Obesity in Asia-Pacific

- Is It Different from Rest of the World?

(International Symposium)

Obesity is a chronic disease caused by excessive fat accumulation in the body. Obesity has been mainly explained by westernized and modernized lifestyles that include high food calories and reduced activity, and its prevalence has tended to increase as economic power burgeons and urbanization progresses.

In the last century, the world achieved rapid economic growth, and many countries increasingly fell at risk of chronic diseases caused by obesity.

Accordingly, the World Health Organization classified obesity as a disease and set a goal of limiting the increase in obesity prevalence in the International Plan of Action for the Prevention and Management of Chronic Diseases. The Republic of Korea has also set an obesity prevalence target in the National Health Promotion Plan 2030 and emphasized obesity management.

However, despite various efforts to reduce obesity, the prevalence of obesity is still rapidly increasing worldwide, and the Asia–Pacific region, including South Korea, is not an exception. As the world has similar lifestyle habits and the prevalence of obesity is increasing, it is interesting to note that the criteria for diagnosing obesity in Asia are different from countries in other regions.

Accordingly, ICOMES 2023 shared the latest information on the rapidly increasing obesity situation in the Asia–Pacific region and the status of obesity diagnosis standards and treatment in each country, and further prepared a seminar on the advancement of obesity diagnosis and treatment in the Asia–Pacific region.

We request for your great interest and participation,
Obesity in Asia–Pacific
- Is It Different from Rest of the World?

Chairperson: Kyu Rae Lee (Gachon University, Republic of Korea)
Koutaro Yokote (Chiba University, Japan)

17:00-17:10  Prevalence and Trends of Obesity and Metabolic Syndrome in the Asia–Pacific Region
Jun–Hyuk Lee (Eulji University, Republic of Korea)

17:10-17:30  Perspective on Diagnostic Criteria for Obesity in Asia and Global
Hyuktae Kwon (Seoul National University, Republic of Korea)

17:30-18:00  Panel Discussion
Daruneewan Warodomwichit (Ramathibodi Hospital, Mahidol University, Thailand)
Gaga Irawan Nugraha (Faculty of Medicine, Universitas Padjadjaran, Indonesia)
Kwang Wei Tham (Woodlands Health, Singapore)
Sang Yeoup Lee (Pusan National University, Republic of Korea)
Wen–Yuan Lin (China Medical University and Hospital, Taiwan)
The prevalence of obesity and metabolic syndrome has witnessed an alarming surge, emphasizing their stature as predominant global health challenges. As delineated by the World Health Organization (WHO), the proportion of the global adult populace identified as obese was 13% in 2016. This statistic underwent a substantial escalation to 16% by 2020. Notably, current trajectories indicate a distressing trend: no country is poised to meet the WHO’s ambitious target of stabilizing obesity rates at the 2010 figures by the year 2025. If these trends persist unabated, it is anticipated that by 2035, the majority (over 50%) of the global population will be classified as overweight or obese, highlighting the pressing need for innovative advancements in prevention, therapeutic interventions, and supportive measures. The economic ramifications of this health crisis are equally disconcerting. Projections from the World Obesity Federation posit that by 2035, the global economic toll attributable to obesity and its associated conditions will approximate $4.32 trillion, accounting for nearly 3% of the global gross domestic product (GDP). Intriguingly, the economic burden appears to be disproportionately shouldered by countries with limited resources. Specifically, low and lower-middle-income nations, with a significant concentration in the African and Asian continents, are projected to incur a staggering annual cost of $3.70 billion. In light of these trajectories, there is a crucial imperative to rigorously monitor and analyze the prevalence rates of obesity and metabolic syndrome. Such endeavors will not only facilitate a nuanced understanding of the current epidemiological landscape but also inform and prioritize strategic interventions to mitigate this burgeoning health crisis.

The Asia-Pacific region has witnessed a pronounced surge in the prevalence of obesity from 2000 to 2016. Specifically, high-income countries observed a 16.3% increase, while upper middle-income countries noted a rise of 25.4%. Alarmingly, lower middle and low-income nations registered the most significant escalation, with a 28.4% increase. Although the South and Southeast Asian sub-region currently reports a pooled obesity prevalence of approximately 10%, projections suggest a potential doubling between 2010 and 2030.

Globally, the prevalence of metabolic syndrome oscillates between 12.5% (95% confidence interval (CI): 10.2–13.0) and 31.4% (95% CI: 29.8–33.0), contingent on the diagnostic criteria employed. Overall, the prevalence of metabolic syndrome in Western Pacific region and America. The prevalence of metabolic syndrome in Western Pacific region and South-East Asia region was 20.8% and 25.6% by Adult Treatment Panel III of the National Cholesterol Education Program (ATP-III) criteria and 17.8% and 14.8% by WHO criteria, respectively. In Taiwan, the prevalence of metabolic syndrome witnessed a marked escalation from 1993 to 2005: for men, it surged from 13.6% to 25.6%, and for women, it increased from 26.4% to 31.5%. Similarly, in China, between 1998 and 2007, there was a notable rise in the prevalence of metabolic syndrome, with rates growing from 22.4% to 29.0% for men and from 27.9% to 32.9% for women.

In Korea, the prevalence of obesity and metabolic syndrome consistently increased (obesity: from 35.6% in 2009 to 46.2% in 2019; metabolic syndrome: from 27.1% in 2001 to 33.2% in 2020). These were more notably shown in men, rather than women. Especially, the proportions of high glucose level and abdominal obesity increased substantially by 17.9% and 12.2% over the last 20 years. Almost a 4-fold increase in sugar sweetened beverage consumption from 2007 to 2020 could be a reason. Decreased physical activity by 12.2% from 2014 to 2020 also could be a reason.

The prevalence of obesity differs between countries, and one of the reasons is the varying criteria for obesity and abdominal obesity set by each nation. Biological variations can lead to different body mass indexes (BMIs) and waist circumferences associated with increased comorbidities. The relationship between BMI and the way body fat is stored and distributed is known to differ among various ethnicities. For example, Koreans might be more susceptible to diabetes than white individuals with similar BMI and body fat levels, due to a smaller pancreas and higher fat deposition. Even though Asians generally have a smaller pancreas volume compared to white individuals, the effect of obesity on pancreas volume in Asians is similar to that in whites. The increase in the total volume of the pancreas with obesity in Asians is primarily attributed to the growth in fat volume, which aligns with previous observations in the white population. This can significantly influence the onset and exacerbation of insulin resistance, which might be a reason for setting a lower threshold for obesity in Asians compared to Western populations. In addition to the biologic factor, disease risk can fluctuate based on environmental differences and socio-economic burdens, even within a single country. Therefore, establishing the proper cutoff point for obesity is pivotal not only for public health but also in terms of socio-economic expenditure. To illustrate, if we use a BMI of 30 as the benchmark, the obesity rate in India is a mere 5.5%. However, if the threshold is set at 25, the rate skyrockets to 40.3%. On the other hand, the criteria for diagnosing metabolic syndrome are also varied, with standards from ATP-4, International Diabetes Federation (IDF), WHO, American Heart Association/National Heart, lung, and Blood Institute (AHA/NHLBI), and Joint Interim Statement (JIS). The results in potential heterogeneity in the prevalence of metabolic syndrome between countries. Notably, according to WHO criteria, the prevalence of metabolic syndrome in the Western Pacific and South-East Asia regions is 17.8% and 14.8%, respectively, nearly 40% lower than in other areas. Yet, when applying IDF or AHA/NHLBI criteria, the prevalence surges to around 28-29%, making it comparable with other regions. Therefore, it is necessary to further confirm which criteria for diagnosing metabolic syndrome best reflect the disease burden in the Asia-Pacific region. Without considering genetic, environmental, and economic factors, the early intervention of those at high risk may escalate the danger of comorbidities or mortality, posing threats to public health and potentially leading to unnecessary medical expenses.

In conclusion, despite the heterogeneity in the diagnostic criteria for obesity and metabolic syndrome, the prevalence of both conditions is escalating in the Asia-Pacific region. Asians exhibit a higher metabolic risk at the same BMI compared to Westerners, and this risk varies in a mosaic pattern even within the Asian population. Therefore, to mitigate the disease burden of obesity and metabolic syndrome in the Asia-Pacific region, a discussion on tailored criteria that considers biological, environmental, and socioeconomic factors is imperative.

Jun-Hyuk Lee (Eulji University, Republic of Korea)
Hyuktae Kwon
Seoul National University, Republic of Korea

• Education

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• Affiliations / Experience

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<td>Professor</td>
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• Committee Memberships

- Director, Committee of Clinical Guidelines, KSSO
- Committee of Information Technology of KAFM
- Korean Association for Family Medicine (KAFM)
- Korean Society for the Study of Obesity (KSSO)

• Publications


Perspective on Diagnostic Criteria for Obesity in Asia and Global

Hyuktae Kwon (Seoul National University, Republic of Korea)

According to World Health Organization (WHO), obesity is defined as "abnormal or excessive fat accumulation that presents a risk to health", so the management of obesity should be focused on fat reduction and improvement of health risk by fat.

Most commonly used criteria for obesity is body mass index (BMI), but BMI does not precisely reflect the fat distribution, and Asian populations have a higher risk of developing comorbidities such as cardiovascular disease and type 2 diabetes at BMIs lower than Caucasians.

I will review the various diagnostic criteria for obesity in Asia and global and discuss the importance of measuring fat.