

disables quantitative comparisons with corresponding studies from other population groups. However, the increase in the prevalence of underweight is specific to this population group in the first place. Therefore, the use of relative BMI cut-off points to define body-size categories is an appropriate approach to learn specific characteristics of this particular population group. The findings suggest the nature of excessive weight concerns of young women in Japan. Underweight was also evident in this population group; thus efforts to control such health-risk behaviours of young women at a national level are urgent.

Women are more likely to experience less bodily satisfaction and are more likely to have lower self esteem and negative consequences (i.e. eating disorders) compared with men, regardless of age (Cash & Pruzinsky, 2002). In the present study, despite the fact that a large proportion of women were not overweight, they overestimated their body size and wanted to become even leaner. According to the 2002 NNS-J report, 12.9% of underweight (BMI < 18.5 kg/m<sup>2</sup>) women aged 15 years and older were actually trying to lose weight. Dieting behaviours among underweight women were prominent in women aged 15–19 years (41.0%), and the rate decreased with advanced age. Furthermore, 52.0% of normal-weight (BMI 18.5–24.9 kg/m<sup>2</sup>) women were trying to lose weight, and the prevalence rate of women aged 15–19 years, 20–29 years and 30–39 years were 68.6, 63.8 and 55.4%, respectively. These results suggest that the increase in the prevalence of underweight among young Japanese women is partly due to unnecessary weight control of non-obese individuals. It has been reported that body image concerns during adolescence are related to lower self esteem and are related to increased risks for eating disorders (Cash & Pruzinsky, 2002). In addition, weight-concerned mothers have an impact on their child's behaviours, such as negative weight concerns and unhealthy dieting behaviours (Francis & Birch, 2005). Health professionals need to disseminate information on the risks of unhealthy weight-control behaviours and the benefits of a healthy diet, especially to women of reproductive age. Further studies are needed to identify how overestimation of body sizes and strong 'desire for thinness' observed in this very lean population group are related to poor health of young Japanese women.

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### References

- Allaz AF, Bernstein M, Rouget P, Archinard M & Morabia A (1998) Body weight preoccupation in middle-aged and ageing women: a general population survey. *Int J Eat Disord* **23**, 287–294.
- Blum M, Harris SS, Must A, Phillips SM, Rand WM & Dawson-Hughes B (2001) Weight and body mass index at menarche are associated with premenopausal bone mass. *Osteoporos Int* **12**, 588–594.
- Britto DJ, Meyers DH, Smith JJ & Palmer RL (1997) Anorexia nervosa and bulimia nervosa: sibling sex ratio and birth rank – a catchment area study. *Int J Eat Disord* **21**, 335–340.
- Calle EE & Thun MJ (2004) Obesity and cancer. *Oncogene* **23**, 6365–6378.
- Cash TF & Pruzinsky T (2002) *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York: The Guilford Press.
- Chan JM, Rimm EB, Colditz GA, Stampfer MJ & Willett WC (1994) Obesity, fat distribution, and weight gain as risk factors for clinical diabetes in men. *Diabetes Care* **17**, 961–969.
- Dolan BM, Evans C & Lacey JH (1989) Family composition and social class in bulimia. A catchment area study of a clinical and a comparison group. *J Nerv Ment Dis* **177**, 267–272.
- Edwards LE, Alton IR, Barrada MI & Hakanson EY (1979) Pregnancy in the underweight woman. Course, outcome, and growth patterns of the infant. *Am J Obstet Gynecol* **135**, 297–302.
- Francis LA & Birch LL (2005) Maternal influences on daughters' restrained eating behavior. *Health Psychol* **24**, 548–554.
- Hetherington MM & Burnett L (1994) Ageing and the pursuit of slimness: dietary restraint and weight satisfaction in elderly women. *Br J Clin Psychol* **33**, 391–400.
- Kaneda F, Sugano S, Sano A, Nishida M, Yoshiike N & Yamamoto S (2004) Systematic review of the frequency of "thinness" among children and adolescents in Japan. *Jpn J Nutr Diet* **62**, 347–360.
- Kuchler F & Variyam JN (2003) Mistakes were made: misperception as a barrier to reducing overweight. *Int J Obes Relat Metab Disord* **27**, 856–861.
- McLaren L & Gauvin L (2003) Does the 'average size' of women in the neighborhood influence a woman's likelihood of body dissatisfaction? *Health Place* **9**, 327–335.
- Manson JE, Colditz GA, Stampfer MJ, Willett WC, Rosner B, Monson RR, Speizer FE & Hennekens CH (1990) A prospective study of obesity and risk of coronary heart disease in women. *N Engl J Med* **322**, 882–889.
- Matsuzawa Y, Inoue S, Ikeda Y, et al. (2000) New criteria for obesity and obesity disease (article in Japanese). *Obes Res (Japan)* **6**, 18–28.
- Ministry of Health, Labour and Welfare (2000a) *Health Japan 21: Report on Health Japan 21 Plan Study Committee & Health Japan 21 Plan Development Committee*. Tokyo: Taiyou Bijyutsu Co.
- Ministry of Health, Labour and Welfare (2000b) *Annual Report of the National Nutrition Survey in 1998*. Tokyo: Daiichi Publishing Co.
- Ministry of Health, Labour and Welfare (2004) *Annual Report of the National Nutrition Survey in 2002*. Tokyo: Daiichi Publishing Co.
- Paeratakul S, White MA, Williamson DA, Ryan DH & Bray GA (2002) Sex, race/ethnicity, socioeconomic status, and BMI in relation to self-perception of overweight. *Obes Res* **10**, 345–350.
- Russell JD, Mira M, Allen BJ, Stewart PM, Vizzard J, Arthur B & Beumont PJ (1994) Protein repletion and treatment in anorexia nervosa. *Am J Clin Nutr* **59**, 98–102.
- Suka M, Sugimori H, Yoshida K, Kanayama H, Sekine M, Yamagami T & Kagamimori S (2005) Body image and body satisfaction play important roles in the path to dieting behavior in Japanese preadolescents: The Toyama Birth Cohort Study. *Environ Health Prev Med* **10**, 324–330.
- Takimoto H, Yoshiike N, Kaneda F & Yoshita K (2004) Thinness among young Japanese women. *Am J Public Health* **94**, 1592–1595.
- Talamayan KS, Springer AE, Kelder SH, Gorospe EC & Joye KA (2006) Prevalence of overweight misperception and weight control behaviors among normal weight adolescents in the United States. *Scientific World Journal* **26**, 365–373.
- Tsugane S, Sasaki S & Tsubono Y (2002) Under- and overweight impact on mortality among middle-aged Japanese men and women: a 10-y follow-up of JPHC study cohort I. *Int J Obes Relat Metab Disord* **26**, 529–537.

- Wardle J, Haase AM & Steptoe A (2005) Body image and weight control in young adults: international comparisons in university students from 22 countries. *Int J Obes (Lond)* **30**, 644–651.
- Watanabe H (2003) *Research on Current Status of Anorexia Nervosa and its Policy: The 2002 Report no. H13-child-015* Tokyo: Ministry of Health, Labour and Welfare, Maternal and Child Health Division.
- Wilson PW, D'Agostino RB, Sullivan L, Parise H & Kannel WB (2002) Overweight and obesity as determinants of cardiovascular risk: the Framingham experience. *Arch Intern Med* **162**, 1867–1872.
- World Health Organization (2003) Global Strategy on Diet, Physical Activity and Health: Obesity and Overweight. Accessed 19 July 2006. [http://www.who.int/hpr/NPH/docs/gs\\_obesity.pdf](http://www.who.int/hpr/NPH/docs/gs_obesity.pdf)
- Yoshiike N, Seino F, Tajima S, Arai Y, Kawano M, Furuhashi T & Inoue S (2002) Twenty-year changes in the prevalence of overweight in Japanese adults: The National Nutrition Survey 1976–95. *Obes Rev* **3**, 183–190.

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