

High cholesterol and insulin resistance are rising among young people in South Africa

New research findings in Limpopo show dangerous diseases are appearing in life earlier than expected

THEMBA TITUS SIGUDU
THE CONVERSATION

In a small mining town in South Africa's Limpopo province, young people are showing worrying signs of diseases that were once thought to affect only older adults. These include type 2 diabetes, high blood pressure, high cholesterol, obesity and insulin resistance. This is not unique to Limpopo or South Africa. It reflects a global trend, where young adults in many low- and middle-income countries are increasingly experiencing early-onset metabolic diseases due to rapid urbanisation, lifestyle changes, unhealthy diets and reduced physical activity.

World Health Organization says non-communicable diseases account for 75 per cent of all non-pandemic-related deaths globally. Also, 82 per cent of premature deaths before age 70 occur in low- and middle-income countries.

I'm a public health researcher specialising in epidemiology, metabolic health, infectious diseases and environmental health. My colleagues and I conducted a study in the town of Lephalale and found that many young adults there have abnormal cholesterol levels. They have reduced sensitivity to insulin, a condition known as insulin resistance. Both are key risk factors for type 2 diabetes and heart disease.

Our findings suggest that these health problems are appearing much earlier in life than expected. This is particularly concerning in communities undergoing rapid social and economic change, where access to health services and screening programmes remains limited.

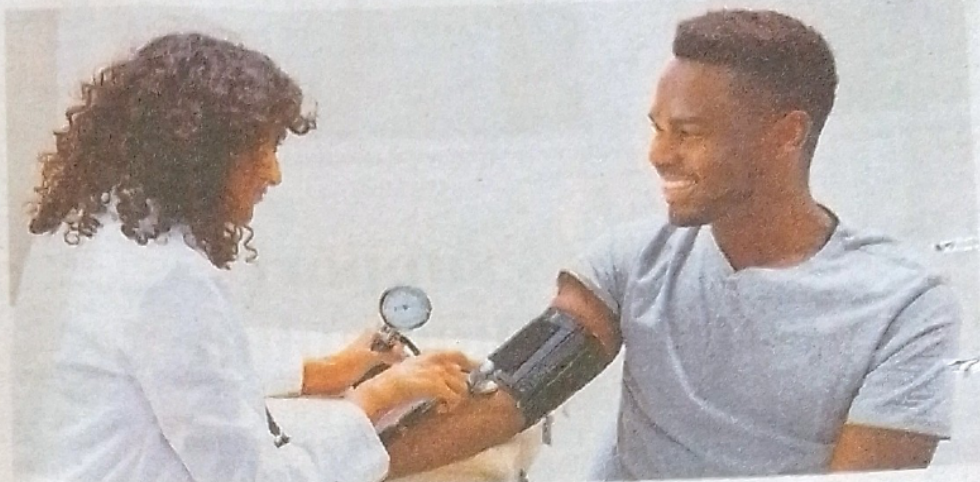
New jobs, new lifestyles

Lephalale, formerly known as Ellisras, offers a window into these transitions. Once a quiet rural area in the north of South Africa, it has changed rapidly over the past two decades. It is now the site of expanding mining and industrial activities, driven by the expansion of coal mining operations and the development of power stations.

This industrial growth has attracted thousands of workers from surrounding provinces and neighbouring countries, bringing new economic opportunities. It is also reshaping daily life. Increasingly, residents are doing sedentary work and eating energy-dense diets, including fast food. These lifestyle transitions make Lephalale a key setting for studying emerging health risks in young adults. Long hours sitting at work and reduced physical activity create fertile ground for metabolic disorders. When people eat more processed, high-fat, high-sugar foods and move less, the body begins storing excess energy as fat.

Over time, this can lead to weight gain, elevated blood glucose and abnormal cholesterol levels. These changes make it harder for the body to regulate insulin, causing insulin resistance, the first step towards type 2 diabetes. Also, inactivity and poor diet increase unhealthy cholesterol and triglycerides (types of fat in the blood), raising the risk of heart disease. In rapidly transitioning communities, these health shifts can happen quickly.

Non-communicable diseases such as diabetes, hypertension and heart disease are now among the leading causes of death in South Africa. In 2020, diabetes was reported to be the second biggest underlying cause of death in South Africa, accounting for 6.6 per cent of all deaths. We examined 781 young adults aged 18 to 29 years living in Lephalale as part of a long-running study. We have been tracking health patterns in this



community since 1992. Participants provided fasting blood samples that were analysed for glucose, insulin and cholesterol levels. We grouped them into diabetic and non-diabetic categories based on clinical definitions used by the American Diabetes Association.

The results were striking

Diabetic participants had significantly higher total cholesterol, low-density lipoprotein (the "bad" cholesterol) and triglycerides, and lower levels of high-density lipoprotein (the "good" cholesterol) than their non-diabetic peers.

Over half (52.7 per cent) of the diabetic group had high total cholesterol, compared with 23 per cent of non-diabetic participants. Insulin resistance, when the body needs more insulin to manage blood sugar, was also much higher among diabetics. Even some non-diabetic participants showed early signs of these metabolic changes.

Unhealthy cholesterol patterns and

A doctor checks a patient's blood pressure. Cases of early onset of metabolic diseases have been reported among young people in Limpopo province, South Africa.

poor insulin sensitivity tend to occur together, each making the other worse. This combination sets the stage for early heart disease, stroke and diabetes.

Most public-health strategies focus on older adults because that's when chronic diseases usually become visible.

But our research adds to growing evidence that the seeds of non-communicable diseases are planted early, often in young adulthood or even adolescence.

Young adults in rural or semi-urban areas may seem healthy, yet many are already developing risks due to diet changes, stress and limited exercise opportunities. The modernisation of small towns, while positive economically, brings hidden health costs.

Without early detection, these individuals may enter middle age already carrying high risk of health problems. This will put pressure on health systems that are already stretched.

What makes this community unique? Lephalale may be changing, but it still lacks many of the urban services, infrastructure and health resources found in South Africa's big cities.

Health resources are scarce, and screening for cholesterol or insulin resistance is rare. Public clinics focus on infectious diseases such as HIV or tuberculosis. Silent metabolic disorders go unnoticed until symptoms appear.

Our study shows that rapid industrialisation without parallel investment in public-health education and preventive services risks creating a generation of young adults who are chronically unwell by their thirties.

NEW HEALTH TREND IS WORRYING

The situation in Limpopo is a reflection a global trend, where young adults in many low- and middle-income countries are increasingly experiencing early-onset metabolic diseases due to rapid urbanisation, lifestyle changes, unhealthy diets and reduced physical activity. Non-communicable diseases now account for 75 per cent of all non-pandemic-related deaths globally, according to the World Health Organization. According to the latests study, these some of these diseases are appearing much earlier in life than expected, thereby causing great concern among stakeholders, including local communities.