EVALUATION OF FACTORS AFFECTING PHARMACISTS' BEHAVIOR REGARDING THE SALE OF VITAMINS AT RETAIL PHARMACIES IN VINH LONG PROVINCE FROM 2022 - 2023

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Abstract

Objectives: To survey the current situation and assess factors affecting pharmacists' behavior regarding the sale of vitamins at retail pharmacies in Vinh Long province from 2022 - 2023 based on the theory of planned behavior (TPB) research model. ***Methods:*** A cross-sectional descriptive study was conducted on 424 pharmacists at retail pharmacies in Vinh Long province using a set of printed or online questionnaires based on the Google Forms platform. ***Results:*** Among 424 pharmacists participating in the study, females accounted for 72.9%, compared to 27.1% of males; there were 47.9% with intermediate pharmaceutical education, and 45.3% were pharmacy owners. Multivariate analysis indicated that both "Attitude" and "Subjective norm" significantly influenced pharmacists' behavior in selling dietary supplements at retail pharmacies in Vinh Long province from 2022 - 2023. ***Conclusion:*** "Attitude" is a factor that strongly affects pharmacists' behavior regarding the sale of vitamins at retail pharmacies in Vinh Long province from 2022 - 2023.

Keywords: Vitamin; Behavior; Retail pharmacy.

INTRODUCTION

Nowadays, pharmacists at drugstores strategically play an important role in the delivery of public health services [1]. This strategic position is reflected through the introduction, consultation,

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and guidance on the selection and use of pharmaceutical products, dietary supplements, vitamins, etc. in a safe, reasonable, and effective way. Vitamins are very important in maintaining the human health of the human body. However, the human body does not have the ability to synthesize vitamins, so vitamin supplementation is usually done through nutrition and vitamin supplements. As a result, the demand for vitamins has increased dramatically in recent years. Today, the vitamin supplement market is one of the fastest expanding. Worldwide, the vitamin supplement market grew at a rate of 6.8% between 2013 and 2020, from $37.4 billion (2013) to $59.6 billion (2020) [2]. Besides, inappropriate use of vitamins risks potential adverse effects such as neurological disorders, gastrointestinal symptoms, hepatotoxicity, fetal malformations, and drug interactions, which create legal liabilities for healthcare professionals. According to research by Hadi et al. in 2016, people tend to seek nutrition and vitamin advice from pharmacists [3]. Some studies have shown errors in the communication process between pharmacists and people in advising on the selection of pharmaceutical products [1, 4]. Currently, there are very few studies applying the TPB to evaluate factors affecting the knowledge, attitudes, and behaviors of pharmacists at retail pharmacies in Vietnam in general and Vinh Long province in particular. Therefore, the study was carried out with two objectives: *To survey the current condition of vitamin sales by pharmacists at retail pharmacies and assess the factors influencing pharmacists' behavior in selling vitamins at retail pharmacies by using the TPB study model in Vinh Long province from 2022 - 2023.*

MATERIALS AND METHODS

1. Subjects

424 pharmacists at retail pharmacies in Vinh Long province from 2022 - 2023.

* *Inclusion criteria:* Pharmacists agreed to participate in the study.

* *Exclusion criteria:* Pharmacists did not answer the survey in full.

2. Methods

* *Research design:* A cross-sectional descriptive study using data collected from printed or online questionnaires on the Google Forms platform through interviews with pharmacists from June 2022 to February 2023.

* *Sample size:* According to Serena Carpenter, the minimum observation/ measurement ratio is 5:1, meaning that for every measurement variable, there should be a minimum of 5 observed samples. Given that the research scale, after adjustment, consists of 25

measurements, the minimum sample size is, therefore, 125. The number of samples we obtained in this study is 424, which is in line with the sample size requirements [5].

* *Sampling method:* Convenient random sampling using an interview approach with research subjects through a set of printed or Google Forms-based questionnaires.

* *Research content:*

- Characteristics of the research sample: General information about pharmacists, including: Gender, professional qualifications, and job position.

- Evaluating factors affecting pharmacists' behavior regarding the sale of vitamins based on the TPB research model.

- Constructing and evaluating the reliability of measurement scales using Cronbach's Alpha coefficient:

An initial survey of over 100 pharmacists was conducted at various retail pharmacies. The study excluded invalid questionnaires that did not follow a specific order of responses or did not sufficiently answer research questions. A reliability and validity assessment was conducted using Cronbach's alpha coefficient under the conditions that (1) variables with inter-variable correlation coefficients less than 0.3 were excluded, and (2) Cronbach's alpha values of 0.6 or higher were sufficient for the study [6].

* *Research models:*

The study used a model of 4 variables based on Ajzen's TPB (1991) [7] to predict the actual behavioral determinants with high accuracy. The survey questions include Attitude (A); Subjective norm (SN); Perceived behavior control (PBC); and Intention (I). The scale used to evaluate these items is the Likert-5 scale: 1 = "Strongly disagree"; 2 = "Disagree"; 3 = "Partially agree"; 4 = "Agree"; 5 = "Strongly agree".

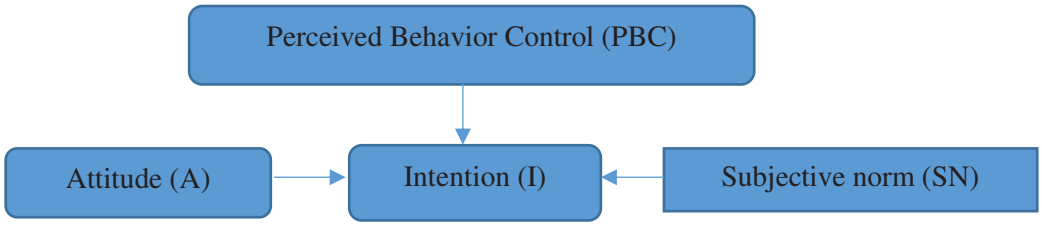

Figure 1. Research model.

Then, the study conducted correlation and regression analysis to build a multivariate regression equation in the form: $I = \beta_0 + \beta_1*A + \beta_2*SN + \beta_3*PBC$.

Coefficients β are Partial regression coefficients. The suitability of the model was tested using F value (ANOVA) with Sig reliability < ± 0.05.

** Data processing:* All research data was synthesized and analyzed using SPSS software version 26.0.

3. Ethics

The study was permitted by the Vinh Long Department of Health. The survey process was based on voluntary participation, ensuring participant anonymity. The authors declare there are no competing interests related to this paper.

RESULTS

1. Characteristics of the research sample

Table 1. Characteristics of pharmacists and retail pharmacies.

Characteristics		Frequency (n = 424)	Percentage (%)
Gender	Male	115	27.1
	Female	309	72.9
Qualifications in pharmacy	Post-graduate	5	1.2
	Bachelor	106	25
	College	96	22.6
	Intermediate	203	47.9
	Others	14	3.3
Job positions	Pharmacy owner	192	45.3
	In charge of professional affairs	93	21.9
	Staff	137	32.3
	Others	22	0.5

Female pharmacists accounted for 72.9%, compared to 27.1% of men; there were 47.9% of pharmacists who have intermediate level of pharmacy; 45.3% were pharmacy owners.

2. Evaluation of factors affecting pharmacists' behavior regarding the sale of vitamins at retail pharmacies in Vinh Long Province from 2022 - 2023 based on the TPB research model

** Characteristics of the reliability of the scale through Cronbach's Alpha coefficient:*

Table 2. Characteristics of the reliability of the scale through Cronbach's Alpha coefficient.

Survey variables	Variable - total correlation coefficient	Shift coefficient when the type of variable	Cronbach's alpha = 0.813
Attitude			
A1. Currently, most vitamins are being sold by pharmacists to support the treatment of patients in the community	0.727	0.874	0.893
A2. Selling vitamins helps increase sales and profits	0.730	0.873	
A3. Selling vitamins helps save money, time, and effort for patients	0.666	0.880	
A4. The supply of vitamins helps improve patients' current disease and symptoms	0.656	0.881	
A5. Selling vitamins helps increase the level of trust of customers	0.612	0.885	
A6. Because many customers come to buy vitamins regularly	0.714	0.875	
A7. If the pharmacy refuses to sell vitamins, others will sell them	0.501	0.894	
A8. The seller cannot control the use of vitamins by the buyer	0.760	0.871	

Survey variables	Variable - total correlation coefficient	Shift coefficient when the type of variable	Cronbach's alpha = 0.813
Subjective norm			
SN1. Patients often have no objection to me adding vitamins to their prescriptions	0.831	0.887	
SN2. No one objects to pharmacists selling vitamins (registered as prescription drugs) over-the-counter	0.631	0.902	
SN3. Doctors also often prescribe vitamins in inpatient and outpatient prescriptions to support the treatment of some diseases and I also learn from them to sell additional vitamins to patients	0.789	0.890	
SN4. The pressure from patients who require vitamins to improve the immune system and quickly recover from diseases is the reason for selling them	0.539	0.908	
SN5. Pharmacists can freely change the vitamins according to patients' needs	0.810	0.889	0.908
SN6. Pharmacists can enhance the sale of accompanying vitamins	0.407	0.917	
SN7. I noticed that the media is increasingly advertising that vitamins (registered as functional foods) play an important role in supporting the treatment of diseases	0.714	0.896	
SN8. My friends and relatives also advised me to choose vitamins registered as functional foods for sale, limit vitamins registered as prescription drugs	0.783	0.891	
SN9. I realize that pharmacies selling vitamins (registered as prescription drugs or supplements) are very popular today, so it is very normal for me to sell vitamins	0.692	0.898	

Survey variables	Variable - total correlation coefficient	Shift coefficient when the type of variable	Cronbach's alpha = 0.813
Perceived behavioral control			
PBC1. Drug sellers are people with very important positions (skills, knowledge) who provide consultancy and advice on the appropriate use of vitamins to support the treatment of patients	0.604	0.863	0.875
PBC2. I have enough experience to choose vitamins (registered as functional foods) for customers, ensuring safety and effectiveness	0.724	0.852	
PBC3. I will sell vitamins (registered as a prescription drug) if the patient doesn't want to see a doctor	0.459	0.875	
PBC4. The control of the sale of vitamins is loose, so selling them is relatively easy	0.682	0.856	
PBC5. The penalty for selling vitamins (registered as prescription drugs) without a prescription is still lenient, so it is easy to accept	0.424	0.878	
PBC6. The abuse of selling vitamins (registered as prescription drugs) should be more strictly controlled	0.683	0.856	
PBC7. Patients often ask to take a variety of vitamins, so promoting the sale of additional vitamins is inevitable	0.608	0.863	
PBC8. When taking vitamins, patients will have a quick treatment effect due to strengthening the body's immune system	0.725	0.852	
PBC9. Pharmacists should instruct patients to supplement vitamins from food daily to support the treatment of diseases	0.631	0.861	

Survey variables	Variable - total correlation coefficient	Shift coefficient when the type of variable	Cronbach's alpha = 0.813
Intention			
I1. I will sell vitamins to buyers if they are in the healthcare industry and know how to use them properly	0.827	0.853	0.906
I2. I will sell vitamins (registered as a prescription drug) without a prescription at times when I am sure there is no inspection	0.820	0.859	
I3. I will sell vitamins (registered as a prescription drug) to patients without a prescription even if there is a surveillance camera, management	0.791	0.883	

After checking the reliability level by Cronbach's Alpha, there were 4 disqualified variables (A7, SN6, PBC3, PBC5), the remaining 25 observed variables with variable-total correlation coefficient > 0.3 and Cronbach's Alpha reliability coefficients > 0.6 meeting the requirements.

** Multivariate regression analysis of factors affecting vitamin selling behavior:*

Table 3. Multivariate regression analysis of factors affecting vitamin selling behavior of pharmacists.

Variable	Coefficients					
	Non-standardized coefficients		Standardized coefficients	t Sig. combined statistic	Sig. combined statistic	Durbin-Watson
	Beta non-standardized coefficients	Standard Deviation	Beta standardized coefficients			
Constant	1.307	0.253		5.171	0.000	1.362
A	0.324	0.067	0.248	4.812	0.000	
SN	0.677	0.158	0.465	4.290	0.000	
PBC	-0.403	0.134	-0.322	-3.005	0.003	

The results of regression analysis with no variables recorded with variance magnification factor (VIF) > 2; PBC group needs to be eliminated due to poor influence level not reaching the required significance level (p > 0.05), For the remaining 3 component groups, multivariate regression model has not standardized prediction I, Intention is determined: "I = 1.307+ 0.324xA + 0.677xSN + e".

After normalization, the model is collapsed: "I = 0.248xA + 0.465xSN + e".

DISCUSSION

1. Characteristics of the research sample

According to research findings, 424 pharmacists from 2022 - 2023 fulfilled the requirements for the study and were analyzed, in which female pharmacists (72.9%) accounted for a higher proportion than males (27.1%); this is equivalent to the studies of PN Hung et al. (2022) [8]. This can be explained by the fact that retailing pharmacists require meticulousness, carefulness, and patience, so women often meet these requirements better than men. In terms of professional qualifications, many pharmacists are intermediate (47.9%). This result can also be explained by the fact that, according to the Law on Pharmacy of Viet Nam No. 105/2016/QH13, intermediate pharmacists are allowed to establish pharmacies in districts and communes of suburban and suburban districts of provinces and provincial cities. In terms of job position, pharmacists who are pharmacy owners accounted for the highest proportion (45.3%), this result is equivalent to the study of PN Hung et al. (2023) [8], this can explain why there are many private pharmacies in Vietnam.

2. Factors affecting pharmacists' behavior regarding the sale of vitamins at retail pharmacies in Vinh Long Province from 2022 - 2023 based on the TPB research model

** Reliability of the scale through Cronbach's Alpha coefficient:*

The study has developed a scale of attitudes and factors related to pharmacists' behavior regarding the sale of vitamins based on Ajzen's TPB (1991) [7] and related studies published [2, 8, 9, 10]. The test results were highly reliable with Cronbach's Alpha values of Attitude (α = 0.893); Subjective norm (α = 0.908); Cognitive behavior control (α = 0.875); Intent (α = 0.906), respectively. Compared with previous studies on pharmacists' behavior regarding the sale of vitamins, the study has further analyzed the subjective standard factor; Behavioral control perception; and Intent compared to the study of YK

Emiru et al in Ethiopia (2019) [9] and SA Ghosn et al. in Saudi Arabia (2020) [2]. The construction scale evaluates many aspects related to pharmacists' intention to sell vitamins with relatively high reliability compared to previous studies; along with the use of a 5-level Likert scale, it is a practical, accessible, and time-saving data collection method. Hence, it helps retail pharmacies have objective information in making appropriate and effective strategies to improve public health. The sample size of the study is larger than some previous studies, with a diversity of professional qualifications and working positions at retail pharmacies.

** On multivariate regression analysis of factors affecting pharmacists' behavior regarding the sale of vitamins:*

Research conducted an analysis of pharmacists' behavior regarding the sale of vitamins through regression models, revealing that "attitude" strongly influences pharmacists' behavior regarding the sale of vitamins. This is a crucial point that strategic planners need to consider in enhancing education to elevate the responsibility, ethics, and professionalism of pharmacists in community healthcare. Nowadays, the demand for the use of supplements such as vitamins in healthcare is growing, hence the attitude of pharmacists towards advising and guiding the use of healthcare products plays a significant role in optimizing the treatment outcomes for various illnesses and improving the quality of life for the public. In addition, people tend to seek advice and guidance from pharmacists at retail pharmacies when looking for vitamin supplements, so pharmacists need to have a positive attitude to provide comprehensive and objective information in choosing nutritional products and vitamins for the public. In the study conducted by MS El Hajj [4] and AM Alajmi [1], it was found that the attitude towards advising and guiding healthcare products is crucial in efficiently distributing healthcare products within the community. In this study, participating pharmacists demonstrated a positive attitude toward vitamin supplementation and nutritional substances. Additionally, community pharmacists tend to actively sell healthcare products rather than dispensing them based on prescriptions from doctors, which is a drawback in the current management of retail pharmacies. Therefore, healthcare managers need to establish and improve the legal system for advising and guiding the use of vitamins; retail pharmacies need to collaborate with relevant authorities to develop legal regulations, standards, norms, and related management regulations to protect the health of the community.

CONCLUSION

The study was conducted to assess the factors affecting pharmacists' behavior regarding the sale of vitamins at retail pharmacies in Vinh Long province from 2022 - 2023 and has basically achieved the set goals. The study also noted that "attitude" is a factor that strongly affects pharmacists' behavior regarding the sale of vitamins at retail pharmacies in Vinh Long province from 2022 - 2023. The study recommends expanding the scope and size of research samples in subsequent phases on similar topics to improve accuracy and reliability.

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