



General Nutrition Knowledge Among High School Students

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Introduction

Obesity now affects 1-in-5 children and adolescents in the United States. As of 2018, the prevalence of obesity has reached 18.5% and affects about 13.7 million children. Obese children are at increased risk for high blood pressure and high cholesterol that can lead to cardiovascular disease, impaired glucose tolerance, insulin resistance, and type 2 diabetes.

Purpose

To identify the level of nutrition knowledge among high school students to assess if gender, age, grade level, and physical activity are correlated.

Methods

- Data was collected on 1,325 high school participants ranging in age from 13-18 years from a local private school (Loma Linda Academy) and a public school (Redlands East Valley High School).
- A self-administered, anonymous questionnaire was given that consisted of 20 questions—fifteen questions about general nutrition knowledge and 5 questions on demographics.
- Questionnaires were scored and verified in duplicate.
- Frequency (%), chi-square test, ANOVA, and *post hoc* tests were used to analyze data. Data were analyzed using SPSS Statistics Software version 25.0 (SPSS Inc., Chicago, IL, USA).

Table 1. Frequency (%) of selected demographics (n=1,325).

Characteristics	Frequency (%)	Characteristics	Frequency (%)
Age		Exercise	
<13	4 (0.3)	0-1 hrs/wk	130 (9.8)
13	0	2-3 hrs/wk	256 (19.3)
14	159 (12.0)	4-5 hrs/wk	275 (20.8)
15	307 (23.2)	6-7 hrs/wk	210 (15.8)
16	296 (22.3)	7-8 hrs/wk	381 (28.8)
17	328 (24.8)		
18	186 (14.0)	Course	
>18	31 (2.3)	Yes	638 (48.2)
		Currently	88 (6.6)
		No	528 (39.8)
Grade		Gender	
9th	334 (25.2)	Male	646 (48.8)
10th	308 (23.2)	Female	648 (48.9)
11th	297 (22.4)		
12th	372 (28.1)		

Table 2. Frequency, percentage, & correlation significance by question.

Question	Correct	Gender	Age	Grade	Exercise	Course
1. Which fats do experts say are the most detrimental to health?	21.9%	.023*	.007*	.02*	.093	.214
2. Which of these foods is not considered to be a starchy food group?	63.2%	< .001**	.001*	< .001**	.002*	.005*
3. Which of the following foods has the most protein per gram?	46.1%	.007*	.000**	< .001**	.911	.505
4. Which of the following foods is cholesterol-free?	42.5%	.899	.004*	< .001**	.676	.462
5. Which of the following foods is/are low in saturated fat?	8.1%	.110	.062	.006*	.324	.148
6. Which of the following foods is least likely to raise your blood sugar level?	39.9%	.628	.381	.001*	.397	.207
7. Which of these unfortified breads contain the most vitamins & minerals?	77.4%	.255	.613	.654	.007*	.067
8. Which of the following oils contains mostly monounsaturated fat?	25.5%	.821	.011*	.003*	.109	.409
9. Which one of the following has the most calories for the same weight?	4.3%	.153	.164	.287	.654	.120
10. Which of the following vitamins have the most antioxidant properties?	29.6%	.966	.001*	< .001**	.821	.188
11. Which of the following does not provide an adequate supply of iron?	35.0%	.383	.145	.003*	.956	.232
12. From which macronutrient should most of your calories be obtained?	27.8%	.001*	.346	.640	.076	.013*
13. Which would be the best choice for a low fat, high fiber snack?	19.8%	.110	.657	.564	.575	.454
14. Which would be the best choice for a low fat, high fiber light meal?	34.3%	.197	.588	.097	.426	.275
15. Which of the following foods has a positive impact on bone health?	32.8%	.002*	.204	.011*	.069	.422
TOTAL SCORE:	33.9%	.944	< .001**	< .001**	.039*	.004*

* Significant at 5% significance level.
** Significant at 1% significance level.
† P-values based on chi-square test (χ^2).

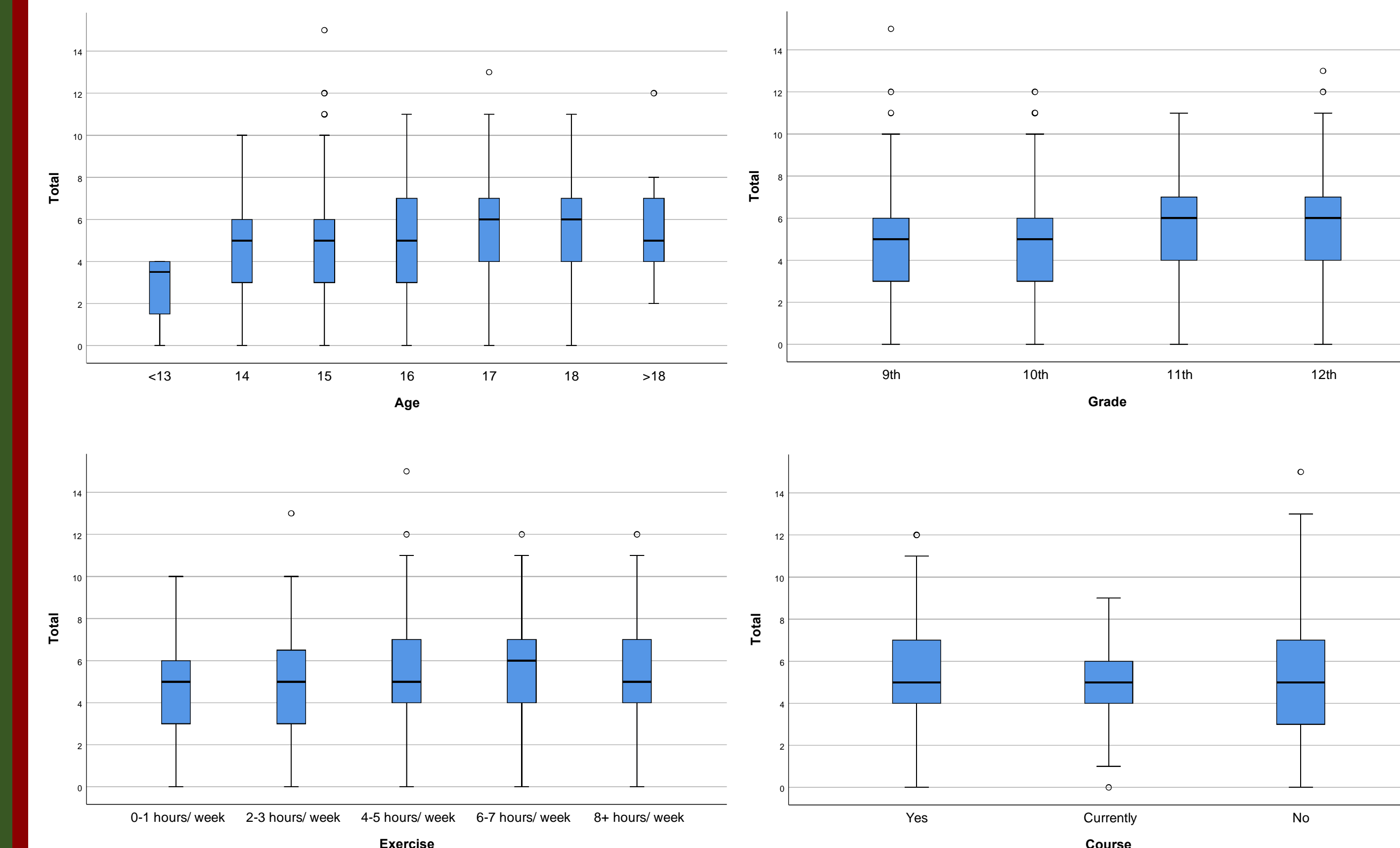


Figure 1. Means of total scores within each demographic variable.

Results

- There was a significant difference between total scores and age, grade, physical activity level, and nutrition course. (P=0.000, P=0.000, P=0.039, P=0.004, respectively) (*Table 2*).
- Figure 1* shows the significance within each of the demographic variables of age, grade level, physical activity, and nutrition course.
- The average score of all students was 42%.

Conclusion

- General nutrition knowledge among high school students is quite inadequate.
- Differences in nutrition knowledge were identified based on age, grade, physical activity, and whether a nutrition course was taken.
- It is imperative that schools re-design their curriculum to improve nutrition knowledge.

*References available upon request