The related study of anthropometric status between university students and their parents

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Introduction

The global epidemic of overweight and obesity -"globesity" – is rapidly becoming a major public health problem and further, the new burden in many parts of the world. World Health Organization (WHO)'s previous data release indicates that in 2005 more than 1 billion adults were overweight globally,and at least 300 million of them obese. In the dimension of disease prevention, overweight and obesity are of the top awareness for they pose a major risk for chronic diseases, including typ-2 diabetes, cardiovascular diseases,hypertension,stroke,and certain forms of cancers. Recently, there have been concerns about overnutrition in Asian population as several studies manifest a higher risk for obesity-induced complications at lower body mass index (BMI) than western counterparts.Individual psycho-physical consequences,together with the high socio-economic costs of obesity and overweight suggest that serious interventions should be taken into consideration for better public welfare. Global upsurge in overweight and obesity is now confirmed to be attributable to the synergistic effect of exogenous and endogenous factors. The dramatic shift in diet pattern and trend towards sedentary life style take place while genetic predisposition lies underneath.

The purpose of this study is to confirm the idea of obesigenic predisposition and assess the possible relationship between parental BMI and the BMI status of their offspring when other exogenous factors are excluded.

Materials and methods

Subject characteristics

A total sample of 98 subjects were recruited from junior college students, aged 20 ~22 yrs, in the School of Nutrition and Health Sciences at Taipei Medical University in March, 2007.

Anthropometric data

The BMI of the students and their parents was calculated from self-reported weight and height. BMI cut-off points for being overweight and obese are＞24(kg/m2) and＞ 27(kg/m2) respectively, according to the BMI standard reference for adult set by Department of Health, Executive Yuan, R.O.C.

Statistical analysis

The prevalence of overweight and obesity was calculated and the relative risk was used to describe the association of offspring overweight between different parental overweight status and referred to acceptable parental weight as the reference category.

Results and discussion

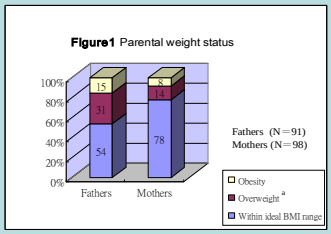
Weight status of subjects

The ratios for being within ideal BMI range shown in table 1 demonstrated that the female subjects in both populations were more likely to stay in normal weight status than their male counterparts and the idea of gender discrepancy in prevalence of overweight at young and middle age might be suggested.

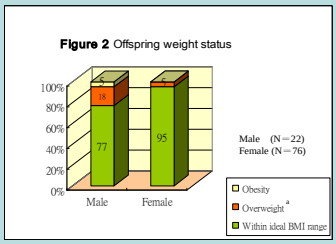
Table 1 Prevalence of overweight and obesity among parents and Offspring

	Parents Male (N=91) Female (N=98) Total (N=189)	Offspring Male (N=22) Female (N=76) Total (N=98)
	N (%)	N (%)
Overweight [a]	64 (34)	9 (9)
Male	42 (46)	5 (23)
Female	22 (22)	4 (5)
Obesity [a]	22 (12)	1 (1)
Male	14 (15)	1 (5)
Female	8 (8)	0 (0)
Within ideal BMIrange[b]	125 (66)	89 (91)
Male	49 (54)	17 (77)
Female	76 (78)	72 (95)

[a] Overweight and obese, BMI＞24.0(kg/m²) and＞27.0(kg/m²) .
[b] Ideal BMI range,18.5~24.0(kg/m²).
(Department of Health, Taiwan)



a For a clearer demonstration ,subjects of obesity are excluded from the category of overweight which accounts only for subjects between 24~27 (kg/m2).



Relative risk of offspring overweight

Table 2 shows the risk of offspring overweight according to different parental overweight status relative to the risk that both parents are of acceptable weight. The relative risk for having an overweight offspring was 5 times higher with both parental overweight than either parental overweight. Data also demonstrated that the relative risk of offspring overweight in overweight mothers had a twofold increase compared with paternal overweight. This finding might be pointed to a possible difference of gender disparity on obesigenic predisposition.

Table 2 Relative risk of offspring overweight[a] according to parental weight status

	No. subjects overweight/ total		Relative risk
	N	%	
Both parents are of acceptable weight[b]	1/47	2	
Either parental overweight	3/39	8	3.6
Paternal overweight	7/42	17	7.8
Maternal overweight	6/22	27	12.8
Both parental overweight	5/12	42	19.6

[a] Overweight, BMI＞24.0(kg/m²) .
[b] Within the ideal BMI range,18.5~24.0(kg/m²).
(Department of Health, Taiwan)

Conclusion

The finding of this study highlights the idea of obesigenic predisposition and suggests that overweight parents are more likely to have overweight offspring than parents of acceptable weight. But for a more objective dimension of parental BMI status it 's important to know that parental effect contributes partly to genetic components, while several other environmental factors, such as the lifestyle and diet patterns of the family, parental food preferences and attitudes, and the behaviors of parents and siblings should be lumped together to draw a comprehensive effect. Due to the limitation of comprehensive data collecting, further study is required to explore the whole picture of parental BMI effect.