Factors Associated with Body Mass Index (BMI) Among Older Adults: A Comparison Study of the U.S., Japan, and Korea*

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This study examined BMI distributions among older adults in three different countries: the U.S., Japan, and Korea. The paper also explored differences in the factors predicting BMI in the three countries using three data sets: the U.S. Longitudinal Study of Aging (LSOA II, 8,589 persons), the Nihon University Japanese Longitudinal Study of Aging (NUJLSOA, 2,888 persons), and the Korean Longitudinal Study of Ageing (KLoSA, 2,397 persons). Descriptive analysis and multiple regression were performed. Japanese older adults were somewhat lighter than Koreans with fewer people at the upper end of the BMI distribution. Distributions of BMI among both Koreans and Japanese are shifted leftward relative to Americans. There is less dispersion in the distribution of BMI for Koreans and Japanese than among Americans. The association between socioeconomic variables and BMI is stronger in the U.S. and Japan than in Korea. Demographic variables are strong predictors of BMI in Korea. In Japan, all health behaviors have significant effects on BMI. It is concluded that the relationships between behavioral, demographical, and socioeconomic factors and BMI are not the same across countries. Results have policy implications for the involvement of health practitioners in helping older adults to control weight.

Key Words: Body Mass Index (BMI), older adults, the U.S., Japan, Korea, LSOA II, NUJLSOA, KLoSA

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I. Introduction

Increase in obesity is a worldwide issue. Research has shown a linkage between higher weight and poorer health including a higher prevalence of diseases and more functional limitations. Increasing weight is likely to adversely affect health status in the near future in all countries (Himes, 2000; Must et al., 1999; Tsugane, Sasaki, & Tsuibo, 2002; Song & Sung, 2001).

Even though the prevalence of obesity is lower in Asian than Western countries, Asian countries have experienced an increased prevalence of overweight and obesity over the past decade as have other countries including the U.S. (Flegal, Carroll, Ogden, & Johnson, 2002; Yoshiike, Kaneda, & Takimoto, 2002; Yoshiike, Seino, Tajima, & Arai, 2002). However, the rate of change varies across countries, including within Asian countries such as Japan and Korea, because body weight is strongly linked to cultural factors including diet and life style.

While the U.S. and Japan are among most affluent countries in the world, they differ in terms of health and life expectancy. Japan has both the highest life expectancy and active life expectancy in the world (Crimmins, Saito, & Ingegneri, 1997; World Health Organization [WHO], 2007). Meanwhile, the U.S. is not among the top 10 countries in either average life expectancy or active life expectancy (WHO, 2007). Life expectancy in Korea was 79.6 in 2007 which ranks between Japan and the U.S. (The Korean Statistical Information Office, 2009). Differences in life expectancy in Japan, Korea, and the U.S. could be related to levels of body weight.

Thus, it is important to examine how levels of weight or Body Mass Index (BMI), an indicator of a person's body weight relative to height, vary across the U.S., Japan, and Korea in order to better understand how health outcomes might differ across these countries. It is also interesting to examine the association of BMI with behavioral, demographic and economic factors in different cultural settings to assess the universality of relationships (Reynolds, Hagedorn, Yeom, Saito, Yokoyama, & Crimmins, 2008). If factors associated with levels of BMI are the same in countries with very different weight distributions, this would indicate a link that is more universal and not specific to the observed cohorts in specific countries. Asian countries, which tend to have markedly different weight distributions from western countries, therefore provide especially salient comparisons.

The first purpose of this study is thus to examine BMI distributions among older adults in three different countries: the U.S., Japan, and Korea. Then, the second aim is to explore differences in the factors which predict BMI in these three countries.

By developing a conceptual framework that integrates demographic, social, and behavioral factors with body weight, this study will provide a foundation for further theoretical development in the study of determinants of BMI. In addition, determining factors associated with body weight and differences in these factors in the U.S., Japan and Korea can provide clues to effective weight-control policies for older adults in the U.S., Japan, and Korea.