

# Eating Habits, Physical Activity, and Their Associated Factors among Vietnamese School Children

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## Abstract

The purposes of this study were to examine eating habits and physical activity and determine association between eating habits and physical activity, and study factors, including age, gender, weight, years of study, mothers' education and family income among Vietnamese school children. Sample included 227 school children currently studying in grade 3-7 in primary and secondary schools children in Ho Chi Minh city, Vietnam. Stratified random sampling was used to recruit the sample. Data were collected from February – April 2012. Research instruments contained the demographic information form, the eating habits and the physical activity questionnaires, which their internal consistency reliability of .80 and .82 respectively. Data were analyzed by using descriptive statistics, Pearson correlation, t-test and one-way ANOVA. Results revealed that mean total score of eating habits was 31.18 (*S.D.*=5.08), and of physical activity was 10.31 (*S.D.* = 2.82), which could be implied that the sample had high health eating habits while it had moderate healthy physical activity. There were significant correlations between eating habits and child age ( $r=-0.22$ ,  $p<.01$ ), physical activity and child age ( $r=-0.19$ ,  $p<.01$ ), and physical activity and weight ( $r=-.15$ ,  $p<.05$ ). Significant differences of eating habits and physical activity were found between the children with different family incomes ( $<5,000,000/ >5,000,000$ ) ( $t=-4.05$ ,  $p<.001$  and

$t=2.87$ ,  $p<.01$ ). The results also showed significant differences of eating habits and physical activity over the differences of the child's years of study ( $F=4.97$ ,  $p<.01$  and  $F=2.67$ ,  $p<.05$ ). In addition, eating habits of the sample with different mother's education was significantly difference ( $F=28.86$ ,  $p<.001$ ). These finding suggest that nurse should promote and encourage older and heavier school children as well as children with different family income, years of study and mother's education to have better and more appropriate eating habits and physical activity.

**Keywords :** Eating habits, Physical activity, School children, Vietnam

## Introduction

Unhealthy diets and inadequate physical activity are the key risk factors for non-communicable diseases. The goal of the World Health Organization (WHO) is to recognize the opportunity for reducing deaths and diseases worldwide by improving diets and increasing levels of physical activity. This is also applied to the children as there is an increased number of overweight and obesity in developed and developing countries (WHO, 2004). Overweight and obesity among children is becoming a global epidemic which resulted in increased morbidity and mortality. At present, it has been estimated that there were 21.2% of young children

with 2-5 years old, and 35.5% of 6-11 years old were considered overweight or obese (Ogden, Carroll, Curtin, Lamb & Flegal, 2010). Ho Chi Minh City, is the largest city in Vietnam, is growing rapidly in urbanization and changes in people's life style and behavioral patterns over recent decades. It has obese children more than any other cities with 16% of overweight children, and obesity was 22.5% (National Institute of Nutrition, 2003). Children in school age group were in the period of transition from toddler to childhood and, they gained weight rapidly because of physical development and fat accumulates to prepare for puberty (Burns, Dunn, Brady, Starr, & Blosser, 2004). Studies indicated that consuming large proportions of unhealthy foods, lack of participation in physical activities, too much sedentary behavior at home, in school and community environments could influence the children's health behaviors (U.S. Preventive Services Task Force [USPSTF], 2004). Daily habits, such as television viewing and personal computer usage were also associated with decreased physical activity. Additionally, increasing in 'screen time' and decreasing in physical activity behaviors were also related to weight gain in children. It is inevitable for school children to have favorable less nutritious food, like snacks and fast-food as they have always seen from television or advertisement media (Kang et al., 2006).

Currently in Vietnam, information related to health behaviors, including eating habits and physical activity, and their associated factors among Vietnamese school children has not well-understood. Therefore, factors associated with eating habits and physical activities in school children will be examined in order to gain better knowledge and understanding. Moreover, it could be applied as fundamental information to effectively plan program and intervention to reduce and prevent overweight

and obesity among Vietnamese school children.

## Objectives

*The purposes of this study are:*

1. To examine eating habits and physical activity among Vietnamese school children.
2. To determine relationships and differences between eating habits and physical activity, and their associated factors, including age, gender, weight, years of study, mothers' education and family income among Vietnamese school children.

## Methods

A cross-sectional study design was used. Stratified random sampling was applied for sample recruitment. Sample included 227 children currently studying in grade 3-7. Data were collected from 3 primary and 2 secondary schools in the District 5, Ho Chi Minh city, Vietnam from February-April 2012.

### Research instruments

1. *The demographic questionnaire* was developed by the researcher. Its items asked about the children's characteristics including, age, gender, years of study, weight, height, and the family's characteristics, including mother's and father's age and education, and family income. This questionnaire was completed from the school record by the researcher.

2. *The eating habits questionnaire* was developed by Turconi et al, (2008). It consisted of 14 questions designed to investigate the food habits of the school children. The score assigned to each response ranged from always =3 to never =0, with the maximum score assigned to the healthiest habits of eating, and the minimum score to the least healthy eating habits. The total score ranged from 0-42. In this study, its internal consistency reliability was .80.

3. *The physical activity questionnaire* was

developed by Turconi et al, (2008). It consisted of 6 questions used to explore physical activity levels of the school children. Each item score ranged from 0-3, with the maximum score assigned to the healthiest physical activity, and the minimum score to the least healthy physical activity. The total score ranged from 0-18. In this study, its internal consistency reliability was .82.

#### **Translation Process**

The process of back translation was used as validity testing for the measures before administration to the sample. The eating habits and the physical activity questionnaires were translated from English into Vietnamese language. The process of translation was followed by back-translation technique as recommended by Douglas and Craig (2007), Cha, Kim, & Erlen, J. A. (2007), Sousa and Rojjanasrirat (2011).

#### **Protection of Human Subjects**

The study proposal was submitted for approval from the ethical committee of Faculty of Nursing, Burapha University Institutional Review Board (IRB). The data collection and result representation was done with thoughtful concern for the dignity, value, and consequence to a child and the family.

#### **Data Collection Procedure**

The procedure of data collection was as follows:

1. After the proposal has been approved by the IRB committee of Faculty of Nursing, Burapha University. The permission for conducting the study was obtained from the Director of Pham Ngoc Thach Medical University, heads of Educational and Director of primary, secondary schools of district 5 in Ho Chi Minh City, Vietnam.

2. Visited the chosen schools to inform them about the study purposes.

3. Then, obtained permission from the in-charge teacher to allow the students to participate

in the study. Subsequently, the demographic questionnaire was completed by the researcher using data from the student's school record.

4. Initially the researcher provided briefing information related to study objectives and right to participate to the students and explained how to answer all items in the questionnaires.

5. The two questionnaires of the eating habits and the physical activity for the student's self-report were filled in classroom by the students. They were taken approximately 10 - 15 minutes to complete the two questionnaires.

6. Completed questionnaires were sealed in envelopes by the participants and immediately kept in a secure box accessible only by the researcher.

7. The researcher entered the data into a software computer program for later data analyses.

#### **Data Analysis**

Data were analyzed by using a computer software program. The level of significance was set as 0.05. Descriptive data analysis in terms of frequency, percent, mean, and standard deviation was calculated to describe demographic information, eating habits and physical activity. Pearson correlation coefficient was used to examine association between children's age, weight with eating habits and physical activity among the sample. Independent t-test and one-way ANOVA were calculated to determine the differences between gender, years of study, family income and mother's education with eating habits and physical activity among the sample.

#### **Results**

##### **1. Demographic characteristic of the sample and family**

The sample included 227 Vietnamese school children. Their mean age was 11.2 years old ( $S.D. = 1.44$ , range = 9 -13), with their mean weight and height of 41.59 kilograms (kg;  $S.D. =$

9.60, range = 22 – 69), and 143.31 centimetres (cm; S.D. = 10.45, range = 119-170, respectively). There were (50.2%) for boys, and (49.8%) for girls. Their years of study were 5 levels of grade 3, 4, 5, 6 and 7. There were (21.1%) of the sample in grade 3, (18.5%) in grade 4, (18.5%) in grade 5, (21.1%) in grade 6, and (20.7%) in grade 7.

The mean mother's age was 40.51 years (S.D. = 4.74) with range from 35 years to 53 years. About one half the families (52.9%) earned more than 5.000.000 VND (about 7,142 Thai Baht) per month. Most of their mothers completed general education. There were (33.5%) of high school, (26.0%) of secondary school or lower, (24.7%) of university or above, and (15.9%) of diploma/college.

## **2. Descriptive statistics of eating habits and physical activity**

Mean total score of eating habits was 31.18 (S.D. = 5.08, range = 17 - 41). Mean total score of physical activity was 10.31 (S.D. = 2.82, range = 4-18). It could be implied that the sample had high health eating habits while it had moderate healthy physical activity.

## **3. Association between eating habits of the sample and child age, gender, weight, years of study, mother's education and family income of the sample**

The results showed that there was a negatively significant correlation between eating habits and child age ( $r = -0.22, p < .01$ ). However, the findings showed no significant relationship between eating habits and weight, ( $p > .05$ ).

The results showed no significant difference of eating habits between boy and girl ( $p > .05$ ). However, there was a significant difference of eating habits between the children with different family income in VND (<5,000,000 / >5,000,000) ( $M = 29.79$  and  $M = 32.43$ , respectively;  $t = -4.05, p < .001$ ).

The results showed significant differences of eating habits over the difference of the child's

years of study ( $F = 4.97, p < .01$ ). LSD Pos Hoc multiple comparisons revealed that the sample in grade 3 had eating habits significantly different from those in grade 6 ( $M = 32.69$  and  $M = 30.40$ , respectively;  $p < .05$ ) and grade 7 ( $M = 32.69$  and  $M = 29.11$ , respectively;  $p < .001$ ). The sample in grade 5 had eating habits significantly different from those in grade 6 ( $M = 32.98$  and  $M = 30.40$ , respectively;  $p < .05$ ) and grade 7 ( $M = 32.98$  and  $M = 29.11$ , respectively  $p < .001$ ). However, significant differences were not found for all other pairs of the child's year of study ( $p > .05$ ).

Eating habits of the sample with different mother's education was significantly difference ( $F = 28.86, p < .001$ ). LSD Pos Hoc multiple comparisons revealed that the sample with mother's education at secondary school or lower had eating habit significantly different from those with mother's education at high school ( $M = 27.00$  and  $M = 31.40$ , respectively;  $p < .001$ ), diploma/college ( $M = 27.00$  and  $M = 33.17$ , respectively;  $p < .001$ ) and university ( $M = 27.00$  and  $M = 34.04$ , respectively;  $p < .001$ ). The sample with mother's education at high school had eating habits significantly different from those with mother's education at diploma/college ( $M = 31.40$  and  $M = 33.17$ , respectively;  $p < .05$ ) and university ( $M = 31.40$  and  $M = 34.04$ , respectively;  $p < .01$ ). However, significant differences were not found between the sample with mother's education at diploma/college and university level ( $p > .05$ ).

## **4. Association between physical activity of the sample and child age, gender, weight, years of study, mothers' education and family income**

The results showed that there were negatively significant correlations between physical activity and child age ( $r = -0.19, p < .01$ ), and weight ( $r = -0.15, p < .05$ ).

The results showed no significant difference of having physical activity between boy and girl ( $p > .05$ ). However, there was a significant differ-

ence of physical activity between the children with different family income in VND ( $<5,000,000$  /  $>5,000,000$ ) ( $M = 10.88$  and  $M = 9.83$ , respectively;  $t = 2.87$ ,  $p < .01$ ).

The results showed significant differences of physical activity over the difference of the child's years of study ( $F = 2.67$ ,  $p < .05$ ). LSD Pos Hoc multiple comparisons revealed that the sample in grade 3 had physical activity significantly different from those in grade 6 ( $M = 11.08$  and  $M = 9.42$ , respectively;  $p < .01$ ) and grade 7 ( $M = 11.08$  and  $M = 9.94$ , respectively;  $p < .05$ ). The sample in grade 4 had physical activity significantly different from those in grade 6 ( $M = 10.76$  and  $M = 9.42$ , respectively;  $p < .05$ ). However, significant differences were not found for all other pairs of the child's year of study ( $p > .05$ ). Moreover, physical activity of the sample with different mother's education was not significantly difference ( $p > .05$ ).

## Discussion

From the finding, the Vietnamese school children had high healthy eating habits ( $M = 31.18$ ). This finding was inconsistent with other studies which found moderate level of eating habits (Turconi et al., 2008). Although this result showed high level, but its score was in low-high of the high eating habit level (30.01-42.00). Moreover, consuming more on vegetables and fruits and less on fat and calories was the norms of Vietnamese people. The result also revealed that the Vietnamese school children had moderate physical activity ( $M = 10.31$ ). This was consistent with other studies showing moderate level of physical activity (Turconi et al., 2008). The reasons were similar to many studies that the children had increasing television viewing, using internet, and playing sedentary games, etc. (Coon, Goldberg, Rogers, & Tucker, 2001; Francis, Lee, Birch, 2003; Granner, & Mburia-Mwalili, 2010).

The findings showed that the older the children, the less the healthy eating habits. This finding was consistent with previous study (Temple, Steyn,

Myburgh, & Nel, 2006). The explanation is that children younger than 12 years old in Vietnam were served for lunch at school as the national policy whereas children 12 years or older had to purchase food at school, mainly at the school store. Moreover they usually ate outside the school with high-fat snacks and fast food with their own preference choices.

In addition, the child with family income more than 5,000,000 VND/month had healthier eating habit than those with family income 5,000,000 VND/month or less. Eating habits of the children was significant different when they had different years of study and mother's education. It was inconsistent with a previous study reported that 62% in the highest income family consumed fewer than the recommended minimum of three daily servings (Community, & Survey, 2006). Moreover, it could be explained with similar reason above that age was negatively correlated to eating habits. For mother education, the finding was consistent with Xie, Gilliland, Li, & Rockett, (2003). (2003) and Craig, McNeill, Macdiarmid, Masson and Holmes (2010). They reported that the likelihood of eating a healthy diet increased with parental high education levels.

The results also showed that the older and heavier the children the less physical activity. This finding was consistent with many studies (O'Loughlin, Paradis, Kishchuk, Barnett, & Renaud, 1999; National Institute of Nutrition, 2007). The explanation is that, in urban area, especially in Ho Chi Minh city, most children spend their leisure time for indoor activities like watching TV, playing games and reading. But there were very few children with physical activities. In addition, they indicated that children with higher weight status played moderate amounts of electronic games, while children with lower weight status spent very little time engaged in playing electronic games.

In addition, the child with family income 5,000,000 VND/month or less had more physi-

cal activity than those with family income more than 5,000,000 VND/month. Physical activity of the children was significant difference when they had different years of study. This finding of family income was consistent with previous study (Mo, Turner, Krewski, & Mo, 2005; Kantomaa, Tammelin, Näyhä, & Taanila, 2007) showed that children aged 12 to 20 years from low income families were more physically inactive than those from high income families. Moreover, the finding of year of study was consistent with previous research (Trost, Kerr, Ward & Pate, 2002; Kaiser Family Foundation, 2005; Rew, Horner, & Fouladi, 2010). They found that grades 4 and 5 were statistically significantly different from the mean for health behavior at grade 6, and girls engaged in more health behaviors than boys. This could be explained was consistent with children' aged above findings. Children with low grade of study were physical activity better than children with high grade of study.

## Recommendations

Nurse should promote and encourage older and heavier school children as well as children with different family income, years of study and mother's education to have better and proper eating habits and physical activity. Furthermore, nurse and related health care personnel who work with school children should apply these findings to effectively plan an intervention program to reduce and prevent overweight and obesity among Vietnamese school children.

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