Consumption Behavior of Overnutritional Pupils at Upper Level of Primary School in Kamphaeng Phet Province

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ABSTRACT

The purposes of this study were: 1) to compare the health belief and food consumption behavior between the pupils with normal nutritional status and those with overnutritional status, 2) to identify the factors related to food consumption behavior of the pupils; and to find out the factors influencing the nutritional status of the pupils. The samples were 258 pupils with normal nutritional status and 256 pupils with overnutritional status in the upper level of primary school in Muang District of Kamphaeng Phet Province in 2001. The questionnaire was used as a tool to find out the health beliefs and food consumption behavior. All data were analyzed by using descriptive statistics and non-parametric statistics. Category regression analysis was used to find the relationship between variable factors and food consumption behavior. Logistic regression analysis was also used to figure out which factors influencing the nutritional status of the pupils.

At the .05 level of significance, the pupils with normal nutritional status and those with overnutritional status had different health belief and food consumption behavior. Those with overnutritional status had not only improper food consumption behavior of eating very rapidly but also consuming a lot of snack, fried food and soft drink. The factors related to the food consumption behavior in normal nutritional status were health belief, gender and family income, whereas father’s education and drinking expense were related to food consumption behavior of the overnutritional status. The factors influencing the nutritional status were health belief, food consumption behavior, education of the parents. These factors could be used to classify the nutritional status correctly about 77.08 percent of the pupils.

Key words: overnutrition, pupil, primary school

INTRODUCTION

At present, the society has been changing from rural to urban society leading to the change of Thai children development. Overnutritional status or obesity problem is increasing, especially among the urban children. It was resulting from the influence of western style food which has high calories (Grisit Tantisirin and Galaya Tongprasert, 2530). Overnutritional status had the impact on the children’s health, social physical, mental, and society. For the physical impact, it made the children become inert, have joint and bone pain, and also increase the possibility of having an accident and the risk of complication. Regarding mental impact, they were usually insulted by their friends leading to inferiority

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and having emotional problem. The prevention and early correction of the overnutritional status played an important role especially during childhood when their behavior could be changed easier than in adulthood. This study aimed to compare the food consumption behavior, health belief, the relationship between the food consumption behavior and health belief, demographic factors, economic factors, social factors and other factors influencing the nutritional status. The benefit of the study is to use it as a guide line to change and correct the health belief and food consumption behavior of the primary school pupils.

**METHODS**

Two thousand six hundred and ninety nine pupils at the upper level of 7 primary schools in Muang District of Kamphaeng Phet were the population of this study. Two thousand four hundred and seventeen pupils had normal nutritional status and 282 had overnutritional status. By using stratified random sampling method, all overnutritional status pupils were included in the study and the other 282 pupils were sampled from normal nutritional status pupils.

The tool of the study was a questionnaire. It was divided into four parts. **Part I** was the general information. **Part II** was the health belief in five aspects: awareness of risk, awareness of severity, awareness of benefit, awareness of obstacle and health motivation. These involved both positive and negative messages. The positive messages refer to the health concepts based on the truth and the negative ones refer to the health based on the truth.

**Part III** was the food consumption behavior containing both the positive and negative messages. The positive messages imply the proper behavior that should be done while the negative ones imply the behavior that should not. There were 5 rating scales for each question which were absolutely agree, agree, not sure, disagree and absolutely disagree. The scores were 5, 4, 3, 2 and 1 respectively and 5 for the “absolutely agree” and 1 for “absolutely disagree” in the positive messages. But in the negative messages, the scores were reversed and ranged from 1 for “absolutely agree” and 5 for “absolutely disagree”. The mean scores were classified into 3 groups by using mean and standard deviation (\( \bar{X} \pm 2 SD \)) (Jelliffe, 1985). If the scores were below \( \bar{X} - 2 \) SD, it meant that the sample has a little correct belief or behavior. If the score was \( \bar{X} \pm 2 \) SD, it meant that the sample has moderate correct belief or behavior. If the score was above \( \bar{X} + 2 \) SD, meant that the sample has much correct belief or behavior. The last part, **Part IV** was other behaviors such as exercising, resting, defecating and personal illness.

Mann-Whitney U test, category regression, category principal component analysis and logistic regression analysis were used to compare the health belief and consumption behavior, to find the relationship among the variables and to analyze the factors affecting the nutritional status, respectively. Some statistical methods were defined as follows:

**Category Principal Component Analysis** is an analytical statistic technique to show the graph of group variable relationship associated with component loading. Regarding the group variables, the figure can be created in several dimensions by lines. If the lines in the figure form an acute angle, it indicates that the variables are positively correlated. But if the lines form a right angle, there are no relationship. And if the lines are in opposite direction, the factors are negatively correlated.

**Category Regression** is the linear relationship between effect of independent variables on dependent variables, although dependent and independent variables are not continuous variables.

**RESULTS AND DISCUSSIONS**

1. **Comparison of the health belief, food consumption behavior with the nutritional status of the pupils.**

At the 0.05 level of significance, the health belief was associated with the nutritional status of the pupils.
the pupils. The pupils with different nutritional status had different health belief and different awareness of risk and benefit. Food consumption behavior was associated with the nutritional status of the pupils. Pupils with different nutritional status have different food consumption behavior.

2. Relationship among the factors and food consumption behavior of the pupils by using category regression analysis (Meulman and Willem, 1999).

2.1 Pupils with normal nutritional status.

From an analysis on relationship among the variables influencing the food consumption behavior of the pupils with normal nutritional status, health belief was related to food consumption behavior, family income and gender. It has positive relationship with food consumption behavior. This means that pupils with normal nutritional status especially females who had more correct health belief and come from good income family (1 : male, 2 : female) had more correct food consumption behavior. When we concluded the important weight of health belief and family income, we found that the importance on food consumption behavior was (.577 + .253 = .830) 83.0%

2.2 Pupils with overnutritional status

Considering the relationship between the variables and the pupils’ food consumption behavior with overnutritional status, the variable affecting food consumption behavior the most was father’s education and the second was the drinking expense. The father’s education was positively correlated to food consumption behavior, but not the drinking expense. This means that in the overnutritional status pupils, the more their father spent on drinking, the less they had the correct food consumption behavior and the higher education their father had, the more they had correct food consumption behavior. The importance of the father’s education on food consumption behavior was 73.3%

3. Factors influencing the nutritional status of the pupils by using category principal component analysis (Meulman and Willem, 1999) and logistic regression equation (Norusis, 2000).

From category principal component analysis, the result was shown in Figure 1.

From Figure 1, The factors affecting the nutritional status of the four groups of pupils are as follows:

Group 1 consisted of defecation (K6), the father’s occupation (NEWOCCF), the mother’s occupation (NEWOCCM) and staying with parent. (PARENT)

Group 2 consisted of the father’s education (EDUF), the mother’s education (EDUM), personal illness (K7), income (INCOME) and expenses (EXPENSE)

Group 3 consisted of snack expense (MON4), drinking expense (MON5), exercise (EXERCISE), number of days spending for exercise (WEEK) and number of hours spending for sleeping (TIMESLE)

Group 4 consisted of the chronological number of being a child (CHILD1), number of

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Important weight of the main factors affecting the food consumption behavior of the pupils with normal nutritional status.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Standardized coefficients</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
</tr>
<tr>
<td>Health beliefs</td>
<td>.236</td>
</tr>
<tr>
<td>Gender</td>
<td>.128</td>
</tr>
</tbody>
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* significant at the .05 level of significance (F ≥ 3.84).
brothers and sisters (CHILD2), number of members in the family (MEMBER), food consumption behavior (OPRACT1), health belief (OBTOTAL1) and gender (SEX)

Group 1 and Group 2 had opposite direction of relationship. By using binomial logistic regression equation to find the factors affecting the nutritional status of the pupil and the setting of the normal nutritional status was scored 0 and the overnutritional status was scored 1, we selected the independent variables to be used in the equation and the result was shown in Table 3.

At the .05 level of significance, for testing goodness of fit to check the model, it was shown that this model was appropriate. Factors influencing the nutritional status of the pupils were the parent’s education and occupation, health belief, food consumption behavior and interaction among children in the family, number of brothers and sisters and number of members in the family. This model could classify the nutritional status of the pupils correctly 77.08%.

CONCLUSION

1. Comparison of the health belief of the pupils in the upper level of primary school with nutritional status

The pupils with overnutritional status had less correct health belief than those with normal nutritional status. The overnutritional status pupils had less awareness of risk and benefit than normal nutritional status pupils.

2. Comparison of the food consumption behavior of the pupils in the upper level of primary school with nutritional status

The pupils with normal nutritional status had more correct food consumption behavior than those with overnutritional status. The overnutritional status pupils had eating behaviors such as rapid eating, rough chewing, eating a lot and eating low nutritive food like snack, candy, soft drink and sweet drink, etc.

3. Relationship between variables and food consumption behavior of the pupils

3.1 Normal nutritional status pupils

The pupils with high family income and much correct health belief would have good food consumption behavior.
consumption behavior especially female.

3.2 Overnutritional status pupils.

The pupils having high educated father had better food consumption behavior and those having father with high drinking expense.

4. The influence of food consumption behavior, exercising behavior, health belief, demographic, economic and social factors on the nutritional status.

Factors influencing the nutritional status were parent’s level of education, occupation of mother, health belief and food consumption behavior.

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