

Effectiveness of Interventions to Increase Physical Activity Among Minority Populations: An Umbrella Review

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Abstract: Purpose: Numerous interventions have been tested to increase physical activity (PA) among minority adults, and several review papers have examined the results from these studies. The primary purpose of this umbrella review is to summarize evidence from existing reviews regarding effectiveness of PA interventions in minority populations.

Procedures: Searches were conducted in five electronic databases to identify English-language articles reviewing the effects of interventions to increase PA in minority adults living in the United States. Reviews that met the inclusion criteria were critically assessed using umbrella review procedures. Review quality was assessed using the PRISMA statement and checklist.

Findings: Twenty-two reviews fulfilled inclusion criteria. The sample included one meta-analysis, 11 integrated reviews, and 10 narrative reviews published between 1998 and 2012. The reviews documented modest improvements in PA with considerable variation in intervention effectiveness across primary studies. Integrative reviews generally were of higher overall quality than narrative reviews with regard to fulfilling PRISMA criteria.

Conclusions: Integrated and narrative reviews were unable to validly determine the characteristics of effective interventions. Future reviews should employ meta-analytic methods in order to quantitatively identify those intervention characteristics that are most likely to increase PA behavior in minority adults.

Keywords: physical activity ■ minority health ■ review

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INTRODUCTION

In the United States, 11.3% of adults are estimated to have diabetes and 11.4% have been diagnosed with heart disease.^{1,2} Sedentariness contributes to the prevalence of these illnesses, so increasing physical activity (PA) can help prevent or delay disease onset, and may also help prevent complications among those individuals already afflicted.^{1,2} U.S. guidelines recommend that adults undertake at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity aerobic PA each week as well as perform moderate or high intensity

muscle strengthening activities at least two days each week.^{2,3} However, only 21% of American adults achieve these recommended activity levels.²

The risk of developing diabetes or heart disease is greater for individuals of African-American, Latino, Native American, Alaska Native, and Asian backgrounds.² At the same time, individuals belonging to these racial/ethnic groups are less likely than white (Caucasian) individuals to achieve recommended levels of adequate PA.²

Numerous interventions have been designed to specifically increase the PA of adults in at-risk racial/ethnic groups, and a number of reviews have been published examining the overall effectiveness of such interventions.^{4,5} This umbrella review provides a summary of those reviews with the goal of facilitating evidence-based decision making regarding the best strategies to increase PA of minority populations. The review specifically addresses the following questions:

1. What methods are employed in previous review articles for searching, identifying, and analyzing primary studies?
2. What are the characteristics of the primary studies included in review papers?
3. How do review papers describe intervention features designed and implemented specifically for minority samples?
4. What are review findings regarding the effectiveness of interventions to increase PA behavior?
5. Have reviews identified any moderating effects of sample characteristics, intervention features, or design attributes on PA behavior outcomes?
6. How has primary study quality been addressed in reviews?
7. What have reviewers suggested regarding design and content of future primary studies investigating interventions to increase PA behavior in at-risk racial/ethnic groups?
8. To what extent do reviews meet review methodological quality criteria?

METHODS

Procedures specific for umbrella reviews were used in this project.^{6,7} The focus of this umbrella review is on reviews of interventions to increase PA in individuals belonging to at-risk racial/ethnic minority groups. For this paper, the term *minority* is used to refer to individuals living in the United States who have any of the following racial/ethnic backgrounds or identities: African American, Native American, Latino, Latino American, Asian, Asian American, Native Hawaiian, Native Alaskan, or Pacific Islander.⁸

Inclusion Criteria

Systematic reviews published in the English language were eligible for inclusion if they assessed primary studies testing interventions to increase PA in adult minority individuals living in the United States. Reviews were eligible whether they quantified the impact of interventions on PA behavior, provided a subjective assessment of intervention effectiveness, or both. Inclusion of reviews was not limited with regard to publication year, the health status of subjects, or the research design of primary studies.

Search Strategies

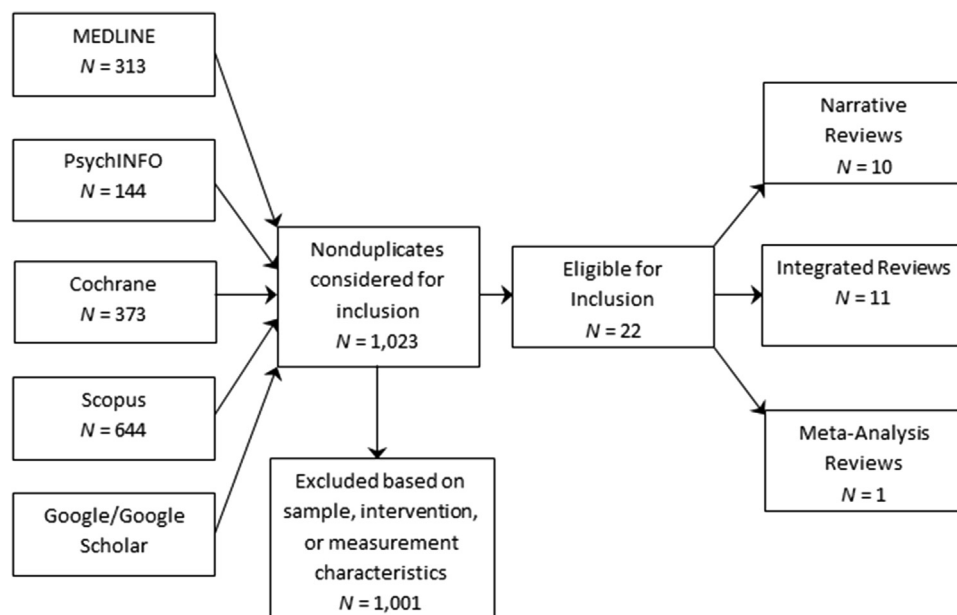
The electronic databases MEDLINE, PsychINFO, Cochrane, and Scopus, as well as Google/Google Scholar, were searched using the terms African, African Americans, Hispanic, Hispanic Americans, Mexican Americans,

Latinos, European Continental Ancestry Group, Asian Americans, Asian Continental ancestry group, minority, minority groups, ethnic, ethnicity, ethnic groups, urban, urban population, urban health, minority health, Native American, North American Indians, South American Indians, and continental population groups in combination with the terms *exercise*, *physical activity*, *physical fitness*, *physical exertion*, *exercise therapy*, *physical education*, *physical training*, *walking*, *sports*, *running*, *resistance training*, and *weight lifting*. All searches were limited to adult populations and to English-language articles.

Data Extraction and Management

Data were independently extracted from reviews by two investigators. Data extracted by one investigator was verified by the other investigator. Information was collected on the focus of the review, search strategies used to find primary studies, number of studies and subjects included in the review, publication years of primary studies, primary study quality, primary study intervention focus, overall findings, reported sample, design, and intervention moderators of PA outcomes, and reviewers' conclusions. The investigators also recorded information from the review papers about how the primary study protocols and interventions were modified to accommodate subjects' status as members of a specific minority population. Also documented were any suggestions by review authors regarding the direction future primary research should take.

Figure 1. Flowchart of paper inclusion.



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