Nutritional Status among Student Adolescents in Vientiane Capital 2022

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Background:

Malnutrition in adolescents and poor eating habits are global public health challenges and are becoming a rising concern in low- and middle-income countries, including Laos. In the context of Laos, there is limited information available on the nutritional status and adolescents in general, especially in Vientiane Capital. We therefore focus on studying the nutritional status of adolescents in Vientiane in this study.

Objective:

To explore the food consumption and nutritional status among student adolescents in Vientiane capital 2022
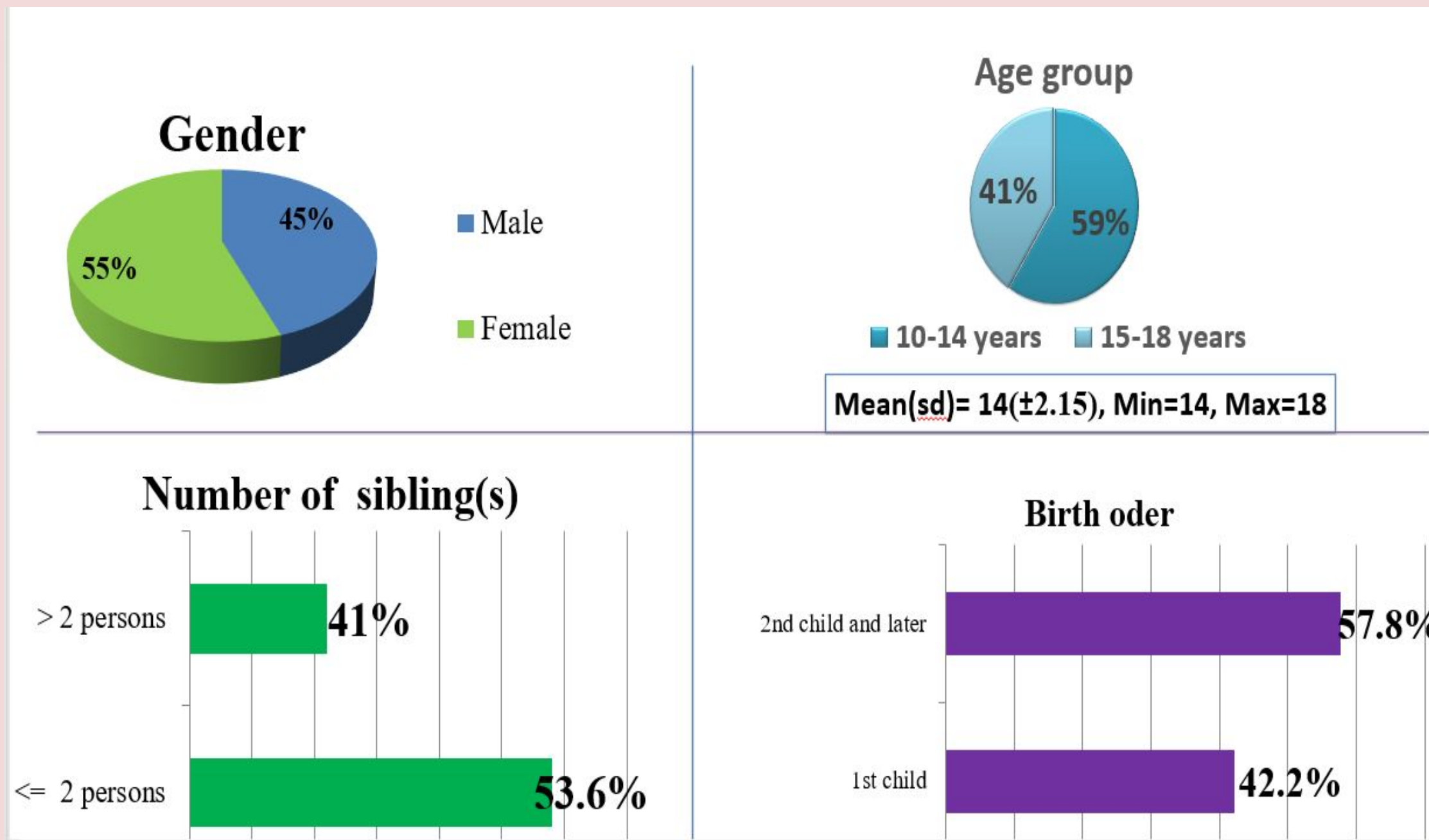
Methods:

- Cross-sectional study was conducted in 2 public schools (Nongbone and Paktone) Vientiane Capital, Lao PDR in 2022 using a systemic random sampling method with 422 student adolescents aged 10 to 18.
- Data were collected using face-to-face interview techniques and anthropometric measurements were obtained by trained data collectors.
- BMI percentiles were used for indicators of nutritional status.
- Logistic regressions were used to identify the factors associated with BMI percentiles (p-value < 0.05)
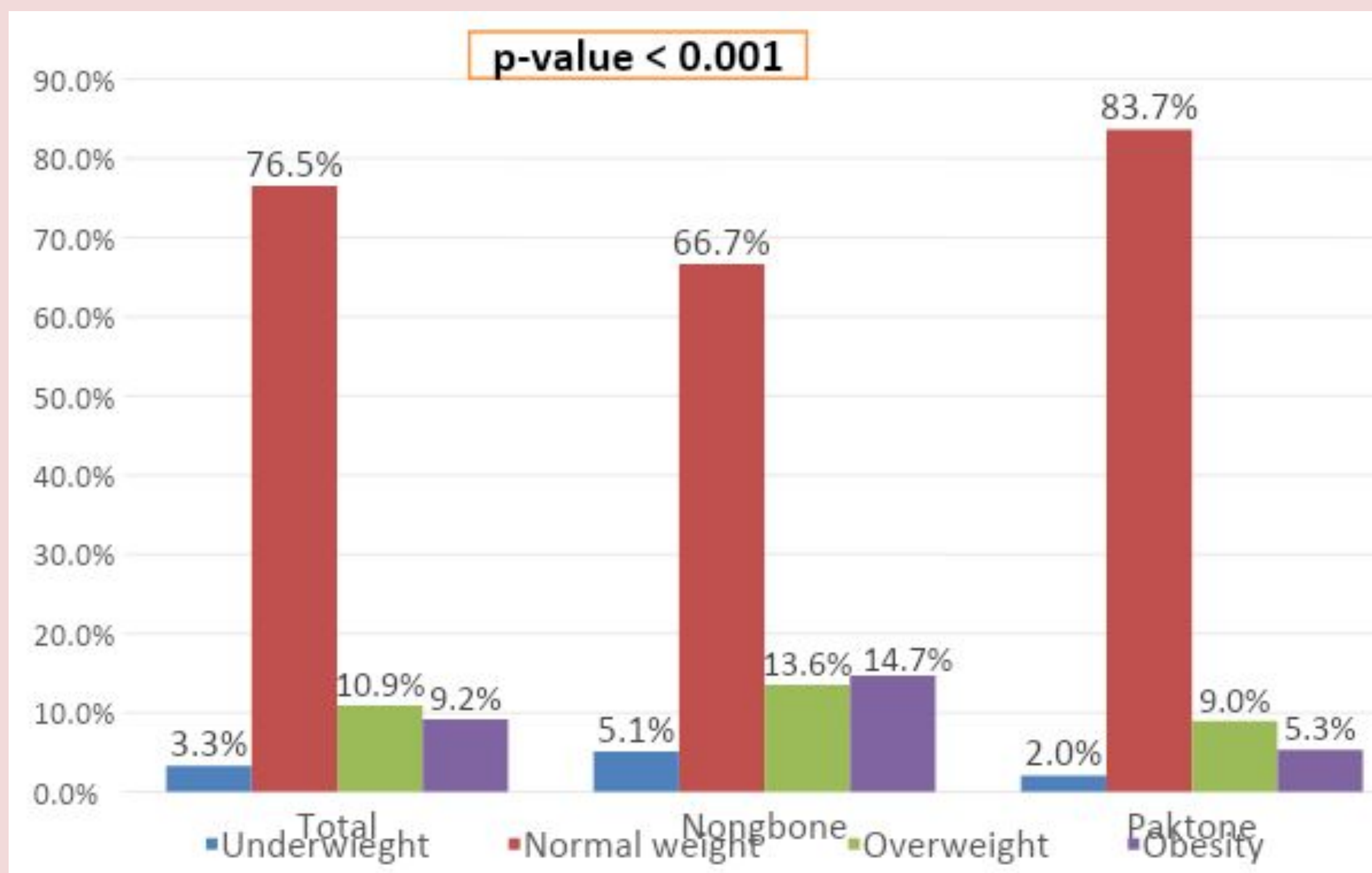- This study approve by IRB from NECHR No. 071

Keywords: Adolescents, BMI, Food consumption, Nutritional status, Schools, Vientiane capital

Result:

Demographic characteristics of the participants (n=422)

Gender: Male 45%, Female 55%

Age group: 10-14 years 59%, 15-18 years 41%
Mean(sd)= 14(±2.15), Min=14, Max=18

Number of sibling(s): > 2 persons 41%, <= 2 persons 53.6%

Birth order: 2nd child and later 57.8%, 1st child 42.2%

Distribution of BMI categories (an indicators for nutritional status) among adolescents (n = 422)

p-value < 0.001

Total: Underweight 3.3%, Normal weight 76.5%, Overweight 10.9%, Obesity 9.2%
Nongbone: Underweight 5.1%, Normal weight 66.7%, Overweight 13.6%, Obesity 14.7%
Paktone: Underweight 2.0%, Normal weight 83.7%, Overweight 9.0%, Obesity 5.3%

- Underweight (BMI percentile < 5th Percentile)
- Normal weight (BMI percentile 5th to 85th Percentile)
- Overweight (BMI percentile 86th - 97th Percentile)
- Obesity (BMI percentile > 97th Percentile)

Factors associated with nutritional status among adolescents using univariate logistic regression

Factors	n(%)	Underweight 14(3.3) COR (95%CI)	Overweight 46(10.9) COR (95%CI)	Obesity 39(9.3) COR (95%CI)
Gender				
Male	188(44.6)	Ref.	Ref.	Ref.
Female	234(55.4)	1.4(0.5-4.3)	1.1 (0.5-1.9)	0.7(0.3-1.3)
Age group				
10-14 years	250(59.2)	Ref.	Ref.	Ref.
15-18 years	172(40.8)	0.6(0.2-1.9)	1.2(0.6-2.2)	0.8(0.4-1.6)
Schools				
Nongbone (Urban area)	177(41.9)	Ref.	Ref.	Ref.
Paktone (Peri-urban)	245(58.1)	0.3(0.1-1.0)*	0.5(0.3-1.0)*	0.3(0.1-0.6)**
Monthly family income				
≤ 3,000,000 LAK	209(49.5)	Ref.	Ref.	Ref.
> 3,000,000 LAK	213(50.5)	1.9(0.6-5.9)	1.1(0.5-1.8)	2.1(1.1-4.3)*
Obese person(s) in family				
No	173(41.0)	Ref.	Ref.	Ref.
Yes	249(59.0)	2.3(0.7-7.3)	1.2(0.6-2.2)	16.6(4.0-70.2)**
Obese person(s)				
1 person	163(67.1)	Ref.	Ref.	Ref.
2 persons or more	80(32.7)	4.2(1.1-15.5)	0.8(0.3-1.9)	4.1(2.0-8.5)**
Eating habit				
Good (score ≥113)	220(52.1)	Ref.	Ref.	Ref.
Poor (score <113)	202(47.9)	6.0(1.3-27.4)*	1.3(0.7-2.4)	1.2(0.6-2.3)
Sedentary behavior				
sitting time ≤ 2.5 hours	211(50.0)	Ref.	Ref.	Ref.
sitting time ≤ 2.5 hours	211(50.0)	0.5(0.1-1.5)	1.8(0.9-3.2)	2.5(1.2-5.2)**

Factors associated with nutritional status among adolescents using multivariate logistic regression

Factors	Underweight 14(3.3) COR (95%CI)	Overweight 46(10.9) COR (95%CI)	Obesity 39(9.3) COR (95%CI)
Schools			
Nongbone (Urban area)	Ref.	Ref.	Ref.
Paktone (Peri-urban)	0.6(0.2-2.5)	0.6(0.2-1.4)	0.4(0.2-1.0)*
Monthly family income			
≤ 3,000,000 LAK	Ref.	Ref.	Ref.
> 3,000,000 LAK	1.2(0.2-2.5)	0.8(0.3-2.1)	1.5(0.6-3.4)
Obese person(s) in family			
No	Ref.	Ref.	Ref.
Yes	NA	0.3(0.1-2.20)	NA
Obese person(s)			
1 person	Ref.	Ref.	Ref.
2 persons or more	3.8(1.0-14.8)*	0.7(0.3-1.9)	3.2(1.5-6.9)**
Eating habit			
Good (score ≥113)	Ref.	Ref.	Ref.
Poor (score <113)	3.6(0.7-18.3)	1.3(0.5-2.9)	1.1(0.5-2.4)
Sedentary behavior			
Sitting time ≤ 2.5 hours	Ref.	Ref.	Ref.
Sitting time ≤ 2.5 hours	0.2(0.1-1.1)	2.2(0.9-5.5)	1.6(1.5-6.9)

*Means statistical significance (p-value <0.05), **Means statistical significance (p-value <0.01); Normal weight were base outcome, COR: Crude Odds Ratios and AOR: Adjusted Odds Ratios

Conclusion and recommendation:

- The prevalence of overweight and obesity in adolescents is alarming in the study area (Nongbone and Paktone school).
- School, monthly family income, number of obese persons in the family, eating habit levels, sitting time were associated with BMI percentiles among the adolescents based on the univariate logistic regression.
- School type and number of obese individuals in families were statistically significant in the multivariate logistic regression.
- This study provides some preliminary results on some factors that influence nutritional status (BMI) among adolescents in Vientiane.
- Additional data and research are needed from more schools and adolescents to make recommendations to policymakers on factors that influence nutritional status among adolescents in Lao PDR.
- Additional research is needed to illustrate the potential benefits of healthy eating behavior on nutritional status among adolescents in the schools.

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