

Nutritional Information Reading Food Panel and Related Factors of Diabetes in Bencat, Binh Duong Province, Vietnam

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Abstract

Introduction: With diabetic patients, proper nutrition is the core of treatment and care. To choose healthy foods, people need to know and understand the information on food labels. Few studies investigate the use of food labels in the general and nutritional information on food labels, particularly for diabetic patients in Vietnam. This study is conducted to evaluate the reading rate of nutritional information on food labels of diabetic patients and related factors in Ben Cat town, Binh Duong province to find out the difficulties - obstacles, Appropriate solutions provide nutritional knowledge in disease prevention and treatment.

Objective: This study determined the Nutritional Information Reading Food Panel (NIRFP) in diabetic patients in Ben Cat town, Binh Duong province, in 2018 and the relationship between health worker consulting and NIRFP.

Methodology: Cross-sectional descriptive study surveyed 237 diabetes patients over 01 years to outpatient examination and treatment department at Ben Cat town hospital with questionnaires available with the convenient sampling method.

Result: The proportion of diabetic patients who has NIRFP was 49.37%. We rarely or don't have NIRFP because we often use familiar foods and good health, so they do not care. There is a relationship between nutritional counseling of health care workers and NIRFP.

Conclusion: The proportion of diabetic patients who have NIRFP is very high, but the ability for NIRFP is still low. Therefore, it is necessary to guide NIRFP when using packaged and canned foods in diabetics, particularly in the community. From there, patients can maintain good health, stable blood sugar, reduce complications, deaths, and treatment costs for the family and society.

Keywords: Nutritional Information Reading Food Panel, NIRFD, Diabetes.

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I. Introduction

Diabetes mellitus (diabetes mellitus) is one of the non-communicable diseases caused by endocrine, metabolic disorders that increase blood sugar, which tends to rapidly increase, affecting people's health worldwide [13]. According to the International Diabetes Association (IDF), in 2014, there were 387 million people worldwide with diabetes, of which 46.3% were undiagnosed, and it is predicted that by 2035, it will increase. Five hundred ninety-two million people [5].

For diabetic patients, proper nutrition is the core of treatment and care [7]. Diets in the world are changing as consumers process less food from raw materials and buy more packaged processed foods. Food processing companies increasingly produce processed and packaged foods to meet the needs of modern life. People have more opportunities to choose and consume packaged foods. Over the past decade, global sales of pre-packaged foods have increased 92% to reach the US \$ 2.2 trillion in 2012 [4]. Many food manufacturers have increased flavor by adding fat, sugar, and salt to foods to attract customers. In addition, hydrogenated vegetable oils (trans-fat) are used to give foods an attractive flavor and increase the shelf life of the food. These ingredients in the food are potentially dangerous to consumers' health, especially people with diabetes who need a strict diet. To choose healthy foods, people must know and understand the information on food labels, which is essential in the nutritional prevention and treatment of diabetes [6].

In Vietnam, Phan Hong Minh and Doan Thi Huong have studied the interest and understanding of customers about nutritional information on food labels at some supermarkets and hospitals in Ho Chi Minh City

[12]. Few studies investigate the use of food labels in the general and nutritional information on food labels, particularly for diabetic patients in Vietnam. Ben Cat town hospital receives many non-communicable cases every year, including diabetes. Most of the patients who come to visit are re-examined every two weeks in the form of service examination or health insurance examination, who have been sick for one year or more. However, in addition to being concerned with a limited number of high-carbohydrate foods, it is essential to determine if subjects have been diagnosed with the disease for one year or more if they are interested in nutritional ingredients printed on the label. Food labels packaged, canned or not. This study determined the rate of NIRFP in diabetic patients in Ben Cat town, Binh Duong province, in 2018 and related factors.

II. Methodology

Studying Design: this study applied the cross-sectional study.

Participants: Diabetic patients come for outpatient examination and treatment at Ben Cat town hospital, Binh Duong province, in 2018.

Inclusion criteria: patients with diabetes from 1 year or more come for outpatient examination and treatment at the urban hospital Ben Cat commune.

Exclusion criteria: patient can not communicate, mentally restricted, failing to complete the questionnaire.

Sample size

The estimated sample size is based on the equal following the general sample size estimate for medical research.

$$n = Z_{(1-\alpha/2)}^2 \frac{p(1-p)}{d^2}$$

n: estimated sample size.

α: statistically significant level in study α = 0.05.

Z(1-α/2) , with alpha =0.05, Z =1.96

p: Percentage of reading nutritional information and other information on food labels of diabetic patients in the study by Doan Thi Huong in 2015 at Phu Nhuan Hospital is 0.191

d: accuracy, with p=0.191 selected d=0.05

The estimated sample size in the study was n = 121 patients

Acquire 20% of attrition= 24 patients.

Therefore sample size was 237 participants for this study is meaningful.

Data analysis

The data were input by the Epidata version 3.1 software and analyze by the Stata version 14 software.

Ethical Consideration

After we clearly explained the study's objectives, the participants voluntarily signed the consent form to participate in the study. We ensured that participants were not affected by any benefits in their work.

III. Results

Socio-Demographic Characteristics

Table 1. Socio-Demographic Characteristics (n=237)

Socio-Demographic Characteristics	Frequency	Percentage (%)	
Gender	Male	118	49,79
	Female	119	50,21
Age	< 60 years old	182	76,79
	≥ 60 year old	55	23,21
Education	Primary	51	21,52
	Secondary/Highschool	158	66,67
	Higher Highschool	28	11,81
Occupation	Workers/ Employees	16	6,75
	Housewife	54	22,78
	Business	48	20,25
	Freelance	97	40,93
	Retired/Other	22	9,29
Living	Alone	20	8,44
	Live with someone	217	91,56

Most of the subjects who come to the examination are 50.21% female. The age group <60 accounts for more, with the rate of 76.79%. The majority of educational attainment is secondary and high school, accounting for 66.67%. The results show that the main occupations are workers, freelance and housewives with 40.93% and 22.78%. Over 90% of subjects live with families.

The Nutritional Information Reading Food Panel (NIRFP) in diabetic patients

Table 2. Nutrition and health status (n=237)

Nutrition and Health Status		Frequency	Percentage (%)
Obesity	None	84	35,44
	Overweigh	48	20,25
	Obesity	105	44,3
Periods for Diabetes	< 2 years	9	3,8
	2 - < 5 years	72	30,38
	≥ 5 years	156	65,82
Other diseases	Yes	171	72,15
	No	66	27,85
Family history for diabetes	Yes	69	29,11
	No	168	70,89

The participant's rate of overweight and obesity accounted for more than half. Over 90% of patients have the disease for two years or more. In addition to diabetes, most patients also suffer from hypertension, dyslipidemia, and cardiovascular diseases accounting for 72.15%. In 237 interviewees, 29.11% of patients whose relatives (grandparents, parents, siblings, children) also have diabetes.

Table 3. Nutritional Knowledge for Diabetes (n=237)

Nutritional Knowledge for Diabetes	Frequency	Percentage (%)
Knowledge for eating habit	56	23,63
Knowledge for intaking food	49	20,68
Knowledge for nutrition	18	7,6

Knowledge of eating habits is 23.63%. Knowledge of intaking food is 20.68%. General nutrition knowledge is 7.6%.

Table 4. The reality for Nutritional Information Reading Food Panel before using (n=237)

The Reality for NIRFP before using	Frequency	Percentage (%)
Yes	217	91,56
No	20	8,44

91,56% of participants can do Nutritional Information Reading Food Panel before using.

Table 5. Nutritional Information Reading Food Panel (n=117)

Nutritional Information Reading Food Panel	Frequency	Percentage (%)
Having NIRFP		
Yes	117	49,37
No	120	50,63
Content in the NIRFP		
Sugar	32	27,35
Starch	30	25,64
Total energy (calories)	15	12,82
Salt	8	6,84
Other	90	38

49.37% of participants can have Nutritional Information Reading Food Panel. The participants' contents were the most interested in the nutrition information: sugar and starch, respectively, with 27.35% and 25.64%. There are also some other contents about protein, fat, fiber, vitamins, minerals, around 38%.

Table 6. Reasons for concerning about NIRFP

Reasons for Concerning NIRFP	Frequency	Percentage (%)
Reasons for concerning about NIRFP		
To need for a current medical condition	80	68,38
To avoid foods that contain unhealthy ingredients	38	32,48
To compare	27	23,08
To look for foods that contain a lot of fiber and minerals	13	11,11
To lose weight	10	8,55
Reasons for not concerning about NIRFP		
Use familiar foods	51	42,5
Do not take care of the good health	29	24,17
Do not understand	18	15
Do not have time	15	12,5
Do not read due to the text is too small	7	5,83

68.38% of patients consider reading nutritional information on food labels to be essential for their current medical condition. For participants who rarely or do not read the nutrition information on labels, there are more than 66% of why they often use familiar foods and good health, so they do not care.

Table 7. Health worker consulting

Health Worker Consulting	Frequency	Percentage (%)
Nutritional Consulting (n=237)		
Yes	188	79,32
No	49	20,68
Consulting the NIRFP (n=188)		
Yes	149	79,26
No	39	20,74

Two hundred thirty-seven interviewed participants, 79.32%, received nutrition consulting from health workers. 79.26% are consulted about the NIRFP when buying/using packaged and canned foods.

Relationship between the health worker consulting and the NIRFP

Table 8. Relationship between the health worker consulting and the NIRFP

Health Worker Consulting	NIRFP		p	PR (95%CI)
	Yes n (%)	No n (%)		
Yes	103 (54,79)	85 (45,21)	0,001	1,92 (1,21-3,04)
No	14 (28,57)	35 (71,43)		

There is a relationship between nutritional counseling of health workers and reading nutrition information ($p < 0.05$). The subjects who received nutrition information from medical staff had a rate of reading nutrition information 1.92 times higher than that of the rest of the subjects. This difference is statistically significant with 95% CI = 1.21 - 3.04.

In addition, the rate of reading nutrition information on the label with other related factors was also compared but not valid ($p > 0.05$).

IV. Discussion

General knowledge is judged to be correct when both pieces of knowledge of eating habits and knowledge of foods to eat are correct. Out of the 178 people interviewed, only 1/3 of the subjects had general knowledge about correct nutrition. Studies examining nutritional knowledge in diabetic patients show mixed results. In a survey by Le Minh Phuong and Tran Hoa Van (2013) on 100 diabetic patients at the general hospital of Tien Giang province, 69% correctly answered knowledge questions about diet [3]. It is difficult to compare the correct nutritional knowledge rates of diabetic patients in studies because each study has questions about different nutritional knowledge, so the comparison is lame. 91.56% of participants read food labels when using packaged foods. A study by the author Chopra in Zimbabwe (2014) also found similar rates with 77.2% using food labels [9]. 49.37% of subjects read the nutritional information on food labels. This result is consistent

and accurate because nutritional information is still very foreign to Vietnamese consumers. According to regulations on food labeling in Vietnam, nutrition information boards are not mandatory information on food labels, so customers' access is even more limited. Therefore, the ratio of reading nutrition information in this study compared with some foreign studies results will be lower. Jessie's research nearly 80% report reading nutritional information [12].

The subjects interested in the nutrition information boards were sugar, starch, and fat, respectively 27.35%, 25.64%, and 24.79%. Fitzgerald et al. (2008) that diabetic patients are more interested in carbohydrates in food than those without diabetes (67.5 % of the diabetes group compared with 34.1% of the control group) [8]. 8.38% of patients consider NIRFP to be essential for their current medical condition. In subjects who rarely or do not read the nutrition information on labels, there are more than 66% of why they often use familiar foods and good health, so they do not care.

In 237 interviewed participants, about 80% received nutrition advice from medical staff. Nearly 80% are consulted about reading food labels when buying/using packaged and canned foods. There is a relationship between nutritional counseling of health workers and reading nutrition information ($p < 0.05$). The subjects who received nutrition information from medical staff had a rate of reading nutrition information 1.92 times higher than that of the remaining subjects. This difference is statistically significant with 95% CI = 1.21 - 3.04. Our results are similar to those of Robert E. et al. In the United States in 2010, among chronic patients advised by a doctor or other health professional about institutional care. Diets for reduced energy intake or weight loss used more nutrition information boards on food labels (75.4%) than those who were not given this advice (67.6%) [10]. Research by Sung Woo Hong (2014) showed that 41.8% of subjects receiving nutrition counseling used nutrition information boards on food labels, while those who did not receive nutrition counseling were found to be 23.6% [11].

V. Conclusion and Recommendation

The rate of diabetic patients reading product labels is very high, but the reading of nutrition information on food labels is still low (49.37%). We rarely or do not read the nutrition information on labels because we often use familiar foods and good health, so we do not care. There is a relationship between the nutritional counseling of the health care provider and the reading of nutrition information.

Promote disseminating nutritional information on food labels when using packaged and canned foods in people with diabetes, particularly in the community.

Recommendation for Health Worker

Supply enough nutrition knowledge in the prevention and treatment of diseases.

Organize a media session on how to read nutrition information. It is not easy because using nutritional information is not easy in the community, so it needs to do slowly, step by step. This communication applies not only to diabetic patients but also to family members, caregivers, as this is the object that directly manages the patient's diet when they get older.

Consult the patient on NIRFP when using packaged and canned foods.

Pay more attention to patients with low income and low education because they are the target group with few opportunities to access many sources of information. Expanding the audience to communicate throughout the community about reading nutrition information, not just on diabetic patients

Recommendation for Researcher

Other studies are needed to learn more about the subjects' knowledge about nutrition information, how to use and apply in the diet, not just read it or not, and extend to many subjects in the community.

Recommendation for Business Company

There is a need for a change in nutrition labeling formats to bring nutrition information to consumers more understandably and clearly, contributing to improving the reading rate of nutrition information when buying/using food products.

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