Obesity Associated with Reduced Physical Health but Not Mental Health

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There is an increasing prevalence of obesity worldwide. It was projected that, by the year 2030, the absolute number of obese adults would reach a total of 1.12 billion, or 20% of the world's adult population.\(^1\) In Singapore, the prevalence of obesity (body mass index (BMI) $\geq$30.0 kgm\(^{-2}\)) among residents aged 18-69 years increased from 6.0% in the year 1998 to 6.9% in the year 2004.\(^2\) Being obese is associated with higher risk of mortality.\(^3\)

Health related Quality of Life (HRQoL) is an important patient reported outcome that measures the effect of health condition on an individual's subjective evaluation of physical, social, and mental well being.\(^4\) Current studies reported conflicting results with regards to the impact of obesity on mental health, with studies reporting reduced,\(^5\) similar\(^6\) or improved\(^7\) mental health. Nevertheless, most studies appear to be consistent in reporting obesity being associated with reduced physical health.\(^5, 8, 9\)

With funding support from the NUS cross faculty grant (Principal Investigator: Dr Wee Hwee Lin, Department of Pharmacy, Faculty of Science; co-PI: A/P Jeannette Lee, Department of Epidemiology and Public Health, Yong Loo Lin School of Medicine; awarded May 2009) and using data from the Singapore Prospective Study Program (SP2) led by Principal Investigator A/P Tai E Shyong (Department of Medicine, Yong Loo Lin School of Medicine), Dr Wee and co-authors investigated the association between body mass index (BMI) and physical and mental HRQoL in Singapore. This study involved the analyses of cross-sectional data from 5027 Chinese, Malay and Indian Singaporean participants (2403 men and 2624 women) aged 24-95 years all of whom attended a medical examination and completed the Short Form 36 (SF-36, a widely used questionnaire for assessing HRQoL) between 2004 and 2007. A statistical approach known as linear regression was performed with and without accounting for other variables that may be associated with the relationship between BMI and SF-36 physical component summary score (PCS) and mental component summary score (MCS). and found that obesity impaired physical well-being (measured using the physical component summary score of the Short Form-36 (SF-36), a well-established HRQoL measure). The effect of which was modified by sex but not ethnicity, such that the effect was greater in women than in men. Hence, efforts to reduce or prevent obesity are likely to have similar benefits in all ethnic groups, at least in Singapore. However, obesity was not associated with mental well-being (measured using the mental component summary score of the SF-36).
An important strength of this study lies in the large sample size. In addition, weight and height were measured rather than self-reported (common in other published studies), with underreporting of weight and overreporting of height being common among obese individuals. Nevertheless, the cross-sectional nature of this study limited our ability to test the causal association between BMI and HRQoL. Hence, the group hopes to conduct a longitudinal follow-up study in the near future to ascertain the causative relationship between BMI and HRQoL.

A manuscript reporting these findings has been accepted for publication by the *International Journal of Obesity* in January 2010 and this represents one of the few studies in Asia Pacific on this issue.


