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### INTRODUCTION

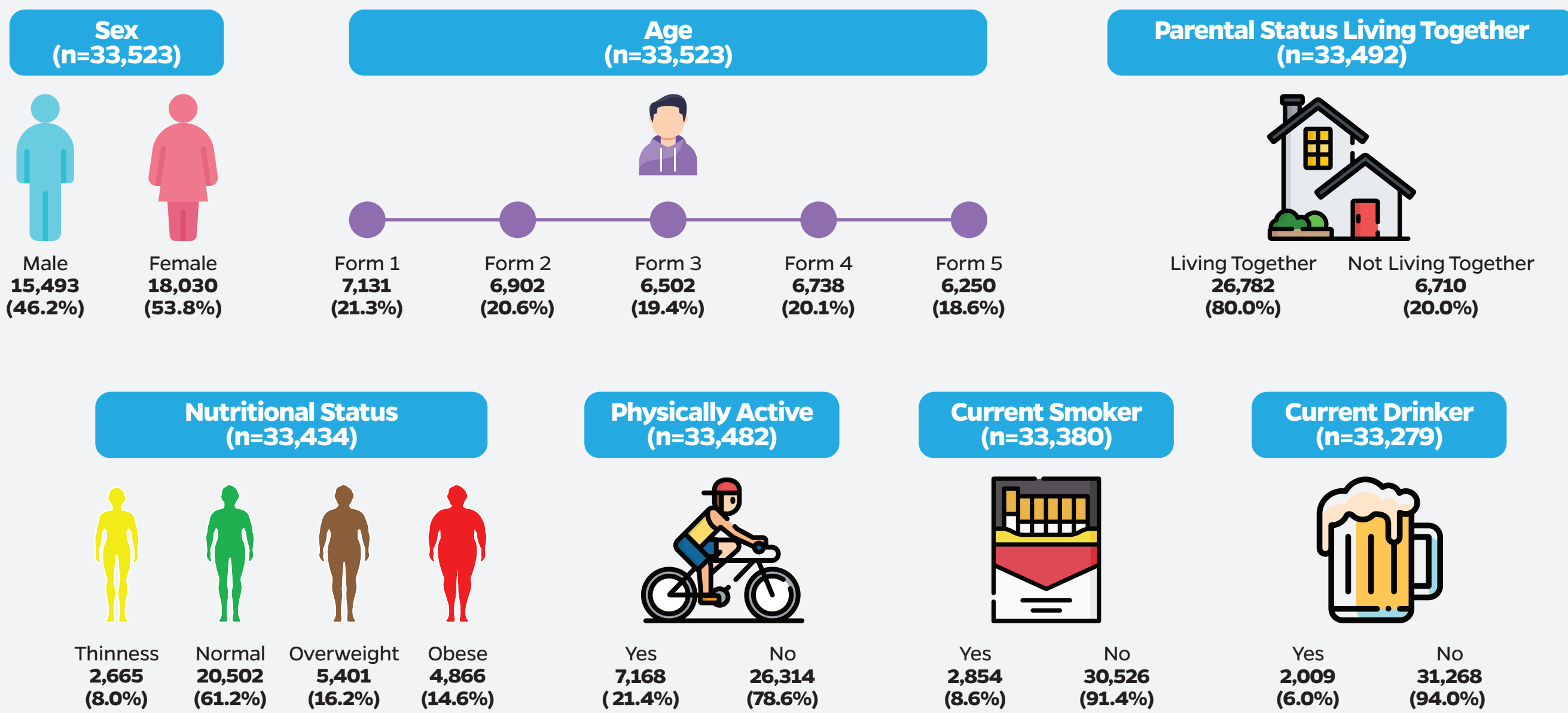
Water intake is essential for the overall health and well-being of adolescents, impacting vital functions such as hydration, cognition, physical performance, weight management, and digestive health. This study aimed to investigate the prevalence of plain water intake among adolescents and its association with various factors.

### METHODOLOGY

The NHMS Adolescent Health Survey, conducted nationwide from June to July 2022, included 240 randomly selected schools, with an average of 140 students from Form 1 to 5 participating in each school. A self-administered questionnaire was used to collect data on water intake, socio-demographic characteristics and its association factor. Body weight and height were measured using standardised procedures. **Adequate plain water intake was defined as consuming at least six glasses of water per day.** Associations between these variables and water intake were analysed using chi-square tests and logistic regression models.

### RESULTS

A total of 33,523 adolescents took part in the study.



Factor associated with plain water consumption

Factors	OR	Lower 95% C.I	Upper 95% C.I	p value
<b>Sex</b>				
Female	Ref			
Male	<b>1.6777</b>	<b>1.605</b>	<b>1.751</b>	<b>&lt;0.001</b>
<b>Age</b>				
Form 1	Ref			
Form 2	0.980	0.918	1.048	0.560
Form 3	0.996	0.932	1.066	0.915
Form 4	1.048	0.980	1.120	0.168
Form 5	<b>1.135</b>	<b>1.060</b>	<b>1.215</b>	<b>&lt;0.001</b>
<b>Nutritional status</b>				
Thinness	Ref			
Normal weight	<b>1.421</b>	<b>1.306</b>	<b>1.546</b>	<b>&lt;0.001</b>
Overweight	<b>2.185</b>	<b>1.984</b>	<b>2.408</b>	<b>&lt;0.001</b>
Obese	<b>2.701</b>	<b>2.446</b>	<b>2.982</b>	<b>&lt;0.001</b>
<b>Physically active</b>				
No	Ref			
Yes	<b>1.794</b>	<b>1.696</b>	<b>1.897</b>	<b>&lt;0.001</b>
<b>Current Smoker</b>				
Yes	Ref			
No	<b>1.174</b>	<b>1.087</b>	<b>1.269</b>	<b>&lt;0.001</b>
<b>Current drinker</b>				
Yes	Ref			
No	1.075	0.984	1.177	0.120
<b>Parental Status Living together</b>				
No	Ref			
Yes	<b>1.117</b>	<b>1.056</b>	<b>1.181</b>	<b>&lt;0.001</b>

Male, Form 5 students, greater BMI, physically active, non-smoker and student with parental status living together show significantly had adequate plain water intake.

### DISCUSSION

- AHS 2017 reported higher prevalence of adequate plain water intake (60.4%) among adolescents based on the definition of drinking at least 5 times plain water per day.
- The same study found a similar trend in plain water intake, in which younger adolescents, form 1 and form 2 showed less intake of plain water compared to older ages.
- In contrast, AHS 2017 showed, female adolescents consume more plain water (63.1%; 95% CI: 62.30, 65.93) compared to males (57.7%; 95% CI: 56.03, 59.39).
- In comparison to Australian children and adolescents, their average intake of plain water was 6 to 6.8 glasses of water per day (Sui Z et al, 2016) and among American children & adolescents were 5 glasses of water (Vieux F et. al. 2017).

### CONCLUSION

This study highlights that approximately half of the adolescents had inadequate plain water intake. The findings underscore the importance of considering multiple factors on water intake among adolescents when designing interventions to promote adequate water intake among adolescents. Further research is needed to explore the underlying reasons behind these associations and develop targeted strategies to enhance hydration behaviours in this population.

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**Keywords:** water intake, adolescents, nutritional status, physical activity

#### References:

- Institute for Public Health (IPH) 2017. National Health and Morbidity Survey (NHMS) 2017: Adolescent Health Survey 2017, Malaysia.
- Vieux F, Maillot M, Constant F, Drewnowski A. Water and beverage consumption patterns among 4 to 13-year-old children in the United Kingdom. BMC Public Health. 2017 May 19;17(1):479. doi: 10.1186/s12889-017-4400-y. PMID: 28525992; PMCID: PMC5438525.
- Sui Z, Zheng M, Zhang M, Rangan A. Water and Beverage Consumption: Analysis of the Australian 2011-2012 National Nutrition and Physical Activity Survey. Nutrients. 2016 Oct 26;8(11):678. doi: 10.3390/nu8110678. PMID: 27792184; PMCID: PMC5133066.

