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Title

Association between a novel Community Health Index and Incidence and Prevalence of Type 2 Diabetes Mellitus in MD, DC, and VA

Priority 1 (Research Category)

Diabetes and endocrine disease

Presenters

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Abstract

Background. Type 2 diabetes mellitus is an illness with many individual and community level determinants that can predispose a person to developing this condition. Race, age, family history, and other pre-existing conditions can accelerate the development of this metabolic condition from an individual level, but community level factors like average income, education status, and food insecurity as well as access to healthcare, also play a role.

Objectives. To quantify and analyze the associations between Community Health Index, a scale that combines PCP density, county-level public health preparedness, and social assets and the incidence and prevalence of type 2 diabetes in Maryland, Virginia, and the District of Columbia

Methods. The CHI score was calculated from three different data sources: PCP supply rates came from the 2019 American Medical Association (AMA) Masterfile, a public health preparedness score was determined from the 2020 National Health Security Preparedness Index, and the inverse of the Social Deprivation Index, which came from the American Communities Survey Data from 2015 to 2019. Diabetes incidence and prevalence came from the 2018 and 2019, respectively, data from the Centers for Disease Control and Prevention (CDC)'s diabetes surveillance tool. Pearson's Correlation Coefficient was run to test the association between these two variables, and whether the association is statistically significant

Results. Statistically significant mild (as defined by $0.1<r<0.3$) correlations were found between CHI score and the total prevalence for MD, DC, and VA, as well as that for just VA. Statistically significant moderate correlations ($0.3<r<0.5$) were found for the total incidence as well as that for just Virginia.

Statistically significant strong correlations ($0.5<r<1$) were found between CHI score and incidence and prevalence for diabetes in Maryland.

Conclusions. CHI can be used as a predictor for type 2 diabetes risk at the state level. Given that the CHI is composed of three dynamic community level factors, stakeholders interested in mitigating diabetes risk at the local level can use this information as a guide in decision making and policy implementation.