



Race and obesity in the black female population: a scoping review

Raça e obesidade na população feminina negra: uma revisão de escopo


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Abstract

About 40% of the world's population is overweight. Obesity is most prevalent among social strata with lower income and education. Although the association between sociodemographic factors and weight gain is well documented, few researchers associated obesity with race/color. This article aims to map the extent, scope, and nature of the association between obesity and race in the scientific literature by conducting a scoping review. Data sources were the Literature Analysis and Retrieval System Online (Medline), Excerpta Medica Database (Embase), Web of Science, Health InterNetwork Access to Research Initiative (Hinari), and Scopus databases, as well as the gray literature. In total, 2,526 articles were found. After duplicates were excluded and inclusion and exclusion criteria applied, 10 articles remained. Race, obesity, socioeconomic status, and gender are tied into a complex relationship whose specificity lies on the socio-historical context. Racial disparities in obesity may be explained by physiological, psychological, and cultural effects of stress due to racial discrimination. Although racial inequality happens everywhere, it assumes different forms. Considering that, further studies should approach regional differences.

Keywords: Black Population Health; Black Women's Health; Social Determinants of Health; Obesity; Scoping Review.

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Resumo

Cerca de 40% da população mundial está acima do peso, sendo a obesidade mais frequente nos estratos com menores rendimentos e tempo de estudo. A relação entre ganho de peso e fatores sociodemográficos é bem documentada, mas poucos pesquisadores buscam associar obesidade com raça/cor. Desta forma, este artigo visa mapear, na literatura científica, a extensão, o alcance e a natureza da relação entre obesidade e raça, por meio de revisão de escopo. As fontes informacionais foram os bancos de dados Medical Literature Analysis and Retrieval System Online (Medline), Excerpta Medica Database (Embase), Web of Science, Health InterNetwork Access to Research Initiative (Hinari) e Scopus, além da literatura cinza. Foram encontrados 2.526 artigos, permanecendo 10 documentos após eliminadas as duplicatas e aplicados os critérios de inclusão e exclusão. Existe uma relação complexa entre raça, obesidade, nível socioeconômico e gênero, cuja especificidade se dá em função do contexto sócio-histórico. As possíveis explicações para as disparidades raciais na obesidade residem nos efeitos fisiológicos, psicológicos e culturais do estresse devido à discriminação racial. Novos estudos devem ser realizados considerando as diferenças regionais, pois a desigualdade racial, embora aconteça em todos os lugares, assume diferentes formatos.

Palavras-chave: Saúde da População Negra; Saúde da Mulher Negra; Determinantes Sociais da Saúde; Obesidade; Revisão de Escopo.

Introduction

Overweight is a global issue. About 40% of the world's population is now overweight and, during the last 40 years, this indicator has tripled (WHO, 2018). Although obesity is not limited to a single segment of the population, it is most prevalent among social strata with lower income and education, being associated with food consumption, physical inactivity, and socioeconomic status.

The increasing prevalence of chronic noncommunicable diseases (CNCD), related to excess body fat, fostered the development of studies addressing obesity. Despite being a risk factor for dyslipidemias, cardiovascular diseases, type 2 diabetes mellitus, and some types of cancer, obesity is also responsible for problems such as musculoskeletal overload and, at an advanced stage, breathing difficulties.

Worldwide, 70% of all deaths are due to CNCD, estimated at 38 million deaths annually. Among these, approximately 28 million occur in low- and middle-income countries, and 16 million affect people under 70 years old. Poorer populations are the most susceptible because they have limited access to healthcare services and to practices that promote it (Malta et al., 2017).

In Brazil, overweight tackles both genders, all socioeconomic levels, and all age groups. However, weight gain is higher among lower income populations. In 2013, 56.9% of adults were overweight and 20.8% obese (IBGE, 2015). Between 2006 and 2017, the prevalence of overweight among men increased by 20% and, in the same period, the prevalence of female obesity increased by 33% (Pinheiro et al., 2019).

Such increase in the prevalence of obesity is justified by changes in dietary patterns. Ultra-processed products, with high levels of sodium, sugar, and saturated fats, have been privileged over fresh or minimally processed foods in home preparations (Martins, 2008; Monteiro; Louzada, 2015). Sugar-sweetened beverages and fast-foods, with high salt concentration and energy density, are examples of ultra-processed products.

As aforementioned, obesity is inversely associated with population's education level - the

proportion of obesity and overweight increases with the decreased study years. The percentage of obese people among those who studied 12 years or more is 12.3% and overweight is 45%. As for those whose education level ranges from zero to eight years, obesity reaches 22.7% and overweight 58.9% (Brasil, 2015; Ferreira; Szwarcwald; Damacena, 2019; Monteiro; Conde; Popkin, 2001).

Although the association between sociodemographic factors and weight gain is well documented, studies associating obesity with race/color are scarce. The higher prevalence of CNCD among the black population indicates that risk factors must apply differently according to race/color. Diabetes mellitus is more prevalent among black people, even after adjustment for age and body mass index (Brito; Lopes; Araújo, 2001); the black population practices less physical activity during leisure time and consumes less fruits and vegetables, which may be due to cultural aspects, less opportunity, and limited access these social goods (Malta; Moura; Bernal, 2015).

The development of Brazilian society and the way through which black people were inserted in it is related to their health-disease process. The harmful effects of an environment of limited access to social citizenship and social wealth are presumed to be preponderant factors of this population distinct vulnerability. Add to that gender inequalities, which aggravate health inequalities - an indispensable pillar to understand the socio-historical determinations of this group morbidity and mortality process. Considering that, this article aims to map the extent, scope, and nature of the association between obesity and race in the scientific literature by conducting a scoping review.

Method

This is a scoping review, a knowledge synthesis that follows a systematic approach to map evidence and identify main concepts, theories, sources, and research gaps on a wide-ranging theme. Unlike the systematic review, which synthesizes a specific aspect, the mapping in the scoping review seeks to deeply and broadly understand a theme (Levac; Colquhoun; O'Brien, 2010).

Our research was oriented by the following issues: what is the scientific knowledge regarding the association between race and obesity in black women? Are there racial disparities within the development of female obesity?

For the purpose of this research, the following parameters were set: population, women; exposure, race; outcome, obesity; design, observational studies. The following databases were searched: Medical Literature Analysis and Retrieval System Online (Medline), Excerpta Medica Database (Embase), Web of Science, Health InterNetwork Access to Research Initiative (Hinari), and Scopus. Gray literature publications (scientific texts that are not classified as articles of indexed journals, such as dissertations, theses, and books) were also searched. Considering that the aim of this research was not to outline knowledge regarding obesity and race/color throughout history, but rather to verify how the theme is treated nowadays, the period of 11 years immediately preceding the search was defined, covering works published between 2007 and 2018.

English descriptors were used for each parameter. Search queries followed the standards established by each data source, considering its different forms of indexing and respective vocabularies - Medical Subject Headings (MeSH), from Medline; Health Sciences Descriptors (DeCS); Emtree, from Embase; among others.

To optimize search sensitivity and specificity, the Boolean operators AND (delimiter) and OR (additive) were applied, as well as the filters available in the databases. The NOT (exclusionary) operator was not applied. Search was complemented by the references of selected studies. Gray literature was searched in Brazilian public universities that provide full-text open access to electronic dissertations, theses, and monographs in their collection. Duplicate articles were deleted using Endnote.

To ensure scope within this scoping review, the following descriptors were used to collect articles on the PubMed portal: ((“obesity”[MeSH Terms] OR “obesity”[All Fields]) OR (“overweight”[MeSH Terms] OR “overweight”[All Fields])) AND (“African Continental Ancestry Group”[All Fields] OR (“continental population groups”[MeSH Terms] OR (“continental”[All Fields] AND “population”[All

Fields] AND “groups”[All Fields]) OR “continental population groups”[All Fields] OR “race”[All Fields])) AND (“women”[MeSH Terms] OR “women”[All Fields]).

Inclusion criteria were: observational studies whose aim was to evaluate racial disparities in the development of female obesity. Studies evaluating race and obesity regarding comorbidities (cancer, dementia, depression, etc.), diagnostic and screening techniques, clinical prognosis, treatments and interventions, genetic and biochemical factors, prevention strategies, and physiology and pathogenesis were all excluded. Articles were not excluded based on country of origin. Studies were selected by two researchers in three stages: first, titles were analyzed, then the abstracts, and at last articles were fully read. A third researcher arbitrated disagreements between the two initial searches.

The following data were extracted from selected articles: publication year; country of studied population; journal in which it was published; definition and classification of race; definition of obesity; method (qualitative or quantitative); instrument for data collection; measure of effect; and conclusion regarding obesity racial differences among women.

Articles were analyzed according to the nature of the formulated issue and the initial concern, aiming to understand the association between race and obesity. From the in-depth reading of each article, a narrative analysis was performed to identify similarities and differences among them. Scientific consensus regarding the subject were deemed as similarities, and differences were described in terms of authors' position, study population, and other specific aspects of the studied issue, to compare and contrast scientific arguments presented for each controversy.

Results

We collected 2,526 publications during identification stage, none of which found in the gray literature. During screening, we excluded 413 duplicates, remaining 2,113 articles for title read. In total, 2,069 articles did not meet the inclusion criteria and were excluded. Researchers read the abstracts of 44 articles and excluded 34 based on

inclusion and exclusion criteria, remaining 10 for full reading (Figure 1).

The selected articles have been published in English. Exclusion criteria did not entail place of research and/or publication; we observed that nine of the 10 articles were written by authors associated to American institutions, one of which was produced in partnership with a French university. The tenth article was published by a Brazilian research institution associated to the Ministry of Health. Nine studies comprised a quantitative research.

For data collection, the studies conducted questionnaires and interviews. All studies measured obesity by body mass index (BMI) - calculated by weight in kilograms divided by height in meters squared. Individuals with BMI ≥ 25 kg/m² were considered overweight, and those with BMI ≥ 30 kg/m² obese.

All studies measured race by self-report but classified it according to each country socio-historical context (Chart 1).

Overall, education level and income measure socioeconomic status and are often comparably associated with outcomes. However, in studies approaching race and obesity, these variables seem to play distinct and sometimes antagonistic roles. American studies showed that the prevalence of obesity in the overall population was associated with lower education, lower income, and employment situation (Wong; Chou; Ahmed, 2014; Zhang; Rodriguez-Monguio, 2012). Despite the significant increase on overweight and obesity among men and women of all ethnic/racial groups, racial differences in these issues were more prominent among those with higher education levels even after adjustments for age, gender, and comorbidities, stressing a higher prevalence of obesity among black and Hispanic populations than among Asians and whites (Jackson et al., 2013).

Longitudinal studies found an increase in obesity over time among men and women of all racial groups (Zhang; Rodriguez-Monguio, 2012), but black people had a greater prevalence of obesity in the United States (Scharoun-Lee et al., 2009). Conversely, lower socioeconomic levels seem to imply an early-onset obesity, but not an over-time BMI increase (Bennett; Wolin; James, 2007). Among people who had lower

childhood socioeconomic status, weight gain during adulthood was more likely to occur among blacks and women (Clarke et al., 2009).

In Brazil, obesity among black men and women increased along with socioeconomic level

(combination of income and education). As for brown and white women, it decreased with increasing wealth, suggesting an association between race and socioeconomic level in the occurrence of obesity (Araujo et al., 2018).

Figure 1 – Flowchart

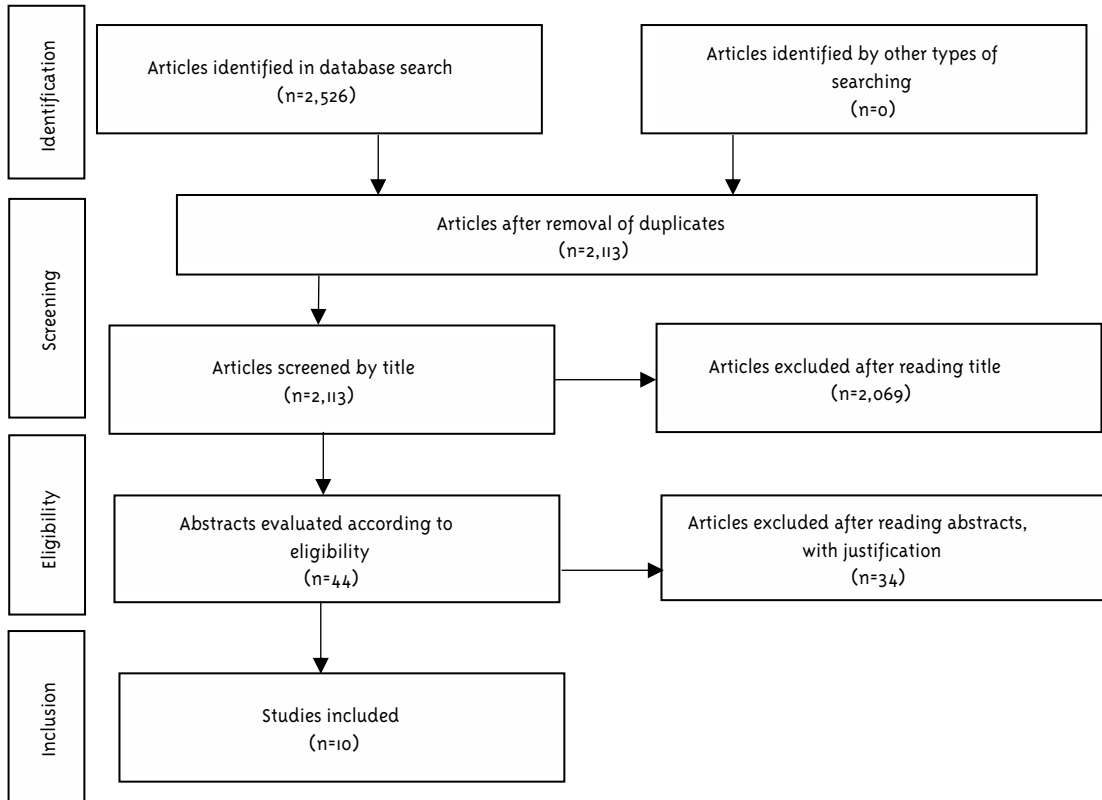


Chart 1 – Synthesis of empirical material

Title	Authors and year	Journal	Country	Type of study	Participants
"The association between obesity and race among Brazilian adults is dependent on sex and socio-economic status"	Araujo et al., 2018	Public Health Nutrition	Brazil	Cross-sectional epidemiological – quantitative	80,702 adults aged between 20-65 years
"Black-white disparities in overweight and obesity trends by educational attainment in the United States, 1997-2008"	Jackson et al., 2013	Journal of Obesity	United States and France	Temporal-trend epidemiological – quantitative	174,228 adults born in the United States

continued...

Chart 1 – Continuation

Title	Authors and year	Journal	Country	Type of study	Participants
"Do socioeconomic gradients in body mass index vary by race/ethnicity, gender, and birthplace?"	Sánchez-Vaznaugh et al., 2009	American Journal of Epidemiology	United States	Cross-sectional epidemiological – quantitative	37,150 adults residing in California
"Lifecourse socioeconomic position and weight change among blacks"	Bennett, Wolin, and James, 2007	Obesity	United States	Cohort and cross-sectional epidemiological – quantitative	1,167 black adults
"Long term trends and racial/ethnic disparities in the prevalence of obesity"	Wong, Chou, and Ahmed, 2014	Journal of Community Health	United States	Epidemiological retrospective cohort – quantitative	150,753 adults residing in California
"Obesity, race/ethnicity and life course socioeconomic status across the transition from adolescence to adulthood"	Scharoun-Lee et al., 2009	Journal of Epidemiology and Community Health	United States	Epidemiological cohort - quantitative	12,940 adolescents
"Racial disparities in the risk of developing obesity-related diseases: A cross-sectional study.	Zhang and Rodriguez-Monguio, 2012	Ethnicity and Disease	United States	Cross-sectional epidemiological – quantitative	63,235 non-institutionalized adults residing in Massachusetts
"Racial/ethnic differences in Body Mass Index: the roles of beliefs about thinness and dietary restriction"	Vaughan, Sacco e Beckstead, 2008	Body Image	United States	Qualitative	816 academic women
"Social context explains race disparities in obesity among women"	Bleich et al., 2010	Journal of Epidemiology and Community Health	United States	Cross-sectional epidemiological – quantitative	1,489 adults
"Social disparities in BMI trajectories across adulthood by gender, race/ethnicity and lifetime socio-economic position: 1986-2004"	Clarke et al., 2009	International Journal of Epidemiology	United States	Epidemiological cohort - quantitative	10,956 adults aged between 18-45 years

Discussion

After an extensive and systematic research in the scientific literature, we only found publications associating obesity with race in two countries (United States and Brazil), reflecting the scarce scientific interest in the matter, despite its relevance.

We observed racial inequalities in the prevalence of obesity. The empirical material assessed such association from the socioeconomic perspective by income, education, and occupation. The analysis also identified gender differences.

For racial classification, Brazil adopted the Institute of Geography and Statistics (IBGE) formulation - white, black (brown and black), yellow, and indigenous people. As for the United States, racial categories were: non-Hispanic whites, non-Hispanic blacks, Asian American and Pacific Islander, and Native Americans. Considering that such classifications refer to a specific national context, they most likely cannot be automatically generalized to other countries. Despite the similarities within the racial classification of United States and Brazil, one must be careful in comparing them - being black, white, Asian/yellow, or native/indigenous in places with different histories and social contexts has a pronounced difference. In turn, the studies presented herein have an undeniable congruency in expressing the association race/obesity and racism as a social determinant of health.

In Brazil, as well as in the United States, obesity is a national epidemic associated with a higher incidence of comorbidities such as diabetes, hypertension, and cardiovascular diseases. Historically, obesity has been an issue for the wealthiest classes in countries of the Global South. Yet, some studies showed that it is becoming increasingly frequent among the poor, and particularly among women.

The evaluation of BMI as a continuous variable and its association with income showed a clear negative gradient. That is: BMI decreases as income increases. Such association is quite clear for white and Hispanic women, but not for black and Asian women in the United States.

Individuals who had lower childhood socioeconomic status (parents without higher education) have higher BMI in adulthood and higher rates of BMI annual growth than those whose parents completed higher education. Women who participated in socially disadvantaged groups showed a higher overall risk of obesity during adulthood (Clarke et al., 2009).

Black women at all education levels showed higher rates of overweight/obesity, whereas white women presented an inverse association between obesity and education over time (Jackson et al., 2013). White women also seem to internalize thin-ideal and adopt food restrictions more often than African-American women (Vaughan; Sacco; Beckstead, 2008).

In Brazil, similarly to the United States, obesity seems to increase along with socioeconomic status in black women, but to decrease in brown and white women.

Racial disparities in obesity may be explained by physiological, psychological, and cultural effects of stress due to racial discrimination (Gee et al., 2008; Paradies, 2006; Williams; Neighbors; Jackson, 2003). Such stress would catalyze physiological processes such as hormonal changes, increasing fat storage by stimulating appetite and suppressing satiety (Björntorp, 2001; Dallman et al., 2004; Rosmond, 2005; Rosmond; Dallman; Björntorp, 1998). The attempt to adapt to an environment of discriminatory practices may also inflict psychic suffering, increasing food consumption (Womble et al., 2001; Yanovski, 1993).

This disparity may also be explained by cultural differences, such as a greater satisfaction, among black women, in presenting bodies with higher measures than the usual standard compared to white women (Millstein, 2008). The increased consumption of foods high in calories and low in nutritional value (Kwate et al., 2009) and the lower breastfeeding rates among racial minorities are other factors that could foster scenarios with an increased risk of weight gain over time. Several factors are associated with the lower breastfeeding rates among black women, including younger age at time of delivery, lower income, lower education

level, early return to work, and less support from the partner (Scanlon et al., 2010).

Black population, especially women, takes up the lower socioeconomic strata. Although such disadvantage is credited to poverty, institutional racism is co-responsible for inequalities in healthcare provision and other circumstances that limit the action of professionals in the field of diagnosis and treatment, as well as in other health-related conditions (Sacramento; Nascimento, 2011). Institutional racism is understood as institutional actions and policies that produce and/or sustain the vulnerability of individuals and social groups victimized by racism (Werneck, 2016). It echoes within all dimensions of black socialization and is manifested by the way they are treated in their jobs, in the scarce production of knowledge disaggregated by the variable race/color, and in the difficult access to healthcare at all complexity levels.

Black women are the ones at higher risk of death. This happens because racial inequalities are added to gender inequalities - here understood as social and cultural constructions that define male and female roles, establishing hierarchies in which men are considered superior to women.

The black population is more likely to develop diabetes, hypertension, and stroke - obesity-associated diseases - than any other racial group (Jackson et al., 2013).

Final remarks

Strategies for health promotion and protection, particularly those targeting to reduce obesity, must consider race/color, gender, and socioeconomic status. Acknowledging factors that underlie racial differences is an important step to reduce inequities in undesirable outcomes to health-related issues. Equity promotion policies focused on promoting social changes may contribute to reduce disparities.

Race - phenotypic differences applied socially to classify and hierarchize individuals - is a social determinant of health. Thus, beyond biological differences, it is the product of social relations. Social disparities show that race is an important predictor of socioeconomic status, as black people

are at a disadvantage in most social indicators (Lovell, Wood, 1998).

The scarce production, in the Brazilian literature, of articles addressing obesity and race was the main scientific gap identified in this investigation: in our sample, only one study was conducted in the country, whereas most of the others were conducted in the United States. Given the complexity of the obesity-race association, we may infer that other countries present distinct characteristics than those found herein. Although social aspects regarding race pose a concern, the overall health sector is still resistant in recognizing or at least investigating the correlation between racism and health (Faustino, 2017).

Our data indicate a complex and multifaceted association between race, socioeconomic level, education, and obesity. The growing obesity epidemic is unequal for blacks and whites, even after adjustment for age and socioeconomic status. The evaluated studies reiterate the specificity of racial inequalities beyond social class differences, which may be explained by veiled racist relationships that limit this group access to rights and induce chronic stress.

Although racial inequality happens everywhere, it assumes different forms according to each social context. Considering that, further studies should approach regional differences.

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Authors' contribution

Oraka, Luiz, Faustino, Teixeira, and Souza conceived the study, whose project was delineated by Oraka, Luiz, Faustino and Oliveira. Oraka search and, together with Oliveira, selected articles to be analyzed. Eventual disagreements were arbitrated by Luiz, who also guided and supervised the search. Obtained data were analyzed and interpreted by Oraka, Luiz, and Oliveira, and the manuscript was written by Oraka, Luiz, and Faustino. Faustino, Oliveira, Teixeira, and Souza critically reviewed the manuscript. All authors approved the final version of the manuscript and declared themselves responsible for all aspects of the work, guaranteeing its accuracy and integrity.

Received: 12/19/2019

Resubmitted: 03/12/2020

Approved: 04/27/2020