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Longest study of its kind reveals how gender-affirming hormone therapies impact obesity among transgender individuals

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Gender-affirming hormone therapy is the bedrock of medical therapy for many transgender and gender diverse individuals. Some adult transgender individuals decide with their health care provider to start hormone therapy—testosterone for transmasculine people and generally a combination of estrogen and antiandrogens for transfeminine people—specifically for the physical and psychological effects these hormones produce, including changes to the voice, skin, facial and body hair and body composition. However, in the context of the global obesity epidemic, little is known about obesity rates and weight changes in adults treated with gender-affirming hormone therapy.

In a new study published in the *International Journal of Obesity*, researchers led by Michael S. Irwig, MD, an endocrinologist at Beth Israel Deaconess Medical Center (BIDMC), conducted the largest and longest observational study to date, using multiple body weight measurements among a racially and ethnically diverse population of gender diverse individuals treated at an academic medical center and non-profit community health center in Washington, D.C. The findings suggest that transgender patients taking gender-affirming hormone therapy should be monitored for changes in body weight, body mass index and for complications that may accompany high body weight, such as cardiovascular disease.

"Our study is the first to describe the associations between gender-

affirming hormone therapy and body weight changes for at least 2 years, and to compare the rates of underweight, normal weight, overweight, obesity and severe obesity using measurements taken before and after hormone treatment," said Irwig, director of Transgender Medicine at BIDMC. "Because high body weight and obesity are so common in our society, clinicians may forget to address this important issue with their patients and miss opportunities to lower their risk for cardiovascular disease and cancer."

In a longitudinal study following 470 transgender and gender diverse individuals, Irwig and colleagues recorded patients' baseline body weight and body mass index (BMI) upon initiation of gender-affirming hormone treatment and monitored participants' weight and BMI at follow-up clinical visits for up to 57 months, or nearly five years. Among the transmasculine group, mean body weight increased by 2.35 kilograms (kg) or more than 5 pounds within two to four months of starting gender-affirming hormone therapy, and weight continued to increase beyond 34 months. Before initiating hormone therapy, 39 percent of transmasculine participants were obese—on par with the general population in the United States. That figure that climbed to 42 to 52 percent after treatment began.

Among the transfeminine group, mean body weight remained stable for nearly two years after initiating gender-affirming hormone therapy, and then began to increase—particularly in those younger than 30 years old. At baseline, 25 percent of individuals in this group met the definition for obesity, a rate that did not change significantly within the first year of gender-affirming hormone therapy. However, the researchers did observe an increase in body weight in transfeminine people undergoing gender-affirming hormone therapy beyond 12 months.

"The weight gain in transmasculine individuals is consistent with previous studies, and testosterone is the most likely reason for the weight

gain, as it occurred so soon after initiating therapy," said Irwig. "Among transfeminine individuals, the onset of weight gain so long after initiating therapy indicates that gender-affirming hormone therapy is playing less of a role in weight gain."

More research is needed to identify other factors that contribute to weight gain and obesity, Irwig said, as well as to evaluate weight gain and obesity rates among larger numbers of transgender individuals from different racial and ethnic backgrounds, and to compare weight changes linked to different formulations of estrogen and testosterone. Additionally, more long-term studies are needed to see how hormone-associated weight changes may affect clinical outcomes such as heart disease and cancer in transgender individuals undergoing gender-affirming hormone therapy.

More information: M. Kyinn et al, Weight gain and obesity rates in transgender and gender-diverse adults before and during hormone therapy, *International Journal of Obesity* (2021). DOI: 10.1038/s41366-021-00935-x

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