KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS THE CAMPAIGN "EAT HOT FOOD, USE SERVING SPOON, AND ALWAYS WASH YOUR HANDS" AMONG FOOD CONSUMERS IN CHULALONGKORN UNIVERSITY CANTEENS, BANGKOK, THAILAND

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ABSTRACT:

Background: Nowadays, there are many cases of communicable diseases caused by eating food or drinking water contaminated with pathogens. The aim of this research was to assess the knowledge, attitude, and practice towards the campaign "Eat hot food, use serving spoon, and always wash your hands" which help to prevent such diseases, among food consumers in Chulalongkorn University's canteens in Bangkok, Thailand.

Methods: A cross-sectional survey was conducted. Four hundred and thirty participants≥18 years old were recruited and a structured questionnaire was used. Chi-square and Fisher's Exact Test were used to analyze association between independent and dependent variables**.**

Results: The study indicated that 79.8% of respondents had "high level of knowledge", 58.4% had "neutral attitude", and 71.2% had "fair practice". In addition, knowledge was associated significantly with occupation (p=0.015), income per month (p=0.009), and ever hearing about the campaign (p=0.012). The attitude was associated significantly with age (p=0.009), education (p<0.001), occupation (p<0.001), income per month (p<0.001), expenditure per month (p<0.001), and ever hearing about the campaign (p=0.004). The practice was associated significantly with age (p<0.001), education (p=0.017), occupation (p<0.001), income per month (p<0.001), and expenditure per month (p=0.001). Moreover, there was significant association between knowledge and attitude (p<0.001), and attitude and practice (p<0.001), while there was no significant association between knowledge and practice (p=0.488) of respondents about the campaign**.**

Conclusions: These findings could be incorporated into health education programs concerning food- and water-borne communicable diseases to improve consumers' knowledge. Furthermore, health promotion activities should be arranged especially using serving spoon correctly and washing hands thoroughly to create good attitude and practice among consumers at Chulalongkorn University

Keywords: Food and water communicable diseases, Food safety, Personal hygiene, Thailand

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INTRODUCTION

The situation of food and water-borne communicable diseases in 2013 showed that out of 1,259,408 patients, there were 1,122, 991 patients with diarrhea with 12 death, 130,653 patients with food poisoning with 1 death, and the rest were cases of dysentery 2,822 patients, typhoid 2,562 patients, hepatitis 372 patients, and cholera 8 patients, respectively. From 1 January to 24 February 2014, out of 206,528 patients, most had diarrhea (186,298 patients) with 3 cases of death, followed by 19,549 patients with food poisoning. These communicable diseases are mainly caused by eating food or drinking water that are contaminated with pathogens, such as, half-cooked food, food swarmed by flies, or overnight stored food, as well as having poor personal hygiene, for instance, not washing

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hands before eating and after using the toilet, and using spoons or glasses together with infected patients, or those who are asymptomatic [1].

According to The Kingdom of Thailand Nutrition Survey in 2003[2], it was found that (1) some household members (30.5%) ate half-cooked food, and all members ate half-cooked food (33.0%); (2) families used serving spoon correctly (43.4%) and washed hands with water and soap (10.7%). While the results from restaurants survey in 2005 found that the restaurants did not provide serving spoons to customers (31.5%); and some provided serving spoons or placed it on the table for customers' self-service (68.5%). The data indicated that restaurants and consumers did not pay attention to the use of serving spoon due to lack of knowledge and not being accustomed to using it. In addition, many people were afraid of being perceived as a spoon-scooping person even when being with friends, thus a lack of camaraderie in the group. Not using serving spoons can cause infectious diseases transmitted to them through saliva. Moreover, hepatitis A virus is also transmitted through food and water. As a result, to prevent the spread of the germs that may be contaminated with people's saliva when they eat together, people should use serving spoon to scoop the food to their own plate [3].

The Department of Health, under the Ministry of Public Health, Thailand, has been campaigning on "Eat hot food, use serving spoon, and always wash your hands" to prevent diseases caused by unclean water and food. Sometimes, the campaign may be concentrated during the seasons, or during some festivals. Parallel to this national campaign for health prevention, Chulalongkorn University (CU) has recognized and focused on such issues as well. CU had initiated the "CU Happiness Program" (CHP) with its first phase emphasis on the One Functional-unit One Community (OFOC) from the year 2008 up to now. The objective of the program is to establish "Health Promotion University" by integrating the implementation of the plan through various mechanisms of the relevant systems and focusing on an awareness of food safety and eating behavior among food consumers on CU campus to protect the problems mentioned above [4]. Therefore, the aim of this research was to assess the knowledge, attitude, and practice towards the campaign "Eat hot food, use serving spoon, and always wash your hands" among food consumers in CU's canteens, Bangkok, Thailand.

MATERIALS AND METHODS

Research population and data collection

A cross-sectional survey to evaluate the knowledge, attitude, and practice towards the campaign "Eat hot food, use serving spoon, and always wash your hands" among food consumers in CU's canteens was carried out from October 2014 to July 2015. The study included 18 canteens in the areas of CU. Total number of population was 10,673 which equal to the number of seats in all canteens. Yamane T. [5] was used to calculated sample size, an estimate of 10% of 386, or an extra of 40 respondents, was added up just in case some respondents who did not respond. Therefore, a total of 430 consumers, age $\geq$ 18 years were recruited in the study including students, faculty members, staff, employee, and outsiders, who were Thai literate. The respondents were selected by convenience sampling when they presented in CU's canteens. The sample size in each canteen calculated from (number of seats) x (total sample size) / (total seats in all canteen) [6] = number of seats x430 / 10,673.

Questionnaire design

Structured questionnaires in Thai were used to collect the data. It consisted of four parts with the close-ended questions. The first part has been designed to obtain information about socio-demographics of respondents. Second part consisted of 13 questions covering aspects of knowledge regarding the campaign. Respondents were asked to select from three options - True, False, or don't know. The score range was between 0 and 13 which were converted to 100 points. In knowledge questionnaire score below 60% was defined as low, 60%-80% as moderate, and more than 80% as high level of knowledge. Part three (9 questions) and part four (8 questions) were related to attitude and practices towards the campaign. The statements included both positive and negative views. The respondents were asked to indicate their level of agreement to the statements using Likert scale for part three (for positive views, strongly agree=4, agree=3, neutral=2, disagree=1, strongly disagree=0, and vice versa for negative views) and part four (for positive views, usually=4, sometime=3, rarely=2, never=1, and vice versa for negative views). The score ranged between 0 to 36 for part three and 8 to 32 for part four. Both were then converted to 100 points. The scores were grouped into 3 levels of attitude including positive attitude (81-100%), neutral attitude (60-80%), and negative attitude (less than 60%), and three level of practices including good practice (81-100%), fair practice (60-80%), and poor practice (less than 60%).

Pilot test

A pilot testing of the questionnaire was

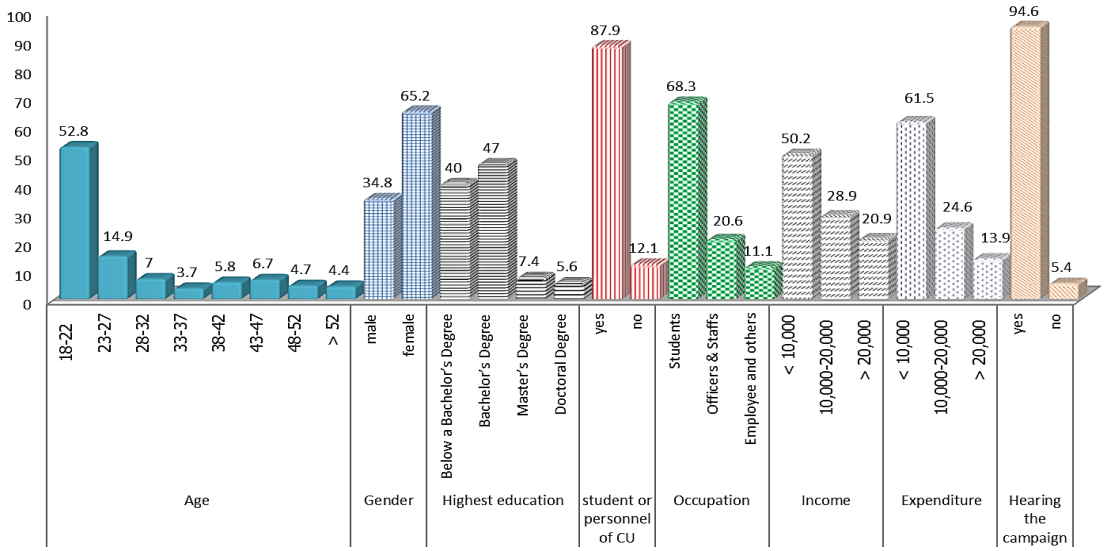


Figure 1 Percentage of respondents in each socio-demographic characteristic

conducted on 40 respondents in Kasetsart University, Bangkhen, Bangkok, to test the reliability and the validity of the survey questionnaire. Knowledge contained 13 items had Cronbach alpha = 0.806, attitude contained 9 items had Cronbach alpha = 0.813, and practice contained 8 items had Cronbach alpha = 0.809.

Data analysis

The SPSS statistical software version 17 (Chulalongkorn University License) was used for all analyses. The descriptive statistics were used - the frequency, percentage, mean and standard deviation, including minimum and maximum values - to explain the distribution of socio-demographic characteristics, knowledge, attitude, and practice of the respondents. Chi-square and Fisher's Exact Test were used to explain the association between socio-demographic characteristics and knowledge, attitude, and practice, and association between knowledge and attitude, knowledge and practice, and attitude and practice towards the campaign. The significant level in this study was set up at 0.05.

Ethical consideration

The study was approved by the Ethics Review Committee for Research involving Human Research Subjects, Health Sciences Group, Chulalongkorn University before full-scale data collection. The research code was 059.1/58 on April 21, 2015.

RESULTS AND DISCUSSION

Demographics of respondents

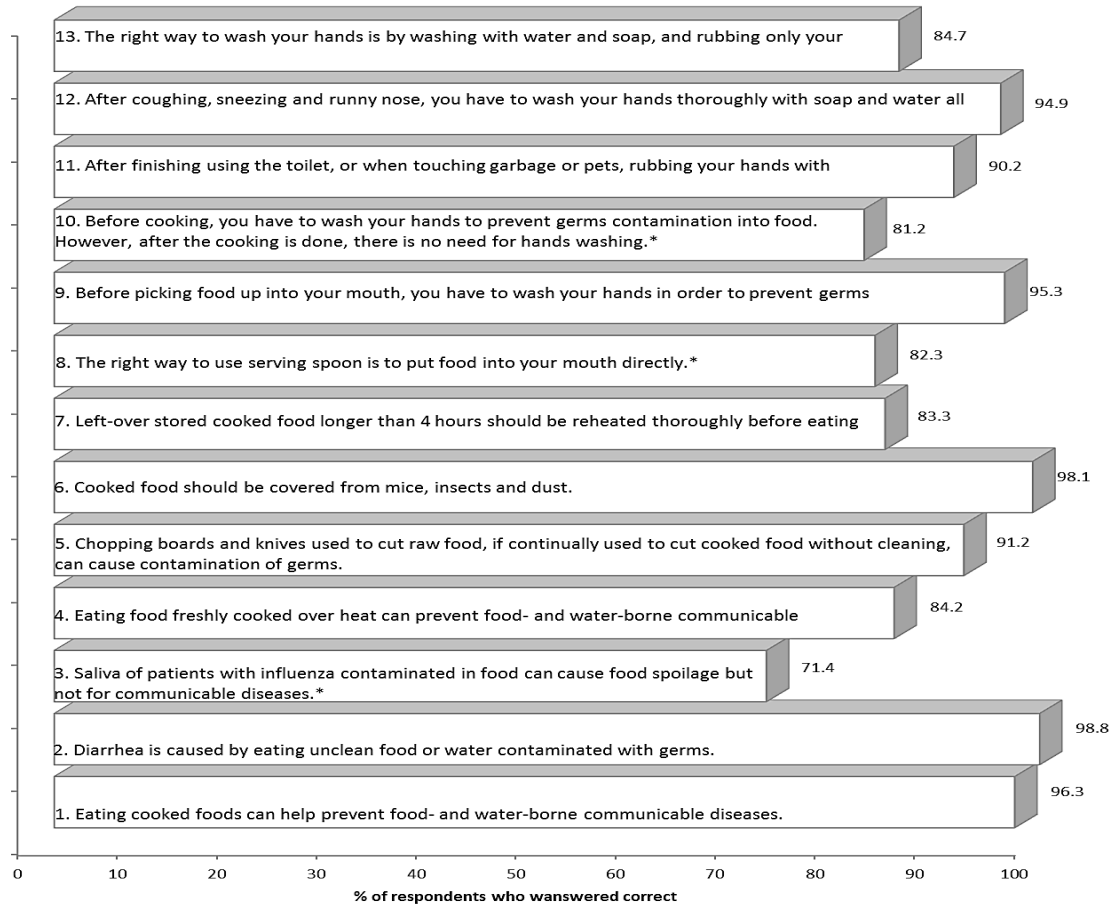
Figure 1 demonstrates percentage of respondents in each socio-demographic characteristic. Out of the 430 respondents involved in this research, 65.2% were females, 34.8% were males; majority were in age group of 18-22 years (52.8%). 47% had graduated with Bachelor's degree (47.0%) and 40% had completed below Bachelor's degree. 87.9% of them were students or personnel of Chulalongkorn University, while 12.1% were outsiders. The majority of insiders were students (68.3%). Income and expenditure of respondents less than 10,000 baht/month were found the most (50.2% and 61.5 respectively). Only few respondents (5.4%) had not ever heard about the campaign.

Knowledge, attitude, and practice towards the campaign

Overall, most of respondents had "high level of knowledge", "neutral attitude", and "fair practice" (79.8%, 58.4%, and 71.2% respectively) towards the campaign.

Almost all respondents (98.8%) knew that diarrhea is caused by eating unclean food or water contaminated with germs and 84.4% of them disagree and strongly disagree that diarrhea is not a serious health problem. It may be explained that most of respondents knew and paid attention to such problem which made them be cautious when eating food. This result is more than the study of Soares et al. [7] that 88.0% of food handles in the municipal schools of Camaçari, Bahia in northeast Brazil, knew that bloody diarrhea can be transmitted by food. While, in a study by Osagbemi et al. [8] it was found that only about 37.1% of participants responsible for food handling in Okene, Nigeria, knew that food poisoning was result of eating contaminated food.

Regarding "Eat hot food" campaign, most of



* Negative statement

Figure 2 Percentage of respondents who answered the questions correct

respondents knew that eating cooked food can help prevent food- and water-borne communicable diseases (96.3%), chopping boards and knives used to cut raw food, if continually used to cut cooked food without cleaning, can cause contamination of germs (91.2%), and eating food freshly cooked over heat can prevent food- and water-borne communicable diseases (84.2%) as shown in Figure 2. That means they knew how to handle, food to prevent food- and water-borne communicable diseases. These findings aligned with Giritlioglu et al. [9] in which 89.0% of students in university cookery programs in Turkey knew that improper heating of food causes food-borne illnesses, but more than half of them thought that meat can be chopped up with vegetables on the same cutting board.

About 72.3% of respondents disagreed and strongly disagreed that juicing lemon onto minced pork can make it cooked and safe to eat. Many respondents (64.6%) rarely and never ate uncooked food. These findings were less than the study of Kanngern et al. [10], in which 80.4% of subjects agreed and strongly disagreed that adding lemon juice and red ant onto raw fish in spicy condiment can make it cooked, and 86.7% of subjects rarely and never ate raw fish in spicy condiment and minced fish spicy salad with herbs which added red ant and lemon juice instead of cooking by heating. It may be explained that environment or cultural factors had effect on differences in attitude and eating behavior of consumers.

Regarding knowledge on "Use serving spoon", the survey indicated that some respondents (17.7%) did not know that using serving spoon to scoop food into their mouth directly was the wrong way. The correct way was to use serving spoon, not their own spoon, to scoop food from shared dish into their own dish before eating [2]. Although 64.7% of respondents disagreed and strongly disagreed that there was no need to use serving spoons during meals with friends, almost 30% of them had neutral attitude that they tended to agree or disagree. Therefore, their knowledge and attitude about using serving spoons should be raised. With regard to practice, 43.7% of them occasionally did not use

Table 1 Association between knowledge and attitude of respondents towards the campaign

Knowledge	Total respondents (N)	Attitude N (%)			*p*-value
		Positive	Neutral	Negative	
High	343	136 (39.7)	196 (57.1)	11 (3.2)	0.000*
Moderate and low	87	8 (9.2)	55 (63.2)	24 (27.6)	

* p<0.001

Table 2 Association between knowledge and practice of respondents towards the campaign

Knowledge level	Total respondents (N)	Practice N (%)			*p*-value
		Good	Fair	Poor	
High	343	79 (23.0)	241 (70.3)	23 (6.7)	0.488
Moderate and low	87	15 (17.2)	65 (74.7)	7 (8.0)	

Table 3 Association between attitude and practice of respondents towards the campaign

Attitude level	Total respondents (N)	Practice N (%)			*p*-value
		Good	Fair	Poor	
Positive	144	49 (34.0)	91 (63.2)	4 (2.8)	0.000*
Neutral	251	42 (16.7)	191 (76.1)	18 (7.2)	
Negative	35	3 (8.6)	24 (68.6)	8 (22.9)	

* p<0.001

serving spoons during meals with close friends and this aligned with study by Sotedee et al. [11], most of the students in Rajaphat Nakhon Pathom University infrequently used a spoon to eat (44.5 %). It was noticed that around half the consumers sometimes used serving spoon. If they did not use serving spoon they are at risk for communicable diseases transmitted by foods. Therefore, we need to improve the practice of using spoon to, reduce infections.

Regarding "wash your hands", 90.2% of respondents concerned about hand cleaning after using toilet, or touching garbage or pets, just only rub their hands with clean towel is not enough. Less than 50% of respondents disagreed that washing hands by only rubbing the palms can prevent germ contamination in food. Before eating, only 0.9% of them never washed their hands that less than the study of Sotedee et al. [11] and 4th DDC Poll [12], percentage of subjects who never washed their hands before eating were 2.3% and 4.5% respectively. Besides, more than half of respondents sometimes washed hands with water alone (57.9%) and sometimes washed hands with water and soap (52.1%).

Association between socio-demographic characteristics and knowledge, attitude, and practice towards the campaign

The results revealed that occupation (p = 0.015), income per month (p = 0.009), and ever hearing about the campaign (p = 0.012), were associated significantly with knowledge towards the campaign.

Besides, age (p=0.009), education (p<0.001), occupation (p<0.001), income per month (p<0.001), expenditure per month (p<0.001), and ever hearing about the campaign (p=0.004), were associated significantly with the attitude towards campaign. Furthermore, age (p<0.001), education (p=0.017), occupation (p<0.001), income per month (p<0.001), and expenditure per month (p=0.001), were associated significantly with practices following the campaign. While, a study by Chaingkuntod et. al. [13] found that age (p=0.160), marriage status (p=0.310), education (p=0.577), and income (p=0.989) were not associated with behavior on food consumption of Pasi Charoen persons in Bangkok, Thailand. Siow et al. [14] reported significant difference (p<0.05) between practices on food safety of food handles with gender (p=0.032).

Association between knowledge and attitude, knowledge and practice, attitude and practice towards the campaign

There was significant association between knowledge and attitude (p<0.001) and attitude and practice (p<0.001) of respondents towards the campaign, while no significant association between knowledge and practice of respondents about the campaign (p=0.488) as shown in Table 1, Table 2, and Table 3.

Polsiri [15] found that knowledge was strongly, positively correlated with attitude (r = 0.278) and practice (r = 0.141) on food consumption of undergraduate students in Ramkhamhaeng University. While attitude was low positively

correlated with practices (r = 0.655) on food consumption and this aligned with the study by Chaingkuntod et. al. [13], attitude on food consumption behavior was associated with practices of Pasi Charoen persons in Bangkok, Thailand ($p<0.001$).

CONCLUSION

Most of the respondents had "high level of knowledge" (79.8%), "neutral attitude" (58.4%), and "fair practice" (71.2%) towards the campaign "Eat hot food, use serving spoon, and always wash your hands". The association between socio-demographic characteristics and knowledge, attitude, and practice towards the campaign found that occupation, income per month, and ever hearing about the campaign, were associated significantly with knowledge ($p=0.015$, 0.009, and 0.012 respectively). Age, education, occupation, income per month, expenditure per month, and ever hearing about the campaign, were associated significantly with attitude ($p=0.009$, $p<0.001$, $p<0.001$, $p<0.001$, $p<0.001$, and $p=0.004$ respectively). While age, education, occupation, income per month, and expenditure per month, were associated significantly with practice ($p<0.001$, $p=0.017$, $p<0.001$, $p<0.001$, and $p=0.001$ respectively). There was significant association between knowledge and attitude ($p<0.001$), and attitude and practice ($p<0.001$) of respondents towards the campaign, while no significant association between knowledge and practice of respondents about the campaign ($p=0.488$)

According to the findings, some of respondents did not know that saliva of patients with influenza contaminated in food can cause not only food spoilage, but also for communicable diseases. Therefore, health education program emphasizing on food- and water- born communicable diseases should be conducted in CU to increase consumers' knowledge. Besides, most of them had neutral attitude and fair practice, so health promotion activities should be arranged in CU especially using serving spoon correctly and washing hands thoroughly, such as broadcasting news or good stories about this issues via CU radio station, finding out CU ambassadors to be good practice models, and competition to create idea or propose projects for creating consumers' attitude and practice at CU etc. Moreover, the "One Functional-unit One Community" (OFOC) should be aimed to address issues or projects about food consumption behaviors and personal hygiene for students, faculty staff, general staff, and people in communities near Chulalongkorn University. Other educational institutes, organizations, or communities could be studied by applying the advantage of this study as a general guideline. Other variables such as environment and culture may be tested the association with KAP. Furthermore, IEC (Information, Education, and Communication) materials such as pamphlets should be distributed to all faculties of Chulalongkorn University, or posters should also be shown in all canteens to increase consumers' knowledge.

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