Pediatric obesity is a complex condition with multiple subtypes

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Large EHR datasets represent valuable sources of data for clinical researchers to study numerous conditions including pediatric obesity. Credit: Pavel Danilyuk, Pexels (CC0, creativecommons.org/publicdomain/zero/1.0/)

Approximately one third of children in the United States are overweight

or obese. A study publishing August 4th in *PLOS Digital Health* by Elizabeth Campbell at Drexel University, Philadelphia, Pennsylvania, United States, and colleagues suggests that childhood obesity may be associated with an array of underlying medical conditions.

Childhood obesity is linked with an increased risk of developing multiple comorbidities including asthma, diabetes, hypertension, and psychological conditions. However, whether obesity is a single condition or is composed of unique phenotypes with different underlying causes is unknown. To identify clinically similar subtypes among a population of obese pediatric patients, researchers conducted a retrospective cohort study, accessing the electronic health records of 49,694 pediatric patients of Children's Hospital of Philadelphia diagnosed with obesity. Using a pattern mining algorithm, the authors analyzed common condition trajectories surrounding pediatric obesity incidence and compared them to a control group with healthy body mass index.

The researchers found eight classes of health conditions that were highly prevalent among children diagnosed with pediatric obesity, including respiratory and sleep disorders, inflammatory skin conditions, asthma, seizure disorders, gastrointestinal/genitourinary symptoms, and neurodevelopmental disorders. The study had several limitations, however, including the potential for false discovery rate, as well as an arbitrary 10% prevalence threshold for classifying "high prevalence" conditions. Future studies are needed to pinpoint the factors mediating the associations between pediatric obesity and the co-prevalent illnesses identified in the study.

According to the authors, "Obesity is a complex and socially significant health issue that may affect different clinical and demographic subtypes of pediatric patients differently. Grouping all types of overweight and obesity into one clinical condition may conceal associations between risk factors and specific subtypes of obesity, which has implications for

improving prevention, recognition, and treatment of pediatric obesity. Our findings can support the work of public health researchers and practitioners who seek to address the social disparities component of the obesity epidemic."

Campbell adds, "Electronic Health Records represent valuable sources of data for use in research to investigate pediatric obesity and other pressing health issues. We hope that our findings not only add to ongoing work that is combatting the obesity epidemic, but to methodological advances in using large complex datasets in clinical research."

  More information: Campbell EA, Maltenfort MG, Shults J, Forrest CB, Masino AJ (2022) Characterizing clinical pediatric obesity subtypes using electronic health record data, *PLOS Digital Health* (2022). DOI: 10.1371/journal.pdig.0000073

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