

Students Awareness on the Health Risks of Drinking Caffeinated Energy Drink among Students of Polytechnic College of Botolan SY 2018-2019

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Introduction

Energy drink is a term that is used to describe a wide variety of beverages that contain caffeine, taurine, guarana, sugar, vitamins, herbal supplements, and other ingredients. These beverages are being marketed as energy improving beverages. These products are being used to boost their consumers' energy, which makes energy drinks a fast-growing market. Caffeinated energy drinks (CEDs) are one of the fastest growing segments of the beverage industry. Caffeinated energy drinks typically contain caffeine levels ranging from 70 to 180 mg, as well as other ingredients, including vitamins, herbs, and stimulants such as taurine, ginseng, guarana, green tea, L-carnitine and yerba mate. However, there is a concern about the risks and potentially harmful effects of caffeinated energy drink consumption on consumers' health, especially for young people. Since energy beverages, energy drinks and energy shots containing stimulants and additives were introduced to the market a little over a decade ago, their popularity has soared. The increase in popularity of energy beverage consumption is also evident among students in high schools and colleges who reportedly use these products to give them "the edge," an increased alertness and decreased mental fatigue, that they believe they need to complete various tasks in the academe.

For most people, moderate doses of caffeine or about two to four cups of brewed coffee a day, aren't harmful. But some conditions may warrant limiting or even ending caffeine routine. One should consider cutting back if unpleasant effects like insomnia, nervousness, restlessness, irritability, stomach upset, fast heartbeat and muscle tremors, are felt. The effect of caffeine differs from one person to another. Some experience unpleasant effects even with very small amounts. These are often the non-regular coffee drinkers. Others may have medical conditions like irregular heartbeat, overly active thyroids and those with anxiety and sleep disorders tend to be predisposed to be more sensitive to the unpleasant effects of caffeine.

In Botolan, Zambales, the concern of parents towards the health of their children is always an issue to consider. Policies and guidelines have been implemented in schools with regards to the beverages that are being offered in the school canteens. Nevertheless, there are still students who patronize caffeinated energy drinks over what is being advised for them to drink and that are good for the health. It is in this context that this study aimed to determine the students' level of awareness on the health risk of drinking caffeinated energy drink, with its caffeine content was commonly consumed or preferred by the students, the level of consumption preferences of their intake, the common adverse effects experienced by the students after taking a dose of caffeine into their system and their reasons or indications for drinking such beverages, whether the frequency of use of caffeinated energy drink was associated with poor health

and behavioral outcomes affecting the academic performance among students of Polytechnic College of Botolan for the school year 2018-2019.

This study sought to provide answers to the following questions:

1. How can the respondents' assessment on the health risks of drinking caffeinated drinks be described in terms of the following aspects: preferred flavor of caffeinated drinks; preferred time of drinking; number/frequency of caffeinated drinks consumed every day; energy boost felt after drinking; and reasons for drinking caffeinated energy drinks.
2. How can the perception of the respondents towards health risks in drinking caffeinated energy drinks be described?
3. How can the perception of the respondents on the adverse effects towards health risks in drinking caffeinated energy drinks be described?
4. Is there a significant difference on the perception towards level of consumption preference on health risks in drinking caffeinated energy drinks when grouped according to profile variables?
5. Is there a significant difference on the perception towards adverse effects on health risks in drinking caffeinated energy drinks when grouped according to profile variables?
6. Is there a significant relationship between adverse effects and level of consumption on health risks in drinking caffeinated energy drinks?

Hypothesis

1. There is no significant difference on the perception towards level of consumption preference on health risks in drinking caffeinated energy drinks when grouped according to profile variables.
2. There is no significant difference on the perception towards adverse effects on health risks in drinking caffeinated energy drinks when grouped according to profile variables.
3. There is no significant relationship between adverse effects and level of consumption on health risks in drinking caffeinated energy drinks.

Methodology

The descriptive method of research was used for this study since the study aimed to verify formulated hypotheses that refer to the present situation in order to clarify them. It is a type of research that is mainly concerned with describing the nature or condition and the degree in details of the present situation as it exists at the time of the study and to explore the cause/s of a particular phenomenon. The aim of descriptive research is to obtain an accurate profile of the people, events or situations.

The study involved the insights of 241 students from various courses of Polytechnic College of Botolan. They were interviewed in order to test their understanding on their level of awareness on the

health risks of drinking caffeinated energy drinks and their level of consumption preferences. The survey was conducted from November 2018 to December 2018 through the use of questionnaires. It is worth mentioning here that this is an attempt to study the current situation which can be framed in terms of declared policies, standards, provisions and mandate set by the Constitution, the Department of Health, and the Department of Education.

The mandate of the Constitution, Section 15. The State shall protect and promote the right to health of the people and instill health consciousness among them. The Constitution provides that it is the policy of the State to protect and promote the right to health of the people and instill health consciousness among them. Pursuant to the said provision, it is hereby declared the policy of the State to actively promote the health of children and to take necessary steps to prevent serious health risks that can be brought on by the consumption of soft drinks. Towards this end, the State shall ensure that children are provided with healthy choices when purchasing beverages in schools and shall regulate the sale of beverages in schools.

The “Healthy Beverage Options Act of 2011” which regulates the availability of beverages to children in schools and for other purposes was introduced by Senator Miriam Defensor Santiago and was approved in the Fifteenth Congress of the Republic of the Philippines in February of 2012. This Act shall apply to all schools in the Philippines whether public or private. The Act includes prohibitions of the following beverages that shall not be provided or sold at schools: soft drinks, sports drinks, punches, and iced teas; fruit-based drinks that contain less than 50 percent real fruit juice or that contain additional sweeteners; and drinks containing caffeine, excluding low-fat or fat-free chocolate milk. Schools found violating this law shall be fined fifty thousand pesos (P50, 000.00) for every violation.

The Department of Education (DepEd) Order No. 13, Series of 2017 states the policy and guidelines on healthy food and beverage choices in schools and in DepEd offices. The policy and guidelines aim to (1) make available healthier food and beverage choices among the learners and DepEd personnel and their stakeholders; (2) introduce a system of categorizing locally available foods and drinks in accordance with geographical, cultural, and religious orientations; (3) provide guidance in evaluating and categorizing foods and drinks; and (4) provide guidance in the selling and marketing of foods and beverages in schools and DepEd offices, including the purchasing of foods for school feeding.

Results and Discussions

Table 1. Distribution of the respondent according to profile variables

Profile Variables		Frequency	Percentage
Age Mean=19.65 years old	16-17	64	26.60
	18-19	81	33.60
	20-21	34	14.10
	22-23	17	7.10
	24 and above	45	18.70
Sex	Male	94	39.00
	Female	147	61.00
Course	BEED 1st year	58	24.10
	BEED 2nd year	26	10.80
	BEED 3rd year	37	15.40
	BSIT 1st year	26	10.80
	BSIT 2nd year	10	4.10
	BSIT 4th year	14	5.80
	Grade 11 –STEM	19	7.90
	Grade 11 – HUMSS	28	11.60
	Grade 11 – TVL	18	7.50
	Grade 12 – TVL	5	2.10
Daily Allowance Mean=Php95.22	Php 300.00 and above	6	2.50
	Php 250.00	5	2.10
	Php 200.00	5	2.10
	Php 150.00	19	7.90
	Php 100.00	115	47.70
	Php50.00 and below	91	37.80
Total		241	100.00

Out of 241 respondents, 81 or 33.6% are from age group of 18-19 years old; 64 or 26.6% from 16-17 years old; 34 or 14.1% from 20-21 years old; 17 or 7.10% from 22-23 years old; and 45 or 18.70% from 24 years old and above. The computed mean age of the respondents was 19.65 years old. The data clearly demonstrate that the respondents were relatively young and are in their early or young adulthood which ranges from 18 to 35 years old.

1. Caffeinated Energy Drinks Preference

Table 2. Distribution on the preference towards caffeinated energy drinks

	Caffeinated Energy Drinks	Frequency	Percentage
1	tea/fruit flavor drinks	36	14.90
2	coffee/coffee flavor drinks	101	41.90
3	soda/carbonated drinks	70	29.00
4	energy boosters/drinks	34	14.10
Total		241	100.00

Table 2 shows the frequency and percentage distribution on the respondents' preference towards caffeinated energy drinks. As seen in the table, 101 or 41.90% preferred coffee/coffee flavor drinks; 36 or 14.90% preferred tea/fruit flavor drinks; 70 or 29.00% preferred soda/carbonated drinks; and 34 or 14.10% preferred energy booster drinks.

2. Preferred Time of Drinking Caffeinated Energy Drink

Table 3. Distribution towards preferred time of drinking caffeinated energy drinks

	Preferred time of drinking	Frequency	Percentage
1	Morning	96	39.80
2	Lunch	52	21.60
3	Afternoon	72	29.90
4	Night	21	8.70
	Total	241	100.00

As seen in the table, 96 or 39.80% preferred drinking caffeinated energy drinks in the morning; 52 or 21.60% during lunch time; 72 or 29.90% in the afternoons while 21 or 8.70% preferred to drink caffeinated energy drinks during night time.

3. Frequency of Drinking Caffeinated Energy Drinks

Table 4. Distribution towards the frequency of drinking caffeinated energy drinks

	Frequency of drinking	Frequency	Percentage
1	once a day	103	42.70
2	2x a day	90	37.30
3	3x a day	30	12.40
4	more than 3x a day	18	7.50
	Total	241	100.00

As seen in the table, 103 or equivalent to 42.70% drink caffeinated energy drinks once a day; 90 or 37.30% drink two times a day; 30 or 12.40% drink three times a day; 18 or 7.50% drink more than 3 times a day.

4. Energy Boost Felt After Drinking Caffeinated Energy Drink

Table 5. Distribution towards assessment on energy boost after drinking caffeinated energy drinks

	Energy boosted you felt after drinking caffeinated energy drink	Frequency (f)	Percentage (%)
1	energy to last the whole day	55	22.80
2	energy to last a couple of hours	110	45.60
3	very little energy	62	25.70
4	No energy at all	14	5.80
	Total	241	100.00

Table 5 shows the frequency and percentage distribution on the respondents' assessment towards energy boost after drinking caffeinated energy drinks. As seen in the table, 110 or 45.60% felt an energy boost for a couple of hours; 55 or 22.80% felt an energy boost for the whole day; 62 or 25.70% felt very little energy boost; and 14 or 5.80%, felt no energy boost at all.

5. Preferred Reasons for Drinking Caffeinated Energy Drinks

Table 6. Distribution towards reasons for drinking caffeinated energy drinks

	Preferred reasons of drinking caffeinated energy drinks	Frequency (f)	Percentage (%)
1	promote wakefulness/studying	55	22.80
2	need more energy	51	21.20
3	relief stress/refreshment	122	50.60
4	attractive advertisement	13	5.40
	Total	241	100.00

Table 6 shows the frequency and percentage distribution on the respondents' reasons for drinking caffeinated energy drinks. Majority of the respondents (122 or 50.60%) drink caffeinated energy drinks for stress relief/refreshment with; 55 or 22.80% drink such in order to promote wakefulness; 51 or 21.20% drink such for they need more energy; and 13 or 5.40% drink such because they were attracted on the advertisement.

6. Perception on the Level of Consumption Preferences on the Health Risks of Drinking Caffeinated Energy Drinks

Table 7. Level of consumption preferences on the health risks of drinking caffeinated energy drinks

	Level of Consumption Preferences on the Health Risk of Drinking Caffeinated Energy Drinks	WM	QI	Rank
1	Have started drinking caffeinated energy drink at a young age.	3.23	Moderately Agree	1
2	Consuming caffeinated energy drinks more than five (5) times a day.	2.34	Fairly Agree	10
3	Regularly buys caffeinated energy drink every time visiting the school canteen.	2.58	Fairly Agree	9
4	Regularly drinks caffeinated energy for every snack or meal time.	2.74	Moderately Agree	4
5	Feeling of headache and drowsiness are felt if unable to drink caffeinated energy drinks regularly.	2.58	Fairly Agree	7
6	Large amount of consumption of caffeinated energy drinks for the day helps boost mental alertness.	2.83	Moderately Agree	3

7	The more caffeinated energy drinks consumed, the more energized and satisfied with the physical performance.	2.86	Moderately Agree	2
8	Less motivation for any activities if unable to consume caffeinated energy drinks regularly.	2.55	Fairly Agree	8
9	Caffeinated energy drinks are consumed daily as a refreshment rather than to drink water.	2.66	Moderately Agree	6
10	Stored and available caffeinated energy drinks at home whenever there's an urge to drink.	2.71	Moderately Agree	5
Overall Weighted Mean		2.71	Moderately Agree	

Table 7 shows the level of consumption preferences on the health risks of drinking caffeinated energy drinks. The respondents “moderately agree” that they had started drinking caffeinated energy drink at a young age as manifested by the mean value of 3.23. This reason ranked first followed by the declaration that more caffeinated energy drinks they consumed, the more energized and satisfied they are with their physical performance (2.83). Consuming caffeinated energy drinks more than five (5) times a day ranked last (2.34).

7. Perception on the Level of Adverse Effects on the Health Risks of Drinking Caffeinated Energy Drinks

Table 8. Level of adverse effects on the health risks of drinking caffeinated energy drinks

	Adverse Effects	WM	QI	Rank
1	Nausea	2.40	Fairly Agree	10
2	Anxiety	2.50	Fairly Agree	9
3	Irritability	2.66	Moderately Agree	8
4	Alertness	3.36	Moderately Agree	1
5	Palpitations	2.76	Moderately Agree	6
6	Headache	2.72	Moderately Agree	7
7	Diuresis	2.77	Moderately Agree	5
8	Stomach upset	2.95	Moderately Agree	2
9	Muscle tremors	2.87	Moderately Agree	4
10	Insomnia	2.92	Moderately Agree	3
Overall Weighted Mean		2.79	Moderately Agree	

Table 8 shows the level of adverse effects on the health risks of drinking caffeinated energy drinks. The respondents “moderately agree” on alertness effect (3.36) which ranked first followed by stomach upset (2.95). Having nausea ranked last (2.40). The computed overall weighted mean on the assessment towards adverse effect on the health risks of taking caffeinated energy drinks was 2.79 with qualitative interpretation of “moderately agree”.

8. Test of Differences on the Level of Consumption Preferences on the Health Risks of Drinking Caffeinated Energy Drinks

Table 9. Analysis of Variance to test the differences on the perception towards level of consumption preferences on the health risks of drinking caffeinated energy drinks when grouped according to profile variables

Sources of Variations		SS	df	MS	Sig.	Decision
Age	Between Groups	2.143	4	0.536	0.536	Accept Ho
	Within Groups	161.073	236	0.683		Not Significant
	Total	163.216	240			
Sex	Between Groups	2.097	1	2.097	0.079	Accept Ho
	Within Groups	161.120	239	0.674		Not Significant
	Total	163.216	240			
Course	Between Groups	22.342	9	2.482	0.000	Reject Ho
	Within Groups	140.874	231	0.610		Significant
	Total	163.216	240			
Daily Allowance	Between Groups	7.037	5	1.407	0.064	Accept Ho
	Within Groups	156.180	235	0.665		Not Significant
	Total	163.216	240			

Table 9 shows the Analysis of Variance to test the differences on the perception towards level of consumption preferences on the health risks of drinking caffeinated energy drinks when grouped according to profile variables. There is no significant difference on the perception towards level of consumption preferences on the health risks of drinking caffeinated energy drinks when grouped according to age, sex, and daily allowance as manifested by their computed significant or P-values of 0.536, 0.079, and 0.064, respectively, which are greater than ($>$) 0.05 Alpha Level of Significance; therefore, the null hypothesis is accepted. On the other hand, there is a significant difference on the perception towards level of consumption preferences on the health risks of drinking caffeinated energy drinks when grouped according to courses as manifested by its computed significant or P-value of 0.000 which is less than ($<$) 0.05 Alpha Level of Significance; therefore, the null hypothesis is rejected.

9. Test of Differences on the Perception towards Adverse Effects on the Health Risks of Drinking Caffeinated Energy Drinks

Table 10. Analysis of Variance to test the differences on the perception towards adverse effects of drinking caffeinated energy drinks when grouped according to profile variables

Sources of Variations		SS	df	MS	Sig.	Decision
Age	Between Groups	4.905	4	1.226	0.128	Accept Ho
	Within Groups	159.886	236	0.677		Not Significant
	Total	164.792	240			
Sex	Between Groups	0.811	1	0.811	0.278	Accept Ho
	Within Groups	163.981	239	0.686		Not Significant
	Total	164.792	240			
Course	Between Groups	11.429	9	1.270	0.051	Accept Ho
	Within Groups	153.363	231	0.664		Not Significant
	Total	164.792	240			
Daily Allowance	Between Groups	2.861	5	0.572	0.529	Accept Ho
	Within Groups	161.930	235	0.689		Not Significant
	Total	164.792	240			

Table 10 shows the Analysis of Variance to test the differences on the perception towards adverse effects on the health risks of drinking caffeinated energy drinks when grouped according to profile variables. There is no significant difference on the perception towards adverse effects on the health risks of drinking caffeinated energy drinks when grouped according to age, sex, course and daily allowance as manifested by their computed significant or P-values of 0.128, 0.278, 0.051 and 0.529, respectively, which all are greater than ($>$) 0.05 Alpha Level of Significance; therefore, the null hypothesis is accepted. The data clearly imply the similarity of opinion towards adverse effects of drinking caffeinated energy drinks. They have common beliefs that drinking caffeinated energy drinks is harmful to the health when taken excessively.

10. Test of Relationship between the Health Risks, Adverse Effects and the Level of Preference

Table 11. Pearson Product Moment Coefficient of Correlations to determine the relationship between health risks, adverse effects and the level of preference

Sources of Correlations between health risk effects and the level of preference		Preference 1	Preference 2	Preference 3	Preference 4	Preference 5
Effects	Pearson Correlation	-.036	.009	.103	-.060	.003
	Sig. (2-tailed)	.578	.886	.110	.358	.963
	N	241	241	241	241	241
Preference 1	Pearson Correlation	1	-.016	.079	.045	.008
	Sig. (2-tailed)		.802	.224	.489	.897
	N	241	241	241	241	241
Preference 2	Pearson Correlation	-.016	1	-.001	.172**	.187**
	Sig. (2-tailed)	.802		.987	.007	.004
	N	241	241	241	241	241
Preference 3	Pearson Correlation	.079	-.001	1	-.020	.063
	Sig. (2-tailed)	.224	.987		.759	.333
	N	241	241	241	241	241
Preference 4	Pearson Correlation	.045	.172**	-.020	1	.203**
	Sig. (2-tailed)	.489	.007	.759		.002
	N	241	241	241	241	241
Preference 5	Pearson Correlation	.008	.187**	.063	.203**	1
	Sig. (2-tailed)	.897	.004	.333	.002	
	N	241	241	241	241	241

Table 11 shows the Pearson Product Moment Coefficient of Correlations to determine the relationship between health risks, adverse effects and the level of preference. There is little correlation between the adverse effects and level of preference on drinking caffeinated energy drinks as manifested by the computed Pearson R-value of ($r=0.172^{**}$) for preferred time of drinking; ($r=0.203^{**}$) energy boost felt after drinking; ($r=0.187^{**}$) reasons for drinking caffeinated energy drinks.

Conclusions and Recommendations

Based on the summary of the investigations conducted, the researcher concluded that: majority of the respondents are female, are relatively young BEED first year student with less than a hundred pesos for daily allowance. The respondents preferred drinking caffeinated energy drink with coffee flavor preferably in the morning once a day for stress relief which only lasted for a couple of hours. The respondents “moderately agree” on perceptions towards health risks of drinking caffeinated energy drinks.

The respondents “moderately agree” on the perception towards adverse effects on health risks in drinking caffeinated energy drinks. There is a significant difference when grouped according to courses. There is no significant difference when grouped according to age, sex, course and daily allowance. There is little or weak relationship between adverse effect on drinking caffeinated drinks and the preferred time of drinking, energy boost felt and the reasons for drinking caffeinated energy drinks.

The following recommendations are hereby posited: (a) strict implementation of “Healthy Beverage Options Act of 2011” which regulates the availability of beverages to children in schools; (b) adherence to the Nutrition Label/Nutrition Facts under the yellow and green category; (c) consumption of caffeinated energy drinks should be taken into moderation, if not to be avoided, to prevent possible adverse effects of kidney problems, respiratory and other illness. Students who have been drinking for several years are encouraged to visit the doctor for thorough examination of kidney and other internal organs. Those who experience symptoms like severe palpitations, headaches, stomach upset, insomnia and muscle tremors are advised to see immediately the doctor for proper medical prescription. School canteens should avoid selling energy drinks. Schools may conduct a seminar-training program on awareness on the health risks of drinking caffeinated energy drinks as an intervention plan to help improve and develop the level of awareness of the students and a similar study in order to validate and confirm the findings obtained in the study.

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