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Study reveals large regional variations on future trends of diabetes dependent on if obesity rates are tackled

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New research presented at this year's annual meeting of the European Association for the Study of Diabetes (EASD) in Berlin looks into the rising prevalence of both obesity and type 2 diabetes (T2D) around the world and estimates the population that will likely be affected by both conditions over the coming decades.

The research conducted by University College London, Steno Diabetes Centre Copenhagen and Novo Nordisk, studied past trends as a guide to predicting the regional prevalence of obesity and T2D from 2017 to 2045. The study was commissioned by Cities Changing Diabetes, a partnership programme established to improve the understanding of diabetes in urban settings.

Around the world, obesity and T2D are rising at an alarming rate, and while T2D is a complex condition influenced by multiple diverse factors, the one that is most significant, and also modifiable, is excess bodyweight.

There are currently around 650 million obese people around the world, and more than 400 million individuals living with diabetes. In support of the World Health Organization (WHO) Global Target 7 "Halt the rise in diabetes and obesity", the authors have previously demonstrated that stabilising the number of people living with diabetes at 10% of the world's population will require a 25% reduction in the prevalence of

obesity. Should this be achieved, a staggering 111 million cases of diabetes would be prevented.

In this study, the team have produced two sets of predictions, one based on a past trend scenario in which rates of obesity and T2D follow existing trends and continue to rise, and another target scenario which assumes that the goal of reducing obesity prevalence by 25% by 2045 is achieved.

The authors obtained BMI data for all the countries in the world covering the years 2000 to 2014 from the Non-communicable Disease Risk Factor Collaboration. The adult population of each country was then split into groups by age and body mass index (BMI), and a projection of the share of people in each BMI class was calculated based on the past trend and the target scenario of reduced obesity. The risk of developing T2D at different ages and BMIs were then applied to the data to estimate diabetes prevalence for each country and scenario in 2045. (for individual country info, please contact the authors details below)

The study found that the North America and Caribbean region has the highest current rates of obesity and T2D (35.7% and 13.2% respectively), and will continue to do so in 2045 in both past trend (51.5% and 16.8%) and target scenario (26.8% and 13.1%) outcomes. If the target scenario can be achieved, it will result in 15.3 million fewer people in the region developing diabetes than if the past trend continues.

Currently the lowest rates of T2D are found in Africa with just 3.3% of the population having the disease, despite a moderate obesity rate of 9.0%. This pattern is projected to continue to 2045 in both past trend (16.4% obesity rate, 4.2% T2D rate), and target (6.4% and 3.5% respectively) scenarios. The authors estimate that 7.2 million people in Africa could avoid acquiring T2D if obesity prevalence can be reduced by 25% by 2045.

In South-East Asia, the pattern is reversed, with the lowest current regional obesity rate of just 4.0% despite a relatively high prevalence of T2D (8.7%). The study suggests that this trend will also continue through to 2045 resulting in past trend (7.9% obesity rate, 12.0% T2D rate) and target (3.1% and 10.7% respectively) scenarios in which achieving the goal of a reduced obesity rate would result in 17.1 million fewer cases of T2D.

The authors note that the proportion of people with T2D who are also obese differs substantially among regions. In North America and the Caribbean 60% of individuals with T2D are obese, while the figure in South-East Asia is just 10%.

The authors say: "North America and the Caribbean and Europe where obesity has been on the rise for decades have the highest T2D prevalence but also the slowest future increases."

They add: "In regions with lower T2D prevalence like Africa, the number of people with T2D will increase up to three-fold in the coming three decades unless obesity prevalence is reduced."

They conclude: "To realise the target scenario, health should be integrated into all policies in order to contribute to reduce the obesity and T2D burden. Not doing so represents a lost opportunity to improve people's health, well-being and economic productivity."

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