Factors Related to Health Eating Behaviors  
among First Year Mahidol University Students,  
in Salaya, Nakhon Pathom, Thailand

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ABSTRACT

This cross-sectional study was conducted to identify factors influencing healthy eating behaviors in first year students of Mahidol University in Salaya. 268 self-administered questionnaires were obtained from students who were approached randomly at campus’ cafeterias on January 24–25, 2007. Chi-square test and Fisher’s exact test were used for analysis along with frequency distribution of variables.

The result showed that 68.3% of students had healthy eating behaviors at fair level. In the period of 6–7 days of the past week students could recall what they ate with summarized food frequency questions. 45.9% of responding students ate from the five food groups, followed by vegetable at 41.8%, fruit at 44%. The factors significantly associated with healthy eating behaviors of the total respondents were availability (p<0.001) and ease of choosing food for eating healthily (p=0.003) as enabling factors, formal or non-formal health education in school (p=0.034) and leaflets (p=0.003) as reinforcing factors.

Better availability of healthy food should be sustained to encourage students’ healthy eating. Students who had healthy eating information from health education at school or leaflets were more likely to practice healthy eating behaviors at a good level. This emphasizes the need to support of health education for the nutritional well-being of students.

KEYWORDS

Eating Behavior       Health eating behavior
INTRODUCTION

Non-communicable diseases (NCDs) are becoming an increasingly significant cause of disability and premature death, placing additional burdens on already overtaxed national health budgets at a global level. Nutrition is coming to the fore as a major modifiable determinant of NCDs (1). Those diet-related health issues associated with unhealthy eating behavior like choosing inappropriate foods, snacks and drinks, cutting out or lacking of particular foods from the diet, skipping meals, as occurs in a number of popular diets (2-4).

In Thailand, the rapid changes in food intake and lifestyle patterns clearly demonstrate a significant impact on the shifting pattern of disease burden of the population (5). The National Health Examination Survey II, that the prevalence of overweight and obesity were 28.3% and 6.8% respectively among 3,220 Thai adults (20–59 yrs) (6). The prevalence of overweight and obesity among children and adolescents has increased dramatically during the past 20 years (5). The Ministry of Public Health reported that currently NCDs have become the leading causes of morbidity and mortality, by such an increasing trend results from unhealthy consumption behaviors and physical inactivity. Total percentage of cause of Disability–Adjusted Life Years Lost NCDs in Thailand is 58.3% (7).

Despite the importance of healthy eating during adolescent, their unhealthy eating behaviors are reported (8,9). Overall, diets of today’s adolescents are low in fruits, vegetables, dairy products, whole grains, and high in total fats, saturated fats and added sugars (10). In addition, soft drinks displace more nutrientdense drinks such as milk and fruit juice, and may result in over–consumption of energy (11). Study in the United States found most adolescents ate fewer serving of five major food groups than national recommends (10). One in five students (15–18yrs) regularly skip breakfast, 13% of high school girls vomit, take laxatives, or take diet pills to lose or keep from gaining weight (8).

In Thailand, a study among Mahidol university student in 2001 reported 35% of the students had food from all five food groups each day, left of 65% could not (12). A study conducted among sixth grade students in Bangkok in 2004, 44% of them eat complete five group of food per day, 31% added more sugar/salt in food before eating, 85% favor in innutritious snacks, 76% instant noodles and 81% carbonated juice (13). Unhealthy eating practices are established early in life; young persons having unhealthy eating habits tend to maintain these habits as they age. Promoting healthy eating and physical activity behaviors during childhood and adolescence may not only prevent some of the leading causes of illness and death but also decrease direct health–care costs and improve quality of life (14,15). Healthy eating behaviors in this study was defined the students’ eating practices that are consistent with improving, maintaining and enhancing health.
MATERIALS AND METHODS

The study design was a cross-sectional study, aimed at healthy eating behaviors and the relationship between predisposing factors, enabling factors and reinforcing factors, among first year students of Mahidol University, Salaya.

The study was conducted on 25–26 January 2007 by structured self-administered questionnaires at two biggest cafeterias in Salaya campus where selected by purposive selection. At these cafeterias, respondents were approached randomly as for convenient sample. When the questionnaire was collected, 40 students voluntary answered an question “what is healthy eating for you?”.

Predisposing factors included socio-demographic characteristics (e.g. gender, monthly allowance, type of accommodation), knowledge about healthy eating and nutrition, and attitude toward healthy eating.

Enabling Factors included availability food for healthy eating, availability of safe food, accessibility, affordability and ease of choosing food for healthy eating.

Reinforcing Factors focused on information sources about Healthy Eating and health related behaviors. Sources of information including mass media and persons gave healthy eating information to respondents, health related behaviors were regarding to a student’s status of drinking, dieting, exercising and smoking.

Healthy Eating Behaviors was measured by using twenty summarized food frequency questions about respondent’s diet eaten in the past week. The behavior score was given in statement of healthy eating, 2 scores for the answer “Regularly (6–7 days/week, at least 1 time/day)”, 1 scores for the answer “Sometimes (3–5 days/week, at least 1 time/day)”, and 0 score for “Occasionally or Never (0–2 days/week, at least 1 time/day)” answer. And in statement of unhealthy eating, 0 scores for “Regularly”, 1 scores for the answer “Sometimes”, and 2 score for “Occasionally or Never” answer. The summarized total score of student’s behavior was divided into three groups:

Good: Total score equal or greater than Mean + 1 S.D.
Fair: Total score less than Mean + 1 S.D. and equal or greater than Mean – 1 S.D.
Poor: Total score less than Mean – 1 S.D.

After frequency distribution, a Chi-square analysis was applied to measure the association between each independent variable and dependent variable, the significance level worked at = 0.05.

DESCRIPTIVE RESULT

Predisposing Factors

Of the total 268 respondents, 60% were female while 40% were male, this was followed to the proportion of total population. A majority (94%) were either 19 or 18 years old, the rest were 20 years. Approximately, 93% of sampled group lived in dormitories inside the campus, fewer respondents lived with family (5.2%), or lived in dormitories outside Salaya campus (1.1%). The average monthly allowance was 4,429 baht with
the median of 4000 Baht, while it ranged from 1,000 to 12,000 Baht. Majority of the respondents (79.1%) had a monthly allowance from 3,000–4,999 Baht, 4.5% those with monthly allowance of less than 3,000 Baht, and 16.4% with monthly allowance of more than 5,000 Baht. A majority (67.2%) of the respondents had a moderate knowledge, while 13.1% had high levels of knowledge, 19.8% had low levels. A positive attitude was found in 56.3% of total respondents and negative attitude in 43.7%.

Enabling Factors

Regarding availability, 87.3% of respondents agreed that healthy foods were easily available. Concerning availability of safe food, 63.4% responded that it was easily available. Almost 80% agreed that food for eating healthily was easily accessible. Some 62% agreed that food for eating healthily was affordable, 76.9% agreed that choosing healthy foods was easy.

Reinforcing Factors

Of the information sources, 91.4% of respondents got healthy eating information from television, followed by the family at 88.1% and the webpage on the internet came in third at 84.0%. The lowest percentage source of information named by respondents came from billboards, leaflets and radio, each only in the fiftieth percentile.

Regarding health-related behaviors, 97.8% of respondents were non-drinkers, while 2.2% of respondents answered they drink alcohol two days a week or more than, 95.9% were non-smokers, 35% had regular exercise routines, and 25% were on a diet.

Healthy Eating Behaviors

The respondents demonstrated healthy eating behaviors at good (16.0%) or fair (68.3%) or poor (15.7%) levels. They recalled eating behaviors for the past 6 to 7 days during the week prior to the data collection day. Those behaviors included respondents who ate from each of the five food groups (45.9%), vegetables (41.8%), fruit (44.0%), fish (27.2%), legumes and pulses (24.6%), milk (26.9%), not adding sugar at every meal (50.4%), not adding fish sauce at every meal (57.5%), paying attention to food labeling (63.8%). Also deep fried food (35.8%), carbonated beverages (20.9%), instant foods (13.8%), and foods that were not fresh or well-prepared (34.4%).

Association of healthy eating behaviors and predisposing factors

The result showed that there was no significant association among respondents between healthy eating behaviors level and independent variables of predisposing factors in this study (p > 0.05). (Table 1)
Factors Related to Health Eating Behaviors among First Year Mahidol University Students, in Salaya, Nakhon Pathom, Thailand

Table 1  Association of healthy eating behaviors and predisposing factors. (n=286)

<table>
<thead>
<tr>
<th>Predisposing factors</th>
<th>$x^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.286</td>
<td>0.867</td>
</tr>
<tr>
<td>Accommodation type</td>
<td>Fisher’s exact</td>
<td>0.325</td>
</tr>
<tr>
<td>Allowance (Baht)</td>
<td>1.487</td>
<td>0.475</td>
</tr>
<tr>
<td>Knowledge</td>
<td>8.038</td>
<td>0.090</td>
</tr>
<tr>
<td>Attitude</td>
<td>5.362</td>
<td>0.068</td>
</tr>
</tbody>
</table>

Association of healthy eating behaviors and enabling factors (n=286)

Respondents who cited food for eating healthily was available, were more likely to practice healthy eating behaviors at a good level ($p<0.001$). And respondents who cited choosing food for eating healthily was easy, were more likely to practice healthy eating behaviors at a good level ($p=0.003$). (Table2)

Table 2  Association of healthy eating behaviors and enabling factors. (n=286)

<table>
<thead>
<tr>
<th>Enabling factors</th>
<th>$x^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability</td>
<td>15.258</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Availability (Safe food)</td>
<td>1.048</td>
<td>0.592</td>
</tr>
<tr>
<td>Accessibility</td>
<td>4.391</td>
<td>0.111</td>
</tr>
<tr>
<td>Affordability</td>
<td>5.176</td>
<td>0.075</td>
</tr>
<tr>
<td>Ease of choosing</td>
<td>11.613</td>
<td>0.003</td>
</tr>
</tbody>
</table>

Association of healthy eating behaviors and reinforcing factors (n=286)

The results revealed that students who had healthy eating information from health education at school ($p=0.034$) or leaflets($p=0.003$) were more likely to practice healthy eating behaviors at a good level. The result found that there were no significant association between health–related behaviors and healthy eating behaviors level ($p > 0.05$). (Table3)

Table 3  Association of healthy eating behaviors and reinforcing factors. (n=286)

<table>
<thead>
<tr>
<th>Book Reinforcing factors</th>
<th>$x^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book</td>
<td>4.548</td>
<td>0.103</td>
</tr>
<tr>
<td>Newspaper</td>
<td>0.866</td>
<td>0.648</td>
</tr>
<tr>
<td>Magazine</td>
<td>1.640</td>
<td>0.440</td>
</tr>
<tr>
<td>Television</td>
<td>Fisher’s exact</td>
<td>1.000</td>
</tr>
<tr>
<td>Radio</td>
<td>0.093</td>
<td>0.955</td>
</tr>
<tr>
<td>Internet</td>
<td>2.713</td>
<td>0.258</td>
</tr>
<tr>
<td>Leaflets</td>
<td>11.677</td>
<td>0.003</td>
</tr>
<tr>
<td>Notice board</td>
<td>0.356</td>
<td>0.837</td>
</tr>
<tr>
<td>Health education in school</td>
<td>6.740</td>
<td>0.034</td>
</tr>
<tr>
<td>Peers</td>
<td>0.064</td>
<td>0.968</td>
</tr>
<tr>
<td>Family</td>
<td>0.353</td>
<td>0.838</td>
</tr>
<tr>
<td>Drinking alcohol</td>
<td>Fisher’s exact</td>
<td>0.594</td>
</tr>
<tr>
<td>Exercise</td>
<td>2.930</td>
<td>0.231</td>
</tr>
<tr>
<td>Dieting</td>
<td>3.365</td>
<td>0.186</td>
</tr>
<tr>
<td>Smoking</td>
<td>Fisher’s exact</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Significant association of healthy eating behaviors and factors found by genders

When analyzing among female and male respondents respectively, among female respondents, the factors influencing healthy eating behaviors were attitude level ($p = 0.021$), availability (Fisher’s exact, $p < 0.001$), accessibility (Fisher’s exact, $p=0.015$), book ($p = 0.026$) and leaflets ($p = 0.008$). On the other hands, among male respondents, the factor was ease of choosing for food for eating healthily ($p = 0.006$). (Table 4)
Table 4  Significant association of healthy eating behaviors and factors found by genders.

<table>
<thead>
<tr>
<th>Book Reinforcing factors</th>
<th>$\chi^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Among female respondent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude level toward healthy eating</td>
<td>7.768</td>
<td>0.021</td>
</tr>
<tr>
<td>Availability of food for eating healthily Fisher’s exact</td>
<td>0.003</td>
<td>0.909</td>
</tr>
<tr>
<td>Accessibility of food for eating healthily Fisher’s exact</td>
<td>0.015</td>
<td>0.907</td>
</tr>
<tr>
<td>Book as a healthy eating information source</td>
<td>7.284</td>
<td>0.026</td>
</tr>
<tr>
<td>Leaflets as a healthy eating information source</td>
<td>9.549</td>
<td>0.008</td>
</tr>
<tr>
<td>Among male respondents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of choosing food for eating healthily</td>
<td>10.395</td>
<td>0.006</td>
</tr>
</tbody>
</table>

DISCUSSION

The healthy eating behaviors found among students ought to be encouraged.

Female gender had healthier eating behaviors than men, though outside Thailand (16), however this study found that male respondents practiced healthy eating as well as female students.

The data of present study suggests that most of them lived independently away from home. The first year students were in transition from the home dinner table to the university cafeteria where meals were not prepared in the manner to which they are accustomed. There is also no one to monitor what they eat and whether or not they eat (15).

Predisposing factors are in the complex system other than attitudes, such as beliefs, values, intentions, self-efficacy, taste preference. In addition, studies indicated that many adolescents feel that healthy eating is not a primary concern during the teenage years (17,18).

The level of Knowledge, adolescents have a significant amount of knowledge regarding good nutrition, healthy foods and health, but did not use their knowledge to make healthy food choices (14,19). But the cumulative effects of heightened awareness, increased understanding, and greater command (recognition and recall) of facts will seep into the system of beliefs, values, attitudes, intentions, self-efficacy, etc., and eventually, behavior (20).

Greater availability of nature foods or healthy foods at school and in young people’s social spaces can facilitate their healthy eating behaviors (19,21).

Regarding the ease of choosing food for eating healthily, if the students feel choosing food for eating healthily is easy, it enable them to practice healthy eating easier than those who feel difficulties. However, why they had the ease or did not have ease, this research did not study the detail. Young persons understand the importance of limiting fat, cholesterol, and sodium in one's diet, but they do not know which foods are high in fat, cholesterol, and sodium, or fiber (14). Other considerable reason, lack of skills in appropriate selection of food such as conflicting with taste preference, or peer pressure and so on.
Regarding availability of safe food, the data from respondents voluntarily answered about their idea toward healthy eating, could be explained the result that there was no one who linked safe food to healthy eating among the respondents.

The reliability of the information sources, health professionals as being more reliable than other information resources for healthy eating (22). Therefore, if the information sources such as leaflet and health education provided by professionals, or health sector, the sources could be effective for the students.

Nowadays, on mass media there was a lot of conflicting nutrition messages such as particular food is good or bad for health, the merits of diet or food which sometimes is not scientifically confirmed can lead to confusion and misinterpretation, causing individual unhealthy eating patterns (2).

Females tend to be more reflective about food and health issues in comparison to men who tend to have a more traditional and uncritical view of eating. Males seem to attach more importance to good taste and pleasure derived from food and less importance to health as a criterion in food choice compared to women (23).

Females are sensitive to the way other people think they should eat in order to fulfill the standards and expectations regarding appropriate feminine behavior and appearance (20).

**RECOMMENDATION**

To encourage and enrich students’ healthy eating behaviors, better availability of healthy food and meal should be sustained in student’s social ambience.

The findings suggested the promotion of healthy eating behaviors should be considered especially by developing health education curriculums, aimed at improving the nutritional well being of individuals. The university students represent the final opportunity for nutritional education as they enter adulthood in society. The appropriate concept and practice of healthy eating should be developed though methods such as attractive leaflets that are suitable for the students with consideration to gender differences.

In further study, might examine students’ understanding of what constitutes a healthy diet to better clarify factors related to healthy eating behaviors. There also should be a research on barriers to enabling factors to promote healthy eating among students.
ปัจจัยที่มีผลต่อพฤติกรรมการบริโภคอาหารที่ถูกสุขลักษณะของนักศึกษาปีที่ 1 ในมหาวิทยาลัยมหิดล วิทยาเขตศาลายา

อภิไทร มิล ณ เจริญศิริ
สุทธิลักษณ์ อิศรานุรักษ์

บทคัดย่อ

การศึกษานี้เป็นการศึกษาภาคตัดขวาง โดยมีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีผลต่อพฤติกรรมการบริโภคที่ถูกสุขลักษณะของนักศึกษาชั้นปีที่ 1 ในมหาวิทยาลัยมหิดล วิทยาเขตศาลายา ในด้านความรู้ทัศนคติที่มีต่อการบริโภคอาหารสุขภาพ การเข้าถึงแหล่งขายอาหารที่มีสุขภาพ และจำนวนที่มีให้บริการในมหาวิทยาลัย

กลุ่มตัวอย่าง เป็นนักศึกษาปีที่ 1 มหาวิทยาลัยมหิดล วิทยาเขตศาลายา อายุระหว่าง 18-20 ปี อายุเฉลี่ย 19 ปี ส่วนใหญ่พักในหอพักมหาวิทยาลัย ได้รับเงินเดือนเฉลี่ยประมาณ 4,500 บาท

ผลการศึกษา พบว่า นักศึกษาส่วนใหญ่มีความรู้เกี่ยวกับการบริโภคอาหารที่ถูกสุขลักษณะระดับปานกลาง ร้อยละ 56.3 มีทัศนคติที่ดีต่อการบริโภคอาหารถูกสุขลักษณะ นักศึกษาสามารถหาอาหารที่ถูกสุขลักษณะในมหาวิทยาลัยได้สะดวก เพียงพอต่อความต้องการส่วนพฤติกรรมการบริโภคอาหารที่ถูกสุขลักษณะของนักศึกษาส่วนใหญ่ ร้อยละ 68 การบริโภคอาหารที่ถูกสุขลักษณะของนักศึกษาส่วนใหญ่ ร้อยละ 68 ในระดับปานกลาง นักศึกษาส่วนใหญ่ใส่ใจสุขภาพมากกว่านักศึกษาชาย จากการศึกษาที่มีข้อมูลว่าควรมีการให้ความรู้ในด้านการบริโภคอาหารที่ถูกสุขลักษณะในกลุ่มนักศึกษาเพิ่มมากขึ้น โดยใช้สื่อโทรทัศน์เป็นตัวกลางในการอ่านทราย

คำสำคัญ
พฤติกรรมการบริโภค การบริโภคที่ถูกสุขลักษณะ
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