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Peri-urban Cape Town youth with HIV face social challenges contributing to increased risk of obesity

More than two fifths (41%) of adolescents and youth living with HIV (AYLHIV) across peri-urban Cape Town were found to have abdominal obesity, compared to rates for young people in the general South African population (13.7–22.1%). Various factors ranging from the food and built environment, community, family and individual level factors were found to be associated with abdominal obesity in this population.

These are the findings of a recent paper published in the international peer-review journal, *PLOS ONE*.

Titled "*Multilevel correlates of abdominal obesity in adolescents and youth living with HIV in peri-urban Cape Town, South Africa*", the research was conducted by the Research Initiative for Cities Health and Equity (RICHE), and the Division of Public Health Medicine in the School of Public Health and Family Medicine at the University of Cape Town (UCT) in collaboration with the Desmond Tutu HIV Centre at UCT's Institute of Infectious Disease & Molecular Medicine, and the Medical Research Council Epidemiology Unit at the University of Cambridge, United Kingdom.

In 2019, AYLHIV aged 15–24 years attending primary healthcare facilities in peri-urban Cape Town (across all four sub-districts in the Cape Metro) were enrolled in a cross-sectional study. The study used multilevel modelling to investigate factors associated with abdominal obesity (defined as a waist-to-height ratio ≥ 0.5). Although body mass index (BMI) is the most widely used population-level measure of obesity, it may not correspond with body fat percentage in populations like people living with HIV. Using measures of abdominal obesity, such as waist-to-height ratio, may be more effective in detecting changes in body composition related to changes in medication and immunosuppression in this patient group compared to BMI, thus providing a better indication of those at increased risk for cardiometabolic issues.

Lead study investigator, Dr Monika Kamkuemah, said: "Non-communicable diseases are a major problem faced by people living with HIV. In previous work conducted in people living with HIV receiving antiretroviral therapy in Khayelitsha, a high prevalence of comorbid hypertension and diabetes (19.7% and 12.3% respectively) was found. Obesity is a major contributor to non-communicable diseases and people living with HIV face an elevated risk

of obesity. But there is little data on the intersection of obesity and HIV in adolescents and youth with HIV."

Obesity rates have increased globally, particularly in Africa. Coupled with the HIV pandemic in South Africa is the syndemic of obesity: South Africa has the highest prevalence of overweight/obesity in Africa, with up to 70% of women and 33% of men classified as overweight or obese.

Rising obesity is linked to increasing urbanisation and its associated effects, such as a decrease in physical activity at work, a decrease in active forms of transportation, a reduction in energy expenditure during leisure time, and an increase in the consumption of processed and refined foods. In addition, environmental factors such as neighbourhood walkability, air quality, access to recreational areas, and the availability of pedestrian infrastructure impact an individual's willingness and ability to engage in physical activity safely.

In addition to individual factors such as consuming whole grains and engaging in weekly physical activity, which were linked to a lower likelihood of abdominal obesity, a higher anticipated stigma was found to be associated with a reduced risk of obesity. However, the analysis did not uncover any significant correlations between obesity and daily consumption of unhealthy foods, sugar-sweetened beverages, or food consumed outside the home in both crude and multilevel analyses.

"This suggests that dietary intake, although a proximate factor that varies on an individual level, may have a cumulative impact on obesity risk that requires further investigation over the life course. It is also worth mentioning that there were no differences in nutritional knowledge between those with and without obesity, which is a factor commonly targeted by intervention programs," said Kamkuemah.

Many factors influencing weight are beyond an individual's control. By adopting a multidisciplinary approach that considers factors like walkability of their neighbourhoods, thermal comfort at home, and the influence of social capital, the researchers explored an added layer: the ways that food and built environments shape individual behaviour. Striking findings were that experiencing thermal discomfort at home in autumn or spring was associated with increased risk of abdominal obesity.

Factors like having a variety of different types of land uses in the vicinity, including residential, commercial, industrial, and open spaces, access to recreational places, higher perceived pedestrian and traffic safety and having a non-fast-food restaurant within walking distance were associated with a lower likelihood of abdominal obesity.

Professor Tolu Oni, co-author and director of the Global Diet and Activity Research Group at the University of Cambridge, asserts: "Urban design is decided long before an individual's choice to go running. As health practitioners, we can't "prescribe" health without taking people's environments into account."

Dr Keren Middelkoop, co-investigator and lead clinical researcher at the Desmond Tutu HIV Centre, commented: "Although this work focussed on AYLHIV in a middle-income context, obesity continues to increase globally. We recommend that more research be conducted in

similar settings to generate contextually relevant evidence to effectively turn the tide of the obesity epidemic in rapidly urbanising low- and middle-income countries."

The researchers call for an intersectoral approach to obesity prevention, intervening at multiple levels especially at the critical life stage of adolescence. Important areas for further research include the role of housing quality (e.g. thermal discomfort and context of informality), social norms and community perceptions on diet and weight, food availability and urban design.

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