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A Scoping Review of the Biological, Socioeconomic, and Environmental Determinants of Overweight and Obesity among Middle Eastern and Northern African Nationalities

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Abstract

Globally, and particularly in the Middle East and North Africa (MENA) region, obesity and overweight have become serious public health concerns. The objective of this scoping review is to identify and summarize the available data on the determinants of overweight and obesity among MENA nationalities. An extensive search was conducted of electronic databases, including Google Scholar, PUBMED, and PROQUEST, for articles published from 2007 until 2022. Ten articles of the 333 that were found in the original search after filtering met the requirements for inclusion. Data extraction and quality assessment were applied to each of the selected studies. A thorough synthesis of the factors influencing overweight and obesity in MENA nationalities is provided by this scoping review. The results show the intricate interplay of anthropometric, behavioral, sociodemographic, and environmental factors that cause overweight and obesity in this population.

Keywords: Overweight; Obesity; Body Mass Index; Oman.

Introduction

In 2017, more than 1.9 billion individuals aged 18 and older were overweight, according to the World Health Organization (WHO, 2017),[1] of these, 650 million were obese.[2] The WHO defines overweight for adults as a Body Mass Index (BMI) greater than or equal to 25 and obesity for adults as a BMI greater than or equal to 30. The term obesity refers to "a disease process characterized by excessive body fat accumulation with multiple organ-specific consequences."[3] Changes in dietary patterns, socioeconomic circumstances, demographics, physical activity levels, and many pregnancies are some of the variables that contribute to the incidence of obesity in Arabic-speaking nations.[4] Both industrialized and emerging nations have reported an increase in obesity prevalence.[5] Studies in the region have shown that overweight and obesity can be predicted by female gender, literacy, and a history of hypertension.[6] Overweight and obesity have increased in the Gulf States including Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE).[7] Historically, Arab culture has associated being overweight or obese with wealth and prosperity for men and fertility among women,[7] however, this perception has altered and obesity is currently acknowledged to be a serious health issue and a known risk factor for major comorbidities.[8]

According to the Global Obesity Observatory, Oman has the 60th highest prevalence of obesity globally, however, for the prevalence of obesity in adult females, the country is ranked 38th, and 34.97 % of Omani women are considered obese .[9] In Saudi Arabia, 20,000 deaths each year occur due to diseases related to obesity.[10] As overweight and obesity are amongst the most preventable causes of mortality and morbidity,[11] Gulf States spend billions of riyals annually to fight the burden of these diseases.

The period from 18–25 years old marks a period of transition from adolescence to adulthood. In previous years obesity has predominantly affected middle-aged adults, however, there is a steady increase of obesity among young adults, generally among college and university students.[12] Young people face significant lifestyle changes around the world, such as leaving home and beginning college or university.[13] A sense of loss can be felt during this transition stage that often leads to time displacement, identity confusion and letting go of familiar contexts.[14] At this stage of life, young adults are of greater vulnerability to imbalances in energy expenditure that

often result in weight gain. Such weight gain may appear less concerning than for older individuals, but may later have its consequences. Risk behaviors may stem from a combination and interaction of social, psychological and biological factors that transpire during these vulnerable years and make young adults vulnerable to risk-taking behaviors.[15] Given the increasing rates of obesity amongst young adults in the Middle East and North Africa (MENA), it is important to develop effective public health strategies to address the issue. This review aims to identify the determinants of overweight and obesity among MENA nationals.

Review Purpose

The purpose of this literature review is to synthesize the available evidence on the determinants of obesity and overweight in MENA populations to serve as a baseline for future research.

Review Objectives

To identify determinants of overweight and obesity among MENA nationalities.

Scoping Literature Review

A review is similar to textual or narrative synthesis[16] with the aim to extract as much relevant material as possible from each piece of literature, including technique, findings and variables. This style of review provides a high-level overview of relevant research accomplishments to date. This form of evaluation can identify a field's conceptual boundaries, quantify the pool of available research evidence, and determine the categories of available evidence and any research gaps.

Materials and Methods

Literature Identification

The search used terms such as “Overweight”, “Obesity” and “MENA Nationalities”. For each manuscript, preliminary relevance was determined from the title, specifically, if the content appeared to discuss overweight and obesity among young adults a full reference was obtained including the author, year, title and abstract for further evaluation.

Search Strategy

Search strategies employed the utilization of established electronic databases such as Google Scholar, PUBMED and PROQUEST.

[Figure 1 Review protocol]

Inclusion and Exclusion Criteria

Inclusion Criteria

A set of inclusion and exclusion criteria was used to select pertinent studies. Studies were required to be conducted in a population of MENA origin. Only studies published with a primary focus on overweight and obesity and published in the English language were. Studies examining diverse drivers of overweight and obesity, such as biological, socioeconomic, and environmental factors were included. The analysis includes both quantitative and qualitative investigations. All articles with a publication date between 2007 and 2022 were taken into consideration.

Exclusion Criteria

A number of studies were excluded due to predetermined standards. Research undertaken prior to 2005 was not included in the analysis. Also excluded from the study selection procedure were meta-analyses and systematic reviews. These exclusion criteria were developed to ensure the chosen studies were pertinent and appropriate for the research purpose.

Quality and Eligibility Assessment

The researchers screened the full text of articles to further evaluate the quality and eligibility of the studies. Studies that were published in reputed journals and books were included. Most online presentations and technical reports were excluded from the review due to the lack of peer review. The quality and eligibility task was performed by two researchers in parallel and independently. Any discrepancies in the findings were resolved by discussion. A Critical Appraisal Skills Programme (CASP) checklist was used to assess the quality of studies.

Search Outcomes

Figure 1.2 depicts the PRISMA Diagram, which demonstrates the selection, screening, and decision points used to determine article eligibility and inclusion. The titles and aims of the 1300 non-duplicate articles retrieved from database searches were screened as part of the preliminary

identification procedure. A preliminary abstract evaluation resulted in the exclusion of 967 articles. This was followed by a thorough screening utilizing the inclusion and exclusion criteria listed above. The articles were sorted by year of publication from 2007 to 2022, with older content automatically eliminated. Quantitative and qualitative studies were accepted, but systematic reviews and meta-analyses were not. This resulted in 333 articles that were published in English. Full-text screening was utilized to narrow down the inclusion criteria and ensure the articles focused on the pre-identified factors. At this stage, 202 articles were excluded on the basis they did meet the pre-identified determinants in their full text and the ten remaining articles were included in the review.

[Figure 2 Prisma Diagram]

Data Extraction & Analysis

The research team coded the papers. A uniform code was decided, and each researcher assigned to the data extraction task used a summary table for each identified variable. Two researchers independently coded the studies. The researchers reviewed each paper in its entirety to provide context about the study and to avoid deviating from the focus of the original paper. Data was synthesized using tables to cluster the findings according to research designs and techniques, quantitative and qualitative studies. Findings were presented separately and combined in a narrative synthesis.

Reporting

To ensure the quality of literature included in the review 'A Measurement Tool to Assess Systematic Reviews' (AMSTAR)[17] checklist was used to identify research that adhered to the suggested standards.

Discussion

Globally, and in particular among MENA and Gulf Cooperating Countries (GCC), obesity and overweight have emerged as serious public health issues. In the GCC and MENA regions, the prevalence of obesity and overweight has risen rapidly. These regions have some of the highest obesity rates worldwide, according to a study by Ng.[18] For instance, [19] calculated the obesity prevalence among adults in Saudi Arabia to be 35.4% while 60.9% of people in the UAE are

reported to be overweight or obese.[20] Due to a variety of biological, socioeconomic, and environmental factors that encourage an obesogenic environment, obesity and overweight has become more common in the MENA region.[15]

The review identified three studies that discuss the biological determinants of overweight and obesity in MENA nations. El Hajj Chehadeh and colleagues[21] examine the role of genetic variations in the UAE's young Arab population's vulnerability to overweight and obesity. The study's main focus is on the genetic causes of overweight and obesity in young people in the UAE. The researchers aimed to pinpoint particular genes or genetic variations linked to a higher risk of overweight or obesity by examining genetic variants. Understanding the genetic components at play can help us to better understand the molecular processes that underlie obesity in the Arab community. This work advances our understanding of the genetic factors that drive obesity and may help in the creation of focused strategies for the management and prevention of obesity.

The prevalence of overweight and obesity among university students in the Sultanate of Oman is examined by Labban.[22] Labban and Al Kilani's works[22,33] both analyze the population's BMI distribution and examine the prevalence of overweight and obesity among university students in the Sultanate of Oman. The findings offer insights into the biological causes of obesity in young Omani adults. A cross-sectional study by Al-Ghamdi and colleagues determines the prevalence of overweight and obesity, assessed by BMI, in Alkharj, Saudi Arabia[23]. These studies highlight the importance of developing personalized activities and interventions that target individuals with a higher genetic predisposition to obesity. This is made possible by understanding the genetic variations linked to overweight and obesity as well as understanding the demographic makeup of both the overweight and obese population. Although there is no one "biological determinant" of obesity and overweight, there are a number of biological characteristics that may put Middle Eastern and North African (MENA) populations at higher risk for these conditions. It's crucial to keep in mind that these groups exhibit substantial variability, which means that the prevalence and influence of these characteristics may differ.

In the context of socio-cultural determinants of overweight and obesity, Kahan[24] examines the sociodemographic aspects of overweight among Middle Eastern American college students. A sedentary lifestyle, which is defined by little physical activity and a greater reliance on technology, is identified as one of the most important causes.[22] The obesogenic environment has also been driven by cultural factors, such as a preference for traditional foods that are high in calories and an increase in fast food intake.[25] Socioeconomic variables, urbanization, and genetic susceptibility all contribute to the development of overweight and obesity.[26] The study sheds light on the socioeconomic causes of obesity in this particular community by examining the link between sociodemographic traits and weight status.

Kuwait's overweight and obesity rates and their relationship with sociodemographic variables show an association between weight status and a variety of social variables, such as age, gender, education, and income.[27] The work of Bays[28] argues collaboration between healthcare professionals, policymakers, educational institutions, community organizations, and other stakeholders is necessary to address the socioeconomic determinants of obesity. Coordination of activities can result in greater reductions in obesity rates. In addition to biological considerations, socio-cultural influences, such as traditions, societal norms, and economic circumstances, have a big impact on obesity and overweight. These socio-cultural factors can differ amongst Middle Eastern and North African (MENA) nationalities and are a factor in the region's high rate of obesity and overweight. Several sociocultural factors that are important includes traditional diets, family social gatherings, sedentary lifestyles urbanization, gender roles and perception of beauty.

In the GCC and MENA regions, obesity and overweight have significant negative effects on both individuals and society. Obese people are more likely to develop chronic illnesses such as type 2 diabetes, cardiovascular disease, and certain types of cancer.[20, 29] Additionally, obesity has a substantial negative impact on healthcare systems, increasing expenditures and lowering quality of life for patients.[25] Environmental determinants of obesity play a crucial role in the prevalence of obesity and overweight in the GCC and MENA. The research of Alhakbany and colleagues,[30] who examine lifestyle factors such as physical activity levels, dietary patterns, sedentary behavior, and sleep duration, provides insights into the specific lifestyle habits that may contribute to overweight and obesity in the Saudi population. To sum up the incidence of obesity

and overweight among Middle Eastern and North African (MENA) nationalities is significantly influenced by environmental variables, which include the physical, social, and economic components of the environment.

These environmental variables may affect dietary preferences, resource accessibility, and community health practices. It has been suggested that promoting health education and awareness campaigns targeting young adults and Saudi women can help raise awareness of the importance of healthy lifestyle habits, including regular physical activity, balanced diets, stress management, and adequate sleep.[31] Moreover, evidence suggests that implementing wellness initiatives in health science colleges encourages Saudi women to adopt healthy living practices.[32] These initiatives can include weight management workshops, stress-reduction exercises, healthy eating options, and physical activity campaigns.

Major global health concerns related to numerous non-communicable diseases (NCDs) are linked to obesity and overweight. The studies of Kilpi and Ghamdi[29,32,33] provide evidence of the continued growth of global obesity rates. This is indicative that obesity is a critical public health issue that demands an urgent response.Furthermore,the review analysis suggest that the relationships between these determinants must be taken into account in order to manage obesity and overweight among MENA nationalities.

Recommendations

The proponents recommends better understanding of the size and complexity of the issue to inspire action at the policy, community, and individual levels. A thorough, multi-sectoral strategy is needed to combat the obesity epidemic in the MENA region. By implementing health promotion activities, the general people should first and foremost be made more aware of the value of exercise and a good diet. The implementation of legislation that promotes the consumption of healthier meals, restricts the marketing of unhealthy foods, and promotes physical activity in workplaces and educational institutions is the second recommendation. In addition, medical professionals should be proactive in recognizing and treating obesity, offering help and encouragement to those who need it. Policies and interventions should be culturally responsive and take into account the cultural norms, beliefs, and eating customs that are

prevalent among the populations in the MENA given the region's variety. The promotion of a wide variety of healthy eating choices can help in the fight against obesity. In order to combat obesity and overweight, it is important to address socioeconomic inequalities. Expanding chances for physical activity, improving access to nutrient-dense food options, and addressing gaps in healthcare access should be policies' top priorities. Due to the rise of obesity-related NCDs, the world's healthcare systems are already incredibly stressed. Increasing healthcare costs, increased demand for medical services, and the need for specialized treatment all contribute to this pressure. This paper described the determinants of the obesity epidemic on the healthcare and MENA population, emphasizing the importance of early detection and intervention. Obesity and overweight-related public health problems are a major concern in the MENA region and its nationals. Action must be taken swiftly due to the high prevalence rates and associated health impacts. Combining health promotion campaigns, legislative changes, and healthcare support can help fight obesity and improve the general health and well-being of individuals in these regions. In light of the prevalent variables and features of the population, tackling the problem of obesity and overweight in MENA countries requires unique initiatives and treatments that drive directly to the cause.

Conclusion

This scoping analysis of the biological, social, and environmental determinants of overweight and obesity among individuals of MENA nationality has, in conclusion, shed vital light on the intricate interplay of elements driving this urgent public health concern. The results of this review demonstrate the complexity of overweight and obesity in the region, highlighting the necessity for an all-encompassing strategy to address the issue. The biological causes of overweight and obesity are genetic predisposition, metabolic conditions, and lifestyle. It has been demonstrated that socioeconomic factors, which are part of the larger social determinants of health, have an impact on the prevalence of obesity. These factors include income disparity, access to education, and employment possibilities. The region's rising rates of overweight and obesity have also been influenced by environmental variables such as urbanization, food accessibility, and obesogenic surroundings.

Conflict of Interest

No conflict to disclose

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Authors' Contribution

GFDV - Conceptualization

GFDV - MBA-methodology

GFDV, MBA, NAZ - data collection, data screening, review and analysis

GFDV, MBA, NAZ - writing of draft, review of the manuscript

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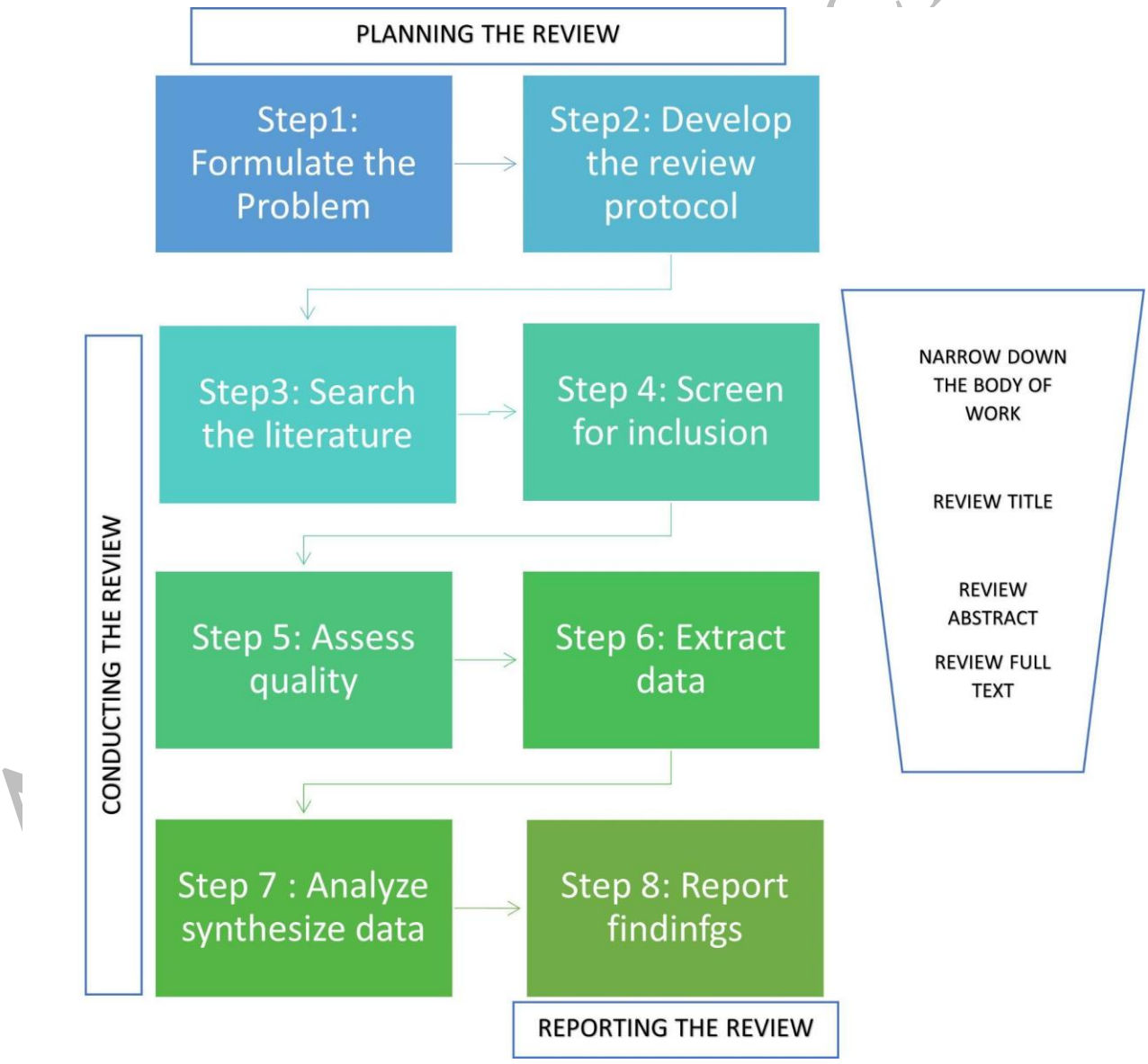
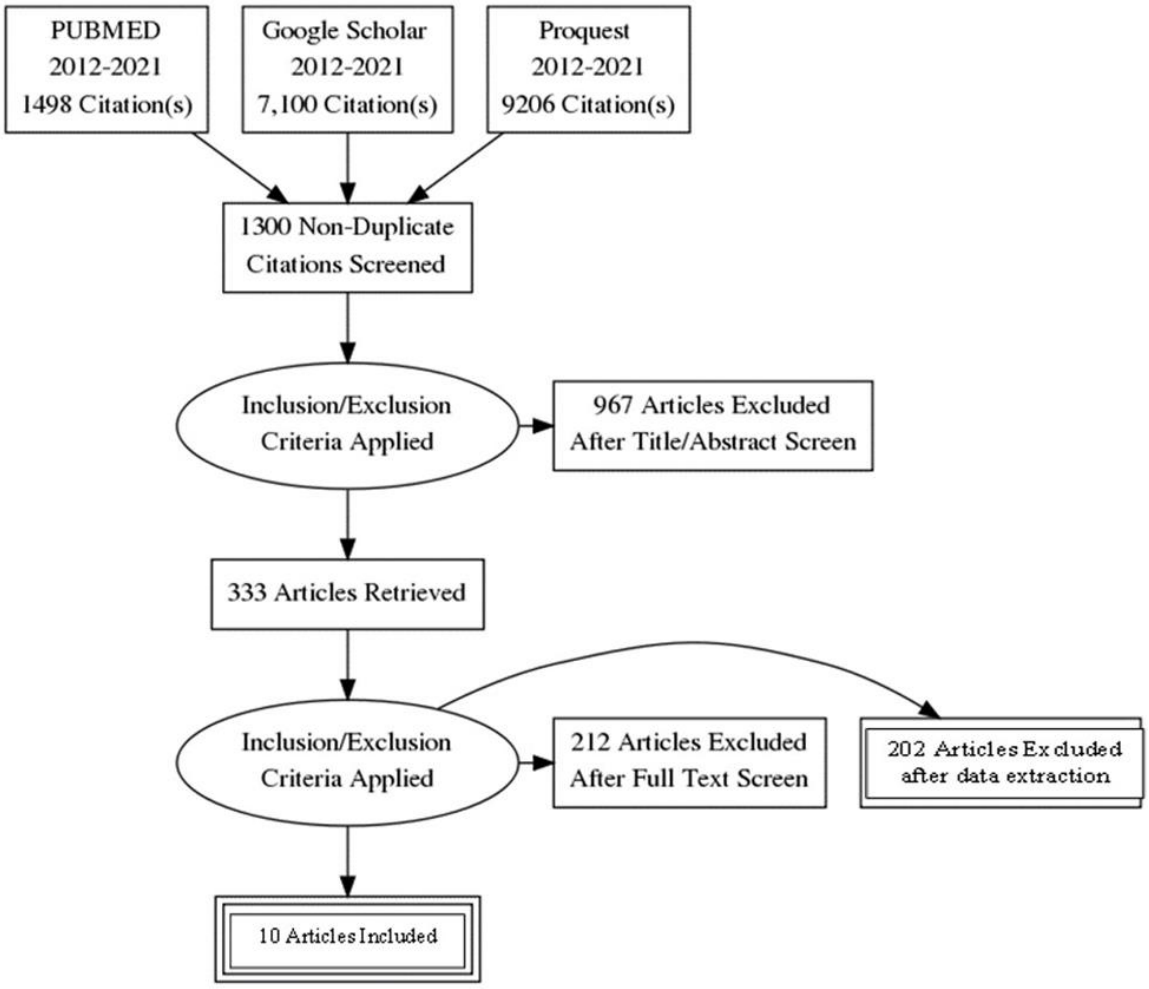


Figure 1: Review protocol



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