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ORIGINAL ARTICLE

Secular trends in the prevalence of weight misperception among Korean adults, 2001–2013

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Summary We examined trends in the prevalence of weight misperception among Korean adults from 2001 to 2013. Data were derived from four Korea National Health and Nutrition Examination Surveys conducted in 2001, 2005, 2009, and 2013. Weight perception was classified as “correct perception” if the weight status based on body mass index (BMI) and the respondent’s body shape perception (BSP) were consistent and “weight misperception” if the weight status based on BMI and the respondent’s BSP were inconsistent. Two of five Korean adults incorrectly recognised their weight status. The weight misperception rate in women increased over time (p for trend = 0.003), but there was no significant difference in the male weight misperception rate over time (p for trend = 0.179). The weight misperception rate in respondents > 60 years old decreased in both men and women (p for trend < 0.05), but women showed an increasing weight misperception rate in all other age groups (p for trend < 0.001). There was no change in the weight misperception rate in men with increasing age (p > 0.05). In respondents with a normal weight, the weight misperception rate increased over time in both men and women (males, p for trend = 0.003; women, p for trend < 0.001), but overweight men (p for trend < 0.001) and obese men and women showed a decreasing rate of weight misperception (men, p for trend = 0.006; women, p for trend < 0.001). The results of this study suggest that health policy efforts are necessary to change the perception of healthy weight status for women, among whom the prevalence of weight misperception is increasing.

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1. Introduction

The rate of obesity is increasing worldwide, and, if these trends continue, it is expected that 38% of the global population will be overweight and 20% will be obese by 2030 [1]. The prevalence of obesity in Korean adults (age > 19 years) increased by 5.3% from 1998 to 2005, and remained at 32% of the population from 2005 to 2012 [2].

Obesity is closely related to the incidence of chronic disease, cardiovascular disease, and cancer and increases the risk of early death, decreases desired lifetime, and affects quality of life [3,4]. A study by Oh et al. [5] followed 773,915 Koreans for 8 years and found that obesity was closely related to type 2 diabetes, hypertension, and hyperlipidaemia. Further, the degree of obesity has been shown to have a direct relationship with the incidence of ischemic heart disease and stroke [6,7], and has been reported to be related to an increase in colorectal, breast, kidney, thyroid, and prostate cancer in Korea [8].

Korean health authorities have made great efforts to control obesity and its effects on public health. However, these weight control policy efforts have proven ineffective because individuals who need weight control frequently have an inaccurate perception of their weight status [9–11]. If an overweight or obese individual perceives his or her weight status as normal, there is no motivation for weight control. Weight misperception is an obstacle to weight control and leads to unhealthy behaviour and poor dietary decisions [12,13]. The correct perception of one's weight needs to precede weight control efforts.

Studies related to weight perception have previously been conducted in America and Western Europe. In several recent studies, 24.8–34.3% of individuals had a misperception of their weight status [11,14,15]. Other studies investigating weight misperception trends in various countries have shown inconsistent results [3,14,16,17]. In addition, the rate of weight misperception has been shown to differ according to weight status, gender, and age [16,18].

In these studies, it has been difficult to determine the accuracy of the perception of weight status in adults, since most studies were not dependent on the actual measurements of weight and height, but on the subjective responses of the subjects. Further, these studies sampled only obese adults, not the general population. A previous study of weight perception was conducted in Korean adolescents [19], but no similar studies have been conducted in Korean adults. To fill this gap, the present study investigated trends in

weight misperception in Korean adults by gender, age group, and body mass index (BMI) status to provide basic data for the development of policies for the management of adult weight misperception.

2. Methods

2.1. Collection of original data and samples

We used data obtained from Korea National Health and Nutrition Examination Surveys (KNHANES) collected in 2001, 2005, 2009, and 2013. KNHANES are cross-sectional, national-wide surveys that have been conducted since 1988 by the Ministry of Health and Welfare and the Korean Centers for Disease Control and Prevention. Its purpose is to generate statistical data on the general health and nutritional status of the Korean population, and to identify population groups that should be prioritised when considering health policies. A stratified multistage cluster-sampling design was used in the KNHANES in order to obtain a nationally representative sample of community-dwelling Koreans. KNHANES consisted of a health interview survey, a health examination, and a nutrition survey. We used data from the health interview survey and health examination for the purposes of our study. The health interview was conducted by trained interviewers using a structured questionnaire following a standardised procedure. The health examination, including anthropometric measurements, was performed by trained nurses.

The raw data was downloaded and analysed after approval was obtained from the corresponding organisations listed on the National Health and Nutrition Examination Survey homepage (<https://knhanes.cdc.go.kr>). All subjects provided informed consent prior to data collection, and the analysis was conducted after obtaining the approval of the research ethics committee of the Korean Center for Disease Control and Prevention. This study included 23,888 of 24,039 adults surveyed (6024 in 2001, 5269 in 2005, 7329 in 2009, and 5266 in 2013). One hundred fifty-one pregnant women were excluded from the study.

2.2. Measurements

BMI was calculated by dividing weight (kg) by the square of the height (m^2). According to World Health Organization (WHO) standards, individuals were classified as underweight (<18.5 kg/ m^2), normal (18.5–24.99 kg/ m^2), overweight (>25.0 kg/ m^2), and obese (>30.0 kg/ m^2)

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