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Article

Category

Researchers/Clinicians - Early, mid & senior career

Science Theme

Population

Abstract Title

The association between raised blood pressure and self-reported dietary behaviour in selected community-based health screenings in South Africa

English Abstract

Introduction:

Hypertension affects 10.8 million South African adults aged 30-79, but only 54% are diagnosed, and only 24% have controlled blood pressure (BP) according to the World Health Organisation. The burden remains high, driven by risk factors such as excessive salt, sugar and other dietary factors, chronic stress, obesity, socioeconomic inequalities, and limited access to healthcare. Raised BP is a major contributor to heart disease and strokes in South Africa, yet it often remains undetected and poorly managed post diagnosis. Given this context, the Heart and Stroke Foundation South Africa (HSFSA) conducts community BP screening to improve early hypertension detection. Using HSFSA community outreach programme data, the aim of this cross-sectional study was to examine the association between raised blood pressure and self-reported dietary risk behaviours.

Methods:

The HSFSA screened 3740 adults in selected communities across the Western Cape, KwaZulu-Natal, Eastern Cape, and Gauteng provinces between 2023 and 2025. Nurses collected health measurement data and self-report dietary data using a self-administered questionnaire developed by scientists and HSFSA's healthcare professionals. The questionnaire was administered in English, and nurses assisted with interpreting questions for participants with limited English proficiency. Data was collected electronically using the Kobo Collect app on mobile devices and uploaded automatically to a secure cloud server at the end of each day. The ethical procedures for consenting, anonymity and data storage were followed. Access to the securely stored data is restricted to the project lead. Measures taken include: weight, height, Body Mass Index (BMI), and blood pressure. The final BP reading was the average of two readings. Participants self-reported their dietary intake with respect to salt, sugar, and fat categorized as low, normal, or high, and fruit and vegetable consumption reported as every day, twice a week, or more than 3 times a week. Hypertension was defined per the current SA Hypertension Society Guidelines (2019), as systolic blood pressure ≥ 140 mmHg, diastolic blood pressure ≥ 90 mmHg, or use of antihypertensive medication. Raised BP was classified as high-normal >130 – $139/80$ – 89 mmHg. Those with raised BP received counselling and referred to a health facility. Descriptive data analysis was conducted and chi-square was used for the correlational analysis.

Results:

The sample size = 3740. Females made up 63.5% and males, 36.5%, with a mean age of 47.1 years ($SD=17.36$). Raised BP ($BP \geq 130/80$ mmHg) was detected in 1246 (34.3 %) % of adults. High salt intake was reported in 15% of those with raised BP. Those with raised BP also reported high sugar intake (21.4%); high fat intake (21.5%) and 13% with fruit and vegetable intake. Correlational Analysis showed that 17.9% of participants with raised BP reported high salt intake, compared with 13.8% of those with normal BP ($p = 0.001$).

Conclusion:

Our community screening findings highlight the importance of dietary behaviours in hypertension burden within the SA population. Chi-square test revealed a statistically significant association between raised BP and self-reported high salt intake, which together with other poor dietary patterns underscores a need for targeted public health and clinical strategies focused on changing dietary behaviour. Strengthening nutrition education and policies to promote lower sodium intake and healthier diets may be key to reducing hypertension prevalence and its long-term health complications.

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Article

Category

Researchers/Clinicians - Early, mid & senior career

Science Theme

Basic

Abstract Title

Characterisation of hemodynamic and target-organ health profiles among young women by hormonal contraceptive use status

English Abstract

Background:

Hormonal contraceptive use is highly prevalent among young women, yet its potential impact on hemodynamic measures and early target-organ changes remains incompletely understood. Existing data on cardiovascular risk related to hormonal contraception are mainly derived from older, mixed-risk populations while detailed phenotypes in young, normotensive women remain limited especially from the South Africa where there is a growing burden of hypertension and high rates of progestin-only and combination hormonal contraceptives. Whether hormonal contraceptive use (progestin-only and combination) are associated with adverse hemodynamic and target-organ health profiles apparently healthy women is therefore an important, yet underexplored, question. In young, normotensive women, we aimed to compare hemodynamic (blood pressure and pulse wave velocity) and target-organ health measures (kidney function as well as cardiac structure and function) between users of progestin-only or combination hormonal contraceptive and non-users.

Methods:

We measured blood pressure using office and 24-hour ambulatory blood pressure monitoring while echocardiography was performed to determine measures of cardiac function and structure. The chronic kidney disease epidemiology collaboration (CKD-EPI) creatinine-cystatin C formula was used to calculate estimated glomerular filtration rate. Furthermore, albumin and creatinine were measured in urine to calculate urine albumin-to-creatinine ratio. Stratification of hormonal contraceptive use status (Progestin-only; combination; non-users) was based on self-reported data acquired with the general health questionnaire.

Results:

Compared with non-users, progestin-only users had higher night-time blood pressure as well as greater relative wall thickness, left atrial volume index, and stroke volume index (all $p \leq 0.041$). Combination users demonstrated elevated 24-hour diastolic blood pressure as well as higher estimated glomerular filtration rate, stroke volume index and left ventricular ejection fraction (all $p \leq 0.025$).

Conclusion:

In this cohort of young, normotensive women, the use of hormonal contraception was associated with significant differences in hemodynamics and target-organ indices compared with non-use. Progestin-only users displayed higher night-time blood pressure and echocardiographic markers consistent with early concentric remodeling and atrial enlargement, whereas combination users showed higher 24-hour blood pressure, higher estimated glomerular filtration rate, and augmented indices of systolic function and stroke volume. Together, these findings suggest that both progestin-only and combination hormonal contraceptives may be associated with cardiovascular and kidney physiology even in apparently healthy young women.

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