Prevalence and trends of obesity and overweight in Palestine: a protocol for a systematic review

Registration: To be registered at the PROSPERO registry in the coming days.

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Summary

Scientific summary: Obesity and overweight is a significant burden on public health and is socially patterned. It is considered to be among the top most important risk factor behind the development of disease worldwide. Worldwide, there are more than a billion obese people. It has been linked to many adverse consequences such as cardiovascular diseases, type 2 diabetes, hypertension and some cancers which may also reduce the average life expectancy among those who are obese. Management of obesity is difficult, costly and unsuccessful in most cases. Many research articles over the past years have revealed increasing trends of obesity among both young & adults residing at the most socioeconomically disadvantaged nations like Palestine, other research results showed plateauing trends of obesity.

The main objective of this systematic review is to determine the exact prevalence of obesity and overweight among children and adults in Palestine. Additional objectives will be to investigate whether using different measures, such as waist-to-hip ratio or waist circumference, might affect the prevalence rates.

A comprehensive electronic search will be conducted for our primary and additional outcomes which will be the prevalence of obesity and overweight, respectively.

This systematic review will provide concrete numbers on the obesity and overweight prevalence across different age groups in Palestinian society.

We hope that our research findings will help decision makers in planning future strategies to minimize obesity and integrate such interventions in into everyday practices in homes, schools, child care settings, the health system and the wider Palestinian community.

Layman Summary: Increased bodyweight is an important risk factor for the development of many serious diseases such as increased blood sugar, increased blood pressure, heart problems and development of brain attacks particularly in rich countries and gulf countries But many published research articles have pointed towards increasing rates of overweight among both young & adults residing at very poor countries like Palestine. The aim of this systematic review is to know the exact percentage of Palestinians with increased bodyweight.

We will also check for any evidence that might favour one scale of assessing increased bodyweight over the others such as BMI, waist-to-hip ratio or waist circumference.

A comprehensive search on different research websites will be conducted for our primary and additional outcomes will be the prevalence of people with marked increased body and people with increased bodyweight, respectively.

The systematic review of literature will provide concrete numbers on the prevalence of overweight across different age groups in Palestinian society.

We hope that our research findings will help health professionals in better planning to minimize overweight and help come up with effective interventions that can be integrated into everyday practices in homes, schools, health care facilities to reduce the negative effects of overweight.

Introduction:

Background: Obesity is the second leading single risk factor for death and disability worldwide, accounting for 3·4 million [2·8 to 4·0] deaths and 3·8% [3·1–4·4] of disability-adjusted life-years (DALYs) in 2010 (Lim SS, Vos T, Flaxman AD, et al, 2010). Over the last century, obesity has been considered as an epidemic of 21st century (Caballero B, 2007). Worldwide, more than 1.9 billion adults were overweight, of those over 600 million were obese. In addition, 42 million children (under age of 5) were overweight or obese in 2013(WHO, 2015).

Worldwide, the proportion of adults with a body-mass index (BMI) of 25 kg/m² or greater increased between 1980 and 2013 from 28.8% (95% UI 28.4–29.3) to 36.9% (36.3–37.4) in men, and from 29.8% (29.3–30.2) to 38.0% (37.5–38.5) in women (Ng M, Fleming T, Robinson M, et al,2013).

High body mass index (BMI) has been linked to an increase risk of type II diabetes, hypertension, ischaemic stroke, coronary heart disease and certain types of cancers (e.g., breast, colon and endometrial), osteoarthritis, and reproductive conditions(Guh DP, Zhang W, Bansback N, et al 2009; Renehan AG, Tyson M, Egger M, et al.,2008). As a result, obesity is now one of the leading factors of global morbidity and mortality (Ng M, Fleming T, Robinson M, et al, 2013; Flegal KM, Kit BK, Orpana H, Graubard BI, 2013).

The prevalence of overweight and obesity has also increased in children and adolescents in developing countries, from 8.1% to 12.9% in 2013 for boys and from 8.4% to 13.4% in girls (Ng M, Fleming T, Robinson M, et al, 2013).

Within the Mediterranean Region, an increasing prevalence of obesity and overweight has been observed and noted to be at “an alarming level” (Musaiger AO, 2004). Economic growth, urbanization, and subsequent changes in lifestyle are among the factors driving widespread increase in obesity and overweight (Malik VS, Willett WC, Hu FB, 2013).

The occupied Palestinian territories (oPt) consist of two geographically separated areas, namely, the Gaza Strip and West Bank and Jerusalem, with 2.72 million in the West Bank and 1.70 million in the Gaza Strip (Husseini A, Abu-Rmeileh NM, Mikki N, et al., 2009).

Over the past century, and like many other developing countries, an epidemiological transition has occurred in Palestine10. There is some conflicting evidence regarding the prevalence of obesity and

overweight in Palestine. A study of Palestinian adults in a rural community estimated the prevalence of obesity as 58.7% and 71.3% among men and women respectively while others reported obesity prevalence as low as 1.7% among female Palestinian college students (Bayyari WD, Henry LJ, Jones C., 2013). Therefore, aggregating the evidence and reaching out for the real prevalence of overweight and obesity is critical to ensure that policy makers can make informed decisions as to where preventive efforts should be focused.

Rationale for doing this review?

To date, many systematic reviews exist which assess the prevalence and the efficacy of interventions for obesity and overweight in various countries including the middle east, However, No study was conducted to ascertain the true prevalence of obesity in one of the most impoverished nations which is Palestine. Therefore, it is necessary to affirm the true prevalence and overweight among Palestinians based on published and unpublished research papers. This project aims to provide the most current evidence on true prevalence of obesity to allow better decision-making processes as well as to show the gaps in research that need to be addressed. It is also necessary, to assess the different measures used to assess obesity and overweight and what genders or age groups are most affected by obesity and overweight.

Objectives:

The aim of this review is to systematically review existing literature on overweight and obesity in Palestine and to establish the prevalence and trends (are they needed) of obesity and overweight.

Therefore our clinical question for this review is: “How common [N] is obesity and overweight among Palestinians [P] compared to other nations”. Or alternatively can be " what is the prevalence [N]of Obesity and Overweight among Palestinians [P] compared to other nations”

Method & Design:

Protocol & Registration:

Methods for this systematic review/meta-analysis protocol have been developed according to recommendations from the Preferred Reporting Items for Systematic Reviews and Meta-analyses protocol (PRISMA_P) statement. This protocol will be registered in the International Prospective Register of Systematic Reviews (PROSPERO) in the coming days.

Search strategy for identification of studies

We will begin by developing a systematic comprehensive database containing all published research papers addressing the prevalence of obesity in Palestinian general populations. We will conduct an electronic search on the following electronic databases: Medline, Ovid databases, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Cochrane Collaboration to identify articles that articles and report obesity prevalence in children and adolescents according to socioeconomic position. Databases will be searched for articles from its inception till the present. The systematic search will be performed in close cooperation with a medical research librarian.

We will also contact experts in the field for possible unpublished or in press data. We will also search grey literature databases including the Virtual Library for Public Health and the System for Information on Grey Literature, We will also hand-search reference lists of all included studies as well as websites from relevant organizations. Searches will be limited to studies of humans and to peer-reviewed full text articles in English. Duplicates will be removed. Additional citations will be located by searching through conference proceedings. Finally, reference lists will be searched manually for relevant studies.

Search Terms:

Search terms will include relevant medical subject headings (MeSH) and keywords in the title, abstract and text for terms including overweight, obesity, Palestine. For each database, searching will be conducted using a combination of the following search term: (obes* OR overweight OR BMI OR body mass index OR adiposity OR waist hip ratio OR waist circumference OR anthropometric) AND (palest* OR gaza OR west bank OR Jerusalem).

Inclusion Criteria:

We will include all original, population-base, peer-reviewed studies of any design (except case reports or case series) that report the prevalence of obesity and/or overweight among Palestinian participants whether young or adult population from 1990 until 2016.

Obesity indicators including one variable at least such as self-reported anthropometric measure (weight and height, body mass index (BMI), BMI z-scores, height and weight, waist circumference, waist to hip

ratio, percentage body fat, skinfold thickness). Only studies from Palestine occupied territories and Palestinians live in diaspora like Palestinians in refugee camps in Lebanon and Jordan will be included.

All these studies will be considered irrespective from the study design.

Exclusion criteria:

Treatment or Interventional studies that report interventions to manage obesity in Palestinian territories will be excluded.

Participants

The population of interest will include Palestinian children, adolescents and adults without any age or gender restrictions.

Settings

We will include studies recruiting participants in the general population as well as clinical settings. Studies will be included if they reported body mass index (BMI) (or weight and height in a usable format to calculate BMI) either as direct/self-reported anthropometric measures: weight and height and.

Outcomes

The point prevalence of obesity and/or overweight will be our primary outcome. Obesity and overweight will be defined on the basis of a body mass index (BMI) (obtained either by self-reported or directly measured height and weight). In adults, the present value is BMI ≥25 and ≥30 kg/m2 for overweight and obesity, as defined by the WHO (2015). In children, we will include studies used BMI >95th or >98th centile for age and sex (based on national normative data) as well as the International Obesity Task Force definition that provides cut point by age and sex of BMI that correspond to the adult BMI of 25 to denote overweight and 30 to denote obesity (Cole TJ, Bellizzi MC, Flegal KM, et al.,2000).

Study Selection process

All Search results will be imported into Endnote file. One reviewer will screen titles and abstracts for their potential relevance.

Two authors will independently screen titles and abstracts from the searches and any articles that report prevalence of obesity or overweight on any part of Palestine will be included for further review. We will

acquire the full text of articles that potentially meet the eligibility criteria. Quality of included studies will be evaluated according to criteria that consider both internal and external validity. If there is any uncertainty at this stage, the article will remain included until the full text is reviewed. Articles identified through reference lists of included studies and relevant systematic reviews will be considered for inclusion on the basis of their title.

We will also obtain full-text articles if eligibility of the study cannot be determined due to insufficient information supplied in the abstract or absence of an abstract. The same two authors will independently assess study eligibility from the full text to ensure they meet the inclusion criteria of the review. Any disagreements over which studies to include will be resolved by discussion and consensus or if disagreement cannot be resolved, a third author will be consulted. Where clarification is required, we will contact the study authors to request the relevant information. Where more than one publication of one study exists, reports will be grouped together and the publication with the most complete data will be used in the analyses. There will be no geographical limitation on the included studies. Only publications in the English language will be included.

A PRISMA-P flow chart of the study selection procedure will be prepared, and a log of rejected studies will be maintained with reasons for exclusion of studies to be documented.

Data Extraction

Data will be extracted from the included studies using an electronic data extraction form on Microsoft Access software. Two review authors will independently extract data; using a standard data extraction form which will be developed by the review authors for the purpose of the review. Any ddisagreements will be resolved by discussion between the two reviewers; if no agreement can be reached, consensus will be sought through discussions with the third reviewer. The extraction form will include the following information:

1- Publication details: title, authors, journal name and year and city, of publication , country in which the study was conducted, type of publication, and source of funding.

2- Study details: study design (cross-sectional, cohort, case-control),, settings (clinical or population-based), study temporality (prospective or retrospective), patients' recruitment methods (consecutive or non-consecutive), the geographical location, year of data collection and response rate. eligibility (inclusion and exclusion criteria), name of assessment tool(s), validation of assessment tool(s)

3- Study participants' details: number of persons surveyed/studied, population characteristics including mean age (SD), and gender distribution, relationship status, demographic information.
4- Outcome measures: method used to define obesity/overweight (self-reported or directly measures), unadjusted point prevalence of obesity and/or overweight, and if reported, adjusted prevalence of obesity and overweight with the covariates included in the adjustment.

5- Limitations: The lack of electricity and internet will make it hard to reach out for all studies and be able to extract all data at time and might increase the chance of missing out some of the published studies.

6- Confounders and possible sources of Bias: selection bias, misclassification bias, information bias, limitations of assessment tool(s) used

Quality assessment

Two review authors will independently asses the quality of the included studies and risk of bias will be assessed using an adapted version of the risk of bias for prevalence studies developed by Hoy et al. (Hoy D, Brooks P, Woolf A, et al.,2012) . We will assess study quality using a quality assessment checklist specific for each study design. Two reviewers will independently assess the risk of bias for each included study for being affected by the most common forms of bias in observational studies: selection, misclassification, confounding, analytic, and attrition bias.

Selection bias

Selection bias is a major source of bias in non-randomized studies. We will evaluate selection bias by closely reviewing study inclusion and exclusion criteria.

Confounding bias

We will determine whether each study adjusted for the most important confounders (e.g. age, sex ..etc).

Misclassification bias

Included studies will be subject to detection bias if they assess the obesity based on the participant's measurement or obesity assessment was based on a different measure such as waist-hip ratio. Therefore, we will only use subjective measures to determine obesity.

Potential publication and small sample size bias will be assessed by visual inspections of funnel plots and also Egger's test. To explore the effect of main factors of interest, meta-regression analysis will be conducted controlling for potential confounders (demographics(age/sex), study methods, and location).

Data synthesis

Descriptive analysis will be performed and relevant data extracted from eligible studies will be presented in tables. We will then present a narrative synthesis and a quantitative meta-analysis of the summary of prevalence of obesity/overweight among Palestinian population in general, and in children and adult separately. All meta-analyses will be evaluated for heterogeneity using Chi-square Q test as well as I^2 test. Values of 25%, 50% and 75% for I^2 indicate respectively low, moderate and high level of heterogeneity. Implications of the review as well as suggestions for future research and interventions will also be provided.

Subgroup analysis:

If there is enough information in the included research studies, then will carry out a subgroup analyses based on population ages, genders, educational level, place of residence, degree of obesity/overweight and the presence or absence of accompanying comorbidities such as Diabetes mellitus, Hypertension, Cardiac disease and stroke events.

Strengths and limitations

The strengths of this review include clearly established purpose, as well as a systematic and transparent approach. Our search will be performed in close cooperation with a specialized research librarian. The screening and extraction will be performed cooperatively by the 2 authors (KE & LA) employing pretested, standardized extraction forms.

The different pools of participants and outcome measures used in each study will make it hard to unify results and derive decisive data.

The heterogeneity of studies makes generalizing the results a difficult task.

The lack of electricity and internet will make it hard to reach out for all studies and might increase the chance of missing out some of the published studies.

Unfortunately, very few Palestinian studies have been published in international journals.

Dissemination

Review Findings will be disseminated through publication in peer-reviewed journals and conference presentations at relevant conferences.

Competing interests

The authors declare they have no competing interests in relation to the planned systematic review.

Authors' contributions

KE developed the research question, initiated and conceptualized the research study, reviewed previous systematic reviews, and wrote the whole manuscript. LA advised on methodology and analysis section and revised the manuscript for important intellectual content and will help in allocating studies that are not available inside Palestine due to the above-mentioned limitations. All authors read and approved the final manuscript.

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