



## The Effect of Caffeine Consumption on Teenager's Mental Health in Bangkok, Thailand

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**ABSTRACT:** Nowadays, caffeinated drinks play a significant role not only for adults but also for teenagers. Some teenagers believe that it will help them with their school tasks, such as exams, projects, and more. Many research projects have also claimed that caffeine can help people become more energized and less tired [10]. Along with mental health, indicating that it is important, it is vital to maintain good mental health since it can make a huge impact on our daily lives [7]. We are curious about the relationship between caffeine consumption and teenagers' mental health. So we decided to conduct a survey on teenagers ages 13-18. The data was collected online using Google Form and by sending questionnaires about the effect of caffeine consumption on teenager's mental health in Bangkok, Thailand. We have gathered a total of 150 responses from students in grades between 7 and 12 mostly from Bangkok. Statistical Product and Service Solutions (SPSS) version 29 was used for data analysis. The results have shown that there is a slight significant effect of caffeinated drinks on teenager's mental health, which involves the times of the day teenagers prefer to drink caffeinated drinks ( $p$ -value = 0.001). Despite the consumption period, the types of caffeinated drinks teenagers prefer ( $p$ -value = 0.163) and the participant's grade level ( $p$ -value = 0.448) may have also affected adolescents too. Moreover, the result of this research came out that caffeinated drinks have nearly no effect on teenager's mental health, but they do have an effect specifically on the period of time that the teenagers consume caffeinated drinks. From our data, we can conclude that caffeinated drinks, especially tea, will significantly affect teenagers' mental health if consumed after lunch (afternoon). This research will help raise awareness on the effect of caffeinated drinks on teenagers ages 13-18 on their mental health and also provides us with more information for further research.

**KEYWORDS:** Adolescents, Caffeinated drink, Mental health.

### INTRODUCTION

Mental health encompasses the multifaceted aspects of an individual's emotional, psychological, and social well-being, which are either positive or negative. It exerts a significant influence on our thoughts, emotions, and behaviors. Moreover, mental health plays a crucial role in one's ability to effectively cope with stressors, establish and maintain relationships with others, and engage in efficient decisions. Mental health is important at every stage of life, from childhood and adolescence through adulthood [1].

The mental well-being of Thai adolescents has emerged as a prominent issue of concern in recent times. According to the report published by The Ministry of Public Health and UNICEF on Thai adolescents, approximately one in seven adolescents aged 10 to 19, and one in fourteen children aged 5 to 9, in Thailand are afflicted by mental health disorders [2]. They are suffering from stress, anxiety, and depression, which can be attributed to factors such as violence, bullying, and loneliness [2]. In addition to the aforementioned factors, educational issues also play an important role on teenagers' mental states. Students are faced with high expectations on their academic performance, so they would try as many possible ways to improve their performance. Consequently, this issue increases the popularity of caffeine among high school students, as it has been believed that caffeine can contribute to their academic success. It is being said that caffeine consumption improves cognitive function and alertness. This implies that by consuming caffeine, it will increase students' ability to memorize the lesson and will be beneficial when the students have to stay up late and review for their exam [6].

For that reason, we are interested to find out whether the increased amount of caffeine consumption has any negative impact on students' mental health or not and how it affects them. However, there are limited studies that are focusing on the effect of



caffeine consumption on mental conditions. Therefore, we conducted a survey to examine the mental impact of caffeine consumption among Thai high school students.

## METHODOLOGY

Our survey research was conducted using an online questionnaire, also known as Google Forms. In total, our questionnaire comprised 25 items, which are categorized into two sections: 1) General information and 2) Study behavior. Furthermore, the 5-point Likert scale was used as options in the questionnaires, which ranged from strongly disagree to strongly agree. Before our questionnaire was published, each question was reviewed by three specialists to obtain the Item-Objective Congruence index (IOC) of 0.87. Moreover, in order to examine the internal reliability test of the questionnaires, we tested Cronbach's alpha on 30 pilot respondents, which gave the result of 0.957 [11]. During the survey research in June 2023, our online questionnaire was distributed to middle and high school teenagers aged between 13 to 18 in Thailand. By using all online platforms such as line messages or instagram inbox, we obtained a total of 150 participants. The data was analyzed using Statistical Package for Social Sciences (SPSS) program version 29. While we were using this program, One-way ANOVA (F-test) was used to test all the factors. The analyses with p-value < 0.05 were considered to be significant.

## RESULTS

**Table 1.** General information of participants (N=150)

General Information		Frequency	Valid Percentage
Grade	Grade 7	3	2.0
	Grade 8	8	5.3
	Grade 9	2	1.3
	Grade 10	41	27.3
	Grade 11	65	43.3
	Grade 12	31	20.7
Age	13 years old	9	6.0
	14 years old	6	4.0
	15 years old	16	10.7
	16 years old	75	50.0
	17 years old	31	20.7
	18 years old	13	8.7



<b>Types of caffeine</b>	Coffee	41	27.3
	Energy Drinks	2	1.3
	Chocolate Drinks	31	20.7
	Soda drinks	26	17.3
	Tea	45	30.0
	Other	5	3.3
<b>Times per day</b>	1 Time	109	72.7
	2 Times	35	23.3
	3 Times	3	2.0
	4 Times	0	0.0
	5 Times or more	3	2.0
<b>Time period</b>	Morning	26	17.3
	Late morning	17	11.3
	Noon	20	13.3
	Afternoon	58	38.7
	Late afternoon	26	17.3
	Night	3	2.0

In Table 1, the data shows the detail of all samples collected, which can be implied about the majority of the respondents who are teenagers. The responses indicate that they are mostly in grade 11 (43.3%), and half of the respondents are in the age of 16 years old (50.0%). Most of them prefer to consume tea rather than other beverages such as coffee, soda drinks, energy drinks and others (30.0%). In one day, many of them choose to consume the drinks in the afternoon (38.7%), and consume caffeinated drinks just one time per day (72.7%).



**Table 2.** Descriptive statistics

Caffeinated drinks	N	Mean	Standard Deviation
	150	2.2110	0.738

In Table 2, among 150 participants it has been resulted that the mean score is 2.2110. Indicating that caffeine only has few effects with mental health on Thailand Teenagers specifically in Bangkok. Also it can be concluded that the standard deviation is the number of 0.738.

**Table 3.** One-Way ANOVA table; grade and caffeinated drinks.

Caffeine	Sum of squares	df	Mean Square	F	P
Between Groups	2.602	5	0.520	0.955	0.448
Within groups	78.507	144	0.545		
Total	81.109	149			

In table 3, it illustrates that grade has no significance to the effect of caffeine consumption on adolescent’s mental health with the p-value of 0.448. Furthermore, the mean square between groups is 0.520 and the mean square within groups is 0.545.

**Table 4.** One-Way ANOVA table; type of drinks and caffeinated drinks.

Caffeine	Sum of squares	df	Mean Square	F	P
Between groups	4.279	5	0.856	1.604	0.163
Within groups	76.830	144	0.534		
Total	81.109	149			

Table 4 conveys that different types of caffeinated drinks have no significance to the effect of caffeine consumption on adolescent’s mental well-being. It also shows the mean square between groups and mean square within groups which is 0.856 and 0.534 respectively.

**Table 5.** One-Way ANOVA table; drinking period and the caffeinated drinks.

Caffeine	Sum of squares	df	Mean Square	F	P
Between groups	8.463	3	2.821	5.669**	0.001
Within Groups	72.647	146	0.498		
Total	81.109	149			

\*\* Correlation is significant at the 0.01 level (2-tailed)



Table 5 demonstrates a slight significance of consumption period to the effect of taking caffeinated drinks on teenagers mental health. In addition to that the mean square between groups is 2.821 and the mean square within groups is 0.498.

## DISCUSSION

Caffeine consumption has become popularized and is now a part of Thailand's teenagers daily routine. For instance, coffee, tea, energy drinks, etc [12]. Some say that it helps them with their school performances and their emotions such as helping them to lower anxiety levels. On the other hand, many teenagers did not make caffeine consumption a part of their routine. Furthermore, we want to raise teenager's awareness about caffeine consumption, therefore, this research would cover it all.

Most adolescents, throughout the day, usually feel more exhausted spending their whole day at school doing school activities such as studying, reading, and communicating. Making them ought to consume more caffeinated drinks in the afternoon [4]. A report shows that around 35% of teenagers will most likely drink tea during the afternoon [18]. Surprisingly, the results displayed on Table 6 shows that teenager's drinking period played a part in having an effect on their mental health with the p-value of 0.001. According to the results shown, caffeinated drinks affect teenager's mental health typically during the afternoon. This could be due to different factors such as stress from school activities [10], intolerable weather conditions in the afternoon being extremely hot, and/or communication with other people as part of the social activities. In addition, tea is the caffeinated drink that was most likely to affect teenager's mental health (Table 6). This is likely due to the fact that in the majority of the respondents have chosen tea as their preferred caffeinated drink, that is 45 out of 150 participants (Table 1). Their grade of study can also possibly be a factor that affects adolescent's mental well-being. From Table 1, 65 respondents are from grade 11 which is the most stressful grade level [9]. It is reported that 19-42% of Thai teenagers from grade 10, 11, and 12 have experienced depression and anxiety [14]. Therefore, teenagers from grade 11 tend to consume tea to relieve stress.

## CONCLUSION

In conclusion, this study shows that caffeinated drinks have almost no outstanding effect on Thai teenager's mental well-being. In order for caffeinated drinks to affect teenagers, it is likely to be related to the consumption period, which is the afternoon period. Furthermore, the result has shown that the caffeinated drink and grade level do affect teenager's mental health as the effect is prominent in participants who consumed tea and are in grade 11. Since, tea is the most preferred caffeinated drink for teenagers and grade 11 is the majority of the respondents. These factors are definitely the most impactful factors for teenagers ages 13-18. However, we have noticed a space for improvement in this research as this report has most of the respondents being students from Mahidol University International Demonstration School who live in Bangkok, the variety of the samples were pretty limited and would not represent the entire Thai high school students, causing a few biases. Ultimately, teenagers who make caffeine a part of their routine might find this research educational and beneficial for them and would raise awareness on the impact of consuming caffeine on their health.

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