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Title

Health System Interactions Moderate the Impact of Social Determinants of Health on Type 2 Diabetes Outcomes

Priority 1 (Research Category)

Population health and epidemiology

Presenters

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Abstract

CONTEXT: Social determinants of health (SDOH) contribute to health outcomes and cost of care in Type 2 Diabetes (T2D). Identifying the relative influence of various SDOH factors is important to well-aligned population health interventions. OBJECTIVES: To assess the relative influence of SDOH factors on glycemic control and emergency department (ED) utilization in T2D. To evaluate the impact of primary care visit frequency and other health system interactions on glycemic control and ED utilization in patients with T2D. STUDY DESIGN: cross-sectional analysis of de-identified electronic health data collected in October 2021. POPULATION STUDIED: adults with a T2D diagnosis served by 46 primary care practices within a large health system in Virginia. OUTCOME MEASURES: Primary outcomes were glycemic control [hemoglobin A1c (HbA1c)] and number of diabetes-related ED visits during the previous 12 mos. Using stepwise forward multivariable linear regression (HbA1c) and Poisson regression (ED visits), we evaluated the influence of SDOH indicators [age, gender, race, ethnicity, language, insurer, smoking status, BMI, mental health/substance abuse diagnoses, residential rurality, and primary care clinic rural health center (RHC) status] on primary outcomes. A moderator analysis followed to explore interactions between health system interactions (number of primary care visits and referrals to support/specialty services during the preceding 24 months) and SDOH indicators. RESULTS: A total of 41,232 patients (64 + 13.6 yrs, 49.9% women, 84% white) were included. The only significant predictors of HbA1c were residential rurality, having one more mental health/substance abuse diagnoses, being insured by Medicaid, and being served by a RHC [$R2=.15$, $F(10,22)=111.4$, $p<0.01$]. Number of primary care visits negatively moderated the impact of each of these factors on HbA1c ($p<0.05$). Number of diabetes-related ED visits was predicted by having one or more mental health/substance abuse diagnoses, being insured by Medicaid, and identifying as a race other than white [$R2=.27$, $F(10,19)=90.3$, $p<0.01$]. Referrals to support/specialty services negatively moderated the impact of the later two factors on number of ED visits ($p<0.05$). CONCLUSIONS: T2D population health interventions within our health system may benefit from an enhanced focus on behavioral health, support for rural clinics/patients and racial minorities, and promoting consistent health system interactions.