FACTORS ASSOCIATED WITH NUTRITION INFORMATION LABEL USE AMONG UNDERGRADUATE STUDENTS IN CHULALONGKORN UNIVERSITY

Natapong Sooktowyad, Nutta Taneepanichskul*, Nipunporn Voramongkol, Ratana Somrongthong

College of Public Health Sciences Chulalongkorn University, Bangkok 10330, Thailand

ABSTRACT

Background: Teenage students tend to consume more finished or semi-finished food in their daily life because of their time constraints. Nutrition information label plays its important role for selecting healthy semi-finished or finished food products. Conversely, teens do not pay much attention to the information on a label.

Methods: The objective of this study was to assess influence factors relate to behaviors of reading nutrition information label among undergraduate students. Four hundred and thirty two students were selected by proportion to size and simple random sampling technique. Self-administered questionnaires were distributed to ascertain their knowledge and attitude on nutrition information label including their reading behavior.

Results: This study revealed that only 18.3% and 4.4% of them had good knowledge and attitude on nutrition information label, respectively. More than 90% of students had poor reading behavior. The study also found that the level of students' attitude on nutrition information label associated positively with their reading behavior (*p-value*< 0.01). In addition, their age was negatively correlated with score of nutrition information reading behavior (r= -0.95, *p-value*< 0.05).

Conclusion: Findings of this study suggested that university should encourage students to increasing attention to nutrition information label before consuming food products.

Keywords: Nutrition information label, Knowledge, Attitude, Reading behavior, Undergraduate student

INTRODUCTION

The process of food industry consider a technology that has been continuously developed and has obtained the attention of consumers increasingly, because of the competitive society in work and daily life. This effect people in that society have to be because of it, as well as situation and environment. Therefore, consumers prefer to have finished or semi-finished foods in their daily life more and more. Currently, the food companies use variety of marketing strategies to motivate and exaggerate the consumers to buy and consume their products, but poor quality products and do not meet

* *Correspondence to: Nutta Taneepanichskul*
  E-mail: nutta.t@chula.ac.th

their real needs [1].

In order to solve these problems, government introduced a measurements to protect and maintain the consumers' rights by legislating the Consumer Protection Act 1979 to achieve fairness for consumers to get products with reasonable price and safe for health. This act designated that the nutrition information needed to describe on the food containers [2].

Nutrition information means the information on the food package which provides the nutrition information such as total energy, fat, protein, sodium and carbohydrates. It indicates the nutritional information of such food in the form of nutrition information frame which specify the type of nutrients in the amounts that consumers eat at one

Table 1 General characteristics of undergraduate students

Characteristics	Number (n=432)	Percentage (%)
Gender		
Male	233	53.9
Female	199	46.1
Age (years)		
≤ 18	40	9.3
19 – 21	314	72.6
≥ 22	78	18.1
Mean = 20.16 (±1.314) Min – Max = 17 – 24		
Body mass index (BMI)		
<18.5 (Underweight)	8	1.9
18.5-24.9 (Normal weight)	401	92.8
25.0-29.9 (Overweight)	20	4.6
>30.0 (Obesity)	3	0.7
Year of study		
1 - 2	230	53.2
3 - 5	202	46.8

*Health Faculties refers to Faculty of Medicine, Faculty of Veterinary Medicine, Faculty of Dentistry, Faculty of Pharmaceutical Sciences, Faculty of Allied Health Sciences and Faculty of Sport Science and Health

time. This nutrition information is necessary to have complete, clear and understandable information that can compare and calculate how much such food contributes to the consumers need as requirement [3]. Reading nutrition information can help consumers to make their purchasing decisions of finished food products appropriately as conditions and needs of their body [4].

Especially teens, between 16-20 years, whose body and organs are in the progressive developmental process [5]. But, what the concerning is only few consumers spend their time to look and read nutrition information attached on food containers before buy. Few consumers recognize value of the information specified on the nutrition information label [2].

Therefore, this study was 1) to assess the levels of knowledge, attitude and reading behaviors regarding nutrition information label 2) to find factors influence behaviors of reading nutrition information label among undergraduate students in Chulalongkorn University.

MATERIALS AND METHODS

Samples

A cross-sectional study had applied during March – April 2014 at Chulalongkorn University. This study focused on undergraduate students who were studying in Chulalongkorn University during the academic year 2013. The sample size was calculated by Yamane equation [6], whereas total population (N) equaled 21,830 [7] and precision level (e) was assumed to be 0.05. The undergraduate students were selected by proportion to size and simple random sampling technique. The 438 questionnaires were distributed.

Four hundred and thirty two questionnaires were returned (response rate: 98.63%).

Questionnaire

A self-administered questionnaire assessing knowledge of nutrition information label was designed [8]; attitude toward the usefulness of nutrition information [9, 10]; perceived importance of product factors [9] and behavior of reading the nutrition information focusing on beverage, snacks and instant noodles [11]. Questionnaire was used of the Likert scale and dichotomous outcomes (yes/no), in addition to some general characteristics (gender, age, BMI, faculty, year of study). Content validity of questionnaire was proved by three experts in public health field. Pilot study was conducted to prove questionnaire reliability by 30 undergraduate students from other universities. The reliability coefficient of the questionnaire was 0.6, using Cronbach's alpha. This research was approved by the Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University (COA No.045/57).

Data analysis

Levels of knowledge, attitude and reading behavior were classified by Bloom's cut-point [11]. Descriptive statistic was used for describing the general characteristic. Fisher exact test and Pearson's correlation were used to find the association among general characteristics, levels of knowledge, attitude, perceived and reading behavior regarding to nutrition information label by using SPSS 16.0 software (Chulalongkorn University licenses). *P-value* less than 0.01 and 0.05 as

Table 2 Association between general characteristics, knowledge, attitude, perceived and level of reading nutrition information

	Level of reading nutrition information behavior		Total	P-Value[a]
	Poor	**Moderate and Good**		
Knowledge				
Poor / Fair	345 (97.7%)	8 (2.3%)	353 (100%)	.431
Good	76 (96.2%)	3 (3.8%)	79 (100%)	
Perceived				
Poor	113 (99.1%)	1 (0.9%)	114 (100%)	.302
Moderate / Good	308 (96.9%)	10 (3.1%)	318 (100%)	
Attitude				
Poor / moderate	406 (98.3%)	7 (1.7%)	413 (100%)	.001*
Good	15 (79%)	4 (21%)	19 (100%)	
Gender				
Male	229 (98.2%)	4 (1.8%)	233 (100%)	.359
Female	192 (96.5%)	7 (3.5%)	199 (100%)	
Age (years)				
< 20	142 (97.3%)	4 (2.7%)	146 (100%)	1.000
≥20	279 (97.6%)	7 (2.4%)	286 (100%)	
Body mass index (BMI)				
Normal	391 (97.5%)	10 (2.5%)	401 (100%)	.564
Abnormal[b]	30 (96.8%)	1 (3.2%)	31 (100%)	
Year				
Year 1 - 2	224 (97.4%)	5 (2.6%)	230 (100%)	1.000
Year 3 - 5	197 (97.5%)	6 (2.5%)	202 (100%)	
Faculty				
Health Faculty	100 (97.1%)	3 (2.9%)	103 (100%)	.728
Other faculty	321 (97.6%)	8 (2.4%)	329 (100%)	

* Significant at *p-value* 0.01; [a] Fisher's Exact Test; [b] Abnormal BMI refers to Underweight, Overweight and Obesity group

statistically significant was considered.

RESULTS

Among 432 students, 53.9% were male and 46.1% were female. Their age ranged from 17 to 24 years which Mean of age was 20.16 (±1.314) years. The majority of participants (28.9%) was 20 years old. For body mass index (BMI), most participants (92.8%) were classified in the normal BMI (18.5-24.9 kg/mm^2). Most of them were studying in first and second year of undergraduate study (Table 1).

This study found that 63.4% of students had fair knowledge level regarding to nutrition information label while 18.3% of them had good knowledge level. However, 18.2% of them were classified into limited knowledge level. Considering their attitude on the usefulness of nutrition information, we found that 288 (66.8%) students had moderate attitude level and 28.8% of them had poor attitude level on this usefulness. In contrast, only 4.4% of them agreed that the nutrition information was useful for them. To understand their perceive importance of nutrients in food product, it found that most of participants (58.1%) had moderate perceive on the amount of nutrients. There was only 15.5%

participants had good level of perceive while a higher number of participants had poor perceive (26.4%). Focusing on their behaviors of reading the nutrition information, 421(97.5%) of participants had poor behavior level on reading nutrition information. There were only 1.9% of those who had moderate behavior level and 0.7% had good behavior level. Assessing influence factors of students reading nutrition information label behavior, we found that only students' attitude level was significantly associated with level of behavior of reading nutrition information (p<0.01). (Table 2) However, other factors were not considerate to be potentially associated with level of reading behavior among undergraduate students in Chulalongkorn University.

Table 3 showed correlation between reading behavior score and other influence factors. A low positive significant relationship on attitude toward behavior of reading nutrition information (p <0.01). Additionally, a low significantly negative relationship between behavior of reading nutrition information and age among undergraduate students were found (p<0.05). Moreover, salary had a positives significantly at low relationship with behavior of reading nutrition information (p<0.05).

Table 3 Correlation between knowledge, attitude, perceived and related factors

	Perceived	Attitude	Behavior	Age	BMI	GPAX	Salary
Knowledge	-.023	.045	.001	.050	-.088	.011	.066
Perceived		.257**	.049	.067	.024	.049	-.011
Attitude			.257**	-.003	.018	.041	.104*
Behavior				-.095*	.048	.009	.064
Age					-.025	-.066	-.080
BMI						.084	0.47
GPAX							0.46

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

DISCUSSION

The nutrition information is important for consumers. It can affect consumers' food choices, usually by leading them to make selections that avoid negative nutrients such as fat, saturated fat and cholesterol [12]. However, a study suggested that in some situations, overweight eaters may be inclined to eat a larger quantity of food with a positive health claim or label due to a "health look alike food" [13].

This study found that most of respondents had moderate knowledge, whilst only 18.3% had good knowledge. The hypothesis testing yielded that knowledge on nutrition information was not correlate significantly with the behavior of reading nutrition information. This study supported a finding that, the nutrition knowledge did not associate with the behavior on looking for nutrition information [14]. In contrast, this study did not go along with study on knowledge of graduated students at Chiang Mai University, which found that most of respondents always read a nutrition information before buying products [15]. Additionally, a study in Belgian [16] found that adult Belgian knowledge on nutrition did not correlate with information used.

Level of perceive information was significantly associated with behavior of reading nutrition information. Consumer's perceive of information important on product factors was mostly moderate perceive (66.9%) followed by poor perceive (26.5%). The hypothesis result showed that perception on the importance of product factors related significantly to the behavior of reading nutrition information. Moreover, the level of perception was significantly associated with behavior of reading nutrition information. The perception on the food (ready-consumed food) was influenced by several food technical factors such as price, size, color and taste [17]. According to social cognitive theory and the theory of reason action represented the perceive benefit and barrier of action were only two attributes of pathways that induce behavior. Regarding the technical food factors may lead consumer to read on the nutrition information

as they may consider to buy the food. On the other side a study by Aaron et al. in 1995 [18], the nutrition information label did not effect on food choice.

In addition, age had negative significant correlation with the reading behavior on nutrition information, on other words the older age group was less reading the nutrition information. Factors such as age, income, education level, socioeconomic status, and belief in the diet-illness relationship were associated with consumers' used of nutrition labels [19] This research supported a study by Petrovici [20] found that Romanian subjects who were younger, had higher educations, better comprehension of nutrition concept, and higher incomes were more likely to read food labels. The association of income, education level, socioeconomic status and consumers' used of nutrition labels were similar with the relationship between socioeconomic status (SES) and health had been addressed by many studies. Some reasons presented that people had better health relate behavior because of higher socioeconomic status, while the others insisted on the lower SES cause of poor disadvantage health relate behavior. According to the study in UN stated that education was an important determinant of health and death, both level of personal and household in developed countries. Education and income were clearly linked a person's education enhances income and income reflects the person's education. Education may leverage a person's social status and better life by providing the better choice of health service utilization and health related behavior such as diet or consumers' used of nutrition labels [21]. Similar with the report of UN population growth and demographic structure described about developed countries, income was associated with household health expenses which increased rapidly in the first year of child birth and declined later, and would rise again when the family member became old. Hence, household income had both direct and indirect impact on morbidity and death [22].

To sum up, the level on the reading nutrition information that represent the reading behavior on the nutrition information may be influenced by the perception and attitude on the nutrition information. A group of undergraduate students in one university and recall bias from self-reported questionnaire could be point out as limitation of this study. The study finding could suggest to the university should encourage students to concern nutrition information label before consuming food products.

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