North West	72.4	1.17	1.8	108	86.4	1.01	108	0.84	0.01	5.5	108
Gauteng	73.0	0.96	1.4	187	92.0	0.97	187	0.80	0.0	1.4	187
Mpumalanga	71.0	0.88	0.8	84	88.1	0.92	84	0.80	0.0	0.8	84
Northern	72.0	0.68	0.0	156	85.2	0.74	157	0.85	0.0	4.5	156
<b>Education</b>											
No education	*	*	*	13	*	*	13	*	*	*	13
Sub A - Std 3	70.2	1.0	0.0	82	85.3	0.84	82	0.83	0.01	3.1	82
Std 4 - Std 5	71.3	0.54	0.4	193	88.0	0.62	193	0.82	0.0	2.7	193
Std 6 - Std 9	72.2	0.40	0.4	668	89.0	0.44	669	0.82	0.0	2.7	668
Std 10	74.0	0.87	0.0	78	93.0	1.10	78	0.80	0.0	0.8	78

Higher	*	*	*	16	*	*	16	*	*	*	16
<b>Population group</b>											
African	71.4	0.31	0.4	851	87.4	0.35	852	0.82	0.0	2.8	851
Afr. urban	71.4	0.48	0.3	389	90.0	0.59	389	0.81	0.0	1.9	389
Afr. non-urban	72.0	0.40	0.5	462	86.3	0.39	463	0.83	0.0	3.6	462
Coloured	73.2	1.09	0.0	104	92.0	1.08	104	0.80	0.01	2.6	104
White	78.0	1.66	5.1	73	97.2	1.26	73	0.80	0.0	0.3	73
Asian	(71.3)	(2.17)	(0.0)	25	(90.0)	(2.58)	25	(0.8)	(0.01)	(2.8)	25
Total	72.1	0.31	0.7	1,053	88.5	0.35	1,054	0.82	0.0	2.7	1,053

Note: STD Error = standard deviation of the mean  
 Parenthesis indicate that a figure is based on 25-49 respondents. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Table 9.11 Waist and hip circumference of adolescent women

Mean and standard error of the waist (cm), hip circumference (cm) and the waist/hip ratios (WHR) for men aged 15-19; as well as the prevalence of men with WHR  $\geq 0.85$  and waist circumference  $\geq 88$  cm in by background characteristics, South Africa 1998

Background characteristic	Waist circumference (cm)				Hip circumference (cm)			Waist hip ratio (WHR)			
	Mean	STD Error	Percentage with waist $\geq 88$ cm	Number	Mean	STD Error	Number	Mean	STD Error	Percentage with WHR $\geq 0.85$	Number
<b>Age</b>											
15	71.1	0.93	3.4	231	94.0	0.81	232	0.80	0.0	9.9	231
16	72.1	0.72	4.7	208	94.4	0.76	208	0.80	0.0	9.8	208
17	72.1	0.76	7.4	207	96.0	0.87	208	0.80	0.0	11.3	207
18	75.4	0.76	11.9	209	98.1	0.83	208	0.80	0.0	13.6	208
19	76.0	0.98	13.3	192	99.0	1.04	191	0.80	0.0	13.1	191
<b>Residence</b>											
Urban	73.0	0.59	7.3	591	97.2	0.52	592	0.75	0.0	7.4	590
Non-urban	74.0	0.53	8.8	457	94.4	0.56	456	0.78	0.0	16.7	455
<b>Province</b>											
Western Cape	76.0	1.74	18.1	86	98.0	1.71	86	0.80	0.01	24.1	86
Eastern Cape	75.3	0.63	10.3	155	97.0	0.70	156	0.80	0.0	12.6	155
Northern Cape	70.6	1.15	5.4	22	92.6	0.85	22	0.76	0.0	9.7	22
Free State	72.0	1.45	12.6	63	94.1	0.85	63	0.80	0.02	12.5	63
KwaZulu-Natal	73.0	0.82	8.4	207	97.0	1.59	207	0.80	0.0	11.9	206
North West	75.2	1.83	11.7	80	95.0	0.84	80	0.80	0.01	23.5	80
Gauteng	73.0	0.93	2.5	214	99.0	1.70	214	0.74	0.0	0	214
Mpumalanga	72.2	2.06	3.3	85	95.0	0.91	85	0.80	0.02	8.3	85
Northern	71.4	1.00	5.9	136	91.2	1.05	135	0.80	0.0	14.6	135
<b>Education</b>											

No education	*	*	*	19	*	*	19	*	*	*	19
Sub A - Std 3	(78.0)	(4.1)	(10.5)	43	(94.0)	(1.74)	43	(0.83)	(0.03)	(15.6)	43
Std 4 - Std 5	73.0	0.76	7.0	163	95.0	0.96	163	0.80	0.0	14.1	163
Std 6 - Std 9	73.0	0.45	7.5	720	96.4	0.46	723	0.80	0.0	10.3	720
Std 10	75.0	1.25	12.2	70	99.0	1.27	70	0.80	0.0	12.1	70
Higher	(69.0)	(1.97)	(4.3)	31	(94.4)	(2.57)	30	(0.73)	(0.01)	(4.4)	30
<b>Population group</b>											
African	73.2	0.45	7.9	814	96.0	0.42	814	0.80	0.0	13.1	811
Afr. urban	73.0	0.73	2.6	383	97.1	0.63	384	0.80	0.0	9.1	382
Afr. non-urban	74.0	0.55	3.5	431	94.2	0.58	430	0.80	0.0	16.7	430
Coloured	75.0	1.32	10.2	96	98.0	1.24	96	0.80	0.0	11.4	96
White	74.4	1.36	7.8	97	99.1	1.26	97	0.80	0.0	1.6	97
Asian	(67.0)	(2.86)	(5.4)	41	(93.0)	(2.50)	41	0.80	(0.01)	(2.6)	41
Total	73.2	0.41	8.0	1,048	96.0	0.39	1,048	0.80	0.0	11.5	1,045

Note: STD Error = standard deviation of the mean

Parenthesis indicate that a figure is based on 25-49 respondents. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed

## 9.8 Abnormalities in Blood Pressure

Tables 9.12 and 9.13 describe the mean systolic and diastolic blood pressure of men and women aged 15-19 years who participated in the Demographic and Health survey.

For men there is a tendency for the blood pressure to increase between the ages of 15 and 19 years, while for women no such tendency was observed. Of interest is the finding that the young men's systolic BP was consistently higher than that of the women while this was not the case for the diastolic BP. There was no differences between the BPs recorded in the urban and non-urban areas while the highest BPs were recorded in the Free State for both the young men and women, while the lowest rates were recorded in Mpumalanga for both groups. There were no trends in BP across the different levels of education, neither for the young women across the different population groups, however for the young men the BP of the white group was markedly higher than that of the black young men.

The overall prevalence of being hypertensive in the young men was 8 percent while it was lower for the young women at 5 percent. For the young women the rates were higher in the rural areas compared to the urban areas, while for the young men there was a tendency in the opposite direction. Mpumalanga had the lowest rates of hypertension for both men and women while the North West had the highest rates. For the men, the white group had the highest rates of hypertension and the non-urban group the lowest rates, while for women the opposite was found. The mean pulse rate of the women was 79 beats per minute and that of the young men lower at 72 beats per minute. This could suggest that the young men are more physically fit than the young women. No other specific trends were observed across the descriptive variables.



**Table 9.12 Blood pressure and pulse rate in adolescent men**

Mean and standard error of diastolic and systolic blood pressure (mmHg) and pulse rate (beats per minute) and the percentage of males aged 15-19 with BP  $\geq$  140/90 or taking appropriate drugs for hypertension by background characteristics, South Africa 1998

Background characteristic	Systolic blood pressure (mmHg)		Diastolic blood pressure (mmHg)		Pulse rate (beats per min)		Hypertension	
	Mean	STD Error	Mean	STD Error	Mean	STD Error	Percentage BP $\geq$ 140/90 and taking drugs	Number
<b>Age</b>								
15	109	0.97	66	0.84	72	0.81	2.4	199
16	113	1.31	67	0.92	72	1.03	7.0	223
17	114	1.08	66	0.76	71	0.83	10.8	244
18	115	1.01	68	0.70	71	0.89	7.8	220
19	117	1.24	70	0.98	72	1.08	10.0	173
<b>Residence</b>								
Urban	114	0.73	68	0.53	72	0.64	8.3	575
Non-urban	113	0.76	67	0.59	71	0.54	7.1	485
<b>Province</b>								
Western Cape	115	1.43	69	0.94	71	1.23	8.4	111
Eastern Cape	114	1.07	67	0.76	71	0.81	9.2	134
Northern Cape	116	1.73	67	1.14	74	1.33	7.9	21
Free State	116	1.22	69	1.14	69	1.41	5.2	77
KwaZulu-Natal	112	1.53	67	1.27	73	1.12	7.1	178
North West	112	2.12	69	1.41	72	1.05	14.2	108
Gauteng	114	1.62	67	1.21	72	1.51	7.1	187
Mpumalanga	112	1.23	66	0.80	71	1.07	4.0	86
Northern	114	1.05	66	0.85	71	0.92	5.1	158
<b>Education</b>								
No education	*	*	*	*	*	*	*	13
Sub A - Std 3	114	1.67	68	1.28	73	1.50	8.1	82
Std 4 - Std 5	113	1.18	67	0.88	71	0.90	6.9	194
Std 6 - Std 9	113	0.70	67	0.51	71	0.51	7.3	674
Std 10	116	1.46	72	1.37	74	1.79	7.0	78
Higher	*	*	*	*	*	*	*	16
<b>Population Group</b>								
African	113	0.57	67	0.44	71	0.43	7.7	856
Afr. urban	113	0.99	67	0.64	71	0.68	8.6	389
Afr. non-urban	112	0.76	66	0.60	71	0.55	6.9	467
Coloured	117	1.21	69	0.96	71	1.52	7.8	104
White	121	2.64	72	1.82	75	2.31	14.0	73
Asian	*	*	*	*	*	*	*	25

Total	114	0.53	67	0.40	71	0.43	7.7	1,060
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Note: STD Error = standard deviation of the mean

An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

**Table 9.13 Blood pressure and pulse rate in adolescent women**

Mean and standard error of diastolic and systolic blood pressure and pulse rate and the percentage of females aged 15-19 with BP BP  $\geq$  140/90 or taking appropriate drugs for hypertension by background characteristics, South Africa 1998

Background characteristic	Systolic blood pressure		Diastolic blood pressure		Pulse rate		Hypertension	Number
	Mean	STD Error	Mean	STD Error	Mean	STD Error	Percentage BP $\geq$ 140/90 and taking drugs	
<b>Age</b>								
15	105	0.97	65	0.71	78	0.85	3.9	233
16	106	1.31	66	0.95	79	1.12	4.3	211
17	106	0.81	67	0.89	77	0.89	4.1	212
18	108	1.06	68	0.93	80	0.86	7.1	213
19	106	1.00	68	0.77	78	0.99	4.0	198
<b>Residence</b>								
Urban	106	0.66	66	0.56	78	0.61	3.8	470
Non-urban	107	0.63	67	0.55	78	0.57	5.6	597
<b>Province</b>								
Western Cape	107	2.07	69	1.47	77	1.49	4.5	87
Eastern Cape	108	0.83	68	0.66	78	0.73	5.2	159
Northern Cape	106	1.21	66	0.87	79	1.54	2.1	23
Free State	112	1.52	70	1.13	77	1.55	8.7	64
KwaZulu-Natal	103	1.06	66	0.78	77	0.89	2.5	209
North West	107	1.38	69	1.57	77	1.86	13.1	80
Gauteng	107	1.41	66	1.25	78	1.28	2.5	214
Mpumalanga	101	1.98	64	0.93	80	1.11	1.6	87
Northern	107	0.95	65	1.03	80	1.03	4.8	144
<b>Education</b>								
No education	*	*	*	*	*	*	*	20
Sub A - Std 3	107	1.36	67	1.74	82	1.47	1.6	45
Std 4 - Std 5	108	1.07	67	0.87	77	1.00	4.5	167
Std 6 - Std 9	106	0.57	67	0.49	78	0.53	5.0	733
Std 10	106	2.03	65	1.43	77	1.33	4.6	70
Higher	(103)	(2.40)	(66)	(2.15)	(77)	(1.88)	*	33
<b>Population Group</b>								
African	106	0.47	66	0.43	78	0.46	4.1	833
Afr. urban	106	0.73	66	0.67	78	0.73	4.7	388
Afr. non-urban	106	0.63	67	0.56	78	0.59	5.6	445

Coloured	109	2.02	70	1.54	79	1.24	3.9	96
White	106	1.97	68	1.53	76	1.93	1.5	97
Asian	(99)	(1.60)	(64)	(1.23)	(79)	(2.06)	(0.0)	42
Total	106	0.45	67	0.39	78	0.42	4.7	1,067

Note: STD Error = standard deviation of the mean

Parenthesis indicate that a figure is based on 25-49 respondents.

An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

## 9.9 Chronic Obstructive Pulmonary Disease and Asthma in Adolescents

Table 9.14 provides data on the symptoms and signs of chronic lung diseases suffered by young men and women aged 15 to 19 years. The determination of the conditions of chronic bronchitis and airflow limitation (popularly referred to as ‘asthma’) is based on participants reporting typical symptoms of these conditions. Chronic bronchitis was measured from respondents who reported a productive cough for at least 3 months a year during the two years prior to the survey. Airflow limitation refers to respondents who reported wheezing and shortness of breath in the year prior to the survey and who also had their sleep interrupted by coughing, wheezing or tight chest. Further details can be found in the introduction in Chapter 13 and Appendix D.

Overall, the adolescent women reported symptoms of airflow limitation and chronic bronchitis more frequently than the males, however an abnormal peak expiratory flow rate (PEFR) was found almost equally often in men and women. Of the young men 3 percent and of the young women 5 percent reported symptoms of airflow limitation. No specific trend with age was observed, but urban youth reported these symptoms more frequently than non-urban youth. The youth of KwaZulu-Natal province reported this symptom complex far more frequently than those in any other province. Level of education was not related to the rate of airflow limitation but the white youth reported these symptoms more frequently than any other group. Chronic Bronchitis was reported by 0.7 percent and 2 percent of young men and women respectively. No particular trends in relation to the descriptive variables emerged from the data.

The peak expiratory flow rate is defined as abnormal according to the method set out in Appendix D. An abnormal peak flow measurement was recorded in 2 percent of young men and 3 percent of young women. For both men and women abnormal rates were found more frequently in the urban youth than in the rural youth. The province of Gauteng, the most urbanised province had about double the rate of abnormal findings compared to the national rate with 4 percent of adolescent men and women having abnormal rates.



Table 9.14 Lung disease in adolescents

Percentage of males and females aged 15-19 who reported symptoms of airflow limitation or chronic bronchitis or who have abnormal peak flow rates, according to background characteristics, South Africa 1998

Background characteristics	Adolescent males 15-19				Adolescent females 15-19			
	Percentage with airflow limitations	Percentage with chronic bronchitis	Percentage with abnormal peakflow rates	Number	Percentage with airflow limitations	Percentage with chronic bronchitis	Percentage with abnormal peakflow rates	Number
<b>Age</b>								
15	2.5	0.8	1.4	199	4.9	3.0	1.8	233
16	2.8	0.8	1.5	223	6.5	0.9	2.6	211
17	2.6	1.7	4.2	244	7.3	1.9	3.4	212
18	2.8	0.0	1.1	220	4.8	3.1	1.7	213
19	3.1	0.2	1.8	173	1.9	2.2	4.9	198
<b>Residence</b>								
Urban	3.2	1.1	2.3	575	5.2	1.9	3.4	598
Non-urban	2.2	3.0	1.8	485	5.0	2.6	2.1	471
<b>Province</b>								
Western Cape	1.2	0.0	1.2	111	3.1	1.3	5.7	87
Eastern Cape	3.4	1.3	1.6	134	3.5	3.5	2.4	160
Northern Cape	5.8	1.2	5.6	21	5.4	1.1	4.2	23
Free State	0.0	0.0	2.1	77	1.3	0.0	0.0	64
KwaZulu-Natal	6.3	1.7	1.7	178	8.3	2.0	4.8	209
North West	1.8	0.0	0.0	108	2.3	0.0	1.3	80
Gauteng	2.8	1.4	4.2	187	7.4	5.0	3.7	214
Mpumalanga	2.5	0.0	2.3	86	3.9	2.2	0.0	87
Northern	0.7	0.0	1.5	158	3.9	0.0	0.8	144
<b>Education</b>								
No education	*	*	*	13	*	*	*	20
Sub A - Std 3	6.5	2.4	0.8	83	(2.2)	(1.1)	(9.2)	45
Std 4 - Std 5	2.7	0.5	2.2	194	2.9	3.7	3.9	167
Std 6 - Std 9	1.9	0.7	2.3	674	5.1	2.2	2.1	733
Std 10	3.4	*	0.3	78	9.7	0.7	5.2	70
Higher	*	*	*	16	7.2	0.0	0.0	33
<b>Population group</b>								
African	2.7	0.9	1.9	856	4.4	2.4	2.9	833
Afr. urban	3.2	1.6	1.9	389	3.8	2.2	4.2	388
Afr. non-urban	2.3	0.2	1.9	467	4.8	2.5	1.8	445
Coloured	1.2	0.2	1.3	104	4.2	1.2	4.0	96
White	4.0	0.0	5.5	73	8.3	2.7	0.0	97
Asian	(6.6)	(0.0)	(0.0)	25	(14.6)	(0.0)	(4.8)	42
Total	2.7	0.7	2.0	1,060	5.1	2.2	2.8	1,068

Note: Parenthesis indicate that a figure is based on 25-49 respondents.  
Parenthesis indicate that a figure is based on 25-49 respondents.  
An asterisk indicates that a figure is based on fewer than 25 respondents and has been suppressed.