

Effect of Interventions on Blood Pressure for Black Persons with Type 2 Diabetes Mellitus: A Meta-analysis of Randomized Controlled Trials

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Black-White Diabetes Disparities

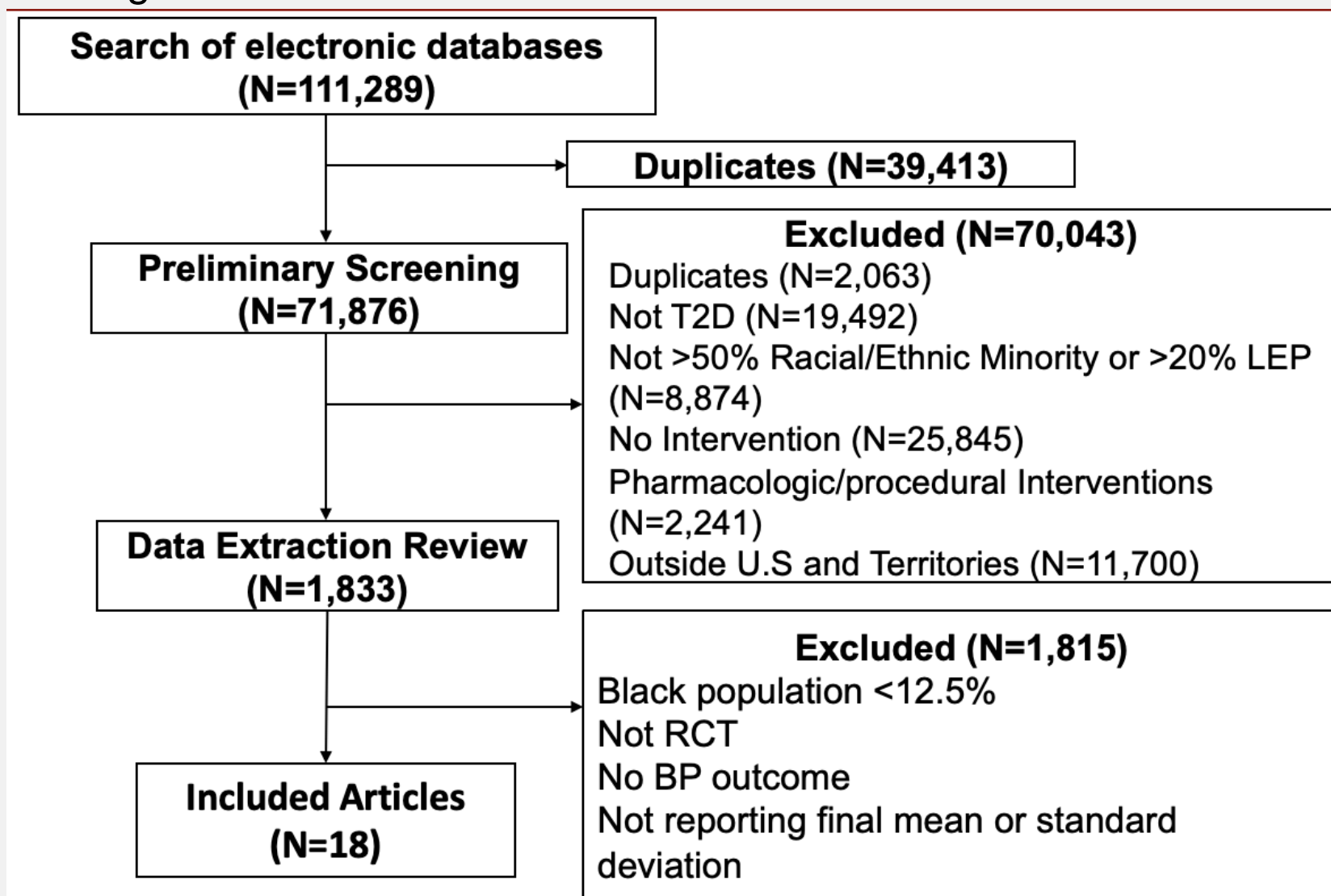
- Type 2 diabetes is highly prevalent in Black persons in the US
- Black persons with diabetes more likely than White persons to have:
 - Uncontrolled hypertension
 - Death from cardiovascular disease
- Disparities are not due to biological differences
 - Social determinants of health
- The National Institute on Minority Health and Health Disparities (NIMHD) developed a research framework focusing on levels and domains of influence to categorize components of social determinants of health

Goal

- The goal of this analysis is to synthesize evidence for non-pharmacologic interventions to improve blood pressure for Black persons with type 2 diabetes

PRISMA Diagram

- Search of PubMed, Medline, Scopus, Cochrane database, CINAHL, PsycINFO, clinicaltrials.gov 1985-2019
- Included sample of >50% racial/ethnic minority or >20% low English proficiency
- Categorized interventions and assess risk of bias

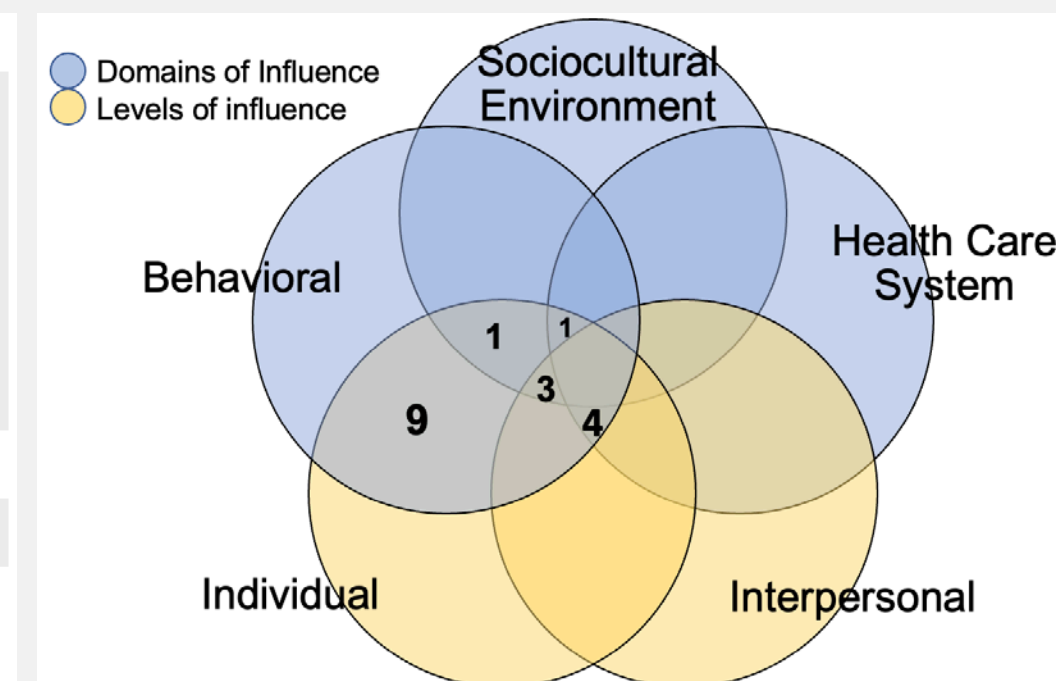


National Institute on Minority Health and Health Disparities Research Framework

		Levels of Influence*			
		Individual	Interpersonal	Community	Societal
Domains of Influence (Over the Lifecourse)	Biological	Biological Vulnerability and Mechanisms	Caregiver-Child Interaction Family Microbiome	Community Illness Exposure Herd Immunity	Sanitation Immunization Pathogen Exposure
	Behavioral	Health Behaviors Coping Strategies	Family Functioning School/Work Functioning	Community Functioning	Policies and Laws
	Physical/Built Environment	Personal Environment	Household Environment School/Work Environment	Community Environment Community Resources	Societal Structure
	Sociocultural Environment	Sociodemographics Limited English Proficiency Culture Identity Response to Discrimination	Social Networks Family Norms Interpersonal Discrimination	Community Norms Local Structural Discrimination	Social Norms Societal Structural Discrimination
	Health Care System	Insurance Coverage Health Literacy Treatment Preferences	Patient-Clinician Relationship Medical Decision-Making	Availability of Services Safety Net Services	Quality of Care Health Care Policies
Health Outcomes		Individual Health	Family/Organizational Health	Community Health	Population Health

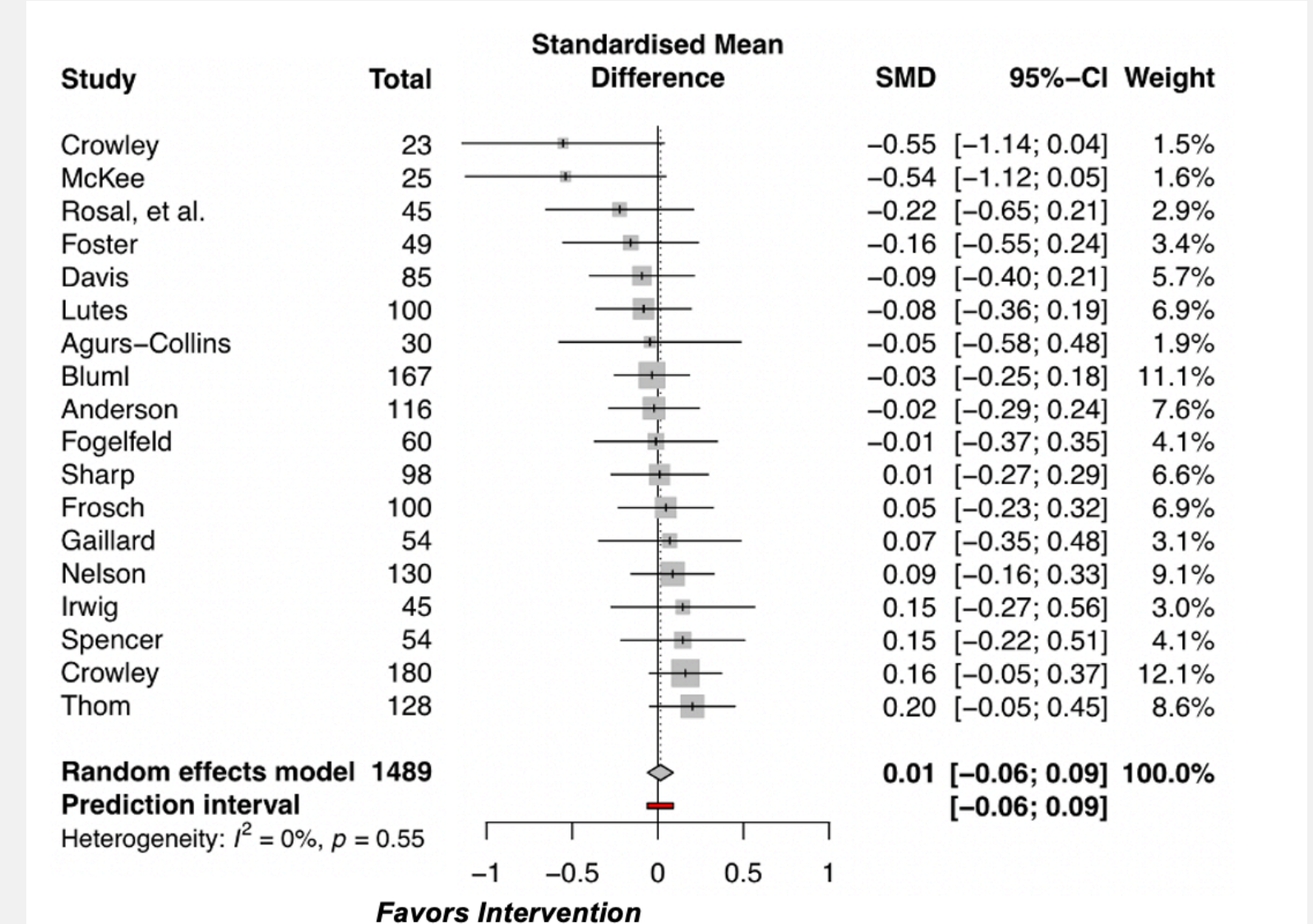
- All 18 studies included components of individual level and behavioral domain of influence
- None of the trials included community and societal levels or biological and physical environment domains

N=3301	
Race/Ethnicity (%)	
Black	60
White	17
Hispanic	21
Asian	1
American Indian	1
Low English Proficiency (%)	
10	
Mean Age (yrs)	
56	
Female (%)	
62	
Male (%)	
38	
Mean Baseline BP	
Control	134/78
Intervention	134/77



- This diagram outlines the 2 levels and 3 domains of influence the trials addressed with the distribution of where the studies lie in overlapping circles

Analysis and Results



- Forest plot for systolic blood pressures (SBP): SMD 0.01 (-0.06 to 0.09)
- These interventions showed no significant difference in SBP
- Similarly there was no significant difference when analyzed for diastolic blood pressure.

Conclusions

- NIMHD framework interventions aimed at improving diabetes outcomes in Black persons were not effective in reducing blood pressure
 - Most interventions were individual and behavioral level
 - No interventions at community, social levels & biological, physical/built environment domains
- More effective interventions are needed to improve BP control in Black persons with type 2 diabetes

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