Effectiveness of Interventions to Improve Hemoglobin A1c among Black Persons with Type 2 Diabetes Mellitus: A Meta-Analysis of Randomized Controlled Trials

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Problem

• Prevalence of Type 2 diabetes (T2D) and related complications is high among individuals who identify as Black
• Limited research exists examining effectiveness of non-pharmacologic randomized control trials (RCT) at improving HbA1c for this population

Goal

To determine effectiveness of non-pharmacologic randomized controlled trials to improve HbA1c in individuals who identify as Black

Intervention Design

• Registered in PROSPERO (CRD42019122625)
• Search terms: diabetes, study design, language, race/ethnicity, disparities
• Included articles with ≥ 50% minority populations and ≥ 12.5% individuals identifying as Black
• Random effects meta-analysis performed in R software to calculate the pooled standard mean difference (SMD) and heterogeneity statistics
• Risk of bias assessed using Cochrane risk of bias in randomized trials tool

• Of the 111,289 articles reviewed, 35 trials met inclusion criteria.
• A total of 6467 individuals were included, control and intervention arms had a mean age of 57 years

Results to Date

• Non-pharmacologic interventions reduced HbA1c in persons who identified as Black (SMD, -0.17, 95% CI -0.28 to -0.06, I²=70%, p<0.01)

Conclusions

• Non-pharmacologic interventions in minority populations were effective in reducing HbA1c in people who identified as Black
• Future research aimed at studying effects of the level of intervention (i.e. individual, community, or multi-level) to understand if some approaches more effective

Acknowledgements

• NIMHD R01 MD013420 - Predicting Future Health Disparities for U.S. Adults with Diabetes: Development and Application of the Multi-Ethnic U.S. Diabetes Outcomes Model & NIDDK P30 DK092949 - Chicago Center for Diabetes Translation Research
• UChicago Medicine’s Healthcare Delivery Science & Innovation (HDSI) fund