

Interventions for Preventing Childhood Obesity in African-American Children: A Critical Review

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ABSTRACT: Report suggested that the dramatic increases in childhood and adolescent obesity that occurred between 1980 and 2000 may have plateaued in the United States. The descriptions are conflicting but to confirm the decrease of obesity, evidence has emerged from nine countries including the United States. Statements recommended that the rise in the prevalence of childhood obesity has slowed appreciably or even plateaued. However, the research is vague among ethnic minorities and the economically disadvantaged. The results continue to draw attention to the increased risk of becoming obese and need for interventions of prevention in childhood obesity in African-American children of the United States. The purpose of this study was to examine interventions for preventing childhood obesity in African American children. The efficiency of interventions need to be designed to prevent obesity in childhood through lifestyle and social support by considering obesity intervention strategies. To examine the gap of the interventions for preventing childhood obesity in African-American children in the literature, obesity prevention interventions specifically targeted at preventing overweight and obesity in African-American children is necessary.

1. INTRODUCTION

There are conflicting reports on the number of children who are facing obesity. A report suggested that the dramatic increases in childhood and adolescent obesity that occurred between 1980 and 2000 may have plateaued [31]. In addition, particularly, obesity among young Americans, aged 2 to 19 years old has not changed significantly since 2004 and remained at about 17 percent. Furthermore, among 2-5 years old, obesity has declined based on CDC's National Health and Nutrition Examination Survey (NHANES) data [22]. Then a recent study suggested that obesity among 2 to 19-year-old children and adolescents increased from 16.8% in 2007-2008 to 17.2% in 2014 [10].



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To confirm the decrease of obesity, evidence has emerged from nine countries including the United States, which suggested that the rise in the prevalence of childhood obesity has slowed appreciably, or even plateaued [23]. In a study specifically to measure Swedish boys born during 1946 to 2006 captured both the rise and the recent decline of childhood obesity. The study suggested a reduction in adult obesity during the coming decades in Swedish men [4] as childhood obesity associates with adulthood obesity [3].

Notwithstanding from 1999 to 2010 data indicates that obesity prevalence differs among racial/ethnic groups and also varies by age, sex, and adult head of household's and education level [25]. Therefore, obesity and associated chronic conditions are endemic among the population with rates disproportionately high among ethnic minorities and the economically disadvantaged [21].

2. METHODS

As this was a review, documents from 2005 to 2027 were examined with keywords found on googlescholar and dictionary sites on internet. A list of keyword search is listed below. Furthermore, research on African-American obesity preventions and interventions in children were inspected. The most related studies coincide to the topic of this review were chosen and found in references.

Adolescents. The term not only describes a very diverse reality, but adolescence diverges considerably crossways cultures and within individuals. The phrase adolescence according Kaplan [17] is commonly understood to define the period of life between childhood and adulthood.

Hence, one developmental term clearly fails to provide the best structure of reference for this diverse life period of experience.

African American. It is an ethnic group arbitrator to citizens or residents of United States with total or partial ancestry from any of the native populations of Sub-Saharan Africa [39]. It refers to a person having origins in any of the Black racial groups of Africa. The Black racial category includes people who marked *Black, African Am., or Negro* checkbox. It also includes respondents who reported entries such as African American; Sub-Saharan African entries, such as Kenyan and Nigerian; and Afro-Caribbean entries, such as Haitian and Jamaican [36].



Alaska Native. All documents are adjudicator to Alaska native, American Indian and native Americans. American Indian or Alaska Native refers to a person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment [36]. The cluster could be due to the statistical checkbox where Alaska native and American Indian are collected with the same entries.

American Indian. The term is also attributed to Native Americans. This expression is referred to indigenous people who live in the continent of America, however mainly aimed at people who reside in the United States. The US census [36] does not distinct American Indians/ Native Americans from Alaska native.

Asian American. Americans of Asian descent are called Asian Americans. The U.S. Census Bureau [36] definition of “Asian” refers to a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. Indian subcontinent is also recorded for this category [12].

Black People. The term is used often in socially grounded systems of racial classification or of ethnicity, to portrayed people who are perceived to be darker skinned compared to other given populations. The people of the African region were noted in Classical literature as Mauri, which was subsequently rendered as Moors in English [8].

Cultural adaptation. The evolutionary process by which an individual modifies the personal habits and customs to fit in to a particular culture is cultural adaptation. In a book Moran and Keane [26] explain that *Cultural Adaptation* explores how creative ideas are packaged and nationalized to meet local taste, maps the cultural economy of adaptation in entertainment media ranging from motion pictures to mobile phones, and even probes the role of cultural recipes and formats in mutating participatory experiences of theme parks and sporting spectacles. This adaptation can also refer to gradual alterations within a culture of society to participate in the culture and share their perspectives and practices.

Disabled. The consequence of an impairment that may be physical, cognitive, mental, sensory, emotional, developmental, or in combination is a form of disability. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus, disability is a complex



phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives [43].

Hispanic. The term "Hispanic" broadly refers to the culture, peoples, or nations with a historical link to Spain. It commonly applies to countries once colonized by Spain, particularly the countries of Latin America that were colonized by Spain. Hispanic Americans include persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish culture or origin, regardless of race [38]. Small Business Administration defines Hispanic American as an individual whose ancestry and culture are rooted in South America, Central America, Mexico, Cuba, the Dominican Republic, Puerto Rico, or Spain [40].

Minority. In some places, subordinate ethnic groups may constitute a numerical majority, such as Blacks in South Africa under apartheid. In addition to the traditional longtime resident, minorities they may be migrant, indigenous [7, 27]. Every large society contains ethnic minorities and linguistic minorities. Only in Europe this exact definition probably provided by the European Charter for Regional or Minority Languages and by the Framework Convention for the Protection of National Minorities. Nevertheless, national minority can be theoretically and not legally [32] defined as a group of people within a given national state.

Native Hawaiian/ Pacific Islander. According to the US Census Bureau [36], the Native Hawaiian and Other Pacific Islander population category includes people who indicated their race(s) as "Native Hawaiian," "Guamanian or Chamorro," "Samoan," or "Other Pacific Islander" or reported entries such as "Pacific Islander," "Polynesian (such as Tahitian, Tongan, and Tokelauan)," "Micronesian (such as Marshallese, Palauan, and Chuukese)," and "Melanesian (such as Fijian, Guinean, and Solomon Islander)".

Obesity. It is a preventable condition which according to Haslam and James [11] Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health, leading to reduced life expectancy and/or increased health problems.

Overweight. The degree to which a person is overweight is generally described by body mass index (BMI). Overweight is defined as a BMI of 25 or more, thus it includes pre-obesity defined as a BMI between 25 and 30 and obesity as defined by a BMI of 30 or more [43]. Pre-obese and overweight however are often used interchangeably thus giving overweight a common definition of a BMI of between 25 -30 [28].



3. RESULTS

In a study by the U.S. Department of Health and Human Services [37] reported that overweight and obese children are having a greater effect on minority groups, including Blacks and Hispanics. Furthermore, a serious problem is that the association between childhood obesity and African-American minorities is inadequate [1] in addition the results of individual studies continue to draw attention to the increased risk of becoming obese and need for interventions of prevention in childhood obesity in African-American children of the United States.

Dependable evaluations on the problem of overweight and obese children are essential for the expansion of effective awareness and programs to prevent obesity in African-American minority children to improve the health and quality of life. The body of research is intense with extensive reviews on the effect of obesity prevention interventions for children [2, 9, 16, 34, 41] nonetheless limited to minority participants which targets African-American children.

Few studies exist on obesity prevention reviews which target specific racial/ ethical minority children groups- Hispanic children [5, 24] African-American children [13, 33] American Indian and Alaska Native children [35]. There are studies on minority childhood obesity available [30] however there is little known about prevention interventions in U.S. African-American children.

3.1 Effective Strategies for Preventing Overweight and Obesity in African-American Children

Despite the fact that there are extensive reviews in the literature to assess the effects of obesity prevention interventions in children, the majority of research is not specific to minorities. Studies on childhood obesity in African-American children suggest that the risk of overweight and obesity in children are containing a greater effect on minority groups. The reasons for this disparity include family intervention [6]. Effective strategies for preventing overweight and obesity in children are instantly indispensable. Health organizations and experts such as the Institute of Medicine [14, 15] and the World Health Organization [42, 44] have recommended comprehensive prevention interventions to target; 1) diet, 2) physical activity, and 3) reducing sedentary behaviors to prevent childhood and adolescent overweight and obesity.



According to several sources 3 attributable elements are necessary to increase awareness of overweight and obesity in African-American children:

1) Overweight and obesity intervention programs need to be introduced prior to starting school, when behaviors are adaptable [14].

2) A better education is necessary as greater concentrations of fast-food outlets are observed in African-American neighborhoods alongside with limited access to large grocery stores [20], promotion of high-calorie foods and beverages.

3) Increase obligations for routine physical activity [19] are among the reasons for overweight and obesity of African-American children.

Obesity interventions focused on general population seldom are effective for preventing obesity in African-American minority children due to unique; (1) cultural, (2) environmental and (3) social factors often found in racial/ethnic minority groups. Available evidence to identify obesity prevention interventions specifically focused on the U.S. African-American children is examined by Naar-King, (et. al, 2015) which targeted Sequential Multiple Assignment Randomized Trial (SMART) to construct weight loss interventions for African American adolescents ages 12 to 16 in the development of an adaptive behavioral treatment with obesity.

In addition, Brotman [6] concentrated on early childhood family intervention at age 4 and long-term obesity prevention among high-risk minority youth with significant intervention-control group differences on physical and sedentary activity, blood pressure, and diet. Health behaviors were measured an average of 5 years after intervention. Both studies considered obesity intervention strategies as compared to parental or caregiver involvement to quantitatively evaluate the effectiveness of the intervention.

Studies were included in the review of the following criteria: (1) U.S. African-American children ages 4-16 years; (2) key intervention components including diet and nutrition, behavioral treatment, and physical activity, (3) the duration of the intervention and (4) report of sufficient outcome statistics to calculate effect sizes.

4. DISCUSSION

To examine the gap of the interventions for preventing childhood obesity in African-American children in the literature, obesity prevention interventions specifically targeted at



preventing overweight and obesity in African-American children is necessary. Dependable evaluations on the problem of overweight and obese children are essential for the expansion of effective awareness to prevent obesity in African-American children to improve the health and quality of life.

5. CONCLUSION

Creating obesity prevention interventions for African American children is a public health priority as it impacts short and long-term health. To examine available evidence and to identify obesity prevention interventions specifically focused on the U.S. African-American children (1) cultural adaptation and (2) parental involvement should be assessed. The efficiency of interventions need to be designed to prevent obesity in childhood through lifestyle and social support by considering obesity intervention strategies.

Until more evidenced- and research-based on cultural adaptation and parental involvement are available on the prevention interventions for African-American children, it will be difficult to address overweight and obesity problems that plague them.

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REFERENCES

1. Alexander, D. S., Alfonso, M. L., & Hansen, A. R. (2015). Childhood Obesity Perceptions Among African American Caregivers in a Rural Georgia Community: A Mixed Methods Approach. *Journal of community health, 40*(2), 367-378.
2. Al Marzooqi, M. A., & Nagy, M. C. (2011). Childhood obesity intervention programs: a systematic review. *Life Sci J, 8*(4), 45-60.
3. Biro FM, Wien M. (2010). Childhood obesity and adult morbidities. *Am J Clin Nutr.* 91(5):1499S—1505S



4. Bygdell, M., Ohlsson, C., Céline, J., Saternus, J., Sondén, A., & Kindblom, J. M. (2017). The rise and the recent decline of childhood obesity in Swedish boys: the BEST cohort. *International Journal of Obesity*, 41(5), 807-812.
5. Branscum, P., & Sharma, M. W. (2011). A systematic analysis of childhood obesity prevention interventions targeting Hispanic children: lessons learned from the previous decade. *Obesity Reviews*, 12(5), e151-e158.
6. Brotman, L. M., Dawson-McClure, S., Huang, K. Y., Theise, R., Kamboukos, D., Wang, J., & Ogedegbe, G. (2012). Early childhood family intervention and long-term obesity prevention among high-risk minority youth. *Pediatrics*, 129(3), e621-e628.
7. Danver, S. L. (2015). *Native Peoples of the World: An Encyclopedia of Groups, Cultures and Contemporary Issues*. Routledge.
8. Etymon Dictionary. (2014). Retrieved from http://www.etymonline.com/index.php?term=Moor&allowed_in_frame=0
9. Flodmark, C. E., Marcus, C., & Britton, M. (2006). Interventions to prevent obesity in children and adolescents: a systematic literature review. *International journal of obesity*, 30(4), 579-589.
10. Frieden, T. R., & Ethier, K. (2017). Childhood and Adolescent Obesity as a Winnable Battle—Reply. *JAMA*, 317(22), 2336-2337.
11. Haslam, J.W. & James, W.P. (2005). Obesity. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/16198769>
12. Humes, K.R., Jones, N. A., Ramirez, R.R. (2011). Overview of race and Hispanic. Retrieved from <http://www.census.gov/prod/cen2010/briefs/c2010br-02>
13. Ickes, M. J., & Sharma, M. (2011). A review of childhood obesity prevention interventions targeting African American children. *Vulnerable Children and Youth Studies*, 6(2), 103-123.
14. Institute of Medicine (IOM). (2011). *Early Childhood Obesity Prevention Policies*. Washington, DC: The National Academies Press
15. Institute of Medicine (IOM). (2012). *Accelerating Progress in Obesity Prevention*. Washington, DC: The National Academies Press.
16. Kamath, C. C., Vickers, K. S., Ehrlich, A., McGovern, L., Johnson, J., Singhal, V., & Montori, V. M. (2008). Behavioral interventions to prevent childhood obesity: a systematic review and metaanalyses of randomized trials. *The Journal of Clinical Endocrinology & Metabolism*, 93(12), 4606-4615.
17. Kaplan, P. S. (2004). Adolescence. Boston: Houghton Mifflin Company. Retrieved from <http://www.charis.wlc.edu/publications/charis5-3/degner.pdf>
18. Khanolkar, A. R., Amin, R., Taylor-Robinson, D., Viner, R., Warner, J., & Stephenson, T. (2016). Ethnic Minorities Are at Greater Risk for Childhood-Onset Type 2 Diabetes and Poorer Glycemic Control in England and Wales. *Journal of Adolescent Health*, 59(3), 354-361.
19. Kumanyika, S., Taylor, W. C., Grier, S. A., Lassiter, V., Lancaster, K. J., Morssink, C. B., & Renzaho, A. M. (2012). Community energy balance: a framework for contextualizing cultural influences on high risk of obesity in ethnic minority populations. *Preventive medicine*, 55(5), 371-381.
20. Lee, H. (2012). The role of local food availability in explaining obesity risk among young school-aged children. *Social Science & Medicine*, 74(8), 1193-1203.



21. O'Dare, K. (2011). Environmental Sprawl and Weight Status: The Paradox of Obesity in the Food Desert.
22. Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011-2012. *Jama*, 311(8), 806-814.
23. Olds, T., Maher, C., Zumin, S., Péneau, S., Lioret, S., Castetbon, K., & Summerbell, C. (2011). Evidence that the prevalence of childhood overweight is plateauing: data from nine countries. *International Journal of Pediatric Obesity*, 6(5-6), 342-360.
24. Perez-Morales, M. E., Bacardí-Gascón, M., & Jiménez-Cruz, A. (2012). Childhood overweight and obesity prevention interventions among Hispanic children in the United States: systematic review. *Nutr Hosp*, 27(5), 1415-21.
25. May, L.M., Freedman, D., Sherry, B., & Blanck, H. M. (2013). Obesity: United States, 1999-2010. *Morbidity and Mortality Weekly Report*, 62(3), 120-128.
26. Moran, A., & Keane, M. (2013). *Cultural adaptation*. Routledge.
27. Mughal, M. A. Z., (2012) 'Brazil.', in *Native peoples of the world : an encyclopedia of groups, cultures, and contemporary issues*. London & New York: Routledge, pp. 579-581.
28. National Institutes of Health. (2009). Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report". Retrieved from http://www.nhlbi.nih.gov/files/docs/guidelines/ob_gdlns.pdf
29. RevMan 2008 The Cochrane Collaboration. (2008). Review Manager (RevMan). 5.0. *Copenhagen, The Nordic Cochrane Centre: The Cochrane Collaboration*.
30. Russell, C. G., Taki, S., Laws, R., Azadi, L., Campbell, K. J., Elliott, R., & Denney-Wilson, E. (2016). Effects of parent and child behaviours on overweight and obesity in infants and young children from disadvantaged backgrounds: systematic review with narrative synthesis. *BMC public health*, 16(1), 151.
31. Singh, G. K., Kogan, M. D., & Van Dyck, P. C. (2010). Changes in state-specific childhood obesity and overweight prevalence in the United States from 2003 to 2007. *Archives of pediatrics & adolescent medicine*, 164(7), 598-607
32. Šmihula, D. (2009). Definition of national minorities in international law. *Journal of US-China Public Administration*, 6 (5). pp.45-51
33. Stevens, C. J. (2010). Obesity prevention interventions for middle school-age children of ethnic minority: a review of the literature. *Journal for Specialists in Pediatric Nursing*, 15(3), 233-243.
34. Summerbell, C. D., Waters, E., Edmunds, L. D., Kelly, S., Brown, T., & Campbell, K. J. (2005). Interventions for preventing obesity in children. *Cochrane Database Syst Rev*, 3(3).
35. Teufel-Shone, N. I., Fitzgerald, C., Teufel-Shone, L., & Gamber, M. (2009). Systematic review of physical activity interventions implemented with American Indian and Alaska Native populations in the United States and Canada. *American Journal of Health Promotion*, 23(6), S8-S32.
36. U.S. Department of Commerce. (2010). Economics and statistics administration. U.S. census Bureau. The Native Hawaiian and other Pacific Islander population. Retrieved from <http://www.census.gov/prod/cen2010/briefs/c2010br-12>
37. U.S. Department of Health & Human Service (2012) national heart, lung and blood Institute. Who is at risk for overweigh and obesity? Retrieved from <http://www.nhlbi.nih.gov/health/health-topics/topics/obe/atrisk>



38. U.S. Department of Transportation (2015). Hispanic employment in federal government. <https://www.civilrights.dot.gov/hispanic-employment-federal-government>
39. US Legal. (2015). African American laws and legal definition. Retrieved from <http://definitions.uslegal.com/a/african-americans>
40. U.S. Small Business Administration. (2012). 8(a) Program Standard Operating Procedure. Retrieved from <http://www.sbaonline.sba.gov/sops/8005/sop8005-3.pdf>
41. Waters, E., de Silva-Sanigorski, A., Hall, B. J., Brown, T., Campbell, K. J., Gao, Y., & Summerbell, C. D. (2011). Interventions for preventing obesity in children. *Cochrane Database Syst Rev*, 12(00).
42. World Health Organization. (2013). Childhood Overweight and Obesity on the Rise. Retrieved February 21, 2010, from <http://www.who.int/dietphysicalactivity/childhood/en/htm>
43. World Health Organization. (2015). Obesity: preventing and managing the global epidemic. Report of a WHO convention". *World Health Organization technical report series* (Geneva: World Health Organization) 894: i–xii, 1–253. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/11234459>
44. World Health Organization. (2015). Disabilities. Retrieved from <http://www.who.int/topics/disabilities/e>

