EP012



Weight Status Misperception Among Adolescents In Malaysia:

Socio-demographic, Lifestyle And Mental Health Correlates

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Introduction

- Adolescence is a critical periof for rapid growth and development, marked by profound physical, cognitive, and psychosocial changes.[1]
- **Weight status misperception** occurs when there is a discrepancy between one's perceived weight status and their actual weight status, and this is particularly common among adolescents.
- In Malaysia, rising prevalence of overweight and obesity among adolescents highlights the need to understand how adolescents perceive their weight.[2]
- Weight status misperception during this stage may influence lifestyle choices and mental well-being, making it a growing public health concern.

Objectives

- To examine the prevalence of weight status misperception among school-going adolescents in Malaysia
- To determine the associations between weight status misperception (underestimation and overestimation) with socio-demographic, lifestyle, and mental health-related factors

Methodology

- **Data source**: National Health and Morbidity Survey (NHMS) 2022: Adolescent Health Survey, a nationwide cross-sectional school-based survey
- **Study population:** 33,523 adolescents aged 13–17 years from 239 randomly selected secondary schools (overall response rate = 89%)
- **Data collection:** Self-administered, validated Global School-based Student Health Survey (GSHS) questionnaires, and anthropometric measurements by trained research assistants
- **Measurement of weight status misperception:** Actual weight status was classified using WHO BMI-for-age criteria and compared with self-perceived weight status
- **Data analysis:** Descriptive statistics and multinomial logistic regression analyses accounting for complex sampling design were performed using SPSS version 31.0

Results

- Overall, 30.8% of adolescents underestimated and 17.1% overestimated their weight status, while 52.1% perceived it accurately **(Figure 1).**
- Underestimation was more likely among younger adolescents (AOR: 2.10, 95% CI: 1.89-2.33), ever/current drug users (AOR: 1.22, 95% CI: 1.07-1.39), and those who frequently consumed soft drinks (AOR: 1.10, 95% CI: 1.02-1.18) and fast food (AOR: 1.23, 95% CI: 1.11-1.37) **(Table1).**
- Overestimation was associated with female adolescents (AOR: 1.95, 95% CI: 1.75-2.16), inadequate fruit intake (AOR: 1.16, 95% CI: 1.07-1.25), frequent fast food intake (AOR: 1.23, 95% CI: 1.08-1.40), loneliness (AOR: 1.16, 95% CI: 1.02-1.32), depression (AOR: 1.39, 95% CI: 1.23-1.57), and suicidal ideation (AOR: 1.16, 95% CI: 1.03-1.32) **(Table 1).**



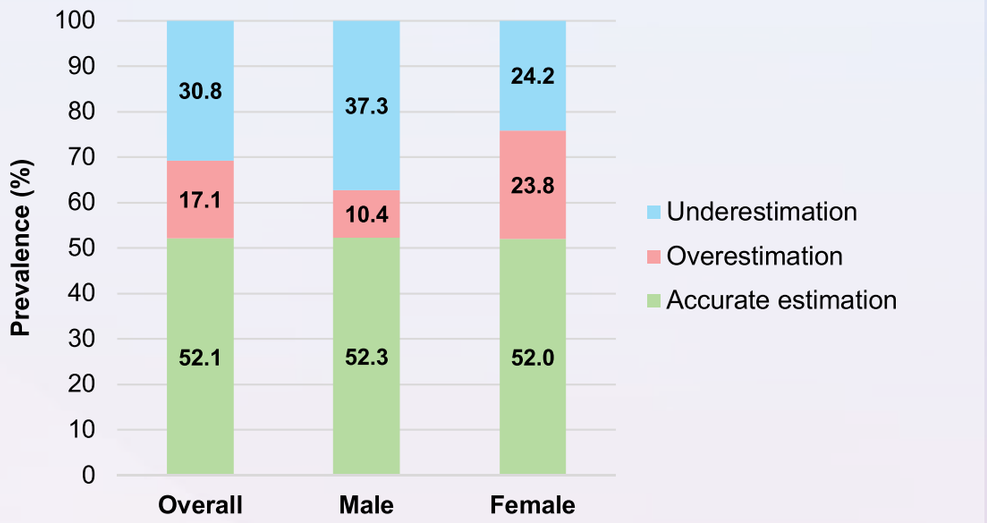


Figure 1: Prevalence of body weight misperception among adolescents aged 13-17 years.

Table 1: Multinomial logistic regression analysis of factors associated with weight status misperception among school adolescents aged 13-17 years in Malaysia.

Variables	Underestimation		Overestimation	
	Adjusted OR[b] (95% CI)	*p*-value	Adjusted OR[b] (95% CI)	*p*-value
Sex				
Male	1.00		1.00	
Female	0.68 (0.64, 0.73)	**<0.001**	1.95 (1.75, 2.16)	**<0.001**
Age (years)				
13	2.10 (1.89, 2.33)	**<0.001**	0.95 (0.84, 1.07)	0.354
14	1.67 (1.48, 1.88)	**<0.001**	0.98 (0.85, 1.13)	0.800
15	1.28 (1.13, 1.44)	**<0.001**	1.02 (0.90, 1.16)	0.735
16	1.22 (1.08, 1.38)	**0.002**	1.03 (0.90, 1.18)	0.678
17	1.00		1.00	
Ethnicity				
Malay	1.00		1.00	
Chinese	0.80 (0.72, 0.89)	**<0.001**	0.77 (0.67, 0.90)	**0.001**
Indian	1.13 (0.97, 1.32)	0.129	0.96 (0.80, 1.16)	0.656
Other Bumiputeras	1.06 (0.95, 1.18)	0.275	0.87 (0.76, 1.00)	0.055
Others	0.94 (0.74, 1.19)	0.608	1.05 (0.83, 1.32)	0.685
Marital status of parents[a]				
Married	–	–	–	–
Divorced/separated/widower	–	–	–	–
Weight control behaviour				
None	1.00		1.00	
Tried to lose weight	0.94 (0.85, 1.04)	0.201	2.21 (2.03, 2.41)	**<0.001**
Tried to gain weight	2.24 (2.02, 2.49)	**<0.001**	0.44 (0.35, 0.54)	**<0.001**
Tried to maintain weight	0.56 (0.50, 0.63)	**<0.001**	0.65 (0.56, 0.75)	**<0.001**
Physical activity status				
Active	1.00		1.00	
Inactive	1.07 (0.98, 1.17)	0.122	0.98 (0.88, 1.09)	0.712
Sedentary behaviour				
Yes	0.92 (0.86, 0.99)	**0.018**	1.06 (0.98, 1.16)	0.148
No	1.00		1.00	
Current cigarette smoker				
Yes	1.10 (0.94, 1.28)	0.222	1.16 (0.96, 1.42)	0.127
No	1.00		1.00	
Current E-cigarette user				
Yes	1.04 (0.94, 1.16)	0.424	0.94 (0.82, 1.09)	0.421
No	1.00		1.00	
Alcohol drinking status[a]				
Ever/Current	–	–	–	–
Never	–	–	–	–
Drug use status				
Ever/Current	1.22 (1.07, 1.39)	**0.004**	1.19 (1.00, 1.42)	0.055
Never	1.00		1.00	
Fruits intake				
Less than 2 times per day	0.99 (0.92, 1.06)	0.706	1.16 (1.07, 1.25)	**<0.001**
At least 2 times per day	1.00		1.00	
Vegetables intake				
Less than 3 times per day	0.95 (0.88, 1.02)	0.153	1.00 (0.92, 1.09)	0.993
At least 3 times per day	1.00		1.00	
Carbonated soft drinks intake				
Less than 1 time per day	1.00		1.00	
At least 1 time per day	1.10 (1.02, 1.18)	**0.009**	1.06 (0.97, 1.16)	0.214
Fast food intake				
Less than 3 days per week	1.00		1.00	
At least 3 days per week	1.23 (1.11, 1.37)	**<0.001**	1.23 (1.08, 1.40)	**0.002**
Anxiety-induced sleep disturbance				
Yes	1.05 (0.94, 1.17)	0.392	1.10 (0.96, 1.27)	0.180
No	1.00		1.00	
Loneliness				
Yes	1.05 (0.95, 1.16)	0.371	1.16 (1.02, 1.32)	**0.028**
No	1.00		1.00	
Depression				
Yes	1.04 (0.95, 1.14)	0.414	1.39 (1.23, 1.57)	**<0.001**
No	1.00		1.00	
Suicidal ideation				
Yes	1.04 (0.94, 1.16)	0.444	1.16 (1.03, 1.32)	**0.018**
No	1.00		1.00	

OR, odds ratio; 95% CI, 95% confidence interval.
[a] Variables with $p \geq 0.25$ in the univariable analysis were excluded in the final multivariable analysis.
[b] Odds ratio refers to the odds of incorrect weight status estimation (underestimation or overestimation), with the accurate estimation as the reference category.

Discussion and Conclusion

- Nearly half of Malaysian adolescents misperceived their weight status, with female adolescents more likely to overestimate their body weight than male adolescents.
- Consistent with findings from previous studies[3,4], this study showed that weight status misperception is linked to inappropriate weight control behaviours, unhealthy lifestyle, and negative mental health outcomes.
- The complex interplay of socio-demographic, lifestyle and mental health factors influencing adolescents' weight perception highlights the need for holistic and behaviourally informed interventions.
- Integrating healthy lifestyle and mental health education into comprehensive school-based programs may be an effective way to promote healthy body weight and accurate body weight perception among adolescents.

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References

1. World Health Organization. Adolescent health, 2026. Available at: https://www.who.int/health-topics/adolescent-health#tab=tab_1
2. Chua KY, Chua KY, Chinna K, Lim CL, Seneviwickrama M. Prevalence of childhood overweight and obesity in Malaysia: a systematic review and meta-analysis. Clin Exp Pediatr. 2025;68(2):115-126.
3. Lim H, Wang Y. Body weight misperception patterns and their association with health-related factors among adolescents in South Korea. Obesity (Silver Spring). 2013;21(12): 2596-2603.
4. Lee KH, Bong SH, Kang DH, Choi TY, Kim JW. Association Between Weight Misperception and Some Mental Health-Related Characteristics in Korean Adolescents. Neuropsychiatr Dis Treat. 2020;16:3053-3062.