Decline in the ischaemic heart disease mortality rates of South Africans, 1968-1985

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Summary

The age-adjusted ischaemic heart disease (IHD) mortality rates (MRs) of white, Asian and coloured South Africans aged 35-74 years were studied for the period 1968-1985. Asians have the highest IHD MR in the RSA, followed by whites, coloureds and then blacks. Asian females have much higher rates than females in the other groups, especially in the older age groups. Asian males have noticeably higher rates in the younger age groups. Coloured females aged 35-44 years have a surprisingly high rate. Declines of 36.5% (from 482 to 306/100000) for whites between 1970 and 1985, 27.5% (from 583 to 422/100000) for Asians between 1973 and 1985, and 19.5% (from 287 to 231/100000) for coloureds between 1976 and 1985 were observed. Rates declined among both males and females as well as in all the age groups studied. Trends in IHD MRs for black South Africans were studied for 1978-1985. The MRs for IHD among blacks are very much lower than those for South African Asians, coloureds and whites. The age-adjusted IHD MR for all South Africans was 162/100000 in 1978 and had dropped to 121/100000 in 1985, a 25.3% decline.

There are problems with mortality data for blacks in South Africa. Underreporting is estimated at 44.6%10 and a large proportion (as high as 20%) of registered deaths are classified as being due to 'symptoms, signs and ill-defined conditions'.11 Notwithstanding these problems, it was decided to calculate the South African IHD MR for blacks.

Methods

The annual numbers of deaths of white, Asian and coloured South Africans from IHD between 1968 and 1985, and the annual number of deaths of black South Africans from IHD between 1978 and 1985, were obtained from the Department of Statistics' reports on deaths for the period 1968-1985. Codes 410-414 of the ICD (8th and 9th revisions) were used. The white, Asian and coloured age- and sex-specific populations were obtained from the 1970 and 1980 censuses.14 Population estimates for non-census years were calculated for each race- and sex-specific 5-year age group using the population growth formula.15,16

Population estimates for black South Africans were obtained from the Directorate of Epidemiology, Department of National Health and Population Development; these are calculated from all previous censuses and exclude the populations of the national states. Annual population estimates in 5-year age groups are based on the age percentage breakdown of the 1985 black population census.8 Annual IHD MRs for white, Asian, coloured and black South Africans aged between 35 years and 74 years (men, women and total) were calculated. These rates were age-adjusted, using the direct method, to the white 1970 census population. Ten-year age-specific MRs were also calculated.

Results

Asians (both males and females) were found to have the highest IHD MR in South Africa (Figs 1 and 2).

There have been noticeable declines in the age-adjusted IHD MRs for white, Asian and coloured South Africans aged 35-74 years (Figs 1, 2 and 3). The rate for whites declined by 36.5% (from 482 to 306/100000) between 1970 and 1985, the percentage drop being greater among females (39.0%) than among males (35.5%). The overall MR for whites in this age group declined by 26% over the same period. Among Asians, the IHD MR declined by 27.5% (from 583 to 422/100000) during the period 1973-1985, the decline being greater among females (33.5%) than among males (25.1%). The overall MR for Asians in this age group declined by 26% for the same period. The IHD MR for coloureds declined by 19.5% (from 287 to 231/100000) between 1976 and 1985, the decline being greater among males (20.0%) than among females (18.7%). The overall MR for coloureds in this age group declined by 18% for the same period.

From Fig. 1, which illustrates the age-adjusted IHD MRs for white, Asian and coloured males aged 35-74 years, it is evident that the rates for Asians and whites are markedly higher than those for coloureds. In 1970 the rates for Asians and whites were similar, approximately 700/100000. Since
then they have diverged — the rate for white males declined after peaking in 1970, while that for Asian males increased to plateau in the region of 750/100000 in the early and mid-1970s. The rate for Asian males then peaked in 1979, after which it declined by 25.2% (from 766 to 573/100000) during the remainder of the period studied. From 1970 to 1985 the rate for white males declined by 35.5% (from 702 to 453/100000), the greatest part of the decline (83.1%) occurring from 1976 onwards. Among both Asian and white males the greatest decline occurred in the 35-44-year age group (37.3% and 45.4%, respectively) (Fig. 3).

The trends in the IHD in MR for coloured males have not shown such impressive declines, peaking in 1976 and subsequently declining by 20.0% (from 357 to 286/100000) between 1976 and 1985, with the 35-44-year age group also having the greatest decline (31.2%).

At the age-adjusted IHD MR, demonstrates that during the entire period studied, the rate for Asians females has been noticeably greater than those for white and coloured females.

The rate for Asian females peaked in 1973 (434/100000). A decline of 35.7% (to 279/100000) occurred from 1973 onwards. Between 1979 and 1985 the greatest decline (48.8%) occurred in the 35-44-year age group (Fig. 3). During the entire period studied and in all the 10-year age groups considered (except the 35-44-year age group) Asian females had the highest IHD MR, notwithstanding the declines that have occurred. The large and consistent decline observed in the 35-44-year age group has brought the rate close to that for white females.

The IHD MR for white females peaked in 1970, subsequently declining by 39.0% (from 272 to 166/100000). As in white males, the greatest part of this decline (68.8%) occurred after 1976.

The IHD MR for coloured females remained lower than rates for Asian and white females during most of the period studied, and a decline of 18.7% (from 220 in 1976 to 179/100000) between 1976 and 1985 occurred. Declines were observed in all the coloured female 10-year age groups studied, being largest (40.9%) in the 35-44-year age group; however, this is the only age group in which the IHD MR for coloured females has been much higher than that for both white and Asian females for most of the period subsequent to 1976 (Fig. 3).

Problems with the accuracy of mortality data for South African blacks, combined with the fact that the number of blacks who die of IHD is small, precludes detailed analysis of IHD MR trends in this group. From Fig. 4 it is evident that black males have a higher IHD MR (in the region of 25/100000) than black females (15/100000).

The age-adjusted IHD MR for all South Africans was 162/100000 in 1978 and had dropped to 121/100000 in 1985, a 25.3% decline.

**Discussion**

Significant decreases in the IHD MRs for Asian, coloured and white South Africans have been recognised. This is consistent with the experience in other Western countries.

Any attempt to analyse declines in MRs must take two important features of disease into consideration: disease incidence and the case-fatality ratio. A decrease in the former suggests that primary prevention is having a positive effect, whereas a decrease in the case-fatality ratio may be the result of improvements in the treatment of the disease.

It is unfortunate that so few data are available on the incidence of IHD. To provide more information on incidence trends, the World Health Organization is at present co-ordinating the monitoring of cardiovascular disease incidence and risk factor level trends in 40 countries, the MONICA survey.

Changes in lifestyle leading to reduced levels of IHD risk factors have been linked to the declining IHD MR seen in many Western countries. Significant decreases in smoking and consumption of dairy products, increased physical activity and improved hypertension control, have been cited.

The prevalence of smoking in South African white, Asian and coloured males, as well as that in coloured females, decreased from the mid-1970s to 1982. The percentages of white and Asian female smokers, however, increased during this period.

Data on the prevalence trends of other IHD risk factors in the RSA are scarce, although the major reversible risk factors, namely smoking, hypertension, hypercholesterolaemia and diabetes mellitus, as well as minor factors such as inactivity, obesity, hyperuricaemia and coronary-prone behaviour, have been shown to be common in South African communities. Much has been written about the high prevalence of familial hypercholesterolaemia in Afrikaans-speaking populations in the RSA. Smoking, hypertension and diabetes mellitus are prevalent in the Indian community.

Intervention programmes have been introduced with the aim of decreasing the incidence of IHD in many countries. Altering lifestyles through whole-population intervention, and specific intervention with identified high-risk individuals, are complementary strategies for reducing the risk of IHD.

Despite the paucity of data available on the effects of intervention programmes in the RSA, there have been vigorous media campaigns publicising the advantages of reduced IHD risk factor levels.
Fig. 3. Age-specific IHD MRs for South African males and females aged 35-74 years, 1968-1985.
The IHD MR for blacks in the RSA is low in contrast with that for blacks in the USA, where blacks under 50 years of age have higher rates than their white counterparts. Differences in urbanisation have been postulated, but the reasons remain obscure.

The evidence linking these risk factor changes to the changing IHD MR in the RSA is largely circumstantial, and further research is necessary to document a connection between risk factor modification and the decline in the incidence of IHD definitively. The CORIS, VIGHOR and CRISIC studies being undertaken at present are addressing these issues.

Factors other than changes in lifestyle must be considered when discussing the decreased IHD MR in this country. Improved medical care has led to a reduced case fatality ratio from myocardial infarction or chronic IHD. The necessary procedures should be implemented to prevent, as far as possible, the targeting of high-risk groups or individuals. The necessary procedures should be implemented to prevent, as far as possible, the targeting of high-risk groups or individuals. The

Conclusion
The decline in IHD MRs observed in the RSA is consistent across the race, age and sex groups. Emphasis should be placed on the need for continuing risk factor intervention programmes aimed at the whole population, as well as identifying high-risk groups or individuals. The necessary procedures should be implemented to prevent, as far as possible, the development of IHD in such groups.

REFERENCES