The Study of Knowledge and Behaviour on Sugar-Sweetened Beverage Consumption in University Students
การศึกษาความรู้และพฤติกรรมการบริโภคเครื่องดื่มที่มีน้ำตาล ในนักศึกษามหาวิทยาลัย

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Abstract

This research of cross-sectional study aimed to evaluate the knowledge and behavior on sugar-sweetened beverage consumption in students of Valaya Alongkorn Rajabhat University under the royal patronage, Pathumthani province, Thailand. A set of 50 questionnaires consisting of personal information, knowledge and behavior of sugar-sweetened beverage consumption were distributed. The participants were 35 male (70%) and 15 females (30%). The majority of the participant age ranged from 17-20 years (54%) and were within the normal weight range (60%). The results showed that most participants knew good to an excellent level. The frequency of sugar-sweetened beverage intake was 1-2 times per week, and the preferred beverages were yoghurt drink 28 people (56%), bubble milk tea or tea 22 people (44%) and carbonated beverage 21 people (42%). Many subjects consumed fruits and vegetable juice 20 people and flavored milk 22 people at the frequency of 3-4 times a week (40% and 44% respectively). However, most university students did not drink coffee and energy drinks. The results indicated that most of the students had an excellent level of knowledge yet still consumed high sugar drinks. Therefore, students' awareness should be raised to achieve sustainable behavior.

Keywords: knowledge, behaviour, sugar sweetened beverage consumption

บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาความรู้และพฤติกรรมการบริโภคเครื่องดื่มที่มีน้ำตาลในนักศึกษามหาวิทยาลัยราชภัฏวไลยอลงกรณ์ในพระบรมราชูปถัมภ์ จังหวัดปทุมธานี แบบสอบถามจำนวน 50 ชุด ถูกนำมาใช้เป็นเครื่องมือในการสำรวจ โดยประกอบด้วยข้อมูลทั่วไป ข้อมูลความรู้ และข้อมูลพฤติกรรมที่เกี่ยวกับการบริโภคเครื่องดื่มที่มีน้ำตาล ผู้วิจัยทำการสำรวจในกลุ่มตัวอย่างนักศึกษา 50 คน ซึ่งเป็นเพศชาย 35 คน (ร้อยละ 70) และเพศหญิง 15 คน (ร้อยละ30) กลุ่มตัวอย่างนักศึกษาส่วนใหญ่มีอายุอยู่ในช่วง 17-20 ปี ร้อยละ 54 และมีน้ำหนักปกติ ร้อยละ 60 ผลการวิจัยพบว่า กลุ่มตัวอย่างมีความรู้เกี่ยวกับการบริโภคเครื่องดื่มที่มีน้ำตาลอยู่ในระดับดีถึงดีเยี่ยม ด้านความถี่ในการบริโภคเครื่องดื่มที่มีน้ำตาลพบว่า กลุ่มตัวอย่างส่วนใหญ่บริโภค 1-2 ครั้งต่อสัปดาห์ โดยเครื่องดื่มที่นิยมบริโภค ได้แก่ โยเกิร์ตพร้อมดื่ม 28 คน (ร้อยละ 56) ชานมไข่มุกหรือชา 22 คน (ร้อยละ 44) และเครื่องดื่มน้ำอัดลม 21 คน (ร้อยละ 42) นอกจากนี้ยังพบว่านักศึกษาบริโภคน้ำผักและผลไม้ 20 คน รวมถึงนมปรุงแต่งรส 22 คน โดยมีความถี่ในการบริโภค 3-4 ครั้งต่อสัปดาห์ (ร้อยละ 40 และ 44 ตามลำดับ) อย่างไรก็ตามกลุ่มตัวอย่างนักศึกษาไม่ดื่มกาแฟและเครื่องดื่มชูกำลัง แม้ว่านักศึกษาส่วนใหญ่มีความรู้ระดับดีเยี่ยมแต่ยังคงมีพฤติกรรมการบริโภคเครื่องดื่มที่มีน้ำตาลสูง ดังนั้นจึงควรสร้างความตระหนักรู้ของนักศึกษาเพื่อให้เกิดการปรับพฤติกรรมการบริโภคที่ดีขึ้นอย่างที่ยั่งยืน

คำสำคัญ: ความรู้ พฤติกรรม การบริโภคเครื่องดื่มที่มีน้ำตาล

Introduction

Sugar sweetened beverages include drinks with added sugar such as soda, fruit drinks and energy drinks (Bleich & Vercammen, 2018). The WHO recommended that total added sugar consumption for adults and children must be not more than 5% of total daily energy intake or around six teaspoons of table sugar (World Health Organization (WHO), 2014). Consuming sugar sweetened beverages has showed negative health effects associated with metabolic disease, diabetes, cardiovascular disease, heart disease and nonalcoholic fatty liver disease (Narain, Kwok & Mama, 2016; Rippe, 2013). The frequency the consumption of sugar sweetened beverages of once or more times per day is associated with adverse health consequences in adults including obesity, type 2 diabetes, cardiovascular disease, dental caries, hypertension, dyslipidemia and asthma (Park, Ayala, Sharkey & Blanck, 2019). This is especially of concern as beverage advertisement usually targets young adults and teens to market soft drinks, sports drinks and energy drinks. A study showed that adolescents and young adults consume more sugar-sweetened beverages than other groups of individuals (Wang, Bleich & Gortmaker, 2008). Moreover, previous studies have shown that the rate of consumption of sugar-sweetened beverages is increasing among the general population, most especially among young adults in developing and developed countries (Malik, Schulze & Hu, 2006). Sugar-sweetened beverages consumption is independently associated with weight gain in the Thai student university. Research and health promotion in Thailand and other economically transitioning countries should focus on reducing their contribution to population weight gain and to diet-related chronic diseases. Due to higher frequency of sugar sweetened beverages

consumption in 2005 was significantly associated with greater weight gain between 2005 and 2009 in all age groups and in both sexes; persons who consumed sugar sweetened beverages at least once a day in 2005 gained 0.5 kg more than those who consumed sugar sweetened beverages less than once a month (Lim et al., 2014). Considering the role of the health education, the student should be known sugar consumption. Thus, some student must receive inadequate education in diet and nutrition. Previous study reported sugar-sweetened beverages consumption behavior in students of Valaya Alongkorn Rajabhat university under the royal patronage, Pathumthani province, Thailand in bad score of behavior and they need to improvement behavior (Mingmai, 2016). However, the levels of nutrition knowledge of sugar-sweetened beverages consumption behaviour in students have not been determined. At present, no study in Valaya Alongkorn Rajabhat University has assessed the knowledge and behaviour on sugar-sweetened beverage consumption.

Therefore, the research aimed to study the knowledge and behavior on sugar-sweetened beverages consumption in 50 students of Valaya Alongkorn Rajabhat university under the royal patronage, Pathumthani province, Thailand.

Objective

To study the knowledge and behaviour on sugar-sweetened beverage consumptions in 50 students of Valaya Alongkorn Rajabhat university under the royal patronage, Pathumthani province, Thailand.

Literature Review

Adolescence is a nutritionally vulnerable time period. Poor eating habits formed during adolescence can lead to obesity and diet-related diseases in later years. In addition, the high incidence of dieting behaviors can contribute to nutritional inadequacies and to the development of eating disorders (Luce & Motil, 2020). Previous study found Student University consumed tea coffee and soft drinks 1-3 times/week (64.1%). The students increase drank sugar sweetened beverage most student may be addicted to the sweet taste, resulting in the consumption of sugary drinks. (Phoowachinnapong et al, 2017)

Conceptual frame work

Conceptual frame work of this study was to evaluate the knowledge and behaviour on sugar-sweetened beverage consumption in students. Independent variable included gender and weight status and Dependent variable included knowledge and behaviour on sugar-sweetened beverage consumption.

Methodology

This research was a cross-sectional study using a questionnaire survey. The sample group of this research was students of Valaya Alongkorn Rajabhat university under the royal patronage, Pathumthani province, Thailand. The 50 participants were selected using purposive sampling from student, who attended food and nutrition counseling event by the department of nutrition and dietetics, faculty of science and technology from Valaya Alongkorn Rajabhat University under the Royal Patronage Pathumthani Province. The

questionnaire was divided into 3 parts. The first part, personal information, consisted of gender, age, weight status classified by BMI for Asian population (World Health Organization (WHO), 2004). and physical activity consist of exercise (3-4 time a week) and Non exercise (never or less than once a week). The second part, knowledge level of sugar-sweetened beverage consumption, consisted of 10 questions with answers to either "Yes" or "No". The questions based on nutrition knowledge of excessive sugar intake by Department of disease control Ministry of Public Health Thailand (Department of disease control Ministry of Public Health Thailand, 2011). Scoring of the correct and incorrect answers was given 1 and 0 points, respectively. The criteria of judgment were divided into 5 levels as follow:

80.01%-100.00% is the highest knowledge level (excellent)

60.01%-80.00% is a high knowledge level (good)

40.01%-60.00% is a moderate knowledge level (average)

20.01%-40.00% is a low knowledge level (fair)

00.00%-20.00% is the lowest knowledge level (need improvement)

The third part, the behaviour of sugar-sweetened beverage consumption following on dietary assessment method as food frequency. The questions consisted of a 8 item checklist adapted from the beverage intake questionnaire (BEVQ) (Hedrick, et al, 2010). The questions were adjusted to type of sugar-sweetened beverage that mostly consumed by Thai students university. The frequency 4 levels were used including never, 1-2 time a week, 3-4 times a week and over 5 time a week. We created 3 part of questionnaire an online questionnaire.

The questionnaire online were clarified language before distributed for participant who attended food and nutrition counseling event and they be willing to answer for the questionnaire before data collection.

Complete data collection was achieved from 50 questionnaires. All data were analyzed using descriptive statistics consisting of frequency and percentage.

Result

The general information of 50 university student is shown in Table 1. The results showed that most of the participants were male (70%). The age ranged from 17-20 years for 54% of the total population. Most of the participants (60%) were within the normal weight range, followed by underweight (24%), overweight (6%), obesity class 1 (6%) and obesity (4%). The physical activity of most participants was non-exercise (58 %).

Table 1

Personal information (N=50)

Personal Information	N (% of all subjects)
Gender	
Male	35 (70)
Female	15 (30)
Age	
17-20	27 (54)
21-25	23 (46)
Weight Status	
Underweight	12 (24)
Normal weight	30 (60)
Overweight	3 (6)
Obesity	2 (4)
Obesity Class 1	3 (6)
Physical Activity	
Exercise	21 (42)
Non Exercise	29 (58)

The knowledge levels of sugar-sweetened beverage consumption are shown in Table 2. The results showed that most participants' knowledge was at the excellent level, 98% knew that sugary drink is linked to higher risk of poor health, 96% knew that sugar-sweetened beverages intake caused diabetes, 92% knew that drinking sugar-sweetened beverages is associated with obesity and 86% knew that replacement of sugar-sweetened beverages with water decrease the risk of diabetes. At the good knowledge level, 80% knew that more than 6 teaspoons of sugar is added to sugar-sweetened beverages, 78% knew about exercise reduces blood glucose, 76% knew that sugar is carbohydrates and source of energy and 62% knew that sugar-sweetened beverages accelerate cell aging. Moreover, two questions scored average knowledge level, which were maximum sugar intake of 6 teaspoons per day (50%) and fructose intake increases satiety (44%).

Table 2

Knowledge levels of sugar-sweetened beverage consumption (N=50)

Knowledge of sugar-sweetened beverage consumption	Correct N (%)	Incorrect (N %)	Knowledge level
1. Drinking sugar-sweetened beverages is associated obesity.	46 (92)	4 (8)	Excellent
2. WHO recommends a maximum of sugar intake 6 teaspoons per day.	25 (50)	25 (50)	Average
3. Additional serving per day of sugary drink is linked with higher risk of unhealthy.	49 (98)	1 (2)	Excellent
4. Sugar is carbohydrates and source of energy.	38 (76)	12 (24)	Good
5. Replacement of sugar-sweetened beverages with water decrease risk of diabetes.	43 (86)	7 (14)	Excellent
6. Sugar-sweetened beverages inhibit cell aging	31 (62)	19 (38)	Good
7. sugar-sweetened beverages were added sugar over 6 teaspoons	40 (80)	10 (20)	Good
8. Effects of exercise reduce blood glucose levels.	39 (78)	11 (22)	Good
9. Fructose intake increase satiety	22 (44)	28 (56)	Average
10. Sugar-sweetened beverages intake caused diabetes	48 (96)	2 (4)	Excellent

The frequency of sugar-sweetened beverage intake is shown in Table 3. Most participants drank carbonated beverage (21 people), yogurt drink (28 people) and bubble milk tea or tea (22 people), 1-2 times per week. Many university students consumed fruit and vegetable juice (20 people) as well as flavored milk (22 people) about 3-4 times a week. However, most participants did not drink coffee and energy drinks

Table 3

Frequency of sugar-sweetened beverage intake per week (N=50)

Type of sugar-sweetened beverage	Frequency of sugar-sweetened beverage intake (times per week)			
	Over 5 N (%)	3-4 N (%)	1-2 N (%)	Never N (%)
1. Carbonated beverage	10 (20)	14 (28)	21 (42)	5 (10)
2. Yogurt drink	4 (8)	12 (24)	28 (56)	6 (12)
3. Bubble milk tea or tea	8 (16)	17 (34)	22 (44)	3 (6)
4. Coffee	3 (6)	3 (6)	21 (42)	23 (46)
6. Energy drink	3 (6)	7 (14)	14 (28)	26 (52)
7. Fruits and vegetables juice	4 (8)	20 (40)	19 (38)	7 (14)
8. Flavoured milk	10 (20)	22 (44)	16 (32)	2 (4)

Discussions

Most participants were male (70%) and the age ranged from 17 to 20 years old. That assume as sugar sweetened beverage consumption in male more than female. Consistent with the study from Gadah, et al, 2013 which reported that female had sweetened beverage consumption lower than male due to female were dietary restraint better than male.

The weight status of most subjects was of normal weight. This result was possibly because the participants were university students who have gained knowledge of consumption from various channel. Online social media accession in Generation Y's (aged 17-36 year old) has correlated with health literacy, interaction, decision making, changing behavior, applying and sharing of information (Putthisai, & Sasithanakornkae, 2019).

Most of the knowledge was excellent apart from the two questions that scored average including the maximum sugar intake of 6 teaspoons per day and fructose intake increases satiety. Consistent with the study from Vichayanrat, Amornsuradech and Karawekpanyawong (2020) studied consumption of sugar-sweetened beverages and knowledge among dental students. Although dentist is one of the professionals who can advise the patient directly about sugar consumption but they found the topics that dental students knew the least were daily sugar intake recommended by the World Health Organization (WHO) and the amount of sugar calculation compared to WHO recommended guideline. More over individuals should be educated about health risks food products and should be more informed about foods containing HFCS (Taş, 2020).

Most of student never consumed coffee (46%) and energy drink (52%). The prevalence of sugar-sweetened beverages consumption of Public University in Malaysia found coffee and energy drink intake were 31.9 % and 87.5% at the frequency of no sugar-sweetened beverages intake per day (Ahmad et al, 2019). Moreover we found many subjects consumed fruits and vegetables juice 20 people (40%) as well as flavoured milk

22 people (44%) at the frequency of 3-4 times a week. Although fruit is an important of diet, many have come to consider fruit juice in the same category as sugar-sweetened beverages, such as soda, and become concerned about the role of the natural sugars in fruit juice in increasing the risk and severity of obesity. However 100% fruit juice (considered a part of total fruit servings) and its replacement with whole fruits equivalents associated with better diet quality and higher nutrient intake (Agarwal, Fulgoni & Welland , 2019).

Conclusion

Although the study found results indicated that most of the students had an excellent level of knowledge of sugar-sweetened beverage consumption and yet still consume high sugar drinks. Therefore, students' awareness should be raised to achieve a sustainable behaviour.

Recommendation

We recommend that these pieces knowledge should be emphasized in a classroom so students become more aware of the risk of sugar consumption. Moreover, university students should also learn that consuming fructose destroys the liver's system and suppresses the Leptin hormone, causing overeating (Facey, Dilworth & Irving, 2017). Moreover, consuming sugar-sweetened beverage 3-4 times per week or more may result in abdominal obesity (Anari, Amani & Veissi, 2017). Most of student had preference of fruit and vegetables juice intake so they should be select juice from 100% fruit juice (considered a part of total fruit servings) for heaths.

The limitation of this study was small sample size was not to represent for another group. We suggest that studied in large population.

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