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A Systematic Review of Community Center Based Interventions in People with Diabetes

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Objectives of this presentation

- Discuss the scope and implications of community health centers (CHCs) in the care of vulnerable populations in the United States
- Describe a systematic review of CHC-based interventions with main findings
- Discuss implications of the findings for future RESEARCH endeavors

How are we doing with health indicators?

Key Points

- Cardiovascular disease (CVD) is leading cause of death in U.S.
- Type 2 diabetes (diabetes) is an antecedent and moderating factor for CVD
  - African Americans (AAs) are more than twice as likely to die from diabetes

Global Durden of Cardiovascular Diseases Collaboration. 2018

Community Health Centers

- Previously called neighborhood health centers
- Currently more than 1,300 CHCs in the U.S.
- Medical home for 27+ million people
  - 92% low income
  - 62% racial/ethnic minorities

HRSA, 2018; National Association of Community Health Centers, 2018

Diabetes Interventions in primary care or community

- Theory-based lifestyle interventions or social network-based
- Interventions using community health workers or peers
- Interventions using nurses or pharmacists
- Other approaches such as motivational interviewing or mHealth

Doshmangir et al., 2018; Spencer-Bonilla et al., 2017; Jeet et al., 2017; Alaofe et al., 2017; Fisher et al., 2017; Stephani et al., 2016; Thepwongsa et al., 2017; Massimi et al., 2017; Milosavljevic et al., 2018

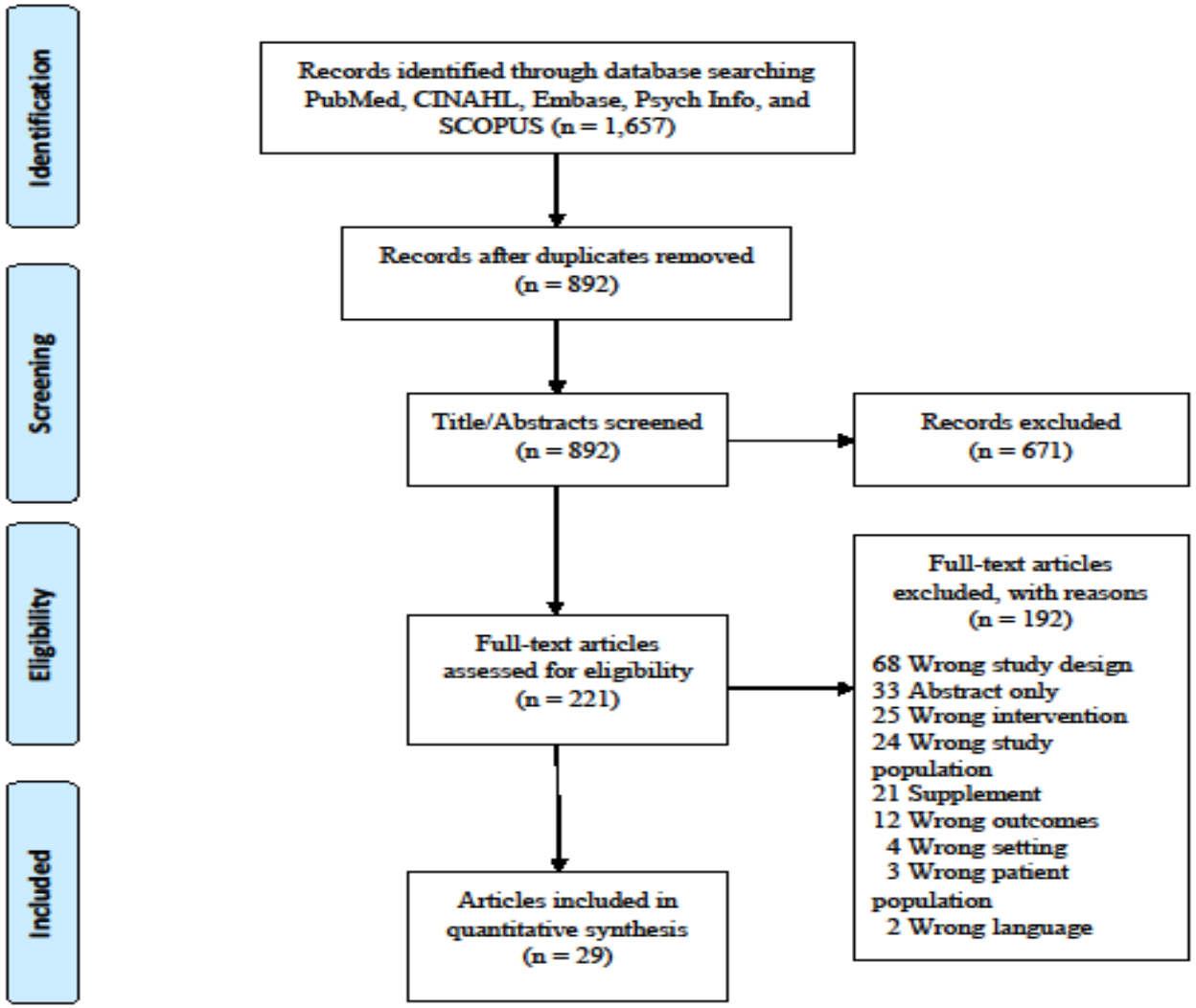
Objective of current systematic review

- Synthesize evidence concerning the characteristics (i.e., types, contents, and delivery) and patient outcomes of CHC interventions in people with diabetes.

Design and Methods

- Conducted in 2018
- Four electronic database searches and hand searches of references in 2018 (PubMed, Embase, CINAHL, PsychINFO)
- Published in English; involved patients 18+ years; study conducted in the U.S.
- 2 reviewers independently screened potential studies for inclusion

Figure 1. PRISMA diagram



Quality Appraisal

- Each included study evaluated for quality by two research assistants
- Joanna Briggs Institute scales used
- Quality scores ranges from 0 to 13 (experimental) and from 0 to 9 (quasi-experimental)

Tufanaru et al., 2017

Overview of studies

- 28 unique studies with one companion article
- 18 randomized trials with usual care (n=13) or enhanced care such as diabetes education packets (n=5)
- 21 solely focused on people with type 2 diabetes
- Sample sizes from 14 to 10,000
- Mostly female (52% to 89%)

Quality of studies

- Average quality score of 8.5 for 17 RCTs (range=3-10; possible max=13); 6.9 for 11 quasi-experimental studies (range=6-8; possible max=9)
- 8 of 17 RCTs were of high quality (9+); 8 medium and 1 of low quality
- 9 of 11 quasi-experimental studies were of high quality (7+); 2 of medium quality

Characteristics of CHC Interventions

- More than half used education (one-on-one, n=12 vs. group, n=4), often within routine clinic visits; phone counseling used in some studies (n=5). Others involved workshops or diabetic complication screenings with 1 study using daily text messages to promote health lifestyle changes.

Main Focus of CHC Interventions

- Reduction of hemoglobin A1C (n=22)
- Increase in diabetes knowledge about self-management topics (e.g., diet, exercise, smoking cessation, and stress) (n=11)
- Medication management (n=4)
- Behavioral change goals (e.g., patients create goals after completing a computer-based assessment of motivational readiness) (n=3)
- Increase in physical activity (n=2)

Providers of CHC Interventions

- A variety of health providers used: RNs (n=8), dietitians (n=6), medical assistants (n=6), community health workers (n=4), physicians (n=3), NPs (n=3), peer educators (n=2)
- Providers of CHC interventions often trained as certified diabetes educators

Intervention Fidelity

- Couldn’t be detailed due to lack of reporting fidelity
- Strategies used in the studies reporting fidelity:
  - Direct observation (n=1)
  - Intervention protocol adherence check (n=1)
  - Use of scripted manuals (n=2)
  - Recording of classes (n=1)
  - Protocol adherence documentation (n=1)

Effects of CHC Interventions

- Effects of CHC intervention on clinical outcomes varied.
  - 14 of 22 had significant decreases in HbA1c; 8 did not.
  - 5 of 5 using both individual and group education had significant decreases in HbA1c; 4 of 4 using phone counseling did not.
- Effects on other outcomes also varied.
  - 1 study showed goal attainment and reduction in HbA1c; 1 study showed goal attainment but no reduction in A1c.
  - Self-efficacy improved in 2 studies; 1 study with no change.

Discussion

- Type, duration, and intensity of CHC interventions varied.
- CHC interventions effective in HbA1c reduction
  - Mixed results were noted by studies, however
- Insufficient evidence to support CHC interventions in addressing mental disorders.
- Insufficient evidence concerning cost-effectiveness of CHC interventions.
- Many lacked methodological rigor.

Implications

- Strong need for studies to clearly elaborate the contents and processes of interventionists training
  - Selection and training with competency evaluation
  - Supervision and fidelity monitoring
- Future research needed with more rigorous study designs such as a priori power analysis, at least single-blinded design (data collector ≠ interventionist), intent-to-treat analysis, clear description of number and reasons for participant drop-outs
- Use of theoretical framework (used in only ½ studies)

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