

# Assessing students' nutritional junk food interpersonal behaviors of their knowledge, attitudes, and amounting energy acquirements toward environmental schooling health in Thailand

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## ABSTRACT

To associate between students' knowledge, attitude, and amount of energy gained from junk food and the nutritional status of 429 upper educational students in Surin Province with a cluster sampling technique. Students' responses of their eating junk food were assessed their interpersonal behaviors with the *Nutritional Assessment Instruments* (NAI) model include; the 24-item *Knowledge on Junk Food Questionnaire* (KNJF), the 20-item *Attitude on Junk Food Questionnaire* (AJFQ), and the 24-item *Guidance Junk Food Interactions* (GJFI) questionnaire in five options, most of the instrument are valid and reliable. Overall, on most students (74.1%) had a high level of junk food-related knowledge. The majority of them (94.9%) reported a moderate level of attitudes towards junk food consumption. Most students had junk food before lunch and common foods were carbonated drinks and sweetened beverages every day. Students were given 74.25 THB to spend at school and they paid 31.48 THB on junk food whereas their schools. The correlations between students' Knowledge, Attitudes, and Amounting Energy Acquirements from Junk Food and Nutritional Status for the KNJF, AJFO, and GJFI towards nutritional statuses on three groups; normal nutritional, lower nutritional, and over nutritional statuses. The NAI was created the general data of sample target; students' responses of their knowledge to their attitudes towards their nutritional statuses through their eating behaviors on junk food were assessed with the KNJF, AJFO, and GJFI questionnaires among three instruments were relative, significantly were associated.

**Keywords:** Monitoring and assessments, students' nutritional junk food behaviors, interaction on knowledge, attitudes, and amounting energy acquirements, environmental schooling health, and upper secondary students in Thailand

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## INTRODUCTION

The 2018 Global Nutrition Report shares insights into the current state of global nutrition, highlighting the unacceptably high burden of malnutrition in the world. It affects most of the world's population at some point in their lifecycle, from infancy to old age. It affects all geographies, all age groups, rich people and poor people, and all sexes. It is a truly universal problem (UNESCO, 2018). As of 2016, the national prevalence of under-five overweight is 8.2%, which has decreased slightly from 10.9% in 2012. The national prevalence of under-five stunting is 10.5%, which is less than the developing country average of 25%. Thailand's under-five wasting prevalence of 5.4% is also less than the developing country average of 8.9%. In Thailand, 23% of infants fewer than 6 months are exclusively breastfed; this is well below the South-eastern Asia average of 38.8% (UNICEF, 2018).

Thailand's 2015 low birth weight prevalence of 10.5% has decreased from 13.5% in 2000. Thailand's adult population also faces a malnutrition burden: 31.8% of women of reproductive age have anemia, and 8.8% of adult women have diabetes, compared to 8.3% of men. Meanwhile, 12.7% of women and 7% of men have obesity (UNICEF, 2018). These are evidenced by an increase in life expectancy at birth of the population, and declines in the total fertility and infant mortality rates. A shift in the proportion of expenditure on food prepared at home and that expended on purchased, ready-to-eat food, in both

rural and urban settings, gives another reflection of the change in food consumption of the Thai population (Kosulwat, 2002). Thailand has long been called "the kitchen of the world" due to the combination of having abundant natural resources, a year-round growing season (Asia Books, 2018). Particularly in the area of food safety, and showing a commitment to meeting international quality standards, the result has been that the food industry has continuously shown impressive annual growth, and presently contributes approximately 23% of the country's GDP (The National Food Institute (NFI, 2018).

## Nutrition and Nutrients

Nutrition is the science that interprets the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health, and disease of an organism. It includes food intake, absorption, assimilation, biosynthesis, catabolism, and excretion (US National Library of Medicine, 2014). The list of nutrients that people are known to require is, in the words of Marion Nestle, "almost certainly incomplete" (Nestle, 2013). A type of carbohydrate, dietary fiber, i.e. non-digestible material such as cellulose is required, for both mechanical and biochemical reasons, although the exact reasons remain unclear. Some nutrients can be stored - the fat-soluble vitamins - while others are required more or less continuously. Poor health can be caused by a lack of required nutrients, or for some vitamins and minerals,

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too much of a required nutrient (Berg, Tymoczko, & Stryer, 2002).

The macronutrients are carbohydrates, fiber, fats, protein, and water (Fuhrman, 2014). **Carbohydrates** may be classified as monosaccharide, disaccharides, or polysaccharides depending on the number of monomers (sugar) units they contain, such as; rice, noodles, bread, and other grain-based products, also potatoes, yams, beans, fruits, fruit juices, and vegetables (Harvard School of Public Health, 2011). **Fiber** is a carbohydrate that is incompletely absorbed in humans and in some animals. **Fats** may be classified as saturated or unsaturated depending on the detailed structure of the fatty acids involved (Klonoff, 2016). **Proteins** are structural materials in much of the animal body (e.g. muscles, skin, and hair) of amino acids, which are characterized by inclusion of nitrogen and sometimes sulphur. **Water** is excreted from the body in multiple forms, including urine and feces, sweating, and by water vapor in the exhaled breath (BBC, 2007). However the notion that a person should consume eight glasses of water per day cannot be traced to a credible scientific source (Valtin, 2002). The term "**mineral**" is archaic, since the intent is to describe simply the less common elements in the diet (Nelson & Cox, 2000). **Vitamins** are essential nutrients, (Mitchell & Haroun, 2012) necessary in the diet for good health. The Food and Nutrition Board of the Institute of Medicine has established Tolerable Upper Intake Levels (ULs) for seven vitamins (Food and Nutrition Board, 2011).

In this research study was designed and adapted the knowledge of nutrition from the framework of The Guide to guidelines for health promotion in nutrition at good children's health clinics of the Bureau of Nutrition, Department of Health, Ministry of Public Health 2015 on four scales, namely; Nutritional Health Promotion (NHP), Nutrition for Children and Youth (NCY), Nutrition Implementation Guidelines (NIG), and Guidelines for Nutrition Recommendations (GNR).

### **Nutrition on the Basic Education Core Curriculum 2017 of Thailand**

Policies and focus on education management of the Ministry of Education, the fiscal year 2017, Office of the Permanent Secretary for Education (SPI) has studied and analyzed data. The aims to make Thai people good, smart, qualified, ready for the way of life in the 21st century and adheres to the spirit of the Constitution of the Kingdom of Thailand 2017, which sets out the principles relating to the development of children (Ministry of Education, 2017). The Basic Education Core Curriculum 2017 is aimed at enhancing the capacity of all learners, who constitute the major force of the country, so as to attain a balanced development in all respects – physical strength, knowledge, and morality. Learning Standards and Indicators for Eight Learning Areas: Thai Language, Mathematics, Science, Social Studies, Religion, and Culture, Physical and Health Education, Arts, Occupations and Technology, and Foreign Languages learning cores are developed (Ministry of Education, Thailand, 2017).

In this research study was adapted and modified students' behaviors of their junk food nutritional on interaction through the amounting energy acquirements

from the Policies and Focus of Education Management of the Ministry of Education for Student Nutrition in the Fiscal Year 2019 on Quality standards for nutrition for students in four scales, namely; Standards of Food Quality (SFQ), Standards of Premises and Containers (SPC), Standard of Administrative Management (SAM), and Safety Standards Related to Student Nutrition (SRSN)

### **The Education System of Thailand**

The Basic Education Core Curriculum prescribes a framework for minimal learning time structure for the eight learning areas and learners' situations as follows:

**Primary Education Level (Primary education grades 1-6, age 7-12 years old):** Learning time is allotted on an annual basis; not exceeding five hours each day.

**Lower Secondary Education Level (Secondary education grades 7-9, age 13-15 years old):** Learning time is allotted on a semester basis; not exceeding six hours each day; the weight of a course is counted in credits; the criterion is that 40 hours per semester is equivalent to one credit (cr).

**Upper Secondary Education Level (Upper secondary education grades 10-12, age 16-18 years old):** Learning time is allotted on a semester basis; not less than six hours each day; the weight of a course is counted in credits. This level focuses on increasing specific knowledge and skills in line with capacities, aptitudes, and interests of individual learners (Ministry of Education, 2017).

The Office of the Basic Education Commission (OBEC) is a Thai governmental agency, founded in 2003. It is an office of the Thai Ministry of Education (MOE). Its mission is to organize and promote basic education from primary school to secondary school. There are 42 Basic Secondary Educational Service Area Offices throughout 77 Provinces in Thailand; Surin Province is one of the Basic Secondary Educational Service Area Office 33.

### **Nutrients for Adolescents**

The Adolescents should be taken of these nutrients: calcium, to build strong bones and teeth. Vitamin D is to keep bones healthy, potassium to help lower blood pressure. Fiber is to help you stay regular and feel full. Protein is to power you up and help you grow strong. Iron is to help their growth to become healthy, self-reliant adults they want them to be growing healthy, eating healthy, drinking healthy, and moving healthy that they can also reduce for chronic diseases, heart disease, and high blood pressure. They should be active for 60 minutes or more on most or all days of the week (John Muir Health, 2016). There are seven main classes of nutrients that the body needs. These are carbohydrates, proteins, fats, vitamins, minerals, fiber, and water. Nutrients are compounds in foods essential to life and health, providing us with energy, the building blocks for repair and growth, and substances necessary to regulate chemical processes. There are six major nutrients: Carbohydrates (CHO), Lipids (fats), Proteins, Vitamins, Minerals, Water (World Health Organization, 2010).

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**Fig. 1:** Principles of human nutrient and food markets in Thailand

### Students' Attitudes on Nutrition

Attitude can be formed from a person's past and present. Key topics in the study of attitudes include attitude strength, attitude change, consumer behavior, and attitude-behavior relationships (Perloff, 2016). This study was to analyze the nutrition knowledge of active upper secondary school students setting, learn more about their attitudes and beliefs toward nutrition, a nutrition knowledge survey, and determine which of three methods of nutrition, the intervention was most effective in delivering nutrition information to active adolescents were associated.

### Junk Food

The term junk food dates back at least to the early 1950s, although its coinage has been credited to Michael F. Jacobson of the Center for Science in the Public Interest, in 1972 (O'Neill, 2010). Junk food is unhealthful food that is high in calories from sugar or fat, with little dietary fiber, protein, vitamins, minerals, or other important forms of nutritional value (O'Neill, 2010). Precise definitions vary by purpose and over time. Some high-protein foods, like meat prepared with saturated fat, may be considered junk food (Scott, 2018). The term HFSS foods (high in fat, salt and sugar) are used synonymously

(Specter, 2015). Most junk food is highly processed food. Concerns about the negative health effects resulting from a junk food-heavy diet, especially obesity, have resulted in public health awareness campaigns, and restrictions on advertising and sale in several countries (Zimmer, 2015).

### Health Effects of Junk Food

When junk food is consumed very often, the excess fat, simple carbohydrates, and processed sugar found in junk food contributes to an increased risk of obesity, cardiovascular disease, and many other chronic health conditions (Roizman, 2015). A case study on consumption of fast foods in Ghana suggested a direct correlation between the consumption of junk food and obesity rates. The report asserts that obesity resulted in related complex health concerns such as upsurge of heart attack rates (Searcey & Richtel, 2017). Consumers also tend to eat too much in one sitting, and those who have satisfied their appetite with junk food are less likely to eat healthy foods like fruit or vegetables (Johnson & Kenny, 2010). A one standard deviation increase in junk food was then linked to excessive hyperactivity in 33% of the subjects, leading to the conclusion that children consuming excess junk food at the age of seven are more likely to be in the top third of the hyperactivity scale.



**Figure 2:** Junk Food, Food Shop surrounding school, and Food at the school center hall in Thailand

In this research study, to associate students' knowledge, attitudes, and amounting energy acquirements from junk food and nutritional status of upper secondary students under the Surin Educational Service Area Office 33 in Thailand, Because of Thai children are in the obese range of 12% of the total child population. Students aged 15-18 are over 17.2 percent as a result of consuming carbohydrates and sugar. More than the body needs and

still lacking exercise, it is also found that the consumption behaviors of most adolescents like to consume junk food in a new way.

### Materials and Methods

In addition, Surin Province is a province that is developing into a society. There is an increase in the number of stores and department stores. Convenient transportation makes the distribution of junk food



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products increasing. The researcher studied the knowledge, attitude and behavior of junk food consumption among students. As well as studying the relationship between the amount of energy received from junk food in the normal nutrition group, low nutrition, and excess nutrition. The information from this research would be useful as a guideline for adjusting junk food consumption behavior of upper secondary school students according to nutrition principles and used as information for suggestion and policy-making for public health officials, school director, and related parties about controlling the consumption of junk food in schools which would help prevent and reduce important public health problems of the nation.

### Research Aims

To associate upper secondary school students of their knowledge and their attitudes toward interpersonal behaviours on junk food, and the amounting energy received from junk food for upper secondary school students.

### Participants

Sample target consists of 429 upper secondary school students from the 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup>-grade levels in 2 school groups whereas a school is in the municipality and a school is outside the municipality. Subsequently, randomly selected each grade totaling 6 classrooms, in each grade level consisted of 70-75 students with a total of 429 students from 19 schools under the Office of Educational Service Area 33 in Surin Province, Thailand.

### Research Instruments

#### *The Knowledge on Junk Food (KNJF) Questionnaire*

Modified the 24-item *Knowledge on Nutritional Junk Food* (KNJF) questionnaire under the guidelines for health promotion in nutrition at good children's health clinics of the Bureau of Nutrition, Department of Health, Ministry of Public Health (2015) was modified. The KNJF has four scales and each scale contains six items, namely, Nutritional Health Promotion (NHP), Nutrition for Children and Youth (NCY), Nutrition Implementation Guidelines (NIG), and Guidelines for Nutrition Recommendations (GNR).

#### *The Guidance on Junk Food Interactions (GJFI) Questionnaire*

Designing the 24-item on *Guidance Junk Food Interactions* (GJFI) questionnaire was assessed students' behaviors through the amounting energy acquirements under the Policies and Focus of Education Management contains six items on four scales, namely; Standards of Food Quality (SFQ), Standards of Premises and Containers (SPC), Standard of Administrative Management (SAM), and Safety Standards Related to Student Nutrition (SRSN), and the five response alternatives are rating scales.

#### *The Attitude on Junk Food Questionnaire (AJFQ)*

Adapted version from the 20-item *Test of Science-Related Attitude* (TOSRA) (Fraser, 1981; Santiboon, 2012; Santiboon & Fisher, 2005) to the *Attitude on Junk Food Questionnaire* (AJFQ) on four scales, namely; Social Implications of Junk Food (SIJF), Attitude to Junk Food Inquiry (AFFI), Enjoyment and Leisure Interest in Junk Food (ELIJF), and Habit Interest in Junk Food (HIJK) scales were modified.

Students' responses of their perceptions on the three research instruments in the five response alternatives are rating scales. Their circle only ONE value per statement was individualization of five option rating scales: 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Uncertain (U), 4 = Agree (A), and 5 = Strongly Agree (SA).

### Data Analysis

Using the foundational statistic with percentage, mean, standard deviation for analyzing the basic data was examined. The validity and reliability of research instruments were assessed with internal consistency Cronbach alpha reliability. Associations between students' nutritional junk food behaviors on interaction through their knowledge, attitudes, and amounting energy acquirements of upper secondary students in Thailand to their perceptions with simple and multiple correlations, standardized regression weight attitudes and the coefficient predictive value ( $R^2$ ) was used.

### Results

#### General Data

General information questionnaire, namely gender, age, class level of the sample, amount of money received to school, expenses used as junk food. It was found that most of the samples consisted of 259 female students (60.4%), and 170 male students (39.6%), with 153 being 15 years old, accounting for 34.4%, aged under 16 - 17 years, 148 people (35.7%), and 123 years old between the ages of 18 - 19 (28.7%), currently studying in the grade levels of 10<sup>th</sup> (150 students, 35%), 11<sup>th</sup> (148 students, 34.5%), and 12<sup>th</sup> (131 students, 30.5%), respectively.

#### Assessing Students' Knowledge on Junk Food

Using the 24-item *Knowledge of Nutritional Junk Food* (KNJF) questionnaire has four scales and each scale contains six items, which contains 24 items and four scales are Nutritional Health Promotion (NHP), Nutrition for Children and Youth (NCY), Nutrition Implementation Guidelines (NIG), and Guidelines for Nutrition Recommendations (GNR), and the five response alternatives are rating five option scales. Table 1 shows students' responses for the KNJF questionnaire. Using statistically significant with the Internal Consistency (Cronbach alpha coefficient) and the mean correlation of each scale was obtained the sample as indicates of scale reliability, variance, and F-test. The summary of these values obtained separately for the KNJF are reported in Table 1 and Figure 3.

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**Table 1.** Scale mean, Average mean, Standard deviation, Variance,  $\alpha$ -Reliability, and F-test for the KNJF

Scale	Scale mean	$\bar{x}$	$\sigma$ -Scale	$\sigma^2$	$\alpha$ -Reliability	F-test
Nutritional Health Promotion (NHP)	24.71	4.12	3.51	12.31	0.78	2.04*
Nutrition for Children and Youth (NCY)	24.50	4.08	3.87	14.96	0.82	9.30***
Nutrition Implementation Guidelines (NIG)	24.29	4.05	4.02	16.16	0.86	3.62**
Guidelines for Nutrition Recommendations (GNR)	23.87	3.98	3.85	14.12	0.83	2.94*
Totalized Average	24.34	4.06	2.48	6.15	0.89	3.61*

$N=429$ , \* $p<.05$ , \*\* $p<.05$ , \*\*\* $p<.05$

As reported in Table 1, the scale mean score ranged from 23.87 (  $\bar{x}$  = 3.98, S.D. = 3.85, Variance = 14.80, and F-test= 2.94\*) in Guidelines for Nutrition Recommendations to 24.71 (  $\bar{x}$  = 4.12, S.D. = 3.51, Variance = 12.31, and F-test=

2.04\*) in Nutritional Health Promotion scale, the reliability coefficients for the different KNJF ranged from 0.78 to 0.86 when using the individual student as the unit of analysis.

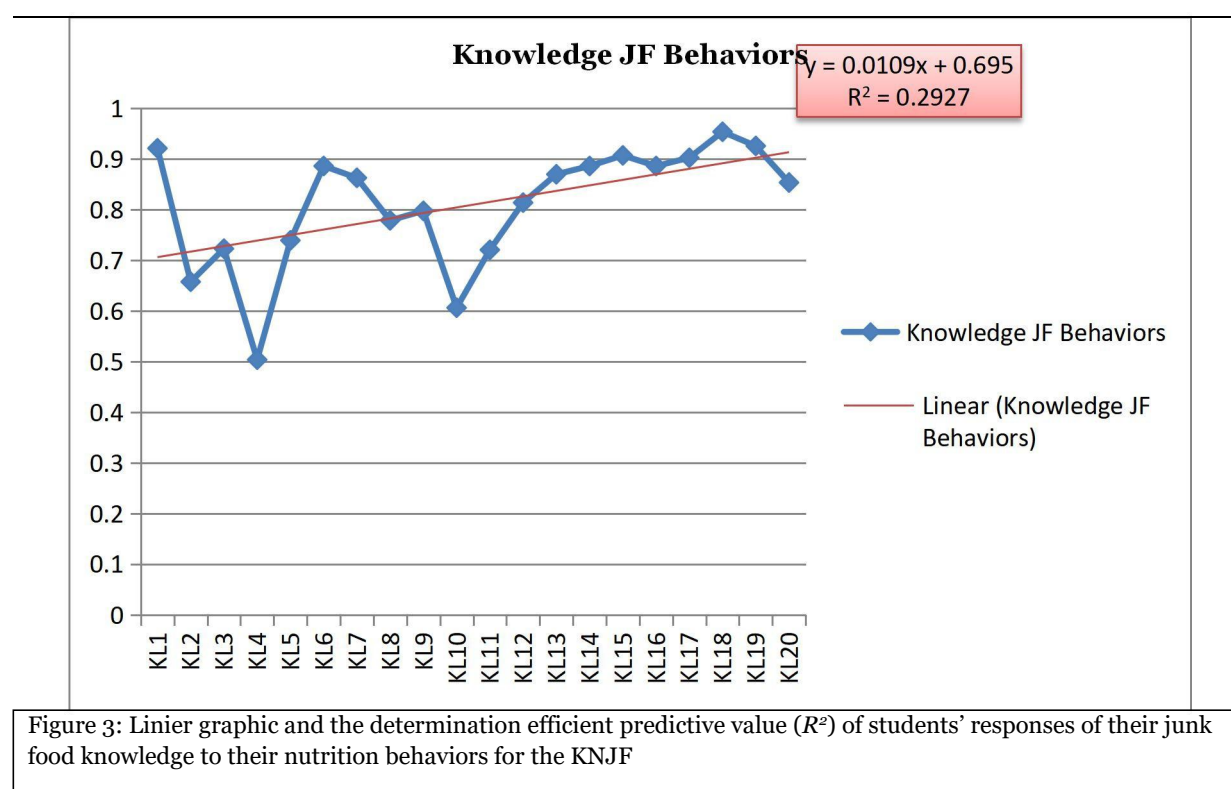


Figure 3: Linier graphic and the determination efficient predictive value ( $R^2$ ) of students' responses of their junk food knowledge to their nutrition behaviors for the KNJF

As reported in Figure 3, the linier equation shows of  $y = 0.010x + 0.695$ , it meanwhile, students' response of their knowledge to their eating junk food nutrition, increasingly. The determination efficient predictive value ( $R^2$ ) indicates that of 29% or only of 7 upper students who understand of their junk food knowledge to their nutrition behaviors for the KNJF.

## Assessing students' perceptions of their nutritional energy quality

Using the 24-item *Guidance Junk Food Interactions (GJFI)* questionnaire was assessed students' eating nutritional energy quality of their junk food through the amounting energy acquirements in four scales and each scale contains with six items, namely; Standards of Food Quality (SFQ), Standards of Premises and Containers (SPC), Standard of Administrative Management (SAM), and Safety Standards Related to Student Nutrition (SRSN), and the five response alternatives are rating scales. Table 2 shows for the example item in the first scale of the GJFI questionnaire.

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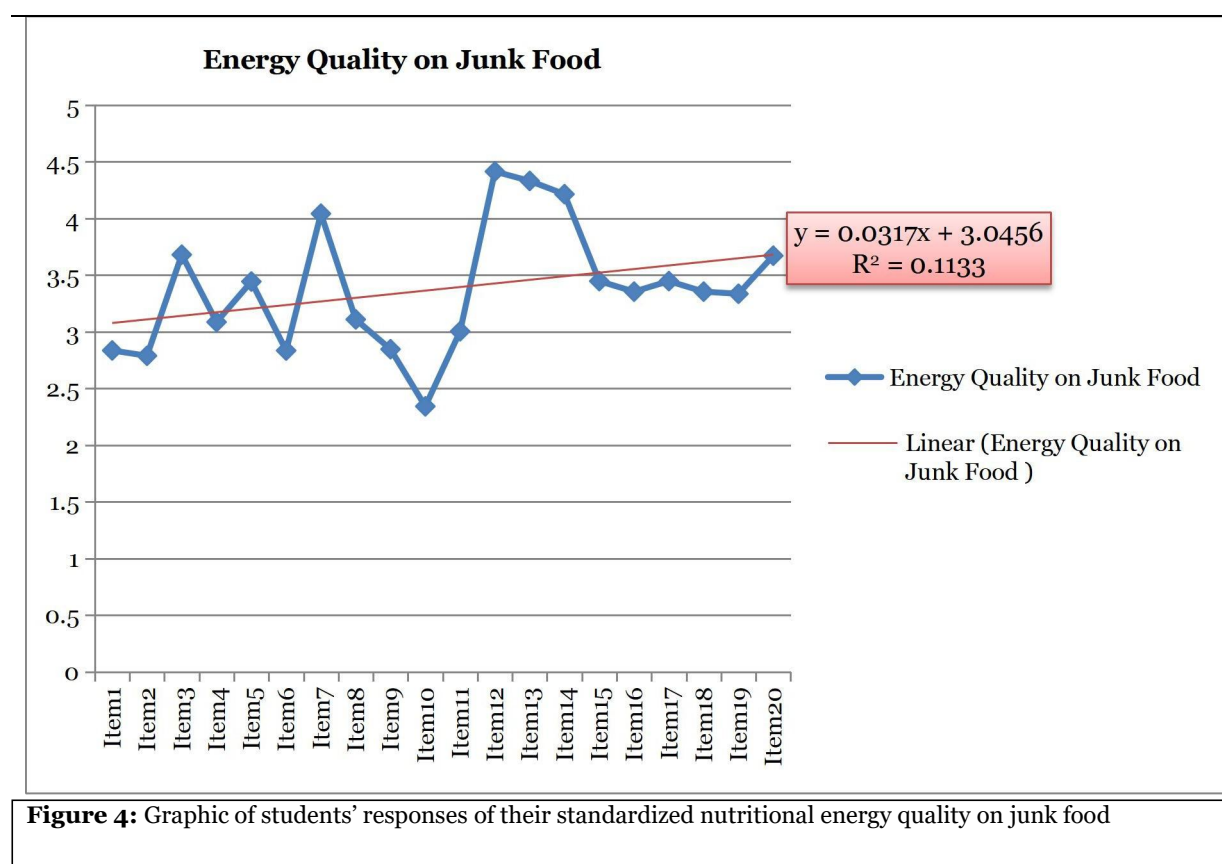
**Table 2.** Scale mean, Average mean, Standard deviation (Scale mean), Variance,  $\alpha$ -Reliability, and F-test for the GJFI

Scale	Scale mean	$\bar{x}$	$\sigma$ -Scale	$\sigma^2$	$\alpha$ -Reliability	F-test
Standards of Food Quality (SFQ)	21.15	4.23	3.81	14.55	0.79	3.53**
Standards of Premises and Containers (SPC)	20.60	4.12	4.38	19.18	0.80	14.92***
Standard of Administrative Management (SAM)	20.55	4.11	4.56	18.11	0.82	4.52***
Safety Standards Related to Student Nutrition (SRSN)	20.80	4.16	4.13	17.28	0.74	2.53*
Total average	20.80	4.16	2.51	6.30	0.88	1.86**

$N=429$ , \* $p<.05$ , \*\* $p<.05$ , \*\*\* $p<.05$

As reported in Table 5, the scale mean score ranged from 24.67 ( $\bar{x} = 4.11$ , S.D. = 4.56, Variance = 18.11, and F-test = 4.52,  $p<.05$ ) in Standard of Administrative Management (SAM) to 25.35 ( $\bar{x} = 4.23$ , S.D. = 3.81, Variance = 14.55,

and F-test = 3.53,  $p<.05$ ) in Standards of Food Quality (SFQ) scale, the reliability coefficients for the different SNEQJF ranged from 0.74 to 0.82 when using the individual student as the unit of analysis.



Using the 24 items of the GJFI questionnaire was assessed students' perceptions to their standardized nutritional for supporting themselves energy nutrition quality on junk food. It was found that students are responding of their assessment indicate that of the linier equation as  $y = 0.031x + 3.045$ , increasingly. The determination efficient predictive value ( $R^2$ ) indicates of 11% of the variances in standardized nutritional for supporting themselves energy nutrition quality to their junk food environments.

## Assessing Students' Perceptions of their Attitudes on Nutritional Junk

Using the 20-item *Attitude on Junk Food Questionnaire* (AJFQ) was assessed students' perceptions of their attitudes on nutritional junk in four scales, namely; Social Implications of Junk Food (SIJF), Attitude to Fuck Food Inquiry (AFFI), Enjoyment and Leisure Interest in Junk Food (ELIJF), and Habit Interest in Junk Food (HIJK). For each statement, draw a circle around the specific numeric value corresponding to how students feel about each statement. Table 3 shows for students' responses of their attitudes for the AJFQ questionnaire.

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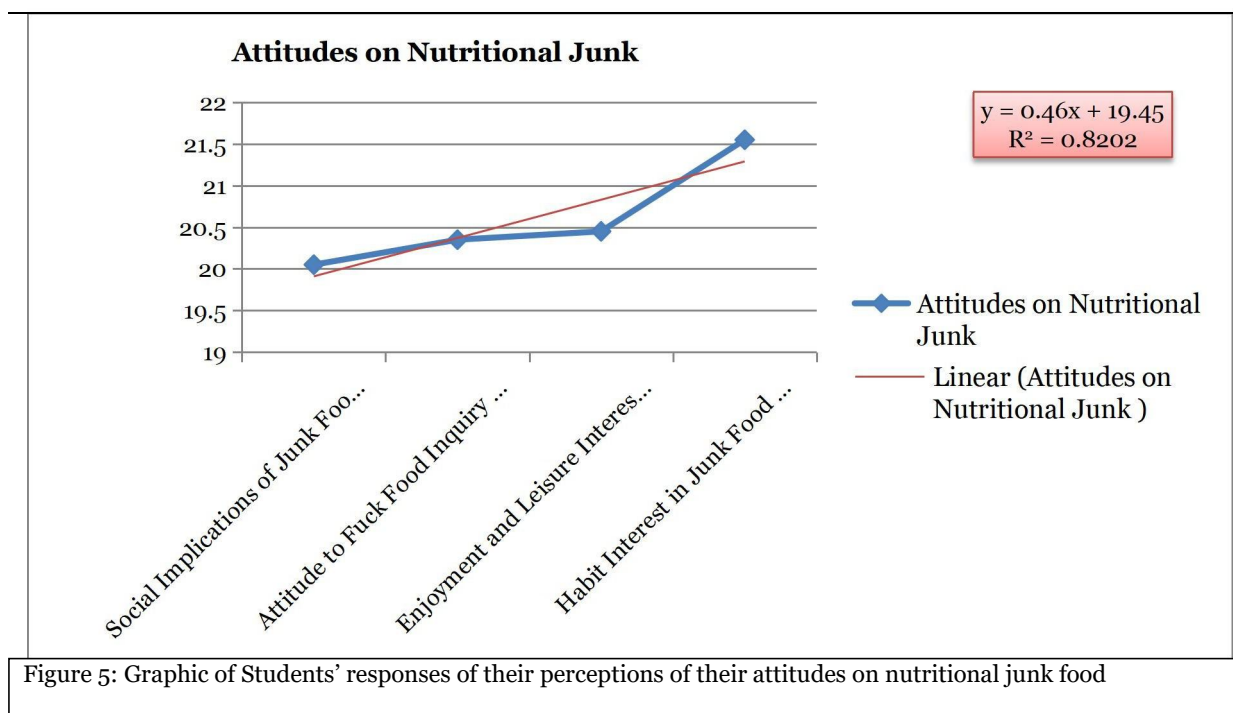
**Table 3.** Score mean, Average mean, Standard deviation (Score mean), Variance,  $\alpha$ -Reliability, and F-test for the AJFQ

Scale	Score mean	$\bar{x}$	$\sigma$ -Score	$\sigma^2$	$\alpha$ -Reliability	F-test
Social Implications of Junk Food (SIJF)	20.05	4.01	4.19	17.52	0.80	3.79**
Attitude to Fuck Food Inquiry (AFFI)	20.35	4.07	3.97	15.74	0.73	2.78*
Enjoyment and Leisure Interest in Junk Food (ELIJF)	20.45	4.09	3.88	15.08	0.79	3.23*
Habit Interest in Junk Food (HIJK)	21.55	4.31	3.84	14.72	0.84	2.09*
Totalized Average	20.60	4.12	1.48	3.72	0.89	3.65*

$N=429$ , \* $p<.05$ , \*\* $p<.05$ , \*\*\* $p<.05$

As reported in Table 3, and Figure 5 the scale mean score ranged from 20.05 (  $\bar{x}$  = 4.01, S.D. = 4.19, Variance = 17.52, and F-test = 3.79,  $p<.05$ ) in the SIJF scale to 21.55 (  $\bar{x}$  = 4.31, S.D. = 3.84, Variance = 14.72, and F-test = 2.09,  $p<.05$ ) in the HIJK scale, the reliability coefficients for the different AJFQ ranged from 0.73 to 0.84 when using the individual student as the unit of analysis. Suggestions that,

It was found that students are responding of their assessment indicate that of the linier equation as  $y = 0.460x + 19.45$ , increasingly. The determination efficient predictive value ( $R^2$ ) indicates of 82% of the variances in standardized nutritional for supporting themselves energy nutrition quality to their junk food environments.



On the whole, these results are acceptable, valid, and reliable which was considered satisfactory for further use in this study for the KNJF, GJFI, and AJFQ questionnaires.

## Associations between Students' Perceptions of their Knowledge to their Attitudes and their Amounting Energy Acquirements toward Nutritional Junk Food Interpersonal Behaviors

In this study, it was also considered important to assess students' perceptions of their knowledge to their attitudes and their amounting energy acquirements toward nutritional junk food interpersonal behaviors

were associated with the KNJF and GJFI (Table 4), KNJF and AJFQ (Table 5), and AJFQ and GJFI (Table 6). The selection of an evaluation and assessment instrument suitable was required. The predictive property was assessed with F-test, significantly. The correlated position between the independent and dependent variables was assessed with *Simple Correlation* ( $r$ ), the classified correlated variables indicated that of *Multiple Correlations* ( $R$ ), the predicting values between the variables were tested with the Multiple Regression Validity ( $\beta$ ), and the Determination Efficient Predictive value ( $R^2$ ) were associated.

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**Table 4.** Associations between Students' Perceptions of their Knowledge to their Attitudes toward Junk Food Behaviors in terms of Simple Correlation (r), Multiple Correlation(R), Standardized Regression Weight Attitude ( $\beta$ ), and the Determination Efficiency Predictive Value ( $R^2$ ) for the KNJF and AJFQ

Scale	$\bar{x}$	Simple Correlation (r)	Standardized Regression Weight Attitude ( $\beta$ )
Nutritional Health Promotion (NHP)	4.12	0.470***	0.188**
Nutrition for Children and Youth (NCY)	4.08	0.452***	0.122*
Nutrition Implementation Guidelines (NIG)	4.05	0.517***	0.167**
Guidelines for Nutrition Recommendations (GNR)	3.98	0.523***	0.257***
Totalized QNEQJF	4.16		
Multiple Correlation (R)			0.050ttt
Determination Efficiency Predictive Value ( $R^2$ )			0.503ttt

$N=429$ , \* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$

As reports in Table 4, using the 20-item KNJF in four scales; NHP, NCY, NIG, and GNR scales are the independent variable and the mean average score of the

24-item AJFQ in four scales; SIJF, AFFI, ELIJF, and HIJK scales are the dependent variable.

**Table 5.** Associations between Students' Perceptions of their Attitudes toward Junk Food Behaviors to their Standardized Nutritional Energy Quality on Junk Food in terms of Simple Correlation (r), Multiple Correlation(R), Standardized Regression Weight Attitude ( $\beta$ ), and the Determination Efficiency Predictive Value ( $R^2$ ) for the KNJF and GJFI

Scale	$\bar{x}$	Simple Correlation (r)	Standardized Regression Weight Attitude ( $\beta$ )
Social Implications of Junk Food	4.01	0.432***	0.178**
Attitude to Fuck Food Inquiry	4.07	0.531***	0.112*
Enjoyment and Leisure Interest in Junk Food	4.09	0.556***	0.242***
Habit Interest in Junk Food	4.31	0.612***	0.471***
The AJFQ	4.16		
Multiple Correlation (R)			0.024ttt
Determination Efficiency Predictive Value ( $R^2$ )			0.524ttt

$N=429$ , \* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$

As reports in Table 5, using the 24-item KNJF in four scales; NHP, NCY, NIG, and GNR scales are the independent variable and the mean average score of the

24-item Guidance Junk Food Interactions (GJFI) questionnaire in four scales; SFQ, SPC, SAM, and SRSN scales are the dependent variable.

**Table 6.** Associations between Students' Perceptions of their Knowledge to their Attitudes toward Junk Food Behaviors in terms of Simple Correlation (r), Multiple Correlation (R), Standardized Regression Weight Attitude ( $\beta$ ), and the Determination Efficiency Predictive Value ( $R^2$ ) for the AJFQ and the GJFT

Scale	$\bar{x}$	Simple Correlation (r)	Standardized Regression Weight Attitude ( $\beta$ )
Standards of Food Quality	4.23	0.448***	0.228**
Standards of Premises and Containers	4.12	0.422***	0.120*
Standard of Administrative Management	4.11	0.387***	0.137*
Safety Standards Related to Student Nutrition	4.16	0.443***	0.225**
The QNEQJF	4.06		
Multiple Correlation (R)			
Determination Efficiency Predictive Value ( $R^2$ )			

$N=429$ , \* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$



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Table 6 reports students' perceptions of their nutritional energy on junk food, using the 20-item Attitude on Junk Food Questionnaire (AJFQ) in four scales; SIJF, AFFI, ELIJF, and HIJK scales are the independent variable and the mean average score of the 24-item *Guidance Junk Food Interactions* (GJFI) questionnaire in four scale; SFQ, SPC, SAM, and SRSN scales are the dependent variable

As a whole, in Table 4, 5, and 6 the position correlated of students' nutritional junk food behaviors on interaction through their knowledge, attitudes, and amounting energy acquirements of upper secondary students in Thailand was assessed with the simple correlation ( $r$ ) between the independent and dependent variables for the scales of the KNJF and GJFI (Table 4), KNJF and AJFQ (Table 5), and AJFQ and GJFI (Table 6) are the positive position, significantly ( $p < .05$ ) similarity.

The second type of analysis consisted of the more conservative standardized regression weight coefficient ( $\beta$ ) which measures the associations between students' nutritional junk food behaviors on interaction through their knowledge, attitudes, and amounting energy acquirements with the mean average scores were associated, similarity when the effect of relationships between the scales is controlled for the beta weight that show students are perceived on nutritional junk food behaviors significantly ( $p < .05$ ), respectively.

In terms of the classified levels of the correlations between students' perceptions of their nutritional junk food behaviors on interaction through their knowledge, attitudes, and amounting energy acquirements of upper secondary students were assessed with the Multiple Correlation ( $R$ ), students' responses between the mean average scores of the KNJF and GJFI ( $R_1$ ), KNJF and AJFQ ( $R_2$ ), and AJFQ and GJFI ( $R_3$ ), significantly ( $R_1 = 0.757$ ,  $R_2 = 0.724$ ,  $R_3 = 0.637$ , and  $p < .05$ , respectively) were assessed. In statistics, the coefficient of determination, denoted  $R^2$  and pronounced "R squared", is the proportion of the variance in the dependent variable that is predictable from the independent variable(s). The Coefficient of Determination Predictive ( $R^2$ ) values which the main purpose is either the prediction of future outcomes or the testing of hypotheses, on the basis of other related information. That is, R-squared is the fraction by which the variance of the errors is less than the variance of the dependent variable. In a multiple regression model R-squared is determined by pair wise correlations among all the variables, including correlations of the independent variables with each other as well as with the dependent variable.

In Table 4, 5, and 6 the  $R^2$  values indicates that of 0.503, 0.524, and 0.406, respectively. It's meanwhile 57% of the variance in students' attitudes to their knowledge of the nutrition was attributable to their perceptions of the nutritional junk food, relatively. 52% of the variance in students' attitudes to their amounting energy acquirements of the nutrition was attributable to their perceptions of the nutritional junk food, and 41% of the variance in students' knowledge to their amounting energy acquirements of the nutrition was attributable to their perceptions of the nutritional junk food, relatively.

### Discussion

According to students should look out for and avoid bringing home include trans-fats, refined grains, salt and high fructose corn syrup. Avoid foods that say corn sweetener, corn syrup, corn syrup solids, partially

hydrogenated, fractionated, or hydrogenated on their label. So next time students want to know if what's on their plate is junk or not, ask themselves these 3 crucial questions:

1. How many calories are students consuming in this one serving?
2. What are the healthy nutrients students are taking in with this meal?
3. What's the quality of ingredients used; how fresh is this food item?

Do note that quitting junk food is a gradual process. If students are someone who is accustomed to daily doses of junk, then quitting may not be way. The first few days could be tough as students may experience some of these symptoms: irritability, headaches, dip in energy levels and so on. An occasional treat never hurts, what students have to look out against is consistent consumption of junk foods, especially at the cost of healthy nutrition?

It's easy to get confused about which foods are healthy and which aren't.

Students generally want to avoid certain foods if students want to lose weight and prevent chronic illnesses.

In this article, healthy alternatives are mentioned whenever possible. Here are 20 foods that are generally unhealthy — although most people can eat them in moderation on special occasions without any permanent damage to their health.

### Conclusion

To associate between the knowledge, attitude, junk food consumption behavior and nutritional status of upper secondary school students in Mueang District, Surin Province. Therefore, making the researchers interested in information about the associations between knowledge, attitude, and junk food consumption behavior of students were provided. The said information in Surin province has not yet been clearly collected.

Using the 24-item *Knowledge on Junk Food Questionnaire* (KNJF) in four scales; NHP, NCY, NIG, and GNR was assessed students' perceptions of their knowledge on nutritional junk food. The 24-item *Guidance Junk Food Interactions* (GJFI) questionnaire in four scales; Standards of Food Quality (SFQ), Standards of Premises and Containers (SPC), Standard of Administrative Management (SAM), and Safety Standards Related to Student Nutrition (SRSN) was assessed amounting energy acquirements of students. Students' responses of their attitudes with the 20-item *Attitude on Junk Food Questionnaire* (AJFQ) in four scale; Social Implications of Junk Food (SIJF), Attitude to Junk Food Inquiry (AFFI), Enjoyment and Leisure Interest in Junk Food (ELIJF), Habit Interest in Junk Food (HIJK). All of three research instruments are valid and reliable.

Associations between students' perceptions of their nutritional junk food behaviors on interaction through their knowledge, attitudes, and amounting energy acquirements, statistically significant with the Simple Correlation ( $r$ ), Multiple Correlation ( $R$ ), Standardized Regression Weight Attitude ( $\beta$ ), and the Determination Efficiency Predictive Value ( $R^2$ ) were analyzed using the mean average scores of the KNJF and the AJFQ, the GJFI and the AJFQ, and the AJFQ and KNJF are positive position, and to predict the analyzing correlative variables, significantly ( $p < .05$ ). The  $R^2$  values indicate that 57%, 54%, and 41% of the variance in students' attitudes to

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their knowledge of the nutrition was attributable to their perceptions of the nutritional junk food in their knowledge to their amounting energy acquirements of the nutrition was attributable to their perceptions of the nutritional junk food, relatively.

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