

BOYS ARE FOUR TIMES MORE LIKELY TO BE OVERWEIGHT THAN GIRLS: Survey of year 2 Junior College Students.

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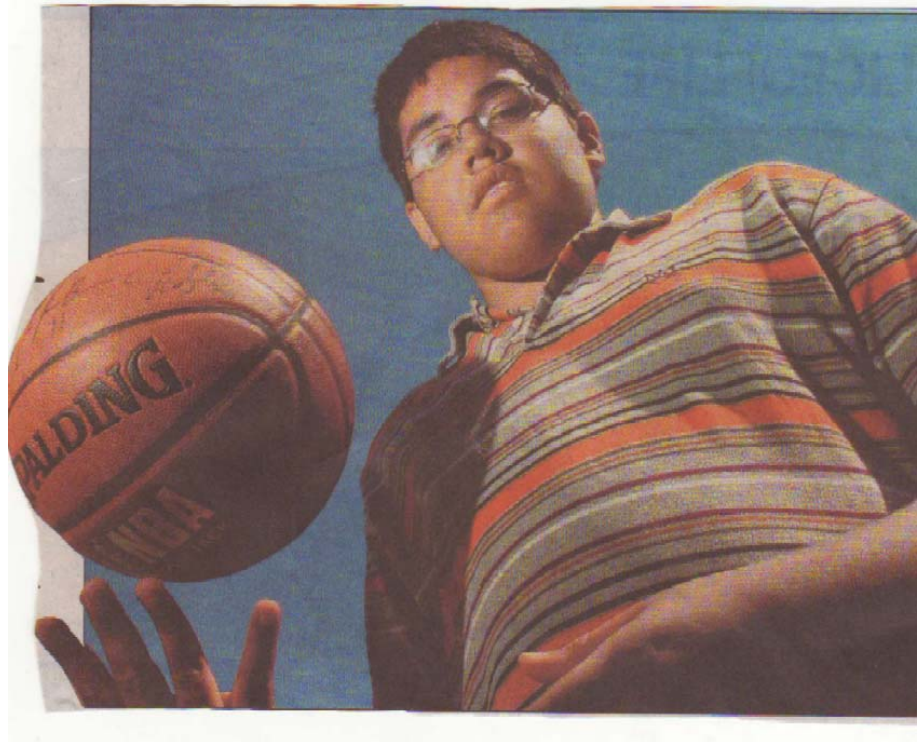
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Background



- In year 2000, the prevalence of obesity among U.S. adults was **19.8%**, reflecting a **61%** increase since 1991.
- In Singapore, the proportion of obese adults aged 18 to 69 years was 6.9% in year 2004 (NHS 2004).
- In Singapore, obesity was more prevalent among the females (7.3%) compared with males (6.4%).
- Are humans Neurologically “wired” to overeat?
- Few studies in Singapore have looked into gender differences in eating habits and body mass index among 18 year olds.

- **To examine relationship between gender and body mass index (BMI) among teens in Singapore.**





Method

- **Design:**
This study had drawn data collected from project “Youth Well-being”, a junior college based survey examining students’ wellbeing in terms of five factors:
 - Healthy life style (diet and exercise)
 - Behavior
 - Social influence
 - Family influence
 - Achievement.
- **Sample:** 2nd year students from a Junior College, n = 373
 - Response rate was $373 / 865 = 43\%$.
 - Sample was representative of total Junior College 2nd year students’ from a particular college.
- **Questionnaire:** was developed by SingHealth Centre for Health Services Research.
- **Statistical tests:** t tests, chi square tests and regression analysis.

Study Sample Was Representative of Total JC2 Students From a Singapore Junior College



Table 1

	Sample= 373 43% boys  57% Girls 	Total JC2=865 from a Singapore Junior College
Gender		
Male	158 (43%)	395 (46%)
Female	210 (57%)	470 (54%)
Faculty		
Arts	37(10%)	96 (11%)
Science	336(90%)	769(89%)
BMI (kg/m²)		
<18.5	104 (28%)	206 (24%)
18.5 – 22.9	195 (53%)	493 (58%)
23 – 27.4	48 (13%)	120 (14%)
≥ 27.5	20 (05%)	34 (4%)

Distribution of BMI by gender



Figure 1a

Percentage

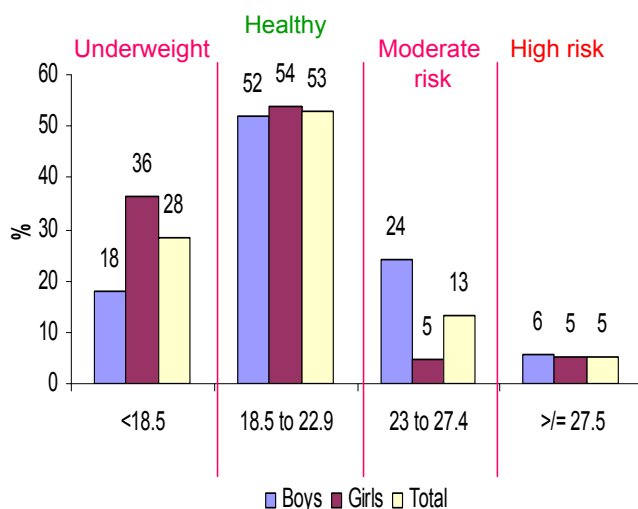
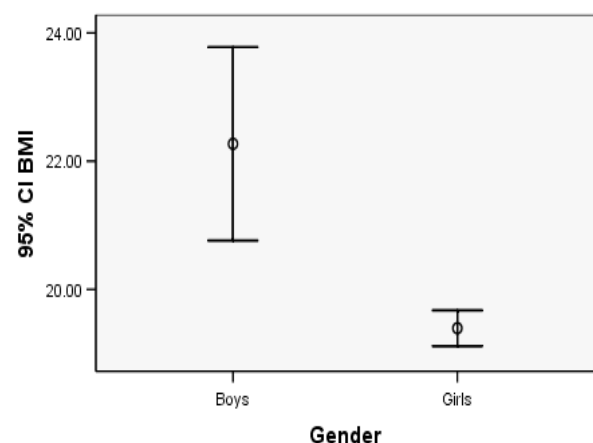


Figure 1b

Mean ± Standard Deviation



24% boys were overweight. More boys than girls (24% v 5%) were overweight. More girls than boys were underweight (36% v 18%).(P<.0001).

Boys had higher BMI than girls. 22.4 v 19.4kg/m² .(P<.0001).

Ref: REVISION OF BODY MASS INDEX (BMI) CUT-OFFS IN SINGAPORE

http://www.hpb.gov.sg/hpb/default.asp?TEMPORARY_DOCUMENT=1769&TEMPORARY_TEMPLATE=2

Gender Differences

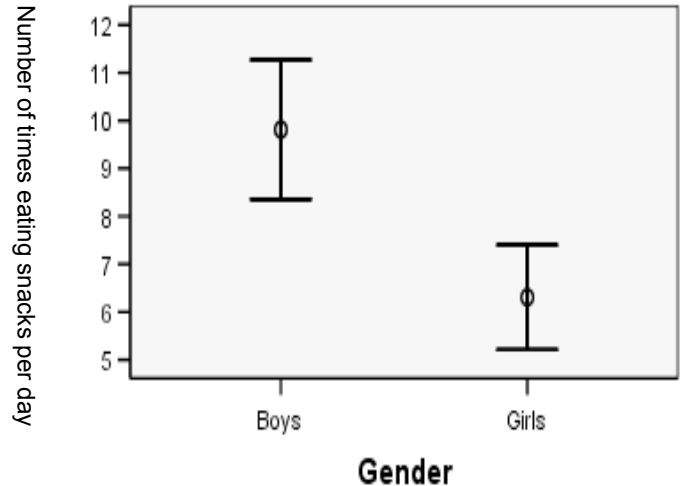
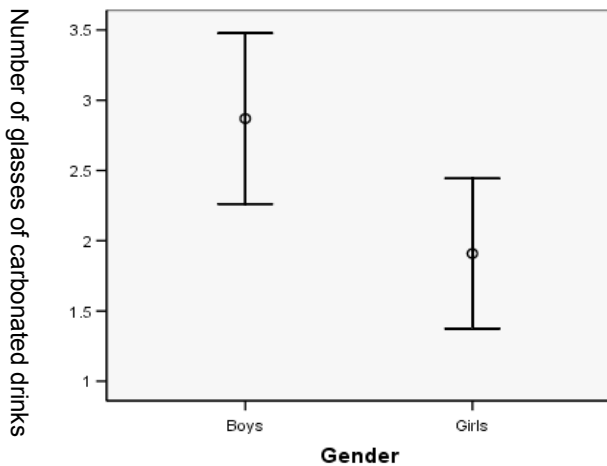


Survey Qn: On average, in a day how many glasses of carbonated drinks do you consume?

Survey Qn: On average, how many times do you eat snacks per day?

Figure 2a
Gender wise consumption of drinks

Figure 2b
Gender wise consumption of snacks



Boys consumed more carbonated drinks per day than girls. $P=.019$

Boys consumed snacks more times per day than girls. $P <.0001$

Gender Differences

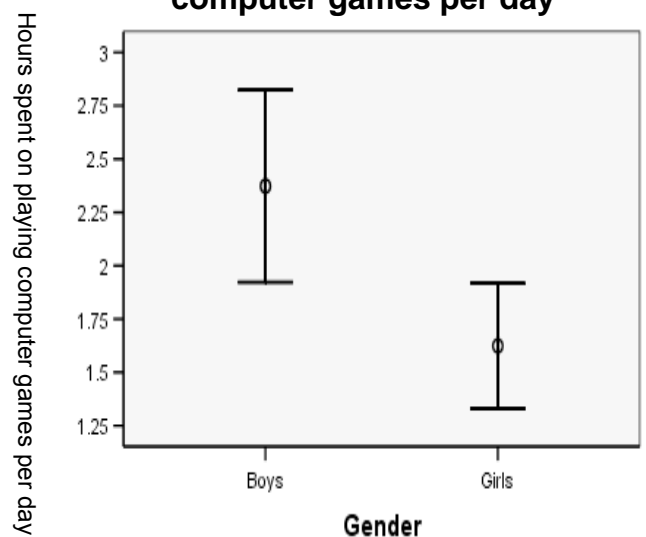
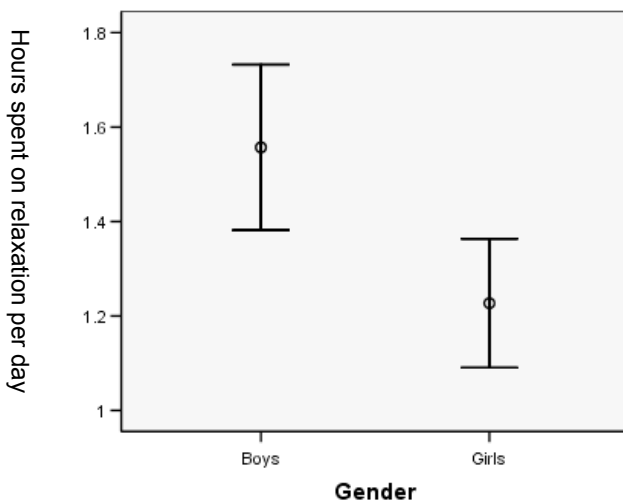


Survey Qn: On average how many hours of leisure (relaxation) time do you get per day?

Survey Qn: During weekends, how many hours do you use computer to play games?

Figure 3a
Gender by hours spent on relaxation per day

Figure 3b
Gender by hours spent computer games per day



Boys spent more time on leisure (relaxing) activities than girls. $P=0.003$

Boys spent more time playing Computer games than girls. $P=.006$

Association of gender (dependent variable, boys v girls) with BMI, consumption of carbonated drinks, snacks and leisure (Relaxation) activities.



Table 2

Variables	Beta	95% CI	P-VALUE
BMI (kg/m²)			
Underweight : ≤ 18.5 Ref: 18.5 – 22.9	0.51	0.302 – 0.852	0.024
Overweight : ≥23	4.19	1.713 – 5.55	<.0001
Carbonated drinks			
Ref: < 3 / week ≥ 3 / week	2.15	1.28 – 3.62	.004
Snacks			
Ref: < 3 times /day ≥ 3 times/day	1.88	1.175 – 3.019	.009
Leisure (Relaxation)			
Ref: < 15 hours/week ≥ 15 hours/week	1.72	1.018 – 2.89	.043

Univariate results showed that that boys were four times more likely to be overweight than girls. The same result persisted after adjusting with consumption of carbonated drinks and s snacks as well as spending time on relaxation activities in multivariate analysis.

Summary & Conclusion:



- In this study, boys were:
 - **four times** more likely to be **overweight** than girls.
 - **two times** more likely to consume carbonated drinks and snacks than girls.
 - **two times** more likely to spend more time on leisure/relaxation activity than girls.
- **More systematic neurophysiology research needs to be carried out to explore what is prompting boys to eat more.**
- **Food environment should be more carefully regulated by limiting number and types of food related cues, portion sizes, food availability and food advertising.**
- **Decision makers must integrate gender based analysis of potential health impacts while drafting social policies with the aim of increasing opportunities for people to pursue better health.**

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