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Review

Metabolic syndrome prevalence in the Iranian adult's general population and its trend: A systematic review and meta-analysis of observational studies

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ABSTRACT

Aims: Metabolic syndrome (MetS) is one of the most important predictors of CVD. Determining the trend of MetS, represents the trend of its components and consequently could forecast the incidence of related diseases particularly CVD. The main object of this study is describing the trend of MetS prevalence in both male and female.

Materials and methods: Original research studies from March 21, 2005 to March 20, 2015 that were published in English database and Persian databases were included in the systematic review. The random effect model was used to estimate the pooled prevalence of MetS. Subgroup analyses, to portray the trend of MetS, conducted based on implementation year.

Results: The total sample sizes for males using the criteria of ATP III and IDF were 30012 and 35064, and for female were 14572 and 16292. The pooled estimation of MetS prevalence in total, male, and female population according to ATP III was 28%, 23%, and 33%; for IDF definitions was 28%, 22%, and 33%. Moreover, according to meta-regression for ATP III the most important source of heterogeneity was mean age.

Conclusion: The findings revealed the trend of MetS prevalence is declining although steady in the last 10 years.

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1. Introduction

Recently, Western lifestyle along with economic growth has caused dramatically increased prevalence of cardiovascular disease (CVD), especially in the developing countries [1]. Metabolic syndrome (MetS) is one of the most important predictors of CVD and is referred to a condition in which metabolic disorders such as abdominal obesity, hypertension, high blood glucose, and dyslipidemia could occur at the same time [2,3]. Moreover, It considered an important determining factor for CVD and type 2 diabetes [4–7]. The leading causes of death in Iran, in contrast to developed countries, during 20 years ago approximately increased as 20–45 percent in which the MetS is one of the culprits [8–10]. It can increase the risk of type 2 diabetes threefold [11,12]. Moreover, it may heighten the risk of fatty liver [13,14] and even cancers [15,16].

Different definitions of MetS could result in variously estimated prevalences. The components of MetS defined as abnormal waist circumference, high fasting blood glucose, high triglyceride, high systolic and diastolic blood pressure, and low high density lipoprotein (HDL). According to World Health Organization (WHO), high fasting blood glucose plus two other the aforementioned components are defined as MetS [17], and based on the National Cholesterol Education program (NCEP) Adult treatment Panel (ATP) III, at least three above-mentioned components are needed for this syndrome [18]. In addition, International Diabetes Federation (IDF), necessitate abnormal waist circumference along with two other factors to confirm MetS [19]. Considering these different definitions, the prevalence of MetS in both developed and developing countries is increasing [20]. In 2007, the prevalence in Iran was estimated as 34.7%, 37.4%, and 41.6% for ATP III, IDF, and ATP adopted, respectively [21]. Its prevalence increases with age and is higher in females compared with males [22] and even is rising in children and young adults [23].

In recent years, a growing number of investigations have been carried out on prevalence of MetS by various definitions among Iranian adult, but there is no information about its time trend and overall estimate for the whole country. Considering the public

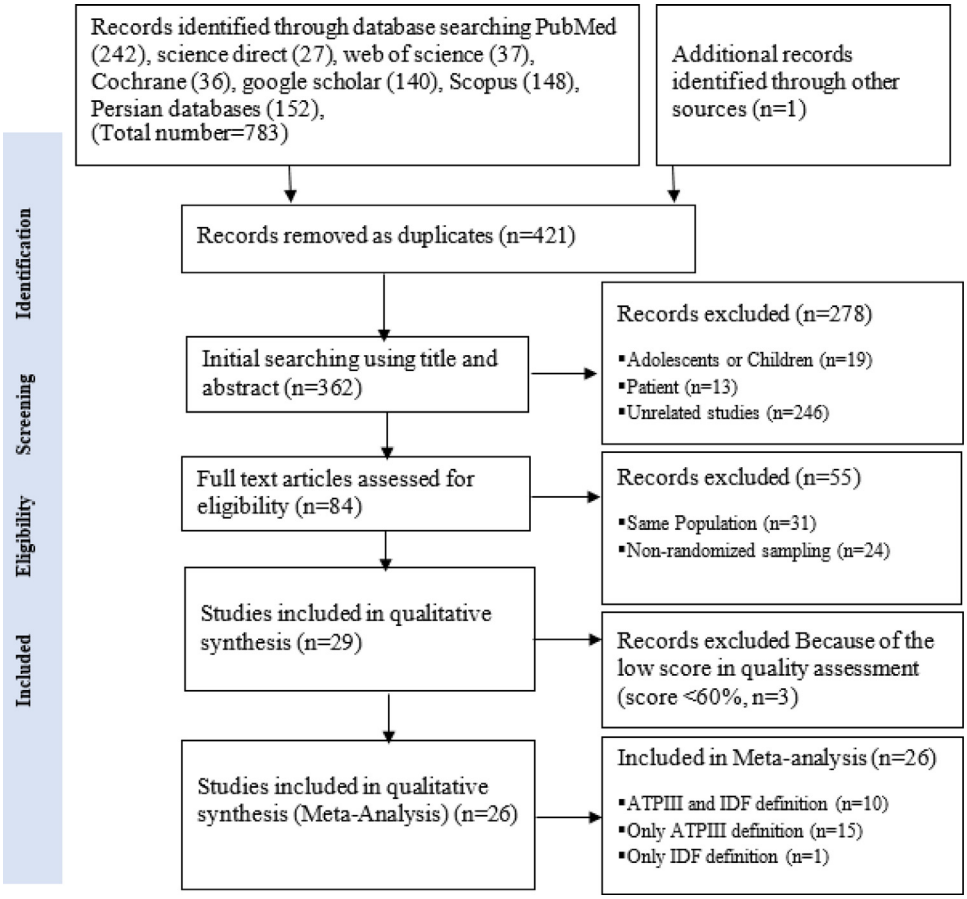

Fig. 1. Flow Diagram for the Study Selection Process through the different phases of a systematic review.

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