Effects of Socioeconomic Status on Nutrition and Nutrition Policy Studies in Asia

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Summary Many studies in Western countries have reported that people with low socioeconomic status (SES) have a greater risk of obesity and non-communicable diseases. However, the relationship between SES and nutrition is considered to differ from country to country among Asian countries. Based on studies since 2010, the nutritional status of populations with low SES can be summarized as follows. In India, undernutrition among children and women has been reported. In China, low energy and nutrient intakes and undernutrition are common among children and the elderly, while both obesity and undernutrition are common in adults. In Japan and Korea, weight faltering in preschool children, low dietary quality among groups from school children to adults, and high obesity among adolescents and adult women have been reported. There are two types of policies aimed at reducing nutrition disparities: approaches for population and those for households with low SES. Nutrition disparities due to SES disparities in Asia need to be monitored. In Asia, studies on nutrition policy have focused on cash subsidies and food assistance for low SES households with the aim of improving undernutrition, but food environment measures for the population as a whole also need to be studied in order to reduce under- and over-nutrition, the double burden of malnutrition.

Key Words Socioeconomic status, nutrition disparities, nutrition policy, Asia

Many studies in Western countries have reported that people with low socioeconomic status (SES) have a greater risk of obesity and non-communicable diseases. In Asia, the economic statuses of countries are diverse, ranging from low- to high-income countries, and many of these economic statuses are changing. Therefore, the relationship between a household’s SES and nutrition is also considered to differ from country to country. Here, SES is defined as the economic status of households, mainly based on income and the Wealth Index. The objectives of this paper are to introduce some evidence of nutrition disparities according to SES and to discuss nutrition policies aimed at reducing these disparities in several Asian countries with different economic statuses. Studies in India, China, Korea, and Japan reported after 2010 are reviewed.

Nutrition disparities according to SES in Asia

India: Many studies have investigated the disparities in infant and maternal nutritional status, but few have investigated disparities in diet. Infants with low SES are often undernourished according to anthropometric indices (1). Adult women with low SES experience food insecurity and anemia (2) as well as wasting (3). Between 2006 and 2016, the prevalence of stunting in infants and being underweight in adults decreased, while the prevalence of obesity in adults increased. Being underweight in adults was more concentrated among poorer households and being overweight was more concentrated among wealthier households in both rural and urban slum areas (4).

China: Infants and school children with low SES have lower intakes of energy and nutrients and school children with low SES have a greater prevalence of being underweight. In contrast, obesity is more prevalent among children from urban areas and from households with higher SES (5). Adults with low SES derive a higher percentage of energy from carbohydrates, a lower percentage of energy from fat, and a lower percentage of energy from protein (6). There are contradictory reports of lower obesity (7) and higher obesity (8) in adults with low SES. Elderly adults with low SES are often underweight (9).

Korea: Children 2–18 y of age with low SES meet the Dietary Reference Intakes (DRIs) of a low number of nutrients (10). First-grade primary school students with low SES have increased BMI after 2 y (11). Adolescents with low SES are more anemic (12) and adolescent girls with low SES are more obese and have lower intakes of fruits and vegetables (13). Adults with low SES have lower nutrient intakes (14), higher carbohydrate intakes, and a greater prevalence of metabolic syndrome (15). Adult women with low SES are more obese, a trend that increased from 1998 to 2018 (16). Older adults with low SES have lower protein intake (17).

Japan: Infants with low SES are more likely to experience weight faltering (18). School children with low SES have lower intakes of fish and vegetables, meet the DRIs of a low number of nutrients, and have low dietary quality (19, 20). There is no significant association between SES and prevalence of obesity among school
children, but adolescents with low SES are more likely to be overweight (21). Adults with low SES have lower intakes of fish and vegetables (22), which leads to a lower overall quality of nutrient intakes (23). Adult women with low SES are more obese (24). Older adults with low SES have less dietary variety (25) and lower serum albumin levels (26). According to a recent study in four countries, the low SES population is characterized by poor diet quality and lower nutrient intakes in all four countries; however, an increased prevalence of obesity in adult women was found only in Korea and Japan.

As pathways from low SES to poor diet and nutrition, the nutritional value of food and food prices were noted. Food prices are higher for nutrient-dense foods and lower for energy-dense foods (27). Therefore, to lower their food costs, low-SES households purchase inexpensive foods and eat foods that are high in energy density and low in nutrient density which is high in fat and sugar (28).

**Nutrition policy reducing nutrition disparities in Asia**

There are two types of policies for reducing nutrition disparities: those that address the population as a whole and those that focus on households with low SES. In Japan, school lunches reduce the economic disparities in children’s dietary quality and this phenomenon has been reported (19, 20). However, there is limited evidence to support the impacts of school-based food environment intervention on diet-related health outcomes such as weight in middle-income countries (29). Interventions that improve the nutritional status of low-SES households in low- and middle-income countries include unconditional/conditional cash transfers (CCTs), income-generation interventions, interventions that address food prices, food vouchers, food subsidies, and social support interventions (30). In India, in addition to CCTs from the government (31), the effectiveness of microloans from NGOs is also being examined (32). India’s integrated child development services program has increased coverage, but the poorest segment of the population is still being left behind (33). In China, there are reports on the effectiveness of government-sponsored CCTs (34) and the Rural Pension Scheme for the elderly (35). In South Korea, there are reports on a supplemental nutrition care program for women, infants, and children (36), on the government-funded meal support program during summer vacation (37), and food assistance programs for older people (38). Most of the low-income households received food support from public social networks, but they perceived a lack of certain food categories such as animal protein and fresh produce (39). In Japan, there are few studies on government policies on nutrition for the low-SES population.

Nutrition disparities due to SES disparities in Asia need to be monitored. In Asia, studies on nutrition policy have focused on cash subsidies and food assistance for low-SES households with the aim of improving undernutrition, but food environment measures for the population as a whole also need to be studied in order to reduce under- and over-nutrition, the double burden of malnutrition.

**Disclosure of state of COI**

No conflicts of interest to be declared.

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