

Health Literacy and Dietary Supplement Consumption among Northerners of Thailand

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Abstract

Background: Dietary supplement consumption have been widely used worldwide including Thailand aiming at improving or maintaining health. This research aimed to describe the patterns and identify the association between health literacy and dietary supplement consumption in the Northeast of Thailand.

Method: This cross-sectional study was conducted among 1,200 persons, aged 18 or older, who were multistage random sampling from four provinces of the Northeast of Thailand to response to a structured questionnaire interview. The multiple logistic regression was performed to identify the influence of health literacy on dietary supplement consumption among people in the Northeast of Thailand when controlling the covariates.

Result: Among the total of 1,200 participants, 76.10% (95%CI: 73.42-78.78) were currently consuming dietary supplement. Factors that were associated with dietary supplement consumption were; had sufficient to excellent level of health literacy on appraising health information (adj.OR= 1.97; 95%CI: 1.30-2.99), had sufficient to excellent level of health literacy on accessing to health information (adj.OR= 1.91; 95%CI: 1.28-2.86), had chronic disease (adj.OR= 2.45; 95%CI: 1.74-3.44), had low level of knowledge on dietary supplement (adj.OR= 2.13; 95%CI: 1.38 -3.27), were males (adj. OR= 2.11; 95%CI: 1.65 -2.69), dissatisfied with self-body image (adj.OR= 1.50; 95%CI: 1.13 -1.98), married (adj.OR= 1.49; 95%CI: 1.16 -1.92), had insomnia (adj.OR = 1.48; 95%CI: 1.15 -1.98), when controlling other covariates including age, income, education, occupation, chronic health, health expenditure and physical activities.

Conclusion: Most of the population in the Northeast of Thailand consumed dietary supplement. Health literacy in accessing and appraising health information as well as health status were associated with dietary consumption. Enhancing the health literacy and knowledge on dietary supplement were essential.

Key words: *dietary supplement consumption, health literacy, Northeast of Thailand*

Introduction

Rapid economic growth speedily effected on the behavior of people around the world to work hurry, which lead to change the health behaviors¹. Dietary supplements are products taken by mouth that contain dietary ingredients include vitamins, minerals, amino acids, and herbs or botanicals, as well as other

substances that can be used to supplement the diet². Careless of the food consumption can make people lack nutrient. There are annually increasing patients with chronic diseases which caused by eating habits³. Each year, 15 million people between the ages of 30 and 69 years die from a NCDs; over 85% of these “premature” deaths occurs in low- and middle-income countries. Children, adults and the elderly are all vulnerable to the risk factors contributing to NCDs, whether from unhealthy diets, physical inactivity, exposure to tobacco smoke or the harmful use of alcohol⁴. Therefore, dietary supplement products have become an essential role for

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all groups who turn to choose food supplements as food regular consumption since the belief that it has enough nutrient for body need. Many of the cases they were compiled in food supplements as well as according to the advertisement from the supplement manufacturing company which overstated that it can help made the body strong or could accelerate energy metabolism without exercise^{5,6}.

Health literacy is linked to the ability of individuals to understand and apply health information to practice for disease prevention and health promotion⁷. People with low level of health literacy should be more likely to have lower accessing health information, health care, self-preventing and treatments. As the result, the decision to select health care methods would regardless of academic principles^{8,9}.

The Northeast region of Thailand is the biggest region both in term of areas and population and had the second highest labor forces in the country. These population work under the rush conditions, being in stress, lacking attention to health care, and eating unhealthy food which might increase their dietary supplement consumption^{10,11}. At present there is no comprehensive study on dietary supplement consumption patterns of the people in the Northeast of Thailand as well as factors influencing the consumption especially the health literacy. The objective of this study was to describe the patterns and identify the and health dietary supplement consumption among people in the Northeast of Thailand when controlling other covariates.

Material And Method

Study Design

This cross-sectional study was conducted among 1,200 people aged 18 or older who were recruited by using a multistage random sampling from four provinces of the Northeast of Thailand including Mahasarakham, Chaiyaphum, Udon Thani, and Ubon Ratchathani provinces with proportional to size of the population. The inclusion criteria were aged 18 and older, lived in Northeast of Thailand during the data collection and agreed to participate. The people who were critically ill were excluded from this study. A self-administered

structured questionnaire was used for data collection. The questionnaire includes social-demographic, health status, health care, dietary supplement consumption, marketing, mental health, self-efficacy, health literacy and knowledge on dietary supplement information.

Data Analysis

Descriptive statistics including frequency and percentage were used to describe categorical data whereas mean, standard deviation, median, and maximum minimum were for continuous data. A simple logistic regression was used to identify association of each independent variable with dietary supplement consumption. The independent factors that had p -value <0.25 were processed to a multivariable analysis using logistic regressions to identify the association between health literacy and health dietary supplement consumption when controlling the other covariates. The magnitude of association was presented as adjusted odds ratio (adj.OR), 95% confidence interval (CI) and p -value <0.05 was a statistically significant level.

Results

Among the total of 1,200 participants, 50.05% were males with the average age of 41.97 ± 17.07 years old. The highest proportion finished only primary school (33.92%) followed by high school (26.17%). Most of them were married (60.25%), 28.42% were in agricultural sectors, followed by freelance job (18.42%). Their median monthly income was 60,000 (500:12,000,000) Baht. As high as 43.0% were overweight or obesity and 22.67% had chronic diseases such as hypertension and diabetes. Most of them report rarely or did not exercise at all (70.42%). Only 44.7% perceived of having good health. Most of these North easterners ever consumed dietary supplement (81.25%) during the past 3 months, of which 76.10% were current consumers. Among the current users, 56.33% consumed dietary supplement for promoting health, followed by beauty dietary supplement (12.17%) and dietary supplement for disease prevention and treatment (9.58%) (Table1).

Table1: Dietary supplement consumption behaviors among the Northeasterners of Thailand (n=1,200)

Dietary supplement consumption	Number	Percentage	95%CI
Dietary supplement consumed during the last the last 3months (1,200)			
Never consumed	225	18.75	17.90-18.34
Ever consume	975	81.25	78.92-83.42
Currently consuming dietary supplement (975)			
Stop consumption	233	23.89	21.21-26.57
Currently consume	742	76.10	73.42-78.78
Type of Dietary supplement consumed			
Did not consume	225	18.75	16.57-21.07
Dietary supplement for promoting health	676	56.33	53.47-59.16
Beauty dietary supplement	146	12.17	10.36-14.15
Dietary supplement for disease prevention and treatment	115	9.58	7.97-11.39
Weight control dietary supplement	38	3.17	2.25-4.32

Health literacy covered the access to health information, understanding, appraising and making decision on health information and practices. It was found that more than half had inadequate or problematic levels of health literacy (57.35%), 35.92% had sufficient level of health literacy and only 6.83% had excellence level of health literacy (Table2).

Table2: Health Literacy level among the Northeasterners of Thailand (n=1,200)

Health literacy level	Number	Percentage	95%CI
Inadequate (0 - 25 points)	189	15.75	13.73-17.93
Problematic (26 - 33 points)	498	41.50	38.69-44.34
Sufficient (34 - 42 points)	431	35.92	33.19-38.70
Excellent (More than 43 points)	82	6.83	5.47-8.41

The multiple logistic regression indicated health literacy was associated with dietary supplement consumption among the North-easterners as well as other covariates. Factors that were associated with dietary supplement

consumption among the North-easterners were; had sufficient to excellent levels of health literacy on appraising on health information (adj.OR= 1.97; 95%CI: 1.30- 2.99), had sufficient to excellent levels of health literacy on accessing to health information (adj. OR= 1.91; 95%CI: 1.28-2.86), had no chronic disease (adj.OR= 2.45; 95%CI: 1.74 -3.44), had low level knowledge on dietary supplementary (adj.OR= 2.13; 95%CI: 1.38 -3.27), male (adj.OR= 2.11; 95%CI: 1.65-

2.69), dissatisfied with self-body image (adj.OR= 1.50; 95%CI: 1.13 -1.98), married (adj.OR= 1.49; 95%CI: 1.16-1.92), had insomnia (adj.OR= 1.48; 95%CI: 1.15- 1.98) and was a younger elderly (60-69 years old) (adj. OR= 1.84; 95%CI: 1.37-2.47) when controlling other factors including age, income, education, occupation , chronic health, ealth expenditure, physical activities (Table 3).

Table 3: Multivariable analysis of factors associated with dietary supplement consumption among the Northeasterners of Thailand, by using the multiple logistic regression presenting odds ratios, adjusted odds ratios, 95%CI and P-value (n=1,200)

Factors	Number	% of Use	Crude OR	Adj. OR	95% CI	p-value
Health literacy: Appraising health information						0.002
Sufficient /Excellent	189	55.03	1	1		
Inadequate/ Problematic	1011	56.58	1.06	1.97	1.30 - 2.99	
Health literacy: Accessing to health information						0.002
Sufficient /Excellent	988	54.45	1	1		
Inadequate/ Problematic	212	65.09	1.55	1.91	1.28 - 2.86	
Chronic Disease						<0.001
No	969	52.01	1	1		
Yes	231	74.46	2.68	2.45	1.74- 3.44	
Knowledge on dietary supplements						0.001
Fair/good	1146	55.58	1	1		
low	54	72.22	2.07	2.13	1.38 - 3.27	
Gender						<0.001
Female	599	47.41	1	1		
Male	601	62.22	2.08	2.11	1.65 -2.69	
Satisfaction (on self-body image)						0.001
Yes	310	49.03	1	1		
No	890	58.88	1.48	1.50	1.13 - 1.98	
Marital Status						0.002
Single	477	48.64	1	1		
Married	723	61.41	1.68	1.49	1.16 -1.92	
Insomnia						0.001
No	660	51.52	1	1		
Yes	540	62.22	1.55	1.48	1.15 - 1.89	

Discussion

The consumption of dietary supplement of the people in the Northeast of Thailand during the last three months was as high as 81.25%, of which 76.10% were current consumers of dietary supplement. Moreover, among currently consumers 56.33% consumed them to promote health. These findings were in line with the results of other studies on dietary supplementary which reported that 48 to 53% were regular supplement users¹⁰. A study in Denmark reported that 71 % of the Danes were dietary supplement users¹². Moreover, among 1,113 respondents on a survey, 57% used supplements or vitamins for specified reason to prevent health concerns¹³. The possible reasons that could explain these situations where the dietary supplement products which were mostly consumed were considered as having higher nutrients which could boost up the energy and promoting health. These dietary supplements included energy drinks, minerals, essence of chicken extraction, bird's nest extract. Since Thailand has entered an aging society, population is declining, and most people are becoming more concerned on health. According to a survey, more than 89% of consumers want to buy healthy food and beverages, and in the middle-income group, buying products is based on quality rather than price¹⁴.

This study observed that having adequate to excellent levels of health literacy in terms of accessing to and appraising health information had influence on dietary supplement consumption. It was similar with the result from other studies which showed that the elderly with the ability to make health decisions at a high level had chances to have good quality of life^{8, 9}. It seems to be due to well access to adequate health information then understanding about health, needs for health services and making decision to select the appropriate nutritional supplement for health were most practices.

Having chronic disease among adults was associated with dietary supplement consumption. People with chronic diseases tend to use dietary supplement than those who are healthy. As many of them searching for alternative cares than normal people. This result was in line with the finding from a previous study which reported that people with chronic illness were 2.05 times more likely to use herbs for primary health care

than those without underlying diseases¹⁵. The similarity of finding expressed that medication prescription users with menopause and chronic gastrointestinal disorders had the highest rates of non-vitamin dietary supplement use^{16, 17}.

Low level of knowledge on dietary supplements had influences on dietary supplement consumption. Some studies found that among public health personnel who had low level of knowledge on supplement product, were high products consumption¹⁸ which was considered as a serious health risk or getting higher risk for side effects due to inappropriate product consumption¹⁹. In addition, some studies showed that people who are knowledgeable about food and health related food, were more likely to use dietary supplements²⁰.

Males were more likely to use dietary supplements. This finding was similar with a study which found that males tend to use herbal supplements as botanical used more than females²¹. On their studied with reported contrast results with this study that females was more likely to be users of any dietary supplements^{10-12, 16}. It may be that our study was more focus with dietary supplement which related to health whereas others they studied in general. In addition, the participants of this study were from sectors it should represent the populations of the region.

Conclusion

Most of the Northeasterners of Thailand were current dietary supplement consumers. Health literacy on accessing on and appraising health, health status, knowledge, gender and ages had influence on dietary supplement consumption of the participants. Enhancing the health literacy as well as knowledge on dietary supplement and health are especially among males, and elderly.

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