

# Health actions and disease patterns related to coronary heart disease in the coloured population of the Cape Peninsula

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## Summary

The health-related behaviour of the Cape Peninsula coloured population, which has been shown to have an adverse coronary heart disease (CHD) risk factor profile, is reported. Private medical services were used most often by participants: 54,1% and 51,6% of males and females respectively had made use of these services during the preceding year. Only 17,9% and 21,8% of males and females respectively had attended day hospitals during the year.

Blood pressures were measured in 43,8% and 57,1% of male and female participants respectively during the year preceding the study. The results indicated the need for the measurement of blood pressure to determine the true prevalence of hypertension, since patient reporting of the condition was inaccurate. Attempts to give up smoking had been made by 44,4% of male and 47,1% of female smokers.

About 75% of the participants were found to have hypercholesterolaemia, yet their knowledge of the prudent diet was poor and few reported appropriate dietary modifications to protect against CHD. Frequent reporting of hypercholesterolaemia, hypertension and constipation by the study population highlights the need for dietary education.

Mortality rates (MRs) for CHD and cerebrovascular disease (CVD) for the coloured and the white populations were compared. In all age groups white males had higher MRs for CHD than coloured males, while coloured females older than 34 years had higher rates than their white counterparts. The coloured population had MRs for CVD that were higher than those of whites.

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The CRISIC study identified the coloured population of the Cape Peninsula as being at high risk of developing coronary heart disease (CHD) owing to an unfavourable risk profile.<sup>1-6</sup>

Apart from the mortality patterns of CHD, little was known about morbidity data on CHD-related diseases in the South African coloured population. Furthermore, little was known about the health-related behaviour of the coloured population.

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The aim of the current study was to determine the behaviour and the disease patterns related to CHD of the coloured population of the Cape Peninsula.

By identifying their health-related behaviour an appropriate CHD intervention programme for the coloured population could be initiated to reduce the unfavourable risk profile that has been identified in this group.<sup>1-6</sup>

## Study population and methods

Participants were an age- and sex-stratified sample of 976 people, drawn from 485 120 coloureds aged 15 - 64 years in the Cape Peninsula (as reflected in the 5% subsample of the 1980 census), as reported previously.<sup>1-6</sup>

For this part of the study a pretested CHD risk factor questionnaire was completed by trained fieldworkers, who interviewed participants in their homes. Questions on the use of available medical services and attempts at improving health with respect to CHD were asked. The questionnaire also included the London School of Hygiene questionnaire for chest pain.<sup>7</sup> A medical history related to CHD was obtained. This included questions on hypertension, diabetes, hypercholesterolaemia, constipation, or having suffered a stroke. Classification of a positive CHD history was made on reported angina or myocardial infarction (MI). Questions regarding medical history were asked both directly, with questions requiring a 'yes' or 'no' response, and indirectly, by asking for reports on previous behaviour without suggesting any answer. For example, a question on tension was worded: 'Have you tried to relieve the tension you experience in the last 12 months?' (direct questioning). In the case of an affirmative answer the interviewer would ask: 'What did you do?' (indirect questioning). The reply would then be marked next to the appropriate categories listed on the questionnaire without prompting the participant. Blood pressure and serum cholesterol levels of participants were determined.<sup>2,4</sup>

The mean age-specific mortality due to CHD and cerebrovascular accidents (CVAs) in the coloured and white populations of the Cape Peninsula (the magisterial districts of Cape Town, Wynberg, Simonstown, Goodwood, Bellville and Kuils River) for the period 1981 - 1985 was calculated, based on the population census, both obtained from Central Statistical Services. Ten-year age intervals between 15 and 64 years were used. The overall rates were age-standardised against a standard reference population.<sup>8</sup> Rates referred to in the text were standardised against the coloured population of South Africa for 1985.

## Results

The health-related behaviour of the participants is shown in Table I. Private medical services were used most often by participants, with 54,1% of males and 51,6% of females (age-standardised) attending them. The percentage of respondents

TABLE I. USE OF MEDICAL FACILITIES AND HEALTH ACTIONS RELATED TO CHD TAKEN IN THE PREVIOUS YEAR  
BY A SAMPLE OF THE COLOURED POPULATION OF THE CAPE PENINSULA

	Age group (yrs)													
	Males							Females						
	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	Crude rate, 15 - 64 yrs	Age- standardised rate, 15 - 64 yrs*	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	Crude rate, 15 - 64 yrs	Age- standardised rate 15 - 64 yrs*
<b>Total No. participants per age group</b>	94	96	103	95	90	478		103	94	112	95	95	498	
<b>Attended private medical services (%)</b>	41,5	65,6	65,0	55,8	54,4	56,7	54,1	42,7	60,6	57,1	58,5	43,2	52,4	51,6
<b>Attended provincial hospitals (%)</b>	19,2	22,9	22,3	23,2	42,2	25,7	22,7	17,5	23,4	16,1	27,7	34,7	23,5	21,1
<b>Attended day hospitals (%)</b>	19,2	15,6	15,5	17,9	24,4	18,4	17,9	17,5	19,1	25,0	23,4	46,3	26,1	21,8
<b>Attended preventive and other clinics (%)</b>	3,2	6,3	5,8	5,3	3,3	4,8	4,7	14,6	30,9	17,0	8,5	9,5	10,3	18,1
<b>Attended private medical services exclusively (%)</b>	28,7	43,8	50,5	40,0	32,2	39,3	37,8	30,1	34,0	37,5	36,2	15,8	30,9	32,1
<b>Attended public medical services exclusively (%)</b>	24,5	15,6	21,4	24,2	38,9	24,7	22,7	29,1	31,9	26,8	26,6	45,3	31,7	30,3
<b>Attended both private and public services (%)</b>	12,8	17,7	11,7	13,7	18,9	14,6	14,4	9,7	20,2	16,1	21,3	25,3	18,3	15,9
<b>Attended no medical services</b>	34,0	22,9	16,5	22,1	10,0	21,1	25,2	31,1	13,8	19,7	16,0	13,7	19,1	21,8
<b>Blood pressure measured</b>	26,6	47,9	56,3	57,9	72,2	52,1	43,8	37,9	70,2	63,4	73,4	75,8	63,7	57,1
<b>Attempted to stop smoking†</b>	57,9	49,3	36,2	33,3	50,0	44,4	48,7	42,9	48,9	44,2	52,6	61,8	49,5	47,1
<b>Attempted to change diet to protect against CHD (%)</b>	8,5	10,4	12,6	21,1	31,1	16,5	12,7	11,7	13,8	23,2	34,0	26,3	21,7	17,7
<b>Attempted to lose weight (%)</b>	8,5	20,8	19,4	23,2	26,7	16,7	16,4	35,0	40,4	51,8	51,1	47,4	45,2	41,9
<b>Physical activity during leisure time (%)</b>	60,6	54,2	40,8	38,9	23,3	43,7	50,6	53,4	36,2	41,1	31,9	23,2	37,4	42,4
<b>Attempted to relieve tension (%)</b>	22,3	18,8	34,9	30,5	33,3	28,0	25,2	16,5	35,1	45,5	47,9	49,5	38,8	32,0

\*Age-standardised against the 1985 coloured population (census).

†% of those who reported smoking.

using private medical services was highest among males aged 25 - 44 years and females aged 25 - 54 years. Approximately 38% of males and 32,1% of females attended these services exclusively, while 14,4% of males and 15,9% of females attended both private and public services.

To investigate the association between attendance of facilities and socio-economic standing, the number of people per habitable room was taken as indicator of socio-economic standing. It was found that, after stratifying by age group, participants who lived in crowded circumstances ( $\geq 2,5$  persons living in one habitable room) and those who were not crowded ( $< 2,5$  persons per habitable room) had attended medical facilities with similar frequency. However, a larger proportion of participants who lived in less crowded circumstances used private medical services.

Provincial hospitals had been attended by 22,7% of males and 21,1% of females during the preceding year, with the youngest age groups using the facility least often and the oldest most often. Only 17,9% and 21,8% of males and females respectively had attended day hospitals during the year. Males aged 25 - 54 years used this service least often. Far more females (18,1%) (particularly those of childbearing age - 15 - 44 years) than males (4,7%) had attended preventive or other clinics. Public medical services were utilised exclusively by 22,7% of males and 30,3% of females, the oldest age groups using these facilities most often. In almost every age group fewer males than females had used medical services during the year. Twenty-five per cent of males and 21,8% of females had not used any medical services during the year. About a third of those who had not done so were in the youngest age groups and about 10% were in the age group 55 - 64 years.

Blood pressure had been measured during the preceding year in 43,8% of all the males participating in the study and in 57,1% of all the females. In the oldest age group 72,2% of males and 75,8% of females had had their blood pressure measured, but under the age of 45 years far more females than males had done so. Seventy-two per cent of patients found to be hypertensive (blood pressure  $\geq 160/95$  mmHg or on treatment for hypertension) had had their blood pressure measured during the year.<sup>2</sup> Of the smokers 44,4% of males and 47,1% of females had attempted to stop smoking, while 12,7% of males and 17,7% of females had attempted to change their diet for protection against heart disease. Of the participants who were hypercholesterolaemic and needed to change their diet 15,9% of males and 23% of females had done so.

Attempts to lose weight were reported by 16,7% of males and 41,9% of females. Physical activity during leisure time was reported by 50,6% of males and 42,4% of females. Participants in the youngest age groups reported being the most active, males more so than females. Twenty-five per cent of the males and 32% of the females had tried to reduce the tension they experienced, with females aged over 25 years doing this more often than males of the same age.

Table II shows the dietary actions reported by the participants to protect against heart attacks, their knowledge (scored on an 11-question test) of the prudent diet, and the prevalence of hypercholesterolaemia as defined by the *ad hoc* committee of the Heart Foundation of Southern Africa.<sup>9</sup>

Serum cholesterol levels that imparted risk for developing CHD<sup>9</sup> were found in 72,8% of the males and 78,4% of the females. Males younger than 45 years had a higher prevalence than older males, while rates for females were very similar to those for younger males.<sup>4</sup>

Eating less fat in an attempt to prevent heart attacks was reported by 11,6% of males and 15% of females, while 2,4% of males and 4,5% of females reported the use of more margarine and cooking oil, and 3,6% of males and 3,3% of females had reduced consumption of cholesterol-containing food; 33,6% of the males and 45,1% of females were trying to use less salt and

**TABLE II. PREVALENCE OF HYPERCHOLESTEROLAEMIA, KNOWLEDGE OF THE PRUDENT DIET AND DIETARY CHANGES REPORTED BY A SAMPLE OF THE COLOURED POPULATION OF THE CAPE PENINSULA**

No.	Males*	Females*
% with CHD risk due to serum cholesterol levels <sup>1,7</sup> (%)	478	498
Ate less fat <sup>†</sup> (%)	72,8	78,4
Used more margarine and cooking oil <sup>†</sup> (%)	10,6	15,0
Ate less dietary cholesterol <sup>†</sup> (%)	2,4	4,5
Ate less salt <sup>‡</sup> (%)	3,6	3,3
Ate less sugar <sup>‡</sup> (%)	33,0	45,1
Ate more fibre-rich food <sup>‡</sup> (%)	36,1	46,1
Scored less than 55% for an 11-question test on prudent diet (%)	64,8	69,4
	31,0	36,8

\*Age-standardised against the coloured population of 1985.

<sup>†</sup>Response to indirect questioning.

<sup>‡</sup>Response to direct questioning.

36,1% of males and 46,1% of females less sugar, while 64,8% of males and 69,4% of females had attempted to eat more fibre-rich food during the previous year. In general more older participants than younger ones reported appropriate behaviour.

Participants' knowledge of the prudent diet was rather poor, with 31% of males and 36,8% of females scoring less than 55% on the 11-question test about the diet.

Table III shows the disease pattern related to CHD. Direct questioning revealed that 3% of males and 1,8% of females had CHD. This percentage is in stark contrast to the number of participants identified as suffering from CHD by the London School of Hygiene questionnaire for chest pain;<sup>7</sup> this showed that 13,3% of males and 16,1% of females suffered from CHD.

**TABLE III. DISEASE PATTERNS RELATED TO ATHEROSCLEROSIS IN A SAMPLE OF THE COLOURED POPULATION OF THE CAPE PENINSULA**

No.	Males*	Females*
Angina (direct questioning) (%)	478	498
Myocardial infarction (direct questioning) (%)	2,6	1,5
CHD (direct questioning) <sup>†</sup> (%)	1,2	1,0
Angina (questionnaire) <sup>7</sup> (%)	3,0	1,8
Myocardial infarction (questionnaire) <sup>7</sup> (%)	11,8	14,3
CHD (questionnaire) <sup>7</sup> (%)	2,9	3,7
Hypertension (%)	13,3	16,1
Stroke (%)	7,9	17,0
Diabetes (%)	0,6	0,3
Constipation (%)	2,2	3,2
Hypercholesterolaemia (%)	8,7	26,3
	0,9	0,3

\*Age-standardised against the coloured population of 1985.

<sup>†</sup>CHD present when either angina or myocardial infarction reported by the participant.

While 17,7% of males and 18,1% of females were found to be hypertensive (blood pressure  $\geq 160/95$  mmHg or on treatment for hypertension),<sup>2</sup> only 7,9% of males and 17% of females reported suffering from hypertension. When the actual prevalence of hypertension (determined by blood pressure measurement) is compared with the self-reported medical

**TABLE IV. COMPARISON OF MORTALITY RATES (/100 000/ANNUM) FOR CHD AND CVD IN THE COLOURED AND WHITE POPULATIONS OF THE CAPE PENINSULA — 1981 - 1985**

	Age groups (yrs)						Age standardised*
	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	15 - 64	
<b>CHD</b>							
Coloured males	1,5	10	80	264	624	86,7	145,5
White males	2,5	11	88	299	799	167	176,3
Coloured females	0,7	4	23	102	302	40,3	62,6
White females	1,9	4	16	84	257	53,9	52,6
<b>CVD</b>							
Coloured males	3,6	16	51	155	417	58,5	95,8
White males	1	3,5	17	53	159	32,7	34,3
Coloured females	6,1	14	41	120	326	52	76,1
White females	1,9	7,5	16	44	100	26,7	26,0

\*Age-standardised against an international reference population.<sup>8</sup>

history of hypertension, it is clear that the participants, particularly females aged 25 - 44 years, reported suffering from hypertension more often than was actually the case. Another indication that hypertension is self-reported by persons not actually suffering from the disease is the finding that only 42,6% of male and 69,9% of female diagnosed hypertensives actually reported having the disease. Few participants reported having suffered a stroke or being diabetic. Far more females than males reported suffering from constipation. Only 0,9% of males and 0,3% of females reported that they were hypercholesterolaemic, in contrast to actual findings (Table I).

In Table IV the age-specific CHD (ICD code 410) and CVD (ICD code 430 - 438) MRs for the coloured and the white populations of the Cape Peninsula over the period 1981 - 1985 are compared. CHD MRs were somewhat higher for white males of all ages than for coloureds, but among females older than 34 years CHD MRs for coloureds were higher than those for whites. CVD MRs for both coloured males and females of all ages were higher than those for white males and females.

## Discussion

The fact that the coloured population uses private medical facilities more often than other medical facilities suggests that any intervention programme to reduce CHD in this group should also aim at improving management of CHD by the private medical services. The scarcest commodity of the private practitioner is time, so means to support them in CHD management without making undue demands on their time should be developed.

The Heart Foundation of Southern Africa has initiated the process of developing aids that would support the general practitioner in managing CHD patients with the Cholesterol Control Programme, which provides doctors with guidelines for the diagnosis and management of hypercholesterolaemia.<sup>9</sup> It also provides a guide booklet for the hypercholesterolaemic patient that contains facts on lifestyle modification and diet.

The practitioner could be further assisted if health education services in South Africa are developed; at present they comprise a minor part of all health facilities. Adequate development would link health education services to private medical practices, providing for all the needs of patients.

Results of the CORIS hypertension control study (J. E. Roussouw — unpublished data) have shown that diagnosis, treatment and monitoring of hypertension can be improved in the community if the public has access to free blood pressure monitoring facilities. This includes blood pressure measure-

ments, advice on non-drug management and referral of hypertensives to their doctors for further management. As can be seen from Table I, more than half the participants in the present study had had their blood pressure measured during the preceding year. However, blood pressure control was poor, only 16% of hypertensives having adequately controlled blood pressure (< 160/95 mmHg).<sup>2</sup> Access to facilities such as those tested in the CORIS study for private practitioners' patients would improve the management of hypertension without demanding additional time from the general practitioner. Younger people as well as those who would otherwise not attend medical services could also be persuaded to have their blood pressure measured.

Almost a quarter of male and female participants in the study had attended provincial hospitals during the preceding year. Comparatively few had attended the day care hospital services available in the community. This may suggest that more than necessary use is made of secondary and tertiary hospital facilities in the Cape Peninsula, while primary health care facilities are inadequately utilised. Encouragement of the cost-effective use of primary health care facilities would reduce the unnecessary burdens placed on expensive secondary and tertiary facilities. It should also be kept in mind that more than 20% of respondents (over 30% of people in the 15 - 24-year age group) attended no medical services and were therefore not exposed to health guidance in a medical setting.

After hypercholesterolaemia, smoking is the second most frequently found CHD risk factor among the coloureds of the Cape Peninsula. Giving up smoking is therefore a very important factor in reducing the risk of CHD. The need for good facilities to motivate and assist smokers in their attempts to stop smoking has been identified by the high number of participants who had tried to stop smoking during the preceding year. Very few such facilities are available. Organisations such as the Heart Foundation of Southern Africa, the South African National Cancer Association and the departments of health services should address this need if smoking-associated diseases are to be reduced. Primary health care services should continually alert smokers to the health risks involved.

Table II shows that hypercholesterolaemia was very common in the coloured population, and also reflects that very few participants attempted to alter their diet to protect against heart attacks. Even fewer participants reported appropriate actions for lowering cholesterol. Young subjects were found to be less inclined than older ones to make dietary changes to protect them against heart disease. This may signify a young generation with little care for future health. In addition, participants' knowledge was inadequate for them to make

appropriate choices when purchasing food. The need for nutrition education is therefore also identified as part of an effective CHD prevention programme, particularly if it is considered that the prudent diet recommended for reducing cholesterol is also the diet recommended by the Department of Health Services for all South Africans to ensure optimal health and prevent all diet-related diseases.<sup>10</sup>

In Table II the data gathered by direct and indirect questioning are identified. The rate of 'yes' responses to the direct questions requiring 'yes' or 'no' as an answer was much higher than the response rate to indirect questions where participants were not prompted. This again emphasises the importance of avoiding direct questioning on health matters as far as possible, so that a participant is prevented from answering in the affirmative when the response is perceived as the desired one. The magnitude of this effect may be reflected in the differences in the rates of responses to the direct and indirect questions.

The results of the London School of Hygiene questionnaire in our hands have not proved useful for the coloured population of the Cape Peninsula. Although angina was shown to have marked variability when determined by the questionnaire in the hands of Rose<sup>11</sup> and his co-workers, its results did correlate well with ischaemic changes seen on ECG tracings of patients. Validation of the questionnaire to determine CHD in general and angina in particular seems to be acceptable.<sup>12</sup> But inter-population differences with this questionnaire such as those experienced in this study have also been experienced in other studies.<sup>13,14</sup> In conclusion it would seem unwise to use this questionnaire for the coloured population or any other population in South Africa before it has been validated locally.

The finding that few true hypertensives and a significant number of normotensive participants reported suffering from the disease highlights the need actually to measure the blood pressure to identify hypertension. A history of hypertension is unreliable.

The high frequency of constipation, particularly among females, suggested inadequate intake of dietary fibre. A dietary study showed that this was indeed so, the study participants' mean fibre intake being 13 g/d, while the prudent dietary guidelines suggest an intake of 25 - 30 g/d.<sup>15</sup>

The low reported prevalence of hypercholesterolaemia in a population in which about 75% of the participants were found to be hypercholesterolaemic clearly indicates that this condition is undiagnosed and inadequately managed, and that participants were unaware of suffering from a condition for which a change of diet is needed.

The national CHD MRs (ICD codes 410 - 414) in 1983 were 466/100 000 for white males aged 35 - 74 years and 256/100 000 for coloureds. For white females of the same age the MR was 195/100 000 and for coloureds 136/100 000.<sup>16,17</sup> The proportional mortality from CHD appears to have been on the increase over the period 1968 - 1983.<sup>17</sup> The age-specific CHD MRs reported in Table IV suggest that white and coloured cardiovascular mortality differs much less in the Cape Peninsula than nationally. In the Cape Peninsula the CHD MR for coloureds is rapidly approaching that for whites,

and in fact among females aged 35 years or older the rates for coloureds exceed those for whites.

The disease pattern and the apparently increasing CHD MR in the coloured population, as well as the poor CHD risk profile identified,<sup>1-6</sup> spell out the need for a CHD intervention programme.<sup>18</sup>

Analysis of the CHD health-related behaviour of the coloured population of the Cape Peninsula has identified a range of aspects that need to be addressed if an effective CHD intervention programme is to be established.

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