

A U-shaped Relationship between Body Mass Index and Dysmenorrhea: A Longitudinal Study

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Abstract : Introduction: Limited longitudinal studies have examined the relationship between BMI and dysmenorrhea, resulting in mixed results. This study aims to investigate the long-term association between BMI and dysmenorrhea. Methods: 9,688 women from Australian Longitudinal Study on Women's Health (ALSWH), a prospective population-based cohort study, were followed for 13 years. Data were collected through self-reported questionnaires repeatedly on all variables, including dysmenorrhea, weight and height. The longitudinal association between dysmenorrhea and BMI or BMI transition (change of BMI categories between two successive surveys) was investigated by generalized estimating equations. Results: When the women were aged 22 to 27 years, approximately 11% were obese, 7% underweight, and 25% reported dysmenorrhea. Over the study period, the prevalence of obesity doubled whereas that of underweight declined substantially. The prevalence of dysmenorrhea remained relatively stable. Compared to women with a normal weight, significantly higher odds of reporting dysmenorrhea were detected for both women who were underweight (odds ratio (OR) 1.25, 95% confidence interval (CI) 1.09, 1.43) and obese (OR 1.20, 95% CI 1.10, 1.31). Being overweight was not associated with increased risk of dysmenorrhea. Compared to women who remained at normal weight or overweight over time, significant risk was detected for women who: remained underweight or obese (OR 1.35, 95% CI 1.23, 1.49), were underweight but became normal or overweight (OR 1.29, 95% CI 1.11, 1.50), became underweight (OR 1.24, 95% CI 1.01, 1.52). However, the higher risk among obese women disappeared when they lost weight and became normal weight or overweight (OR 1.07, 95% CI 0.87, 1.30). Conclusions: A U-shaped association was revealed between dysmenorrhea and BMI, revealing higher risk of dysmenorrhea for both underweight and obese women. Further, the risk disappeared when obese women lost weight and acquired a healthier BMI. However obesity certainly poses a greater burden of disease from the public health perspective, thus requires greater effort to tackle the increasing problem at the population level. It is important to maintain a healthy weight over time for women to enjoy a better reproductive health.

Keywords : body mass index, dysmenorrhea, obesity, painful period, underweight

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