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Review

A systematic literature review of diabetes self-management education features to improve diabetes education in women of Black African/Caribbean and Hispanic/Latin American ethnicity

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ABSTRACT

Objective: This systematic literature review aims to identify diabetes self-management education (DSME) features to improve diabetes education for Black African/Caribbean and Hispanic/Latin American women with Type 2 diabetes mellitus.
Methods: We conducted a literature search in six health databases for randomized controlled trials and comparative studies. Success rates of intervention features were calculated based on effectiveness in improving glycosolated hemoglobin (HbA1c), anthropometrics, physical activity, or diet outcomes. Calculations of rate differences assessed whether an intervention feature positively or negatively affected an outcome.
Results: From 13 studies included in our analysis, we identified 38 intervention features in relation to their success with an outcome. Five intervention features had positive rate differences across at least three outcomes: hospital-based interventions, group interventions, the use of situational problem-solving, frequent sessions, and incorporating dietitians as interventionists. Six intervention features had high positive rate differences (i.e. $\geq$50%) on specific outcomes.
Conclusion: Different DSME intervention features may influence broad and specific self-management outcomes for women of African/Caribbean and Hispanic/Latin ethnicity.
Practical implications: With the emphasis on patient-centered care, patients and care providers can consider options based on DSME intervention features for its broad and specific impact on outcomes to potentially make programming more effective.

1. Introduction

The North American prevalence of diabetes mellitus (DM) reached 10.2% in 2010, and is estimated to reach 12.1% by 2030. This is an increase of 42.4% in the number of adults who will have diabetes [1]. There is a growing ethnic disparity in the prevalence of diabetes and its related complications. In the United States, the 2004/06 national survey data indicated that the prevalence of diabetes was greater in non-Hispanic Blacks (11.8%) and Hispanics (10.4%) compared to non-Hispanic whites (6.6%) [2]. In Ontario, the most populated province in Canada, the Black population has higher rates of diabetes (11.6%) than the White population (7.3%) [3]. Furthermore, recent immigrants from Latin America and the Caribbean (9.8%) have the second highest prevalence rates of diabetes compared with long-term residents and recent Western Europe and North America immigrants (5.2%) in Ontario [4]. Overall, North America has a growing ethnic population at an elevated risk of developing diabetes.

In addition to high prevalence rates, persons of Hispanic/Latin and African/Caribbean backgrounds in North America are at higher risk for poor glycemic control and diabetes-related complications. Non-Hispanic Blacks with diabetes have poorer glycemic control, higher blood pressure, and a higher risk of diabetes complications compared with non-Hispanic Whites and Mexican Americans [5]. For instance, Latin Americans and African Americans tend to have substantially higher mean glycosolated hemoglobin (HbA1c) levels than Caucasians [6], and accordingly are at a higher risk of complications such as coronary heart disease [6], retinopathy [7], end-stage renal disease [7,8] and death [6,8].

Although certain ethnic minorities are vulnerable to developing diabetes and related complications, the risks appear to be higher in women than men. African/Caribbean and Hispanic/Latin American

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immigrant women in Ontario have higher rates of diabetes compared with men from the same country [4]. Research shows that women living with diabetes may be at higher risk for developing cardiovascular disease (CVD) [9,10] than men, and that mortality from both coronary heart disease [11,12] and stroke [13] is greater in women than men with diabetes. The prevalence of mental illness such as depression and anxiety disorders is also greater in women compared to men living with diabetes [14,15]. The impact of these disorders adversely affects self-care behaviours, glycemic control, quality of life, and diabetes complications [14–17]. The greater risk of complications in women compared to men may be due to differences in how women experience and manage their diabetes.

While it is well established that diabetes self-management education (DSME), a complex health intervention, is generally effective at enhancing self-care behaviors [18–21], improving glycemic control [22], lowering health care costs [23], and improving quality of life [18,20], the specific impact of DSME features on outcomes have not been thoroughly evaluated [24] particularly for specific cultural and gendered populations. For instance, research shows that women have different self-management education needs compared with men. Latin American women are said to be better suited to and more successful with interventions that incorporate family, peers, and *promotoras* (i.e., community health workers) for social support [25]. South Asian women find it harder than men to discuss their problems with male physicians or to participate in mixed-gender education groups [26]. These findings suggest that men and women with diabetes may have different DSME needs and that different cultures may respond better to various DSME intervention features than others. A better understanding of which intervention features are associated with improved outcomes by gender and culture can be used to target interventions to specific populations to enhance learning, skills building, and diabetes management more effectively than a standardized DSME program.

Given the rising prevalence of diabetes among women from certain ethnic backgrounds and women's greater risk of diabetes complications compared with men, the goal of our study was to systematically review the literature to identify DSME features associated with various self-management outcomes. For women of African/Caribbean or Hispanic/Latin ethnicity living in industrialized countries. The impetus for our research was to help direct the development of a new government-funded DSME program at a community health center specifically tailored for women from high-risk ethnic groups for diabetes. The results from this study are intended to help diabetes educators and health practitioners learn how best to deliver DSME to achieve the desired self-management outcomes.

2. Methods

2.1. Search strategy

Key words used to search for relevant articles included: adult, Type 2 DM, patient care management, patient education, patient-centered care, ethnic groups, and competency-based education. A library technician searched for relevant articles published in English from 1980 to 2008 in Medline, Embase, Cinahl, Cochrane Library, HealthStar, PsycInfo, and ProQuest Nursing & Alliance Health. Using women as a key search term was not recommended due to the high probably of excluding studies that sampled primarily women. Thus, the search strategy was broad (sensitive) to include as many relevant articles through subsequent manual screening. Reference lists of relevant reviews and articles and tables of contents from *Diabetes Care* and *Diabetes Educator* were thoroughly reviewed to ensure all relevant studies were obtained. Lastly, researchers in the field were contacted to identify relevant gray literature; however, no new resources were identified.

2.2. Inclusion criteria

Studies were limited to randomized controlled trials and comparative studies. Primary studies that provided outcomes of DSME interventions initially for three ethnic groups (i.e., African/Caribbean, Hispanic/Latin and South Asian women) in industrialized countries were reviewed. Articles had to focus on participants diagnosed with Type 2 DM who were over 18 years of age. Given the few numbers of diabetes self-management interventions conducted exclusively with Black African/Caribbean and Hispanic/Latin American women with Type 2 DM, we included studies that had a sample of a minimum of 70% women (representing the majority of the samples) or reported analyses by sex. Studies were excluded if the articles were not peer-reviewed and did not provide enough information about the type of program to analyze the intervention's features. Lastly, we excluded articles that focused solely on groups of subjects with a specific co-morbidity (e.g., those only with heart disease, kidney disease, stroke, etc.), and reports of intervention feasibility. We were also unable to find studies for South Asian women (as stipulated in the inclusion and exclusion criteria) and thus unable to include this population of women in the review. Fig. 1 shows the selection process of this review.

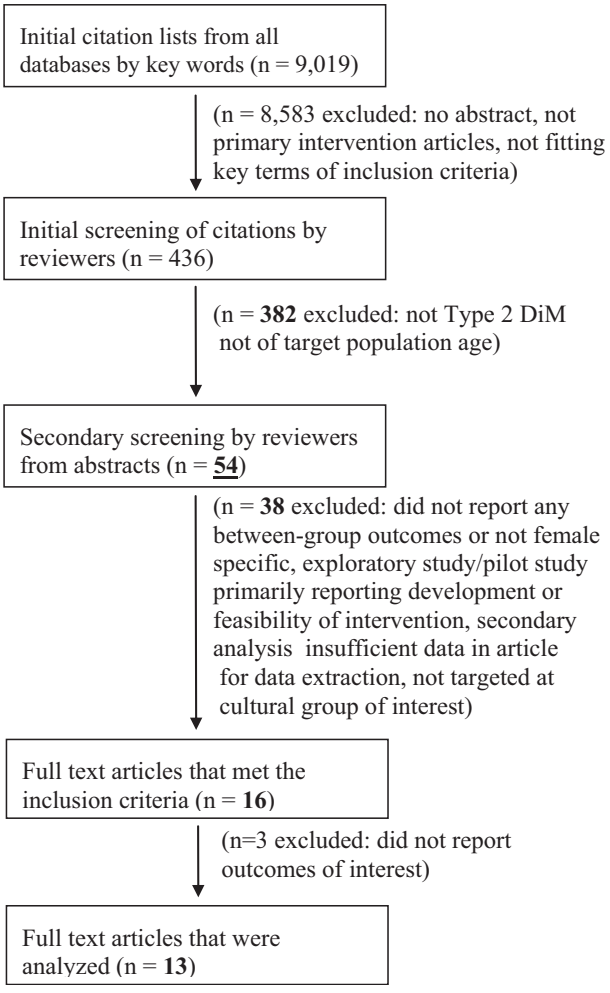

Fig. 1. Selection process of studies based on search strategy (1980–2008).