

Health Beliefs Model and Attitude of Health Professionals on Using Nutraceuticals to Prevent Disease and Maintain Overall Health

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Abstract

This research aimed to study the health belief model and attitudes of health professionals on using of nutraceuticals to prevent disease and maintain overall health. This was a survey research conducted among health professionals in Thailand. The questionnaire was edited in clear native language and organized into 31 items. The survey (available in original language and translated in English in Survey) was designed and conducted using Google Forms. A questionnaire was designed to collect data on demographics, nutraceutical consumption, behavior related to health and factors influencing nutraceutical purchases. A pretest was conducted using 12 volunteers to evaluate the clarity of the survey queries. The improved questionnaire used to collect data from 380 participants between June-July 2024.

The result showed that there was a difference of health belief model and attitude between the health professional who consumed and the health professional who not consumed. There was no association between the general information variables and the health professional's decision to consume nutraceuticals ($p > 0.05$). And all items of the health belief model differed significantly between consumed group and not consumed group, and health belief model of consumed group were significantly higher among not consumed group ($p < 0.001$). In conclusion, the health belief model and attitude of

health professionals who consumed and not consumed nutraceuticals to prevent disease and maintain overall health, there were differences.

Keywords: Nutraceutical, Health Belief Model, Attitude, Practice, Health Professional

Introduction

Nutraceuticals, a term introduced by Dr. Stephen Defelice in 1989, combine nutrition and pharmaceuticals for health benefits (Defelice, 1989) and are increasingly popular globally, including in Thailand, where trends in clean eating and health awareness drive demand. Key factors influencing nutraceutical use include perceived health benefits, professional recommendations, and consumer awareness, though clinical evidence is needed to confirm efficacy. Using the Health Belief Model (HBM), this study examines the health beliefs and attitudes of Thai health professionals toward nutraceuticals, comparing beliefs between consumers and non-consumers to understand how these attitudes influence usage for disease prevention and health maintenance.

Research Methodology

This survey research targeted Thai health professionals aged 20 and older, using a 31-item questionnaire in both native language and English to gather data on demographics, nutraceutical consumption, health-related behaviors, and purchasing factors. Administered via Google Forms, the survey underwent a pretest with 12 volunteers for clarity improvements before collecting data from 380 participants between June and July 2024. The questionnaire covered demographic data, professional group, income, nutraceutical use, attitudes, and health beliefs. Multiple-choice questions assessed awareness and attitudes toward nutraceuticals, while a 10-point ordinal scale measured safety and efficacy perceptions, and a Likert scale evaluated opinions on related statements.

Sample Size Determination

$$n = \frac{Z_{\left(\frac{\alpha}{2}\right)}^2 (P)(1 - P)}{(d)^2}$$

$$n = \frac{(1.96)^2 (0.6)(0.4)}{(0.05)^2}$$

$$n = \frac{(3.8416)(0.24)}{(0.0025)}$$

$$n = \frac{0.9604}{0.0025}$$

$$n = 368.7936 \approx 369 \text{ people}$$

n = Sample size

Z = Standard value under normal curve

Z $\alpha/2$ = Z-statistics at a given confidence

P = Proportion of nutraceutical intake. Call and ask 10 people.

d = Maximum estimate of the p in the study.

Study Procedure & Data Analysis

This study employed a structured process to collect data from Thai health professionals aged 20 and older, including doctors, nurses, physician assistants, and physical therapists. A pretested questionnaire gathered demographic information, nutraceutical usage, health beliefs, and attitudes toward nutraceuticals for disease prevention and health maintenance. Participants were informed of the study's aims before completing the survey. Quantitative data, including age, gender, professional group, work experience, income, nutraceutical usage, health beliefs, and attitudes, were analyzed to understand patterns and factors influencing nutraceutical use.

Research tools

This research employed a survey questionnaire based on consumer behavior concepts and secondary literature, divided into six sections: personal information (6 closed-ended questions on demographics and nutraceutical usage), health conscience

(11 questions), perceived health risk (3 questions), perceived usefulness (4 questions), attitude toward behavior (3 questions), and perceived behavioral control (4 questions). Responses were measured on a 5-level Likert scale ranging from “Completely agree” to “Completely disagree,” with average scores interpreted to reflect levels of agreement, uncertainty, or disagreement.

Results

Index of Item-Objective Congruence: IOC

This IOC consistency (Index of Item-Objective Congruence) is a question that has an IOC value from 0.75 - 1.00 that is considered appropriate and can be used for questions that have value. IOC lower than 0.50 should consider improving or cut out (Pallant, 2013)

Reliability Test

The results of Cronbach's alpha for all the variables that were ranging from 0.79 to 0.92. These figures go beyond the threshold of 0.70. Therefore, it can be implied that the measurement items have reached a satisfactory degree of reliability.

Demographic Data

The demographic data of 380 health professionals showed that 158 consumed nutraceuticals and 222 did not. Among consumers, the majority were female (74.68%), aged 20-30 years (55.06%), with most earning 20,001-40,000 baht per month (38.61%) and having less than 5 years of work experience (53.16%). Non-consumers were predominantly female (88.74%), with 42.34% aged 20-30 years, 50.45% earning 20,001-40,000 baht monthly, and 39.19% having more than 16 years of work experience. Most participants were nurses in both groups, accounting for 36.71% of consumers and 74.77% of non-consumers. Despite detailed demographic analysis, no significant association was found between variables such as age, gender, profession, income, or work experience and the decision to consume nutraceuticals ($p > 0.05$).

Table 1 Mean and standard deviation health belief model determined by consumed and not consumed

Parameter	Consumed		Not consumed		Total	
	(n=158)	Level	(n=222)	Level	(n=380)	Level
	$\bar{x} \pm S.D.$		$\bar{x} \pm S.D.$		$\bar{x} \pm S.D.$	
HBM						
Health Conscience (HC)	4.11±1.00	Agree	3.92±1.01	Agree	4.00±1.01	Agree
Perceives Health Risk (PHR)	4.20±0.86	Agree	3.89±0.92	Agree	4.02±0.91	Agree
Perceived Usefulness (PU)	3.72±0.91	Agree	3.52±0.88	Undecided	3.60±0.90	Undecided
Decisions on Behavior (Attitude Toward the Behavior: ATT)	4.01±0.88	Agree	3.73±0.91	Agree	3.85±0.91	Agree
Perceived Behavioral Control (PBC)	3.83±0.85	Agree	3.45±0.91	Undecided	3.61±0.91	Undecided

Health Belief Model

The Health Belief Model (HBM), a long-standing framework for predicting health-related behaviors (Rosenstock, 1974), was used to survey 380 health professionals, divided into those who consumed nutraceuticals (n=158) and those who did not (n=222). Results revealed significant differences ($p < 0.001$) in HBM constructs between the two groups. Consumers consistently scored higher across health conscience (4.11 ± 1.0 vs. 3.92 ± 1.01), perceived health risk (4.20 ± 0.86 vs. 3.89 ± 0.92), perceived usefulness (3.72 ± 0.91 vs. 3.52 ± 0.88), attitude toward behavior (4.01 ± 0.88 vs. 3.73 ± 0.91), and perceived behavioral control (3.83 ± 0.85 vs. 3.45 ± 0.91). While consumers showed agreement across constructs, non-consumers expressed uncertainty in perceived usefulness and behavioral control, highlighting significant differences in health beliefs that influence nutraceutical consumption.

Table 2 Comparison of health belief model and attitude of health professionals on using of nutraceutical to prevent disease and maintain overall health

Parameter	Consumed	Not consumed	t	df	P value
	(n=158)	(n=222)			
	$\bar{x} \pm S.D.$	$\bar{x} \pm S.D.$			
HBM					
Health Conscience (HC)	4.11±1.00	3.92±1.01	4.009	378	< 0.001
Perceives Health Risk (PHR)	4.20±0.86	3.89±0.92	4.018	378	< 0.001
Perceived Usefulness (PU)	3.72±0.91	3.52±0.88	2.289	378	< 0.001
Decisions on Behavior (Attitude Toward the Behavior: ATT)	4.01±0.88	3.73±0.91	3.569	378	< 0.001
Perceived Behavioral Control (PBC)	3.83±0.85	3.45±0.91	5.106	378	< 0.001

Discussion and Conclusion

This research studies both of health professionals who consumed nutraceutical and who not consumed nutraceutical to compare the health belief model and attitude, there were many differences. Questionnaires collect data from 380 participants from google form survey 6 part: 31 items.

Demographic Data

The overall data included age, gender, professional group, working period, and monthly income. There was no association between the general information variables and the health professional's decision to consumed nutraceuticals ($p > 0.05$). In addition, after categorizing the results according to major population characteristics and decisions of health professionals to consumed and not consumed the nutraceuticals, there was no clear pattern to explain any difference between subgroups (Teoh et al., 2019).

Health Beliefs Model and Attitudes of Health Professionals to Nutraceuticals

The Health Belief Model (HBM) explains health behaviors by identifying underlying causes (Yazgan & Özgen, 2024), and this study found significant differences in health beliefs and attitudes between health professionals who consumed

nutraceuticals and those who did not. Nutraceutical consumers showed higher scores in health consciousness, perceived health risks, perceived usefulness, decision on behavior, and perceived behavioral control ($p < 0.001$). During the COVID-19 pandemic, 70.5% of participants reported using herbal products, citing efficacy, safety, and quality. Barriers to usage included skepticism and lack of knowledge (Teoh et al., 2019). Attitudes toward behavior, shaped by beliefs (Bizer et al., 2006), and purchasing decisions were influenced primarily by perceived health benefits and safety (Jadhav et al., 2023). Overall, health professionals who consumed nutraceuticals demonstrated significantly higher scores in all dimensions of health beliefs compared to non-consumers.

Preferences Health Belief Model of Health Professionals Who Consumed and Not Consumed Nutraceuticals

Participants in the consumed group exhibited higher mean scores and standard deviations across all items of the Health Belief Model compared to the not consumed group. This suggests that health consciousness should be viewed as a psychological state that predicts various related variables, such as health attitudes and behaviors, rather than specific behaviors (Le Chong & Teh, 2020). Additionally, all items of the health belief model and attitudes showed significant differences between the two groups, with the consumed group scoring significantly higher ($p < 0.001$).

Conclusions

This research aimed to study the health belief model and attitude of health professionals consumed on using nutraceuticals to prevent disease and maintain overall health. Therefore, overall of the result and discussion of our survey, health beliefs models and attitudes can be concluded that health professionals who consumed nutraceuticals have mean scores and standard deviation of health beliefs more than health professionals who not consumed nutraceuticals.

Limitation

This study is limited by its focus on health professionals in Thailand, restricting the generalizability of findings to other populations or professions. The reliance on self-reported data may introduce bias, and the small sample size of 380 participants may not fully represent the diversity of health professionals. Additionally, the limited pretest sample may have overlooked ambiguities in the questionnaire.

Future research

Future research should expand to include health professionals from different regions to compare cultural and policy influences on nutraceutical use, while exploring additional variables such as economic status, workload, and specialization. Longitudinal studies are needed to track changes in beliefs and behaviors over time. Interventional and qualitative studies can assess the impact of education and uncover deeper insights. Comparative research with the general population and validation of the survey with diverse samples will enhance reliability and identify unique patterns.

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