Social determinants of health associated with increased rates of obesity

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Cumulative social disadvantage, as denoted by higher social determinants of health (SDOH) burden, is associated with a higher likelihood of obesity independent of clinical and demographic factors,

according to a new study in *Obesity*. The population-based study is the first to examine this hypothesized association in a nationally representative sample of adults in the United States.

"In general, contemporary care models for cardiovascular disease do not provide opportunities to holistically assess patients' social burden. In turn, this compromises quality of care and worsens health inequities," said Khurram Nasir, MD, MPH, MSc, Division of Cardiovascular Prevention and Wellness, Houston Methodist DeBakey Heart and Vascular Center in Texas. Nasir is the corresponding author of the study.

Nasir added "our findings call on healthcare providers and policymakers to develop novel care delivery models that allow for greater assessment of SDOH to inform patient care, and prioritize socially vulnerable populations in cardiovascular prevention programs for greatest population health benefits. Strong political will and partnerships between health systems and community stakeholders are needed to identify and address unfavorable SDOH, and alleviate the burden of obesity in underserved communities."

Researchers explain that limited empirical data have suggested correlations between individual SDOH such as education, income, neighborhood and food environment, and obesity. However, the SDOH-obesity link has not been examined from an upstream, cumulative social disadvantage standpoint.

Data from nearly 165,000 adults aged 18 or older were used from the 2013–2017 National Health Interview Survey, a cross-sectional household interview questionnaire conducted annually by the National Center for Health Statistics under the auspices of the Centers for Disease Control and Prevention. Overweight was defined as 25 with less than a body mass index (BMI) of 30 while obesity was defined as a BMI of greater than or equal to 30. Obesity was further categorized into three

classes (obesity class 1 and 2, 30 kg/m^2 BMI greater than 40) and obesity class 3 (BMI equal to or a greater than 40) to further examine the association of SDOH and different levels of obesity.

To operationalize the SDOH framework, researchers adapted a model by the Kaiser Family Foundation. Individual SDOH were grouped into six domains, including economic stability; neighborhood, physical environment and social cohesion; community and social context; food; education and health care system. A total of 38 SDOH were aggregated to create a cumulative SDOH score, which was divided into four quartiles to denote levels of SDOH burden. Prevalence of overweight and obesity were studied across SDOH quartiles in the total population and by age, sex and race/ethnicity. Multinomial logistic regression models were used to analyze the association between SDOH quartiles and overweight/obesity, adjusting for relevant covariates.

Results showed that there was a graded increase in obesity prevalence with increasing SDOH burden. At nearly each quartile, overweight and obesity rates were higher for middle aged and non-Hispanic Black adults compared to their White counterparts, additional differences were observed by sex. In fully adjusted models, quartile four of SDOH was associated with 15%, 50% and 70% higher relative prevalence of overweight, obesity class 1 and 2, and obesity class 3, respectively, relative to quartile 1 of SDOH.

The study's authors note that future studies need to assess the SDOH-obesity link with longitudinal study designs. New research also needs to build platforms for data crosstalk to enable cross-referencing self-reported and medically-ascertained data. Future study should also include modeling cumulative impact of multiple SDOH considering additional methodological approaches such as machine-learning algorithms.

"It is crucial for us to address the social determinants of health if we want to begin to address the complex multi-factorial disease that is obesity. With poor SDOH, we see a greater risk for overweight and obesity. Therefore, this study supports our need to address equity and access to SDOH to improve overweight and obesity in the United States and around the world," said Fatima Cody Stanford, MD, MPH, MPA, MBA, FTOS, an obesity medicine physician scientist at Massachusetts General Hospital and Harvard Medical School in Boston, Mass. She is the TOS councilor for advocacy, public affairs and regulatory. Stanford was not associated with the research.

The study, titled "Social Determinants of Health and Obesity: Findings from a National Study of United States Adults," will be published in the February 2022 print issue.

More information: "Social Determinants of Health and Obesity: Findings from a National Study of United States Adults," *Obesity*, onlinelibrary.wiley.com/doi/10.1002/oby.23336

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