



Knowledge About Supplement And Consumption Behavior Among Grade 10-12 Students In Bangkok, Thailand

Sirakarn Buranavithyanon¹, Pattarawadee Chimlek², Kannapat Waratthanachat³, Khunnapat Lamatipanont⁴, Arisa Rojanabenjakul⁵, Banthita Prangprakhon⁶

¹Chitralada School, ²Srinakharinwirot University Demonstration School Prasarnmit (Secondary Division),

³Saint Joseph Convent School, ⁴Satit Bilingual School of Rangsit University, ⁵Harrow International School Bangkok, ⁶Debsirinromklao School

***Corresponding Author:**
Sirakarn Buranavithyanon
Chitralada School

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Abstract

At present, people pay more attention to health care, exercise, food for health, and consumption of food supplements for health and beauty. There is a huge growth especially after the COVID-19 situation, people have turned to take care of themselves more than before, causing the supplement market to grow significantly. The purpose of this study was to study knowledge and understanding about supplements, motivation to consume supplements and factors predicting dietary supplement consumption behaviors.

This study was a survey research conducted among high school students. Data were collected using online questionnaires (Google forms) during February-March 2023.

From the total of 402 respondents, most of them were female 70.60% most of them were grade 10 students studying in the Science-Mathematics study plan, 60.40%. The majority of their parents are full-time employees / civil servants / state enterprises 31.30% and doing business / trading 31.30%. Majority of them had household income more than 150,000 baht per month, 31.10%, receive news about health care from the Internet channel 70.10%, most of them reported that they did not eat supplements 52.70%. Most respondent showed a moderate level of supplement knowledge 48.0%, a low level 38.8%. For motivation to consume supplement, the respondent reported that they had a moderate level of motivation 50.49% followed by a high level of motivate 28.85%. Type of supplement that respondent had experience consuming were as following to help sleep better 75.71%, vitamin E 73.24, protein 67.41, Dietary supplements, good fats 59.52% and other vitamin 50.99, respectively. From the study of factors predicting dietary supplement consumption behavior, it was found that the factors which can predict consumption behavior were different depend on each type of dietary supplement. Consumption of food supplements, vitamin groups, and good fat groups is the number of times consumed food supplements per week which can predict 21.00% and 48.20%. The factors predicting consumption behavior of vitamin E and dietary supplements can help sleep are family income 129.80% and 131.70%, number of times consuming food supplements per week 60.63% and 60.44%, knowledge of dietary supplements 121.30% and 121.00%. and motivation to consume dietary supplements 94.10% and 94.30%. The factors that could predict the protein supplement consumption behavior of the respondents were gender 4.20%, parents' occupation 111.60%, family income 145.40%, number of times consumed food supplements per week 51.20%, knowledge about food supplements 119.30% and motivation to consume supplements 94.60%.

Keywords: supplement, health, consumption, adolescent

Introduction

The public is placing greater emphasis on taking care of their health, engaging in physical activity, maintaining a healthy diet, and consuming dietary supplements for health and beauty purposes [1]. Especially after the COVID-19 pandemic, the market for dietary supplements has grown significantly [2-3]. Dietary supplements are additional nutrients consumed in addition to main meals. They may be used for medical purposes or to promote health, based on the beliefs of some individuals. Common nutrients often used as dietary supplements include vitamins, minerals, amino acids, plants, vegetables, and various herbs. Dietary supplements are produced in various forms, such as pills, capsules, powders, or liquids. Dietary supplements may be part of a medical treatment plan that patients must take under the guidance of a healthcare professional, or they may be sold over-the-counter at pharmacies, and consumers should follow the recommendations of pharmacists and the instructions provided on labels [4].

Types of dietary supplements can be categorized based on their intended purposes into four categories

- 1) Health-Nourishing Dietary Supplements: These supplements contain components that help nourish overall health and well-being. They can support general health or target specific areas of the body. They are designed for individuals of all genders and ages to consume.
- 2) Beauty-Enhancing Dietary Supplements: These supplements are consumed to achieve desired results in skin complexion and external appearance. They can target overall body skin or specific facial areas, aiming to promote clear, radiant, and moisturized skin, as well as other beauty-related benefits. Both males and females can consume these supplements, although they may be more popular among females.
- 3) Medically-Oriented Dietary Supplements: These supplements have components that function similarly to therapeutic drugs, aiding in recovery, treatment, and alleviation of symptoms from various diseases. They can also support the functioning of internal organs within the body. Medical professionals often recommend these supplements for patients to take in addition to medical treatment, hence the name "medically-oriented dietary supplements." And
- 4) Exercise Performance Enhancing Dietary Supplements: These supplements are designed to enhance exercise efficiency and promote recovery of strength. They

are particularly beneficial for individuals engaged in physical activities, such as athletes and sports enthusiasts. These supplements contribute to muscle development and help improve physical performance. They are commonly consumed both before and after exercising [5].

The consumption of dietary supplements has both advantages when taken in appropriate and recommended quantities, as well as potential disadvantages that can negatively impact health if taken in excessive amounts or inappropriately. Many individuals commonly believe that they might not be receiving sufficient vitamins and nutrients from their regular diet, leading them to turn to dietary supplements. However, research has shown that individuals who take dietary supplements do not necessarily have a lower rate of illness or mortality compared to those who rely solely on a regular diet. Medical professionals advise that for individuals who do not suffer from nutrient deficiencies or specific medical conditions requiring supplementation, consuming a balanced and healthy natural diet is generally sufficient for maintaining good health. It is important to have a basic understanding of these aspects before making a decision to take dietary supplements [6-7]. In the group of health-conscious individuals who engage in exercise to maintain their physique, there is a tendency to misuse dietary supplements, which can have adverse effects on their health [8-9]. Among teenagers, there is a practice of using dietary supplements for purposes such as weight loss, weight gain, or muscle building. However, these practices can potentially lead to negative health consequences and even risk their lives [10].

The Department of Health Support and Services has revealed the results of a nationwide survey on the health care behaviors of individuals aged 15 and above. The survey found that 70% of the sampled population believes that dietary supplements are necessary and should be consumed regularly. Such perceptions could potentially impact the development of a healthy lifestyle, especially in terms of main meal consumption and weight management. These beliefs may lead to a reduction in the consumption of main meals or result in inadequate intake of all five food groups, which can have negative consequences on overall health. For instance, it may lead to nutrient deficiencies, particularly among adolescents in their

school years who require a well-rounded diet to support brain and body development [11].

According to the survey, there is a growing trend of increased consumption of dietary supplements for health purposes among consumers in Thailand. In the year **2015**, the market value of vitamins and dietary supplements reached **49,274** million baht, with an average growth rate of **11%**. The category with the highest total value and overall percentage is the general health dietary supplements, compared to other types of dietary supplements. Teenagers are considered a crucial target group in the current dietary supplement market. As a result, most businesses aim to cater to the needs of teenagers primarily because this is an age group that seeks to be the center of attention from others. They have a high degree of self-interest and may easily be influenced by advertisements that exaggerate the benefits beyond reality. Typically, they show a significant interest in matters related to beauty, such as weight loss, skincare, and cognitive enhancement, among others. In the high school student group, there is a lack of knowledge about dietary supplements. Their decisions to use dietary supplements are often based on persuasive advertising and can be influenced and misled when making purchasing decisions [12].

Receiving information about products from advertisements has an impact on the decision-making process to purchase and consume dietary supplements. However, having accurate knowledge about the proper use of dietary supplements will contribute to obtaining benefits from their consumption and reducing the potential risks to health. The objective of this research is to assess the knowledge and understanding related to dietary supplements and the behavior of consuming dietary supplements among students in grades **10** to **12** of secondary education.

Study Objectives:

1. To assess knowledge related to dietary supplements.
2. To examine motivating factors for the consumption of dietary supplements.
3. To explore predictive factors of dietary supplement consumption behavior.

Study method

This study is a survey research conducted among high school students. Data was collected using an online questionnaire through Google Forms. The study was conducted during the period from February to March **2023**.

Population and Sampling

The study focused on high school students in grades **4-6** who have internet access. The population size is unknown (infinite population). To determine the sample size, Cochran's formula [13] was used, resulting in a sample size of **345.744**. However, the researchers decided to have a voluntary response and collected data from a total of **402** participants who willingly completed the online questionnaire. All **402** collected responses were utilized for analysis in this study.

Instrument

The data collection instrument used in this study is a questionnaire that was developed by the research team following the research tool development process. The questionnaire encompasses various aspects related to dietary supplements, nutrition, vitamins, minerals from food, and medications. The content of the questionnaire was informed by the Ministry of Public Health's guidelines and was based on a review of relevant documents and academic research. The questionnaire is divided into four sections, including:

Section 1 consists of 6 personal information questions, including the following: Gender, Grade level, Study program, Parent's occupation, Monthly family income, Sources of health-related knowledge, Frequency of dietary, supplement consumption per week

Section 2 consists of 14 knowledge assessment questions related to dietary supplements. The questions are multiple-choice with 3 options each, where only 1 option is correct. The scores for correct answers will be summed, with a possible range of 0 to 14 points.

Section 3 consists of 6 questions regarding motivations for consuming dietary supplements. The questions are measured using a Likert scale ranging from 1 to 5, where: 1 = Very Low, representing less than 20% of the time, 2 = Low, representing 21-39% of the time, 3 = Moderate, representing 40-60% of

the time, 4 = High, representing 61-80% of the time, 5 = Very High, representing 81-100% of the time, The total score range for this section is from 6 to 30 points.

Section 4 comprises 5 questions concerning behaviors related to the consumption of dietary supplements. The nature of the questions involves selecting either "Consume" or "Do Not Consume" as responses.

Interpretation

Interpretation of knowledge about dietary supplement consumption: If you score between 80-100% or obtain a score of 11-14, your knowledge level is classified as "Good." If you score between 60-79% or obtain a score of 8-10, your knowledge level is classified as "Moderate." If you score below 60% or obtain a score less than 8, your knowledge level is classified as "Low."

Interpretation of motivation in dietary supplement consumption: If you score between 80-100% or obtain a score of 24-30, your motivation level is classified as "High." If you score between 60-79% or obtain a score of 18-23, your motivation level is classified as "Moderate." If you score below 60% or obtain a score less than 18, your motivation level is classified as "Low."

Data Analysis

Analyzing data using SPSS software version 26, the personal data of questionnaire respondents can be analyzed using Descriptive Statistics, including Frequency, Percentage, Mean, and Standard Deviation. Additionally, factors influencing the behavior of consuming dietary supplements can be analyzed through Multiple Regression Analysis.

Ethical consideration

The research team has provided a clear explanation of the study objectives to the volunteers before their

participation in the research. In this study, data collection is conducted anonymously, without collecting any personal information from the volunteers or participants. The participants have voluntarily completed the research questionnaire, and the data obtained by the researchers will be kept confidential.

Result

There was a total of 402 questionnaire respondents. The majority were female, accounting for 70.60% (n=284), while males constituted 29.40% (n=118) of the respondents. Most of the respondents were in the 4th year of high school, comprising 40.00% (n=161), followed by the 5th year at 36.30% (n=146), and the 6th year at 23.60% (n=95).

In terms of academic tracks, the majority were enrolled in the Science-Mathematics track, making up 60.40% (n=243), followed by Mathematics-English at 16.20% (n=65), and Social/Language track also at 16.20% (n=65). Regarding occupations, 7.20% (n=29) were categorized under "other professions," while the majority of parents were employed as permanent employees/civil servants/public sector workers at 31.30% (n=126), and business/merchants at 31.30% (n=126). For family income, the majority had a monthly income of >150,000 Baht at 31.10% (n=125), followed by 40,001-80,000 Baht at 21.40% (n=86), and 80,001-150,000 Baht at 21.40% (n=86). The primary source of health-related information for the majority came from the internet/online media at 70.10% (n=282), followed by parents at 14.90% (n=60), and television/radio/newspapers/magazines at 5.50% (n=22). In terms of frequency of consuming dietary supplements per week, the majority did not consume any at 52.70% (n=212), while 1-3 times a week was reported by 29.40% (n=118), and more than 3 times a week by 17.90% (n=72).

Table no. 1 Personal Information of Survey Respondents (n=402)

Variable	Frequency (%)
Gender	

Male	118 (29.40)
Female	284 (70.60)
Class Level	
Grade 10	161 (40.00)
Grade 11	146 (36.30)
Grade 12	95 (23.60)
Study Program	
Math -Science	243 (60.40)
Math – English	65 (16.20)
Social – Language	65 (16.20)
Vocational College	29 (7.20)
Parent Occupation	
Health Science	31 (7.70)
Employee	126 (31.30)
Teacher / Professor	17 (4.20)
Business Owner	126 (31.30)
Freelance	32 (8.00)
Others	70 (17.40)
Monthly Family income (Thai Baht)	
<20,000	39 (9.70)
20,001-40,000	66 (16.40)
40,001-80,000	86 (21.40)

80,001-150,000	86 (21.40)
>150,000	125 (31.10)
Health News Channel	
TV, Radio, Magazine, Newspaper	22 (5.50)
Internet, online media	282 (70.10)
Parents	60 (14.90)
From classes at school	21 (5.20)
Others	17 (4.20)
Dietary supplement consumption frequency / week	
None	212 (52.70)
1-3 times	118 (29.40)
> 3 times	72 (17.90)
Total	402 (100.00)

The majority of questionnaire respondents have a moderate level of knowledge about dietary supplements, accounting for **48.01% (n=193)**. A low level of knowledge was reported by **38.80% (n=156)** of respondents, followed by a high level of knowledge at **13.18% (n=53)**.

Table no. 2 Level of Knowledge About Dietary Supplements Among Survey Respondents

Frequency	%	Knowledge Level	
53	13.18	Good	80-100%
193	48.01	Moderate	60-79%
156	38.80	Low	> 60%

From the analysis of questions related to dietary supplements, it was found that the top 3 questions with the highest correct responses are as follows: Which product is a supplement for exercise? Answered correctly by

85.82% (n=345). If you consume dietary supplements excessively, how does it affect your health? Answered correctly by 79.10% (n=318). Which vitamin is fat-soluble? Answered correctly by 72.64% (n=292).

As for the 4 questions with the lowest correct responses: What does the term "dietary supplement" mean? In which type of food can we find Vitamin B2? If fat-soluble vitamins are consumed excessively, how does it affect the body? How can you consume vitamin supplements without overloading the liver and kidneys? Answered correctly by 31.34% (n=126), 42.29% (n=170), 42.29% (n=170), and 50.99% (n=205) respectively.

Table No. 3 Question item about dietary supplement knowledge

Question item	Frequency (%)
1. Which statement represents the difference between dietary supplements and medicine?	247 (61.44)
2. What does "Dietary supplements" refer to?	126 (31.34)
3. If consuming dietary supplements in excessive amounts, how does it affect health and accumulate in the body?	318 (79.10)
4. Which of the following is a dietary supplement for nurturing physical health?	224 (55.72)
5. Infancy to early childhood, Emphasize consuming which type of dietary supplement products?	207 (51.49)
6. Which one is a dietary supplement product for exercise?	345 (85.82)
7. Sleep aid supplements are categorized as which type of dietary supplement?	225 (55.97)
8. Which vitamin dietary supplement helps nourish the skin, promote a radiant complexion, and stimulate the immune system?	273 (67.91)
9. Where can we find Vitamin B1 in which type of food?	220 (54.73)
10. Where can we find Vitamin B2 in which type of food?	126 (31.34)
11. Which vitamin is fat-soluble?	292 (72.64)
12. Fat-soluble vitamins, if consumed in excessive amounts, can have adverse effects on the body.	170 (42.29)
13. Those who enjoy exercising and aim to lose weight while maintaining muscle mass should consider consuming which type of dietary supplement?	273 (67.91)

14. How can you take vitamin supplements in a way that doesn't strain the liver and kidneys?	205 (50.99)
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The majority of respondents have a moderate level of motivation towards dietary supplements, with 50.49% (n=203) at a moderate level and 28.85% (n=116) at a high level. In contrast, 20.64% (n=83) have a low level of motivation.

Table no. 4 Participants' motivation to take dietary supplement

Frequency	%	Motivation Level	
116	28.85	High	80-100 %
203	50.49	Moderate	60-79 %
83	20.64	Low	> 60 %

From the analysis of motivation for consuming dietary supplements, it was found that the respondents have the highest motivation for two factors: 1) Body health maintenance at 29.35% (n=118), and 2) Skin nourishment at 28.36% (n=114). On the other hand, the respondents have the lowest motivation for two factors: 1) Weight loss at 12.44% (n=50), and 2) Muscle building and exercise at 19.65% (n=79).

Table No. 5 Reasons for Motivation in Consuming Dietary Supplements

Motivation to take Dietary Supplement	5	4	3	2	1
	Highest	High	Moderate	Low	Lowest
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
1. Nurturing physical health	118 (29.35)	120 (29.85)	122 (30.35)	22 (5.47)	20 (4.98)
2. Nourishing the skin	114 (28.36)	101 (25.12)	107 (26.62)	43 (10.697)	37 (9.20)
3. Building muscles and exercising	79 (19.65)	116 (28.86)	137 (34.08)	48 (11.94)	22 (5.47)
4. Treating illness.	99 (24.63)	107 (26.62)	105 (26.12)	45 (11.19)	46 (11.44)
5. Nourishing the brain and preparing for	108	117	124	25	28

an exam	(26.87)	(29.10)	(30.85)	(6.22)	(6.97)
6. Weight loss	50 (12.44)	61 (15.17)	128 (31.84)	59 (14.68)	104 (25.87)

From the table, it can be observed that the majority of respondents have consumed various types of dietary supplements. Most respondents have consumed vitamins, accounting for 50.99% (n=205), followed by protein consumption at 67.41% (n=271), consumption of good fats at 59.52% (n=250), vitamin E consumption at 73.24% (n=316), and the consumption of supplements to aid sleep at 75.71% (n=318).

Table No. 6 Quantity and percentage of each type of dietary supplement that respondents have consumed.

Type of dietary supplement	Vitamin	Protein	Good fats or healthy fats	Vitamin E	Sleeping Aid
Not taken	197 (49.00)	131 (32.59)	152 (37.81)	86 (20.48)	84 (20.00)
Taken	205 (50.99)	271 (67.41)	250 (59.52)	316 (73.24)	318 (75.71)
Total	402 (100.00)	402 (100.00)	402 (100.00)	402 (100.00)	402 (100.00)

From the analysis of binary logistic regression to study predictors of dietary supplement consumption behavior, it was found that gender, parental occupation, family income, frequency of weekly dietary supplement consumption, knowledge about dietary supplements, and motivation for dietary supplement consumption are predictors of respondents' consumption behavior. When analyzing by supplement types, it was observed that the predictor of vitamin group supplement consumption is the frequency of weekly dietary supplement consumption ($p < 0.01$, Beta = 0.210), which can predict vitamin consumption behavior by 21.00%. The following predictors were found for the protein group supplements: Gender ($p < 0.05$, Beta = 1.685), Parental occupation ($p < 0.05$, Beta = 1.116), Family income ($p < 0.01$, Beta = 1.454), Frequency of weekly dietary supplement consumption ($p < 0.01$, Beta = 0.512), Knowledge about dietary supplements ($p < 0.01$, Beta = 1.193), Motivation for dietary supplement consumption ($p < 0.05$, Beta = 0.946). These predictors can collectively predict protein group dietary supplement consumption behavior by 168.50%, 111.60%, 145.50%, 51.20%, 119.30%, and 94.60%, respectively. For the healthy fats group supplements, the predictor is the frequency of weekly dietary supplement consumption ($p < 0.01$, Beta = 0.482), which can predict vitamin group dietary supplement consumption behavior by 48.20%. For the vitamin E group supplements, the predictors are: Family income ($p < 0.01$, Beta = 1.298), Frequency of weekly dietary supplement consumption ($p < 0.05$, Beta = 0.663), Knowledge about dietary supplements ($p < 0.01$, Beta = 1.213), Motivation for dietary supplement consumption ($p < 0.05$, Beta = 0.941). These predictors can collectively predict vitamin E group dietary supplement consumption behavior by 129.80%, 66.30%, 121.30%, and 94.10%, respectively. For sleep aid supplements, the predictors are: Family income ($p < 0.01$, Beta = 1.317), Frequency of weekly dietary supplement consumption ($p < 0.05$, Beta = 0.664), Knowledge about dietary supplements ($p < 0.01$, Beta = 1.210), Motivation for dietary supplement consumption ($p < 0.05$, Beta = 0.943).

These predictors can collectively predict sleep aid dietary supplement consumption behavior by 131.70%, 64.40%, 121.00%, and 94.30%, respectively.

Table no. 7 Binary Logistic Regression Analysis for Predicting Consumption of Each Type of Dietary Supplements.

Dietary Supplement Type / Variable	Vitamin <i>p</i> (Beta)	Protein <i>p</i> (Beta)	Health fat <i>p</i> (Beta)	Vitamin E <i>p</i> (Beta)	Sleeping Aid <i>p</i> (Beta)
Gender	-	0.042 (1.685)	-	-	-
Parent Occupation	-	0.029 (1.116)	-	-	-
Monthly Family Income	-	0.00 (1.454)	-	.008 (1.298)	0.006 (1.317)
Frequency dietary supplementary taken weekly	0.00 (0.210)	0.00 (0.512)	0.00 (0.482)	.017 (0.663)	.011 (0.644)
Dietary Supplementary Knowledge	-	0.002 (1.193)	-	0.002 (1.213)	0.003 (1.210)
Motivation to take dietary Supplementary	-	0.027 (0.946)	-	0.032 (0.941)	0.039 (0.943)

Discussion

From a total of 402 respondents, the majority were female, accounting for 70.60% (n=284). The majority of respondents were high school students in the 4th year, comprising 60.40% (n=161), studying in the science-mathematics program. The majority of parents were employed as regular employees, civil servants, or in state enterprises, accounting for 31.30% (n=126), while others were engaged in business or sales, also at 31.30% (n=126). The majority of families had a monthly income exceeding 150,000 baht, with 31.10% (n=125) falling into this category. The primary source of health-related information was the internet, accounting for 70.10% (n=282). The majority of respondents reported not consuming dietary supplements, comprising 52.70% (n=212). In terms of knowledge about dietary supplements, the majority of respondents scored at a

moderate level, with 48.01% (n=193) having a moderate level of knowledge, followed by 38.80% (n=156) having a low level of knowledge. Regarding motivation for dietary supplement consumption, the majority of respondents were at a moderate level, accounting for 50.49% (n=203), followed by 28.85% (n=116) at a high level.

The majority of respondents have a moderate level of knowledge about dietary supplements, accounting for 48.01% (n=193), while 38.80% (n=156) have a low level of knowledge. This could potentially be due to the fact that knowledge about dietary supplements is not taught in the school curriculum for high school students. The findings of this study align with the research conducted by Chaiwat Singhahiranun and colleagues (2013) [12], who investigated the consumption behavior of dietary supplements among high school students. They found that high school

students have a moderate level of knowledge about dietary supplements. Sunahporn Wongsawadi [14] conducted a study on measuring knowledge, attitudes, and purchasing behavior of dietary supplements among adults and found that the sample had a moderate level of knowledge about dietary supplements. However, individuals who are interested in the topic of dietary supplements can easily access information from online sources.

When analyzing the questions that respondents answered correctly, it is evident that the question with the highest correct response rate is: "ข้อใดคือผลิตภัณฑ์อาหารเสริมการออกกำลังกาย"

(Which of the following is a dietary supplement for exercise)?" with an accuracy of 85.82% (n=345). This indicates that respondents have knowledge of dietary supplements used for exercise. This could be attributed to the fact that companies marketing these dietary supplements have promoted product information to consumers.

The next question in terms of correct responses is about the effects of consuming an excessive amount of dietary supplements on health: "If you consume an excessive amount of dietary supplements, how does it affect your health?" with an accuracy of 79.10% (n=318). This could be due to respondents learning about this topic from parental advice. On the other hand, the question that received the lowest correct response rate is: "Where can we find vitamin B2 in which type of food?" with an accuracy of 31.34% (n=126). This may be because respondents did not prioritize this topic or felt it was less relevant. They might perceive it as distant or less relevant since they are teenagers and might not have health issues. Furthermore, a significant portion of respondents, mostly teenagers, may not have learned about dietary supplements in their school curriculum, leading to a lack of accurate knowledge and understanding regarding dietary supplements.

The majority of respondents have a moderate level of motivation for consuming dietary supplements, at 50.49% (n=203). This might be because the sample group consists of high school students in grades 4-6, who are teenagers and may not have a pressing need for dietary supplements due to their generally strong physical health. Upon analyzing the motivations for using dietary supplements, it was found that the highest motivation for consuming supplements is to

promote overall physical health, at 29.35% (n=118). The next highest motivation is for skin care and maintenance, at 28.36% (n=114). In contrast, the least motivating factor for supplement consumption is weight loss and muscle building, with 12.44% (n=50) and 19.65% (n=79) respectively. This could be because respondents prioritize maintaining their physical health and skincare, while considering weight loss, muscle building, and exercise motivation as less important. Furthermore, a significant portion of respondents, 75.71% (n=318), reported using dietary supplements to aid in sleeping [15-16]. This might be because many teenagers have sleep-related issues. Additionally, a considerable number of respondents, 73.24% (n=316), reported consuming vitamin E supplements, possibly due to the perceived health benefits and its role in skin health [17]. Moreover, the analysis showed that the respondents have consumed various types of dietary supplements, with the highest being sleep aid supplements at 75.71% (n=318), followed by vitamin E at 73.24% (n=316), protein at 67.41% (n=271), good fat supplements at 59.52% (n=250), and vitamin supplements at 50.99% (n=205).

From the study of predictors of dietary supplement consumption behavior, it was found that the predictors for each type of dietary supplement behavior, specifically for vitamin and good fat supplement groups, are different. In other words, the factors that can predict the behavior of consuming vitamin supplements and good fat supplements are distinct. The common predictor for both vitamin and good fat supplement consumption behaviors is the frequency of supplement intake per week. This predictor is able to predict the behavior with an accuracy of 21.00% for vitamin supplements and 48.20% for good fat supplements, respectively.

The predictors for predicting the behavior of consuming vitamin E supplements and sleep aid supplements are Family Income (Predictive accuracy: 129.80% and 131.70%), Frequency of Supplement Intake per Week (Predictive accuracy: 60.63% and 60.44%), Knowledge about Dietary Supplements (Predictive accuracy: 121.30% and 121.00%), Motivation for Supplement Consumption (Predictive accuracy: 94.10% and 94.30%).

Additionally, the predictors for predicting protein supplement consumption behavior of the survey

respondents are as follows: Gender (Predictive accuracy: 4.20%), Parental Occupation (Predictive accuracy: 111.60%), Family Income (Predictive accuracy: 145.40%), Frequency of Supplement Intake per Week (Predictive accuracy: 51.20%), Knowledge about Dietary Supplements (Predictive accuracy: 119.30%), Motivation for Supplement Consumption (Predictive accuracy: 94.60%).

Limitation

This study collected data using an online questionnaire. Respondents may have sought answers from the internet, and because the data collection was conducted online, it may not fully represent individuals who do not use online platforms.

Conclusion

The majority of respondents in the questionnaire exhibit a moderate level of knowledge about dietary supplements, at 48.01% (n=193). Additionally, most respondents show a moderate level of motivation in consuming dietary supplements, at 50.49% (n=203). Furthermore, a significant portion of the respondents have consumed various types of dietary supplements. Specifically, 75.71% (n=318) have consumed sleep aid supplements, 73.24% (n=316) have consumed vitamin E supplements, 67.41% (n=271) have consumed protein supplements, 59.52% (n=250) have consumed supplements for good fats, and 50.99% (n=205) have consumed vitamin supplements. These findings suggest that a considerable number of participants are informed about and engaged in the consumption of dietary supplements, especially those related to sleep aids, vitamin E, protein, good fats, and general vitamins.

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