

## Healthy Hearts: A student-led heart-health initiative

**To the Editor:** Non-communicable diseases (NCDs) are responsible for 73% of deaths worldwide, of which cardiovascular disease (CVD) accounts for the majority. More than half of deaths due to NCDs are thought to be caused by 4 risk factors: elevated blood pressure, smoking, high glucose levels and high body mass index (BMI).<sup>[1,2]</sup>

In South Africa (SA), CVD is a growing public health concern, as it constitutes the second leading cause of mortality, accounting for 18.5% of deaths.<sup>[3]</sup> Amidst the epidemiological health transition, the change in CVD profile is driven largely by population-wide changes in demographic and socioeconomic status, and associated changes in lifestyle habits.<sup>[4,5]</sup>

One of the major drivers of premature myocardial infarction and stroke in SA is the low level of awareness among the general population regarding personal risk factors for CVD. The South African National Health and Nutrition Examination Survey (SANHANES) demonstrated a poor understanding of healthy nutrition, with a marked discrepancy between formal and informal urban populations.<sup>[6]</sup> Nkosi and Wright<sup>[7]</sup> assessed the knowledge of hypertension among adults attending clinics in Ga-Rankuwa township (north of Pretoria). The investigators identified a lack of knowledge regarding nutrition, treatment of hypertension and complications of hypertension. A low proportion of South Africans with hypertension, diabetes, dyslipidaemia and obesity: (i) are aware that they have these disorders; (ii) know that the possible complications of these conditions include myocardial infarction, stroke and heart failure; and (iii) undertake appropriate lifestyle or pharmacological interventions to treat the disorders and reduce their risk of adverse cardiovascular events.

Consequently, Healthy Hearts was launched by the University of Cape Town Cardiac Society. The society is a student-run organisation that aims to further its members' interests, knowledge and clinical skills in cardiology. The society organises events and discussions focusing on a wide range of topical issues, and senior students host clinical skills and informative workshops for junior students. Healthy Hearts is the society's social responsive initiative, with the primary objective of raising cardiovascular disease awareness among students and the lay public, as well as screening for cardiovascular risk factors in ambulant, asymptomatic members of the public. Healthy Hearts also educates the public about the importance of a healthy lifestyle, and exposes students to cardiovascular screening and health promotion.

Between January 2016 and December 2017, three Healthy Hearts events were held at St Peter's Square, Cape Town.

Before these events, senior students ran workshops for preclinical students, who were taught how to take a history using a template, measure blood pressure manually, perform finger-prick glucose tests, measure waist circumference and calculate BMI. They were also taught how to identify high-risk patients and to educate and counsel on lifestyle modifications. At-risk patients, newly diagnosed or poorly controlled diabetics and hypertensive patients were referred to their local health clinics for further interventions.

Screening services were offered to all members of the public. Those interested in participating in the study were asked to provide written, witnessed informed consent. Approval for the survey was obtained from the University of Cape Town's Faculty of Health Sciences Human Research Ethics Committee (ref. no. HREC REF: 312/2016UCT). The study was performed in line with the principles of the Helsinki Declaration.

Students proceeded to take a brief, structured history (in which participants were asked about their smoking, alcohol use, and prior

diagnosis of hypertension, diabetes and dyslipidaemia), BMI was calculated, abdominal circumference was measured and a finger-prick glucose test was performed. Two manual blood pressure readings were taken after at least 5 minutes of sitting, complemented by an automated blood pressure reading, which was used as a reference guide. Individuals with abnormal findings, and those who required further information about living a healthier lifestyle, were referred to their local clinic.

## Results

Over 2 years, we hosted three events, which attracted 194 participants between the ages of 18 and 80 years. Eighty-nine (45%) participants smoked (previously or currently), of whom 49 (69%) had attempted to stop and 55% had started before the age of 18 years. Almost a fifth (17%) engaged in excessive or binge drinking within the month before their screening. Only 28 (14%) participants exercised for at least 30 minutes per day for 5 days a week, and 10 (5%) ate at least 5 portions of fruit and vegetables a day (as per World Health Organization recommendations).

Alarming, 68 (35%) participants were obese (BMI >30 kg/m<sup>2</sup>), and obesity was more commonly observed in women than in men (44% v. 26%). The students also identified 43 (22%) participants with elevated blood pressure, of whom 19 had not previously been diagnosed with hypertension. Nine participants were found to have an elevated random glucose level, of whom 2 were unaware of their diabetes.

## Lessons and conclusions

In this small cross-sectional community-level study, the prevalence of cardiovascular risk factors was high. The project demonstrated how efforts outside the hospital can successfully facilitate access to pathways of care. In addition, the Healthy Hearts project is an excellent learning opportunity for medical students outside the classroom, and provides an opportunity for younger, preclinical students to contribute to society.

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**Author contributions.** AS, CAV, MN and NABN developed the study protocol; AS, MI and MK collected and analysed the data and wrote the manuscript; CAV, MN and NABN contributed to reviewing and editing the manuscript.

**Conflicts of interest.** None.

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