



Drinking Patterns and Factors that Promote the Consumption of Energy Drinks in Two Suburbs of Accra

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ABSTRACT

The use of energy drinks among people in the suburbs of Accra is increasing. There are several factors that are promoting their consumption and consumers have different attitudes towards their consumption. Intense public Health advocacy and education is needed to curtail the potential public health threats that energy drinks can impose on the already stressed health care delivery system.

Introduction:

Considered as a great material for boosting performance and replenishing energy, energy drinks consumption among people of differing socio-economic status is surprisingly increasing (Saku, et al., 2020; Buxton & Hegan, 2012). Although not recognized as illicit materials, energy drinks are addictive in nature and can to a large extent affect the health of humans (Booth, Saxton, & Rodda, 2020). The continuous promotion of energy drinks on various media platforms across the country have elicited immense influence on the consumption of energy drinks by many individuals (Amevinya, et al., 2022). As was reported by The Business and Financial Times Online publication of 25th May, 2022, the use of high-class celebrities in the advertisement of energy drinks have had significant impacts on how a vast majority of people patronize alcoholic and nonalcoholic beverages in Ghana. Even though the rate of consumption is escalating and with various calls for regulating their use and sale as they are gradually becoming threats to public health (Saku, et al., 2020), new brands of energy drinks are continuously being introduced into the market by manufacturers due to a booming market (Helix Strategy, 2021).

Problem Statement

Despite the continuous increase in the consumption of energy drinks and the negative health consequences that are associated with them, scientific studies revealing the factors that promote their consumption and drinking patterns among users in Ghana are inadequate.

Study Objectives

1. To explore the drinking patterns of energy drinks among consumers.
2. To identify factors that promote the consumption of energy drinks in the suburbs of Nima and Mamobi.

Research Questions

1. What is the drinking pattern of energy drinks among the consumers?
2. What are the factors that promote the consumption of energy drinks in the population?

Literature Review

The consumption of energy drinks in recent times cut across diverse cultures, professionals and age groups (Sorkin & Coates., 2014). Young adults, athletics, military personnel, university students, secondary school students and elementary pupils all consume various brands of energy drinks (Manchester, Eshel & Marion, 2017; Lorenzi, Kovac & Koch, 2021; Rahmatullah, 2017). It has been evidenced that the need for energy enhancement, allaying fears, preventing withdrawal symptoms and suppressing appetite are significant enhancers of energy drinks consumption among college students (Luneke et al., 2022). Enhancing intellectual capacity as well as deriving pleasure is the reasons why adolescents consume energy drinks that are free of

alcohol or those mixed with alcohol (Itany et al., 2014). Without a doubt, frequent indulgence in gaming activities and excessive exposure to online marketing of energy drinks and alcohol use are factors that influence the use of energy drinks among sections of the public (Yang et al., 2022).

Most often than not, students of arts and sports disciplines habituate the use of energy drinks to stay awake, boost performance and to increase energy, especially when they participate in competitions (Attila & Cakir, 2011). For nursing students for instance, the spate of energy drinks consumption increases a week before examination and during weeks of examination to facilitate alertness, ward off sleepiness, tiredness and to enhance concentration (Kim & Kim, 2015). Some studies have indicated that the consumption of energy drinks among students is controlled by availability and family rules regarding their use (Deliens, et al., 2015).

Evidences have shown that despite the preponderant consumption of energy drinks among people, majority of them oblivious of the reality of what they are consuming and how this may affect their health (Costa, Hayley & Miller, 2014). It has been observed that when people consume energy drinks frequently, they lose interest in consuming fruits and vegetables but concentrate on consuming frozen food with a resultant effect in an increase in Body Mass Index (Poulos & Pasch, 2015). In spite of the lack of awareness and low level of knowledge about the constituent ingredients in energy drinks, records of mixing energy drinks with alcohol have been suggested to be attaining increasing trends in many settings (Kim & Kim, 2015; Manchester, Eshel & Marion, 2017; Atilla & Cakir, 2011). This has become an issue of public health importance due to the numerous health hazards associated with it (De Sanctis, et al., 2017). When alcohol is mixed with energy drinks, it promotes heavy drinking behavior (Tucker, et al., 2016). Aside the co-consumption of energy drinks and alcohol, there is a rising trend in the co-ingestion of energy drinks and illicit drugs like ecstasy (Peacock et al., 2016). Studies have found that people alternate soft drinks with energy drinks when they feel hypoglycemic and they are also seen to be used in most social gatherings like birthday parties, marriages, graduation ceremonies among others (Costa et al., 2014; Sanctis, et al., 2017). Additionally, people tend to drink more energy drinks when they have multiple sexual partners, smoke cigarette, and smoke or consume marijuana, or takes ride with a driver who drinks alcohol (Flotta, et al., 2014).

According to Alsunni and Badar (2011), a considerable number of university students in Saudi Arabia are hooked on the daily consumption of energy drinks. Although the American Food and Drug Administration issued a statement in November 17th 2010, following the discovery of premixed alcoholic energy drinks in the market “that caffeine is an unsafe food additive to alcoholic beverages” (Aria & O’Brien, 2011), scientific reports have shown that about twenty five percent of college students mix alcohol with energy drinks, and they binge-drink significantly more often than students who do not mix the two (National Center for Complementary and Integrative Health, 2018). Studies have also shown that energy drinks are the most common supplements consumed by teenagers and young adults in the United States along with multivitamins (Alsunni, 2015; National Center for Complementary and Integrative Health, 2018). Those within the age bracket of 18 - 34 constitute the vast majority of those who engage in the radical consumption of these drinks (Fontinelle, 2021). Considered as a great material for boosting performance and replenishing energy, university students who participate in sports consume a minimum of at least three to four cans of energy drinks on weakly basis (Buxton and Hagan, 2012). For same reasons, a majority of drivers also consume a minimum of between seven to ten bottles of energy drinks every week (Saku, et al., 2020). As an energy booster to a drinker, the major stimulant in most energy drinks is caffeine (Alsunni, 2015).

A study by Alsunni (2011) shows that each serving of energy drink sold in the market is made up of 80–150 mg of caffeine per 8 ounces, which is equivalent to 5 ounces of coffee or two 12-ounce cans of caffeinated soda. To further make energy drinks more acceptable to a vast majority of consumers, manufacturers enrich these products with glucose or other sweeteners to make them appealing and tasty (Alsunni, 2015; Alshar, 2017). Knowing that other members of the public do not subscribe to sugar in drinks, manufacturers have devised a means to produce energy drinks that can meet the taste of such a category of consumers (Creswell, 2023). Apart from caffeine, other energy boosters that are added by manufacturers in the production of these drinks are; taurine, methylxanthines, vitamin B, ginseng, guarana, yerba mate, acai, maltodextrin, inositol, carnitine, creatine, glucuronolactone, and ginkgo biloba (Alsunni, 2015; National Center for Complementary and Integrative Health, 2018; American College of Medical Toxicology, 2022).

In recent times, alcohol consumers have been evidenced by studies that they mix alcohol with energy drinks (Center for Disease Control and Prevention (CDC), 2022; American College of Medical Toxicology, 2022). It is believed that the ability of caffeine to mask the intoxicating and depressing effects of alcohol is the major factor that is promoting this behaviour thus far (Howland & Rohsenow, 2013). As a result, there is an increasing amount of alcohol as well as energy drink consumption among people who like drinking alcohol (Center for Disease Control and Prevention, 2022).

Being labelled as dietary supplements, energy drinks are packaged containing pure or highly concentrated caffeine that requires a consumer to carefully measure out a safe serving to prevent lethal health effects (United States Food and Drug Administration, 2018).

Research Design

Descriptive research design was used for this study. This is because the study was intended to explain the drinking patterns and factors that promote the consumption of energy drinks in Nima and Mamobi, both of which are suburbs of Accra.

Ethical Consideration

Approval was given by Texila American University to carry out this study. All subject participants were assured of their anonymity and that their confidentiality is assured. They were also informed that they can withdraw their participation at any level of the study. Written Informed Consent forms were given out to every subject participant to fill and append their signature or thumbprint. The contents of the consent forms were explained in the

language that respondents understood if they demonstrated that they cannot read and understand English language. Parents/Guardians of respondents who met the criteria to participate in the study but were below 18 years of age were given the consent forms to fill and sign on behalf of such minors after the context of the study was explained to them and without coercing the minors. Parents/Guardians as well as the minors were informed of their right to withdraw their consent and participation at any point of the study.

Inclusion and Exclusion Criteria

Respondents that were allowed to participate in this study were people between the ages of sixteen years and above who are residents of either Nima or Mamobi and have consumed at least one bottle of any brand of energy drink in the last six months before the collection of data for the study. A respondent must be able to communicate well in any of English, Ga, Twi or Hausa language. Any person who has not consumed any brand of energy drink in the past six months prior to the collection of data, below the age of eleven, non-resident of Nima or Mamobi and could not communicate in any of the languages (English, Ga, Twi and Hausa) were excluded from the study.

Sample and Sampling Technique

The sample size for this study included 384 subject respondents who consume or have consumed energy drinks within the past six months of the collection of data. The sample size was arrived at using mathematical calculation formula that has been designed for extrapolating sample size for a study from an entire population. The infinite sample size was first calculated, whose result was then used as one of the products to calculate the finite sample size which was used for this study. The sample size was arrived thus;

To calculate infinite sample size;

$$\text{Sample size} = \frac{(\text{Confidence level})^2 \times \text{Standard Deviation} \times 1 - \text{Standard Deviation}}{(\text{Margin of Error})^2}$$

$$\text{Sample size} = \frac{(95\%)^2 \times 0.5 \times 1 - 0.5}{(0.05)^2}$$

$$= \frac{(1.96)^2 \times 0.5 \times 1 - 0.5}{(0.05)^2}$$

$$= \frac{3.8416 \times 0.5 \times 1 - 0.5}{0.0025}$$

$$= \frac{0.9604}{0.0025}$$

$$\text{Infinite sample size} = 384.16$$

To calculate the finite sample size, we used the formula for adjusted sample size. Which is

$$= S / 1 + (S - 1 / \text{Population})$$

$$= 384.16 / 1 + (384.16 - 1 / 84,413)$$

$$= 384.16 / 1 + (0.00454)$$

$$= 384.2$$

So, the finite sample size is 384

Therefore, the sample for this study was 384 respondents.

The multistage cluster sampling technique to approach subjects who provided the needed data for this study. Here, a total of 192 respondents were assigned to Mamobi and same was assigned to Nima. Each of the study areas was then divided into 10 different clusters of Homes, Shops, Market, Okada Riders' Station, Lorry Parks, Motor-Mechanic Shops, Smokers' Joints, Washing Bays, Churches, Mosques, Offices and Schools. A minimum of nineteen questionnaires were administered to respondents in each of the clusters of each of the study settings.

Data Collection Instrument

Self-administered questionnaire that contains closed-ended questions and rating scales was the instrument that was used in the collection of data for this study. The data collection started from 1st June, 2023 and ended on 31st August, 2023.

Data Collection Procedure

Four research assistants who hold bachelor's degree in different fields were recruited and trained by the researcher on how to collect data from eligible respondents for the study. They were first given explanation about what the study entails and what information were of significance to the study. They then were taken through all the needed steps they have to take to ensure that they get and obtain consent from the right respondents for the study. Detailed education on the contents of the questionnaire was also ensured. This was done by taking them through the exact meanings of every question and what form of statements they can use in Twi, Ga, Hausa or English to help respondents understand the questions better. They were then engaged in a pilot study in Accra New Town to ensure that they understood what is required of them. Respondents were then approached by either the researcher or his assistants, where they identified themselves and explained the purpose of the research to them. Consent forms were given to respondents to sign and were assured of their privacy and confidentiality. They were also assured of their right to withdraw their consent and discontinue with participation at any point of the study.

Data Analysis

Microsoft Office Excel 2013 and Visual Basic for Application (VBA) were used for data entry processing of data collected. The R programming language tool was then used for data visualization and analysis.

Demographic Data

Table 1. Subject respondents age bracket.

Age	Count	Percentage (%)
11-15 years	24	6.25
16-20 years	78	20.31
21-25 years	101	26.30
26-30 years	63	16.41
31-35 years	39	10.16
36-40 years	38	9.90
41-45 years	16	4.17
46-50 years	16	4.17
51-55 years	5	1.30
60 years and above	4	1.04
Total	384	100

Table 1. gives a description of the age brackets of the participating respondents who agreed to provide answers for the research study. Of the three hundred and eighty-four subject respondents, twenty-four of them were within the age bracket of 11 – 15 years, seventy-eight of them were within the age bracket of 16 – 20 years, one hundred and one of them were within the age bracket of 21 – 25 years, sixty-three of them were within the age bracket of 26 – 30 years, thirty-nine of them were within the age bracket of 31 – 35 years, thirty eight of them were within the age bracket of 36 – 40 years, sixteen of them were within the age bracket of 41 – 45 years, sixteen of them again were within the age bracket of 46 – 50 years, five of them were within the age bracket of 51 - 55 years and only four of them were within the age bracket of 60 years and above. The mean age is 38.4± years.

Respondents Sex Distribution

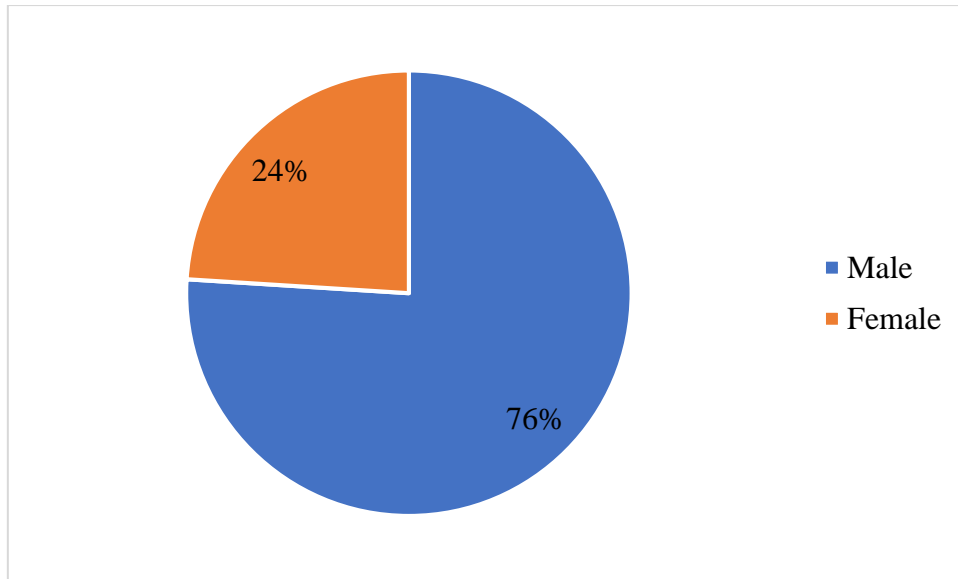


Figure 1. Sex of Respondents

The figure above (Figure 1.) above shows the percentage of male and female respondents who participated in the study. There were 76% of male respondents and 24% of female respondents. In terms of respondent sex distribution with regards to this study, the number of males clearly outweighs the number of females.

Respondents Level of Education

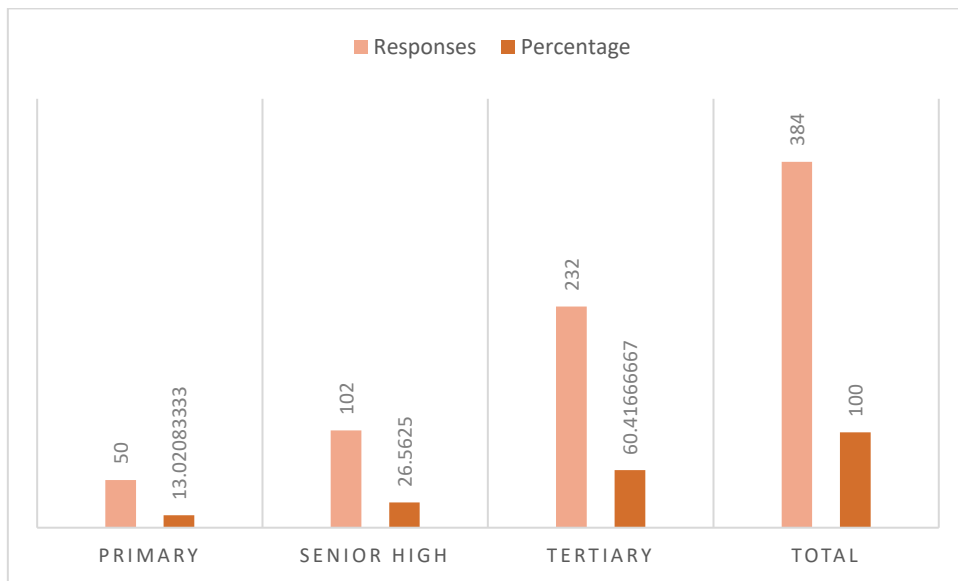


Figure 2. Respondents Level of Education

From figure 2. It is clearly indicative that there were fifty respondents whose highest educational qualification is primary education, one hundred and two of them have achieved senior high education and two hundred and thirty-two of them have achieved tertiary education. Clearly, there were more tertiary educated respondents in the study than those who with secondary education, and those with secondary education were more than those with primary education,

Employment Status

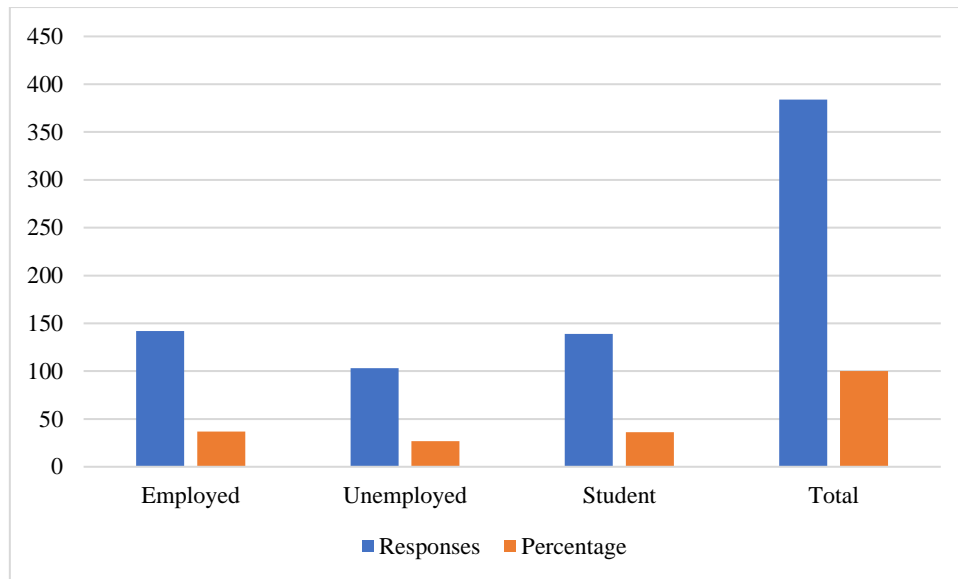


Figure 3. *Employment Status of Respondents*

Figure 3. shows that, one hundred and forty-two of the respondents who participated in the study were gainfully employed, one hundred and three of them were unemployed, and one hundred and thirty-nine of them were students.

Table 2. Motivating Factors for Energy Drink Consumption

Variable	Respondents	Percentage (%)
Nothing at all	161	41.93
Friends/peer pressure	79	23.24
Media advert	60	15.63
Curiosity	50	13.02
Media advert Curiosity	14	3.64
Friends/peer pressure Media advert	12	3.13
Curiosity Friends/peer pressure	7	1.82
Friends/peer pressure Media advert Curiosity	3	0.78
TOTAL	384	100

Table 2 above shows respondents responses about what motivated them to consume their first ever energy drink. One hundred and sixty-one of them indicated that nothing at all motivated them to consume their first ever energy drink. Seventy-nine respondents indicated that friends/peer pressure were the main driving force(s) that made them to consume their first ever energy drink. sixty respondents indicated that media adverts were the main factor that motivated them to consume their first ever energy drink. Fifty respondents indicated that curiosity was the main motivating factor that made them consume their first ever energy drink. Fourteen said that friends/peer pressure as well as media advert were the main factors that motivated them to consume energy drinks. It is also clear from the table, that 12 out of the total number of the respondents indicated that media adverts and curiosity were the main factors that motivated them to consume their first ever energy drink. Seven of the respondents indicated that curiosity and friends/peer pressure were the motivating factors that made them to consume their first ever energy drink. Finally, three respondents indicated that friends/peer pressure, media advert and curiosity were the factors that motivated them to consume their first ever energy drink. It is clear from this data that a single factor or a multiplicity of factors can influence a person to consume their first ever energy drink.

Table 3. Respondents' frequency of Energy Drinks Consumption

Frequency	Respondents	Percentage (%)
Irregular/Unusual	148	38.54
At least 1 bottle per day	135	35.16

More than 1 bottle 2 to 3 times a week	41	10.68
More than one bottle per day	32	8.33
More than 1 bottle 4 to 7 times a week	28	7.29
TOTAL	384	100

The table above (Table 3.) shows how respondents to how frequent they consumed energy drinks. One-hundred and forty-eight of them indicated that their frequency of energy drinks consumption can be described as irregular. One-hundred and thirty-five of them described their frequency of consumption as at least one (1) bottle per day, forty-one of them described their frequency level as more than 1 bottle two to three times a week, thirty-two of them described their frequency of energy drinks consumption as more than one (1) bottle per day and twenty-eight of them described their frequency of consumption as more than one (1) bottle, four (4) to seven (7) times per week.

Table 4. Respondents' reasons for consuming Energy Drinks.

Variable	Population	Percentage (%)
Only 1 reason for consuming energy drinks	245	63.80
Only two reasons for consuming energy drinks	43	11.20
Consumes energy drinks based on 3 or more reasons	65	16.93
No reason	30	7.81
No response	1	0.26
TOTAL	384	100

Table 4 shows a summary of respondents' responses about why they consume energy drinks. Response options as indicated on the questionnaire that respondents responded to as the reasons for which they consume energy drinks included, to give company to friends, to remain awake and alert, for more energy and vitality, nice taste, for better performance in driving, for better sex performance, for better performance in sports/gym, for better performance in examinations, fantasy, to quench thirst, as a favourite drink, to alleviate tiredness, to be able to dance at parties, to complete tasks, to counter hypoglycemia, to prevent dehydration and no reason at all.

Evidently from this data, it can be established that while 7.81% of the respondents consume energy drinks for no substantive reason, about 63.80% of them consume energy drinks for at least one reason. Forty-three respondents, representing 11.20% of the respondents consume energy drinks for at least, two reasons and 65 of them, representing 16.93% of the of the population of consumers in the two suburbs of Accra, consume energy drinks for at least, three or more reasons.

Table 5. Other products that consumers mix with energy drinks to achieve desired result/s

Variables	Respondents	Percentage (%)
At least one product	61	15.89
At least two products	24	6.25
At least three products	10	2.60
Four or more products	8	2.08
Nothing	281	73.17
TOTAL	384	100

Table 5 shows respondents' responses about what other substances or products they mix with energy drinks in order to achieve the results that they desire. The substances to which the respondents were to respond to in the questionnaire included, soft drinks, alcohol, cannabis, sobolo, ice kenkey, burkina, lamujin, ataya, bitter-kola, cough syrup and to tick Nothing if they don't mix energy drinks with any other substance.

A summary of the responses as shown in the table is that, 61 respondents representing 15.89% of the respondents indicated that they mix energy drinks with at least one other product, 24 of them representing 6.25% of the indicated that they mix energy drinks with at least two other products, 10 of them representing 2.60% of the respondents indicated that they mix energy drinks with at least three other products, 8 respondents representing 2.08% of the respondents indicated that they mix energy drinks with four or more other products, and 281 respondents representing 73.17% of the respondents indicated that they do not mix energy drinks with any other product and that they consume them as they buy them.

It can be seen from the table that a significant number of consumers mix energy drinks with other substances before consumption. This is considerably significant as about 26.82% indicated that they mixed the drinks with other substances like alcohol, Ataya, cough syrup, etc.

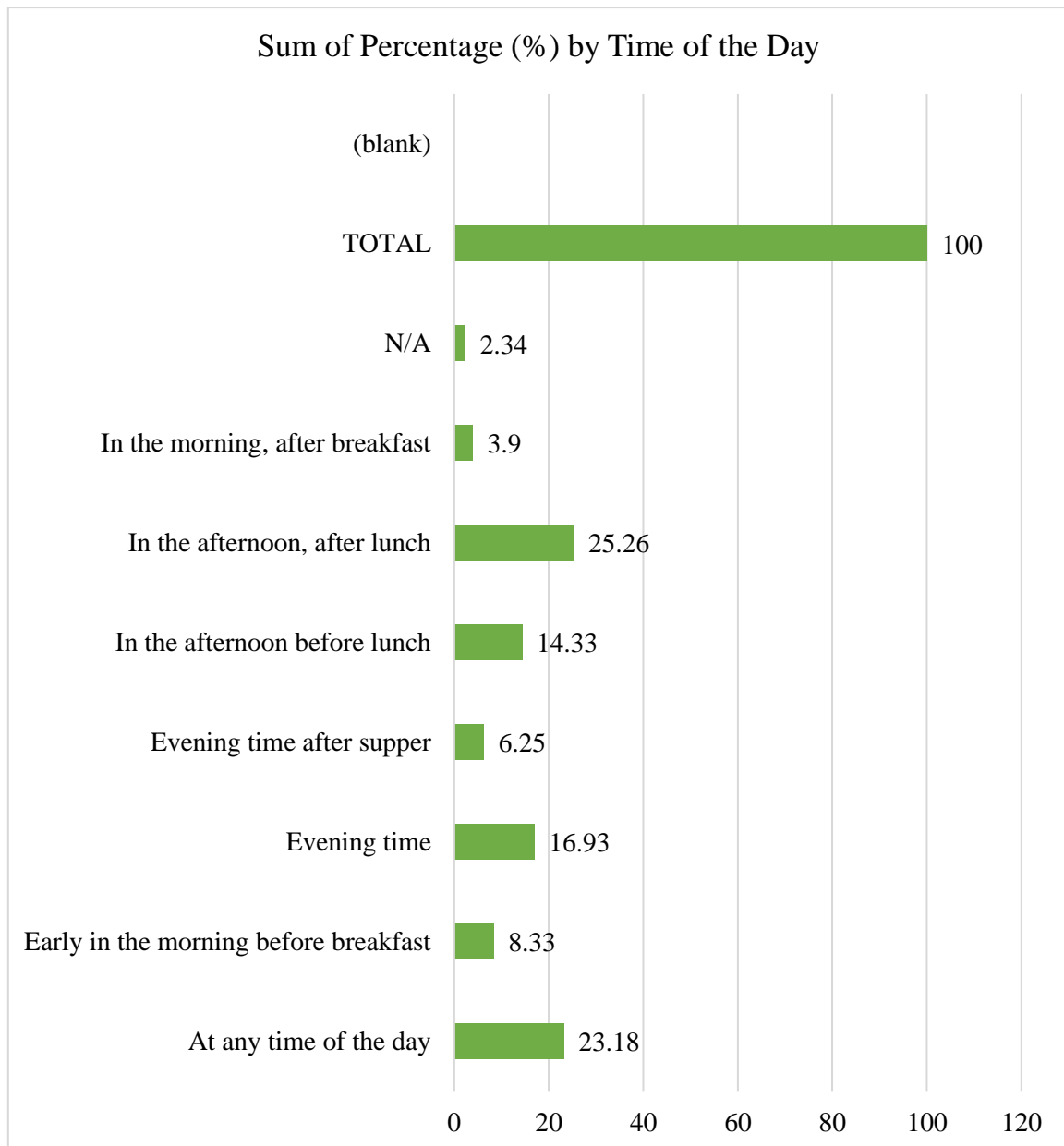
Time of the Day that consumers often consume energy drinks

Figure 4. Time of the day that Respondents usually consume energy drinks.

The chart (figure 4) above shows respondents responses about the time of the day that they usually consume energy drinks. A percentage proportion of 3.9% of the population indicated that they usually consume energy drinks in the morning after breakfast. Some 25.26% of them indicated that they usually consume energy drinks in the afternoon after they have had lunch, 14.33% of them indicated that they usually consume energy drinks in the afternoon before lunch, 6.25% of them indicated that they usually consume energy drinks at evening time after supper, 16.93% of them indicated that they mostly consume energy drinks at evening hours, 8.33% of the respondents indicated that they usually consume energy drinks early in the morning before breakfast, and 23.18% of them indicated that they consume energy drinks at any time of the day.

DISCUSSION

This study reveals that there are several factors that motivate people to consume energy drinks in the two suburbs. Even though a considerable number of them (42%) have indicated that they were not motivated by any of the factors to consume energy drinks, a large proportion (58%) of the population were influenced by one or more other factors such as peer groups, social media, media adverts on television and radio and curiosity. This result from this study is similar to the findings of Hasan, et al., (2020) who indicated that curiosity of taste, recommendation by friends, media advertisement, family influence and the appealing branding are the factors that encourage students to consume their energy drinks. Chang, et al., (2017) have also documented that curiosity among others are motivating factors for the consumption of energy drinks among populations. Since friends/peers, media adverts and curiosity

are the key motivators for first ever energy drinks consumption in the suburbs, they can as well be used to control potential consumers and enhance public awareness of the health impacts of consuming energy drinks. It is therefore not surprising that manufacturers of energy drinks use the media a great deal to promote their products. Even though some of these factors have been identified by Saku, et al., (2015) and Buxton & Hegan (2012), curiosity is a very important determinant that this study has identified which previous studies that were conducted in Ghana did not capture. It can therefore be clearly established that curiosity is also an important determinant that lures Ghanaians to try to consume energy drinks for the very first time in their lives.

The study also reveals that the amount of energy drinks consumed is individual dependent. The frequency of consumption by a majority of the population can be described as irregular. However, a significant proportion of the population consume between a minimum of one bottle every day to more than one bottle in day, 4 to 7 times every week. Buxton and Hagan (2012) indicated that sport athletes usually consume more than one bottle of energy drinks in a day for improved performance. Saku, et al., (2020) also revealed that commercial drivers consume about 7 to 10 bottles of energy drinks every week. Hafez Sr. et al., (2023) also indicated that consumers of energy drinks in Egypt consume more than one bottle every single day.

Findings from this study reveals that some consumers of energy drinks in Nima and Mamobi have habituated the mixing of energy drinks with other products like alcohol, marijuana, sobolo, lamujin and others during consumption. Similar to this finding, Azagba, Langille & Asbridge (2013); Alford, Scholey & Vester (2015); Luneke, et al., (2019), reported that there is a preponderant habit of mixing alcohol with energy drinks among consumers. Peacock et al., (2016) have also indicated that there is a growing trend of mixing energy drinks with illicit drugs like ecstasy. Captured in this study however, is the mixing of energy drinks with Cough syrups, Sobolo, Lamujin, Ataya, Bitter Kola, and Ice Kenkey by consumers which the researcher has not found been reported by any other study.

It has also been established in this study similar to other studies that consumers individually, have specific times of the day that they prefer to or are fond of consume energy drinks. While there are similarities in percentages with some times of the day, there are differences in others. For example, while this study indicates that 23.18% of consumers consume energy drinks at any time of the day, Saku, et al (2015) reported that 26.3% of bus drivers in the Ho municipality consume energy drinks at any time of the day. As this study recorded that 8.33% of the population usually consume energy drinks before breakfast, Saku, et al., (2015) reported that 6.1% consume them as first food of the day. While this study indicates that 3.9% of consumers are fond of drinking energy drinks after breakfast, Saku, et al., (2015) indicated that 4.0% of drivers consume them only after breakfast. While Saku, et al., (2015) indicated that 42.1% of drivers drink energy drinks only in the afternoon, this study found that 14.33% the population are fond of consuming energy drinks before lunch in the afternoon and 25.26% of them are fond of drinking energy drinks after lunch in the afternoon. Also, Saku, et al., (2015) reported that 21.2% of drivers drink energy drinks after supper, but this study reports that only 6.25% of the population are fond of drinking them after supper. Finally, 16.93 of the population of this study are fond of consuming energy drinks at any time in the evening. The usual time of consuming energy drinks plays a role in the risk of developing certain health complications. For example, those who usually consume energy drinks in the morning are at risk of obesity, cardiovascular diseases, gout and type 2 diabetes mellitus (Harvard T.H. Chan School of Public Health, 2024; Adamowicz & Drewa, 2011). Caffeine promotes increased hydrochloric acid secretion (Nehlig, 2022) which can worsen an already existing peptic Ulcer Disease. Those who are fond of consuming it in the evening and also after supper are at risk of poor sleeping pattern (Sanchez, et al., 2014). They might also be hooked on it to enhance their sexual performance, and this in the long-run can affect the penile nerves such that they will not be able to achieve effective erection (Adamowicz & Drewa, 2011). Persistently consuming energy drinks at any time of the day may suggest that these candidates depend on it for work performance or other daily activities, which can result in a dependency disorder (Booth, 2020; UK Rehab, 2024) for which candidates might not be able to do any significant work unless they consume energy drinks (Ivanova, 2023). This would further expose them to the risk of dependence, hypertension, Kidney failure, convulsion, hypocalcemia, metabolic acidosis and Liver disease (Breda, et al., 2014). Those who usually consume it after each meal, are at risk of obesity from increased blood glucose levels, and they would also be exceeding the recommended daily dose of caffeine which is 400mg per day (Alsunni, 2015). It has been recommended that energy drinks should only be consumed 10 – 60 minutes before starting an exercise (Harvard T.H. Chan School of Public Health, 2024). Although there is an initial promotion in energy drink for work performance, their effect begins to decline within an hour of consumption (Breda, et al., 2014)

Summary

The driving forces for energy drinks consumption in the two suburbs (Nima and Mamobi) of Accra are friends/peers, media adverts and curiosity. There are different patterns of consumption behaviour in the population, while a vast majority have an irregular consumption behaviour, a significant percentage of them consume between a minimum of one bottle every day to more than one bottle in day, 4 to 7 times every week. Similar to other studies, this study has revealed that mixing energy drinks with other materials other than alcohol, ecstasy and marijuana exist among energy drinks consumers. Consumers also have very specific times of the day that they are fond of consuming energy drinks.

Recommendations

Legislations needs to be formulated to control the sales, marketing, packaging and consumption of energy drinks to safeguard the health of consumers. The same factors that promote the consumption of energy drinks in exception of curiosity can be used as advocacy tools to enlighten and educate the public about the health effects of energy drinks to human health and well-being, as records indicate that the rate at which energy drinks are being consumed in Ghana and other countries is increasing and as such can be considered as a public health threat.

Conclusion

There is a troubling human behaviour towards energy drinks consumption in Nima and Mamobi. These range from very high volumes consumed on a weekly basis and the mixture of energy drinks with other materials including stimulants. The factors that promote energy drinks consumption live with the people and cannot be separated from them. These factors can as well be used as strategic tools to inform people about the extensive health impacts that energy drinks could have on human health.

Competing Interest

There are no competing interests.

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References

1. Adamowicz, J & Drewa, T. (2011). Is there a link between soft drinks and erectile dysfunction? *Central European Journal of Urology*. 2011; 64(3): 140 – 143. Doi: 10.5173/ceju.2011.03.art8
2. Alford, C., Scholey, A. & Vester, C. J. (2015). Energy drinks mixed with alcohol: are there any risks? *Nutrition reviews*. Vol.73, (11). Pp. 796 – 798. <https://doi.org/10.1093/nutrit/nuv036>.
3. Amevinya GS, Vandevijvere S, Kelly B, Afagbedzi SK, Aryeetey R, Adjei AP, Quarpong W, Tandoh A, Nanema S, Agyemang C, Zotor F, Laar ME, Mensah K, Laryea D, Asiki G, Holdsworth M and Laar A (2022) Advertising of unhealthy foods and beverages around primary and junior high schools in Ghana's most urbanized and populous region. *Front. Public Health* 10:917456. doi: 10.3389/fpubh.2022.917456
4. Al-Shaar, L., Vercammen, K., Lu, C., Richardson, S., Tamez, M. & Mattei, J. (2017). Health effects and public health concerns of energy drinks consumption in the United States: a mini review. *Frontiers in Public Health*. 2017; 5: 225. Doi: 10.3389/fpubh.2017.00225.
5. Attila, S., & Çakir, B. (2011). Energy-drink consumption in college students and associated factors. *Nutrition (Burbank, Los Angeles County, Calif.)*, 27(3), 316–322. <https://doi.org/10.1016/j.nut.2010.02.008>
6. Alsunni A. A. (2015). Energy Drink Consumption: Beneficial and Adverse Health Effects. *International journal of health sciences*, 9(4), 468–474.
7. Alsunni, A., A., & Badar, A., (2011). Energy drinks consumption pattern, perceived benefits and associated adverse effects amongst students of University of Dammam, Saudi Arabia. *J Ayub Med Coll Abbottabad*. 2011 Jul-Sep;23(3):3–9.
8. American College of Medical Toxicology (2022). Energy drinks. Accessed from: https://www.acmt.net/Energy_Drinks_.html . on 18/05/2022
9. Arria, M., A., & O'Brien, C., M., (2011). The “high” risk of energy drinks. *JAMA*. 2011;305(6):600-601. doi:10.1001/jama.2011.109
10. Attila, S., & Çakir, B. (2011). Energy-drink consumption in college students and associated factors. *Nutrition (Burbank, Los Angeles County, Calif.)*, 27(3), 316–322. <https://doi.org/10.1016/j.nut.2010.02.008>
11. Azagba, S., Langille, D. & Asbridge, M. (2013). The consumption of alcohol mixed with energy drinks: prevalence and key correlates among Canadian high school students. *CMAJ Open*. Doi:10.9778/cmajo.20120017.
12. Booth, N., Saxton, J., & Rodda, S., N. (2020). Estimates of caffeine use disorder, caffeine withdrawal, harm and help-seeking in New Zealand: a cross-sectional survey. *Addictive Behaviour*. doi:10.1016/j.addbeh.2020.106470.
13. Breda, J. J., Whiting, H. S., Encarnacao, R., Norberg, S., Jones, R., Reinap, M. & Jewell, J. (2014). Energy drink consumption in europe:a review of the risks, adverse health effects and policy options to respond. *Frontiers*. <https://doi.org/10.3389/fpubh.2014.00134>.
14. Buxton, C., & Hagan, J. (2012). A survey of energy drinks consumption practices among student -athletes in Ghana: lessons for developing health education intervention programmes. *Journal of the International Society of Sports Nutrition*. 2012, 9:9. <http://www.jissn.com/content/9/1/9>
15. Helix Strategy, (2021). Energy drinks market in Ghana 2021. *Helix Strategy*. Report Code:HC23384G. Accessed from: <https://strategyh.com/report/energy-drinks-market-in-ghana-2021/>. On 19/05/2022.
16. Center for Disease Control and Prevention, (2022). Alcohol and caffeine. *CDC*. Accessed from: <https://www.cdc.gov/alcohol/fact-sheets/caffeine-and-alcohol.htm>
17. Creswell, J. (2023). Energy drinks are surging. So are their caffeine levels. *The New York Times*. <https://www.nytimes.com/2023/06/09/business/prime-monster-energy-drinks-caffeine.html>. Accessed on 10/01/2024
18. Costa, B. M., Hayley, A., & Miller, P. (2014). Young adolescents' perceptions, patterns, and contexts of energy drink use. A focus group study. *Appetite*, 80, 183–189. <https://doi.org/10.1016/j.appet.2014.05.013>

19. Deliens, T., Clarys, P., De Bourdeaudhuij, I., & Deforche, B. (2015). Correlates of University Students' Soft and Energy Drink Consumption According to Gender and Residency. *Nutrients*, 7(8), 6550–6566. <https://doi.org/10.3390/nu7085298>.
20. De Sanctis, V., Soliman, N., Soliman, A. T., Elsedfy, H., Di Maio, S., El Kholy, M., & Fiscina, B. (2017). Caffeinated energy drink consumption among adolescents and potential health consequences associated with their use: a significant public health hazard. *Acta bio-medica : Atenei Parmensis*, 88(2), 222–231. <https://doi.org/10.23750/abm.v88i2.6664>
21. Flotta, D., Micò, R., Nobile, C. G., Pileggi, C., Bianco, A., & Pavia, M. (2014). Consumption of energy drinks, alcohol, and alcohol-mixed energy drinks among Italian adolescents. *Alcoholism, clinical and experimental research*, 38(6), 1654–1661. <https://doi.org/10.1111/acer.12394>
22. Fontinelle, A. (2021). The energy drinks industry. *Investopedia*. Accessed from: <https://www.investopedia.com/articles/investing/022315/energy-drinks-industry.asp>
23. Harvard T.H. Chan School of Public Health. (2024). Energy drinks. *Nutrition source*. <https://www.hsph.harvard.edu/nutritionsource/energy-drinks/>. Accessed on 06/01/2024
24. Havez Sr., H. S., Mohammed, A. N., Osman, M. A., Elrafaey, R. S., Alkhader, A. M., Ibrahim, M. A., Shalby, M. Y. & Harfoush, S. M. (2023). The era of energy drinks: consumption pattern, awareness, perception, and their adverse impact on adolescent health in Egypt. *Cureus*. Doi: 10.7759/cureus.48966.
25. Howland, J. & Rohsenow, D. (2013). Risks of Energy Drinks Mixed With Alcohol. *JAMA : the journal of the American Medical Association*. 309. 245-6. 10.1001/jama.2012.187978.
26. Ivanova, V. (2023). Energy drinks addiction signs, symptoms and treatments. *The Diamond Luxury Rehab in China*. <https://diamondrehabthailand.com/what-is-energy-drink-addiction/>. Accessed on 06/01/2024.
27. Kim, I. K., & Kim, K. M. (2015). Energy drink consumption patterns and associated factors among nursing students: a descriptive survey study. *Journal of addictions nursing*, 26(1), 24–31. <https://doi.org/10.1097/JAN.0000000000000061>
28. Luneke, C. A., Glassman, J. T., Dake, A. J., Thompson, J. A., Blavos, A. A. & Diehr, J. A. (2019). College students consumption of alcohol mixed with energy drinks. *Journal of Alcohol and Drug Education*. Vol. 63, No. 2 (August, 2019). Pp. 59 – 95.
29. Manchester, J., Eshel, I., & Marion, D. W. (2017). The Benefits and Risks of Energy Drinks in Young Adults and Military Service Members. *Military medicine*, 182(7), e1726–e1733. <https://doi.org/10.7205/MILMED-D-16-00339>.
30. National Center for Complementary and Alternative Health (2018). Energy drinks. <https://www.nccih.nih.gov/health/energy-drinks>. Accessed: 17/05/2023
31. Nehlig, A. (2022). Effects of Coffee on the gastro-intestinal tract: A narrative review and literature update. *Nutrients*. Vol. 14. Issue 2. Doi:10.3390/nu14020399.
32. Peacock, A., Sindicich, N., Dunn, M., Whittaker, E., Sutherland, R., Entwistle, G., Burns, L., & Bruno, R. (2016). Co-ingestion of energy drinks with alcohol and other substances among a sample of people who regularly use ecstasy. *Drug and alcohol review*, 35(3), 352–358. <https://doi.org/10.1111/dar.12343>
33. Poulos, N. S., & Pasch, K. E. (2015). Energy drink consumption is associated with unhealthy dietary behaviours among college youth. *Perspectives in public health*, 135(6), 316–321. <https://doi.org/10.1177/1757913914565388>
34. Rahamathulla M. P. (2017). Prevalence, side effects and awareness about energy drinks among the female university students in Saudi Arabia. *Pakistan Journal of Medical Sciences*. 33(2):347–352. doi: 10.12669/pjms.332.12084.
35. Sanchez, E. S., Martinez, C., Oriol, A., R., Yanez, D., Castaneda, B., Sanchez, E., Gelaye, B., & Williams, A. M. (2014). Sleep quality, sleep patterns and consumption of energy drinks and other caffeinated beverages among Peruvian college students. *PMC*. Doi: 10.4236/health.2013.58A2005.
36. Saku, E. Y., Nuro-Ameyaw, P., Ameyaw, P. C., Kpodo, F. M., Esua-Amofo, P., & Kortei, N. K. (2020). Energy drink: the consumption prevalence, and awareness of its potential health implications among commercial drivers in the Ho municipality of Ghana. *BMC public health*, 20(1), 1304. <https://doi.org/10.1186/s12889-020-09421-x>
37. UK Rehab. (2024). Energy drink addiction. <https://www.uk-rehab.com/addiction/energy-drinks/>. Accessed on 06/01/2024.
38. United State Food and Drug Administration, (2018). Spilling the beans: how much caffeine is too much. *FDA*. Accessed from: <https://www.fda.gov/consumers/consumer-updates/spilling-beans-how-much-caffeine-too-much>. On 19/05/2022.
39. Yang, C. Y., Chang, F. C., Rutherford, R., Chen, W. Y., Chiu, C. H., Chen, P. H., Chiang, J. T., Miao, N. F., Chuang, H. Y., & Tseng, C. C. (2022). Excessive Gaming and Online Energy-Drink Marketing Exposure Associated with Energy-Drink Consumption among Adolescents. *International journal of environmental research and public health*, 19(17), 10661. <https://doi.org/10.3390/ijerph191710661>.