

How effective are obesity prevention programs implemented in schools with African American children compared to other children? Findings from a systematic review

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Abstract

- The effectiveness of obesity prevention programs differ across racial/ethnic groups (Madsen et al., 2009).
- Twelve studies meeting a priori inclusion criteria (RCT) and five studies that were not randomized control trials (low quality studies) were extracted from 230 reports accessed through 10 electronic databases.
- The general findings for this study revealed that of the four interventions, (nutrition modification focused, exercise focused, health education focused, and hybrid focused) those that were most effective incorporated physical activity for at least 35 minutes daily for 10 months.
- For school-based obesity prevention programs to be effective with African American children, they must be created based on a culturally appropriate theoretical paradigm(s) within a strong hybrid (vigorous physical activity and health education integrated across multiple classroom subjects) intervention.

Introduction

- The literature is rich with systematic reviews and meta-analysis of obesity prevention/intervention programs for children and adolescents (Bleich, Segal, Wu, Wilson, & Wang, 2013).
- Many have suggested that simple diet modifications and increases in energy expenditure are the answers to preventing obesity (Flynn et al., 2006; Stice, Shaw, & Marti, 2006). However, few studies have evaluated randomized controlled trials of school-based obesity preventions/interventions.
- Those that do evaluate their programs find that they have not included a substantial ethnic minority sample to generalize findings to any subgroup (e.g., age, baseline weight status, gender, race/ethnicity and socioeconomic status [SES]).
- The Community Preventative Services Task Force [CPST], (2003) found "insufficient evidence to determine the effectiveness of school-based programs to prevent or reduce overweight and obesity among children and adolescents because interventions varied and reported outcomes were not comparable" (para. 2).

Methods

- The methodology for this systematic literature review followed the current systematic methods and standards established by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Moher et al 2009).
- Searches for eligible studies were completed using the following databases up to September 2013, without beginning date limits: MEDLINE via PubMed, PsychInfo, CINAHL, and the Cochrane Library.
- Studies that met the inclusion criteria were selected among quantitative, qualitative, and mixed-methods studies published in peer-reviewed journals; the gray literature, dissertations, theses and white papers.
- Twelve studies meeting a priori inclusion criteria (high quality studies) were extracted from 230 reports accessed through 10 electronic databases. An additional five studies that were not randomized control trials (low quality studies) were included to provide an exhaustive review.

Results

- The general findings for this study revealed that of the four interventions, (nutrition modification focused, exercise focused, health education focused, and hybrid focused) those that were most effective incorporated physical activity for at least 35 minutes daily for 10 months.
- Health education integrated into classroom curriculum across multiple subjects was also effective.

Flowchart of the literature retrieval process

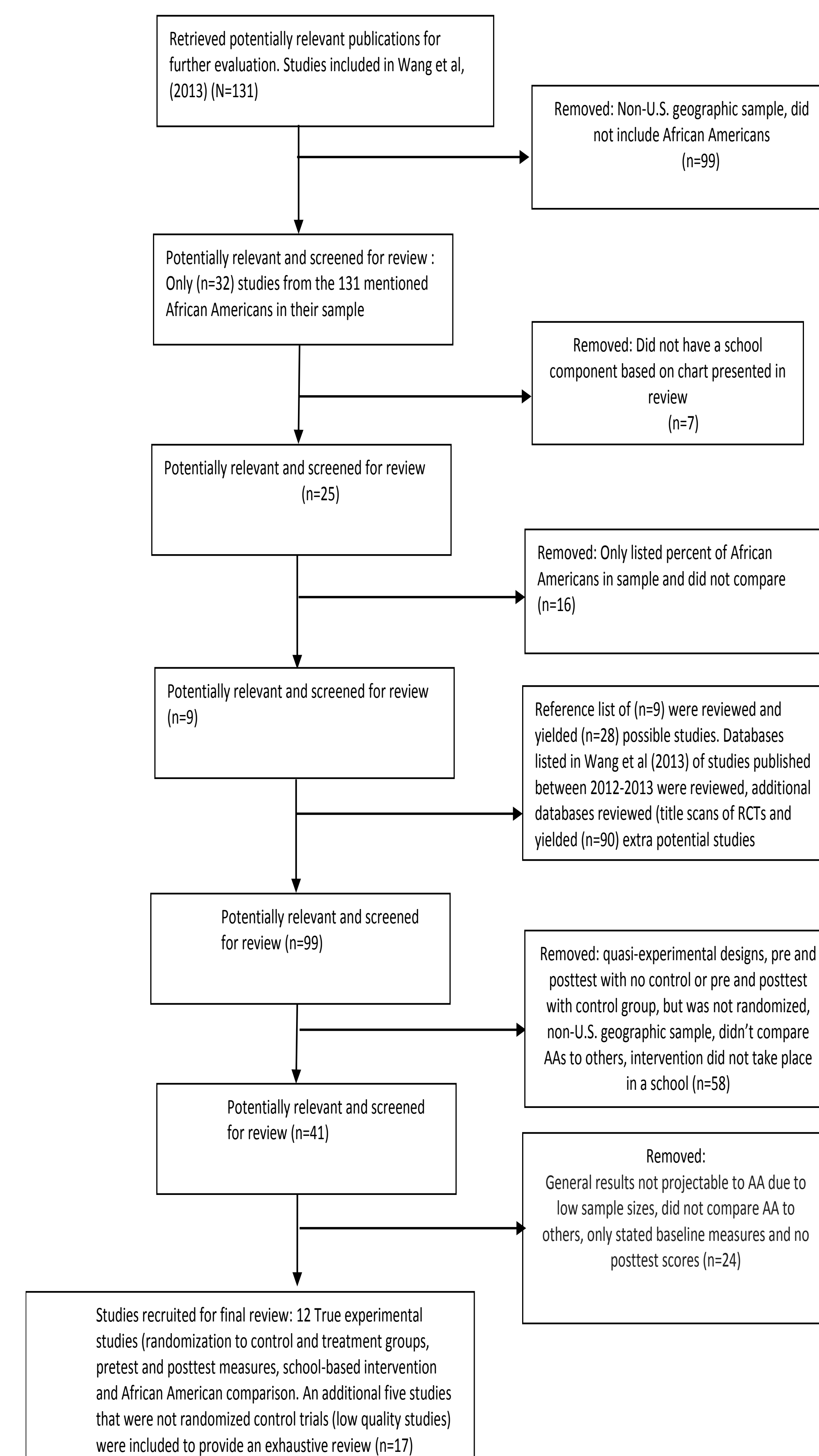


Figure 1. Flowchart of the literature retrieval process

Figure 2: Intervention Type and Quality

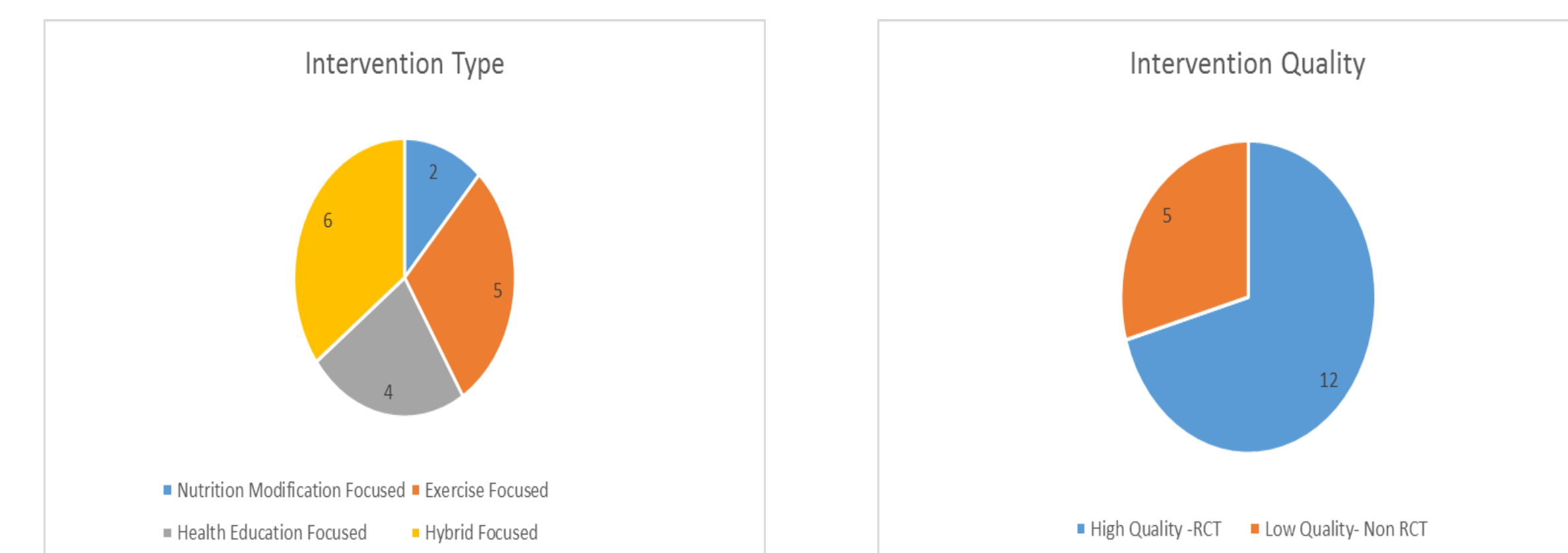


Table 1: Studies Included for Literature Review

Author/Year	Overall Sample and African American Sample	Intervention type and Quality (High or Low)	Theoretical Base (Y/N)	Health Literacy Component (Y/N)
Barbeau et al., 2007	201 African American girls ages 8-12	Exercise- High Quality	No	No
Bayne-Smith et al., 2004	442 teenaged girls, and 45% African American	Hybrid- High Quality	No	No
Coleman et al., 2012	579 - 2 nd , 3 rd , and 6 th graders- 110 (19%) African American	Nutrition Modification- High Quality	Evidence-based public health approach	No
Debar 2011	4,603 students and 20% African American	Health/Nutrition-Education- High Quality	Making a public commitment to the HEALTHY program	No
Dzwawetowski 2010	246 students; 39 (16%) African American	Hybrid- High Quality	Social Cognitive Theory and Ecological Development Systems Approach	No
Foster et al., 2008	1,349, 45% African American	Health/Nutrition-Education- High Quality	No	No
Flores, 1995	100; 10-13 year olds 44 (40%) African American	Hybrid- High Quality	No	No
Gortmaker et al., 1999	1,295- 7 th grade students, 125 African American	Health/Nutrition-Education- High Quality	Behavioral choice theory, social cognitive theory	No
Greening, 2011	450; 6-10 year olds (66% African American)	Hybrid- High Quality	Social learning theory	No
Gutin et al., 1995	25 African American girls ages 7-11	Exercise- Low Quality	No	No
Hollar et al., 2010	1197 (9% African American)	Nutrition Modification-Low Quality	No	No
Howe 2010	106 African American Boys	Exercise- High Quality	No	No
Madsen et al., 2009	178 students (18% African American)	Exercise- Low Quality	No	Yes
Newton et al., 2010	77 African American students; 2 nd -6 th grade	Hybrid- Low Quality	Social learning theory	No
Webber et al., 1996	4,019- 3 rd grade students, 12.6% were African American	Health/Nutrition-Education- High Quality	Social cognitive theory	No
Willit et al., 2012	4,363 6 th graders; 17.6% non-Hispanic African American	Hybrid- High Quality	No	No
Wilson et al., 2011	198 (70% African American)	Exercise- Low Quality	Ecological Framework	No

Limitations

- Based on the studies included in this review, only one program included a health literacy component (Madsen, et al., 2009).
- Because most interventions are implemented with low-income children, it is imperative that obesity prevention programs include literacy components.
- Not all evidenced-based studies included an explicitly stated theoretical framework. (See table 1). This is an indication that there is a gap between theory, research, and practice.

Discussion

- Systematic reviews and meta-analyses of randomized controlled trials have the potential to provide the highest levels of evidence to support the effectiveness of obesity prevention programs for African American children (Guyatt & Rennie, 2002).
- The general findings for this study revealed that of the four interventions (nutrition modification focused, exercise focused, health education focused, and hybrid focused) the ones that were most effective were those that incorporated physical activity for at least 35 minutes daily for 10 months.
- Health education integrated into classroom curriculum across multiple subjects was also effective. However, there was not an effect found in the hybrid and nutrition modification-only interventions. The hybrid intervention did not integrate into classroom curriculum as deeply as the education only interventions. Also, the physical activity components of the hybrid programs were not as rigorous nor as long in duration as the exercise-only programs.

Implications for Social Work

- Obesity is such a huge challenge that it must be addressed from the micro, mezzo, and macro levels, and social workers are among the best professionals to help tackle this issue (Donaldson & Daugherty, 2011; Kaiser, 2011).
- Also, the theoretical underpinnings of Afrocentrism should be considered as well because it takes numerous aspects of African American cultural values into account when developing effective intervention programs. Obesity prevention studies will usually focus on the individual, (Teufel-Shone, 2006) along with proper diet and exercise (Connelly, Duaso, and Butler, 2007). This perspective lacks a social justice lens, a framework that social workers operate by and could be better used in addition to an ecological systems lens.
- Social workers and the profession as a whole should seek to become more actively engaged in coalitions, research, and scholarship on obesity. The profession holds a valuable role to play at all levels of interventions and preventions.

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