



CATÓLICA
LISBON
BUSINESS & ECONOMICS

Energy drinks in Germany – a study about consumers, perceptions, drivers and barriers of consumption

Alannah Carolina Gierlach

Dissertation written under the supervision of professor Miguel Fontes Rita

Dissertation submitted in partial fulfilment of requirements for the MSc in
Management with Specialization in Strategy and Entrepreneurship, at the
Universidade Católica Portuguesa, 06/01/2022.

Acknowledgements

This dissertation represents the end of my Masters' studies at Universidade Católica Portuguesa. I consider myself fortunate to have obtained the opportunity to graduate from this renowned university and soon be entitled to hold my Master's degree of Science. I warmly thank all the people who accompanied me during my academic journey and supported me with faith and counsel.

First of all, I want to thank my supervisor Miguel Rita for his motivation and counsel throughout the entire dissertation process. Miguel supported me through my rough start and switching my dissertation topic twice. Without his continuous support, I would not have been able to finish this dissertation.

Secondly, I want to devote my special thanks to my parents and brothers, who supported me with every single choice that I made and accompanied me through my entire journey. Their motivational words and wise counsel helped me multiple times. Special acknowledgment to my older brother, Católica alumni, which footprints I followed, and my younger brother, who exemplified and motivated me to follow my entrepreneurial vein.

Besides that, I deeply want to thank my friends who always had helping advice and motivational words when I was stuck or in doubt. Thank you for believing in me throughout my entire journey and making my stay in Portugal special.

Abstract

Caffeine is the most consumed stimulant worldwide. Energy drinks are one of the multiple beverages that include a large amount of caffeine. Relatively new introduced to the market, the energy drink market has a huge growth potential within the next decade and is forecasted to grow at a CAGR of 8.2%. This dissertation aims to analyze the drivers and barriers of energy drink consumption and investigate differences in perception among age groups. This study explores different views of consumers and non-consumers and focuses on different opinions about energy drinks among age groups. To be able to analyze these aspects, qualitative and quantitative data collection was chosen to gain valuable insights into energy drink consumption. The literature part of this dissertation elaborates on the current market situation in Germany and provides an overview of the essential players. In addition, it shows a consumer profile and motives and obstacles to energy drink consumption. Primary data was collected through ten in-depth interviews and was divided into two groups: consumer and non-consumer. A survey was deducted to investigate further consumer behavior, which 333 participants filled out. This study shows that there are significant differences between consumer and non-consumer groups and significant differences in energy drink perception among age groups.

Keywords: Energy drinks; caffeine consumption; health awareness; consumer motives and obstacles, consumer behavior, differences in perception among age groups,

Resumo

A cafeína é o estimulante mais consumido em todo o mundo. As bebidas energéticas são uma das múltiplas bebidas que incluem uma grande quantidade de cafeína. Relativamente novo introduzido no mercado, o mercado das bebidas energéticas tem um enorme potencial de crescimento na próxima década e prevê-se que cresça a uma CAGR de 8,2%. Esta dissertação visa analisar os motores e as barreiras do consumo de bebidas energéticas e investigar as diferenças de percepção entre os grupos etários. Este estudo explora diferentes opiniões de consumidores e não-consumidores e foca diferentes opiniões sobre bebidas energéticas entre grupos etários. Para poder analisar estes aspectos, foi escolhida a recolha de dados qualitativos e quantitativos para obter valiosas percepções sobre o consumo de bebidas energéticas. A parte da literatura desta dissertação desenvolve sobre a situação actual do mercado na Alemanha e fornece uma visão geral dos actores essenciais. Além disso, mostra um perfil de consumidor e motivos e obstáculos ao consumo de bebidas energéticas. Os dados primários foram recolhidos através de dez entrevistas aprofundadas e foram divididos em dois grupos: consumidores e não-consumidores. Foi deduzido um inquérito para investigar o comportamento dos consumidores, que foi preenchido por 333 participantes. Este estudo mostra que existem diferenças significativas entre grupos de consumidores e não-consumidores e diferenças significativas na percepção das bebidas energéticas entre grupos etários.

Palavras-chave: Bebidas energéticas; consumo de cafeína; consciência de saúde; motivos e obstáculos do consumidor, comportamento do consumidor, diferenças na percepção entre os grupos etários,

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1. Introduction

1.1 Background

Caffeine is, without doubt, the most consumed psychoactive stimulant in the world and has been used for several decades. Natural Caffeine is found in the top two most consumed beverages, coffee and tea, and cocoa or chocolate. Various soft and energy drinks are infused with caffeine, medications, and dietary supplements (Heckman, Weil, & Gonzalez De Mejia, 2010). The high popularity of caffeinated beverages is reflected in the industry's recent development and predictions. In 2019, the Caffeine market revenue reached 23,210.0 million USD and was forecasted, with a CAGR of 7.4%, to reach 23,219 million USD in 2027 (Coherent Market Insights, 2021).

Especially in our demanding and competitive environment, in many ambits of our lives, retrieving our total capacity at any time became a standard of our expectations. These requirements affect our daily energy level and lead to sleeping deprivation, exhaustion, and exposure to stress. To counterfeit these symptoms, people consume caffeine. Studies have shown that caffeine consumption enhances mood and alertness, improves performance, and remains awake and mentally alert. Caffeine accelerates the processing speed as well as reaction time (Richards & Smith, 2015). By disabling the neurotransmitter adenosine, caffeine enhances the release of dopamine, acetylcholine, and noradrenaline and thus promotes the brain and the nervous system, leading to the benefits mentioned above. The main driver of the positive effects is the biological reward hormone dopamine, which influences and regulates motivation, movement, mood, learning, blood flow, and sleep (Ferré, 2016).

Despite coffee and tea, energy drinks are consumed as boosters. Energy drinks are non-alcoholic beverages infused with caffeine, taurine, vitamins, and other energy-boosting ingredients such as guarana. They are heavily marketed as stimulants for improving performance and increasement of energy, mainly targeting young people. Energy drinks are relatively new to the soft drink market. The first energy drink was launched in 1960 in Japan and was introduced to the European market in 1987 and further expanded in 1997 to the US. In 2006, almost 500 new energy drink brands were launched. Since introducing energy drinks, the market has experienced dynamic global growth in popularity and is considered the fastest-growing segment within the beverage market (Breda, et al., 2014).

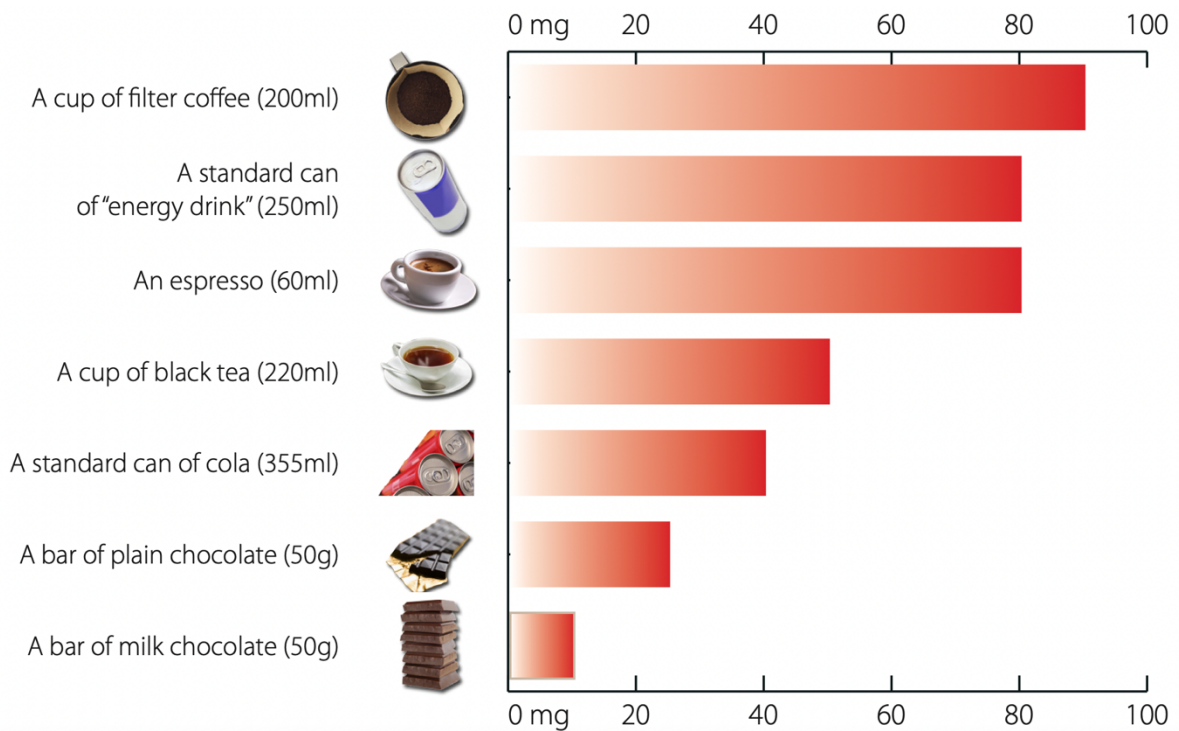


Figure 1: Caffeine content of beverages and foods (European Food Safety Authority, 2015)

The figure above shows the caffeine content of several beverages and chocolate. Noticeable is that an energy drink, on average, contains less caffeine than a cup of filter coffee. The European Food Safety Authority declares a daily caffeine intake of 400 mg for an adult and 3 mg per kg bodyweight for teenagers as harmless (European Food Safety Authority, 2015).

Energy drinks usually contain large amounts of sugar, negatively affecting health. The type of sugar used in energy drinks is mainly sucrose, glucose, or high fructose corn syrup and thus increases the risk of obesity and type 2 diabetes. Consuming caffeine with high sugar leads to high rising blood glucose levels since caffeine intake reduces insulin sensitivity (Alsunni, 2015). In addition, high sugar consumption injures body nerves and blood vessels and is linked to driving heart diseases and kidney malfunctioning (Monrad & Grasser, 2018).

The central hypothesis behind the paradoxical success of energy drinks is the benefits delivered from the consumption. Caffeine and taurine both contribute to improving mood, decreasing exhaustion, increasing alertness, and helping to think more clearly. These two active ingredients are precisely causing the desired effect. Taurine is an essential amino asset and is naturally produced in the human body and primarily found in the brain, eyes, heart, and muscles. Endorsed by many scientists, taurine is a popular supplement that improves sports performance. Taurine can be found natural or artificial in beverages and foods. In conclusion, ingredients

such as sugars, preservatives, and additives increase health risks, while caffeine and taurine are responsible for empowering and awakening results when consumed moderately (Balshaw, Bampouras, Barry, & Sparks, 2013).

Despite society demanding a high-efficiency level and top-performance mentality, personal mental and physical health awareness has become more relevant in recent years. Especially the younger generation's consciousness about health is taking more importance and is prioritized in decisions (Gautam & Jain, 2018). Daily water intake is crucial to our body and health, since the human body consists of around 60% water. Referring to a study that measures the effects of mild dehydration of women on cognitive function, dehydration of 1.36% causes fatigue, lower concentration, mood swings, and a higher frequency of headaches (Armstrong, et al., 2021). Health scientists recommend a daily water intake of 2 liters to stay hydrated for everyday body functioning. Insufficient hydration throughout the day is associated with low energy levels. Thus, covering the necessary water intake improves concentration and energy level while balancing mood swings (Armstrong & Johnson, 2018).

1.2 Objectives and research questions

This dissertation examines drivers and barriers to energy drink consumption, particularly for the German market, and focuses on energy drink consumers' demographics. Obtaining a deep understanding of consumers' needs and incentives for energy consumption will allow suggesting managerial implications for new brands to enter the market. Furthermore, this thesis also addresses differences in energy drink consumption between age groups. The dissertation strives to answer the following research questions:

RQ1: Who is the actual consumer in terms of demographics?

RQ2: What are the drivers for energy drink consumption?

RQ3: What are the barriers to energy drink consumption?

RQ4: What are the differences in energy drink perception among age groups?

2. Literature Review

2.1 Market Overview

Since the introduction of energy drinks in 1980, the global market has experienced dynamic growth in popularity and is nowadays considered the fastest-growing segment within the

beverage market. After launch, energy drinks were considered a niche product, but with explicit targeting and changing focus on fitness and health, energy drinks became a mass-market product (Intelligence, 2021). In 2006, almost 500 new energy drink brands were launched (Breda, et al., 2014). In 2020, the global energy drinks market was valued at 45.8 billion dollars and was forecasted to reach a valuation of 108.4 billion dollars by 2031, growing at a CAGR of 8.2% (Kadam & Deshmukh, 2022).

One of the key drivers of its success is the instant energy boost accompanied by mental and physical stimulation. The amino asset taurine is essential for cardiovascular function and skeleton muscle development. Due to the increasing health consciousness and lifestyle change trend toward well-being, the market is already shifting towards that health awareness and is further expected to expand. Another key driver is the rising popularity of energy drinks among teenagers and young adults (Kadam & Deshmukh, 2022). The leading players, owning a significant market share, are Monster Beverages Corporation, Red Bull, The Coca-Cola Company, and PepsiCo. This highly competitive environment makes it difficult for small and new players to enter and gain market share (Intelligence, 2021).

Existing big players are spending large expenditures on advertisement and promotion to strengthen their brand awareness. These brands are mainly targeting sports activities by signing endorsement and sponsorship contracts. Red Bull, for instance, owns several football clubs in Austria, Germany, and the United States. Being related to sportive activities promotes the public image and raises brand power in their target group and integrates them into the lifestyle. Relatively new introduced products are reflecting the ongoing health trends. Companies are developing innovative products that are low to zero in calories and functional (Intelligence, 2021).

Focusing primarily on Germany, in 2021, over 3 million people are currently consuming energy drinks weekly (Statista, 2021). Noticeable is the popularity among adolescents and young adults. A study was conducted at German schools in which 6,902 students participated. The result was that 61.7% of students consumed energy drinks every week. An additional 21.4% reported consumption of energy drinks within the last 30-days, and only 26.4% of the participants never tried an energy drink. There is a tendency for males to be more likely to consume energy drinks and older participants (Galimov, et al., 2019).

2.1.1 The German energy drink market

In a study in 2017, 815 Germany-based participants were asked which energy drink was their favorite. The most popular energy drink brand in Germany, with a significant lead, is Red Bull. 47% of all respondents claimed Red Bull as their favorite brand. They were followed by Monster Energy, Rockstar Energy, Booster, and 28 Black with a share of 10%, 8%, 4%, and 3%, respectively (Statista, 2019). The following is an overview of brands and their unique selling points in the German market.

Red Bull

Launched in 1987 in Austria, Red Bull is the most popular brand among energy drinks. Red Bull is sold mainly in 250ml and 330ml cans and is purchasable in varieties, including original Red Bull, sugar-free, zero calories, and special editions. Caffeine, taurine, vitamin B, sucrose, glucose, and carbonated water are the main ingredients used. Red Bull is continuously holding to its famous slogan, “Red Bull gives you wings”. This tagline had remarkable success and communicated its energy-boosting effects. Red Bull associated itself with extreme sports due to its numerous sponsorships of sports and action sports. These sponsorships created captivating and astonishing content engaging its target audience and helped Red Bull establish itself as the go-to drink for action sports. By executing an exceptionally strong omnipresent communication strategy. The brand was able to position the product everywhere and are mainly targeting a rebellious young audience, as well as athletes of all kinds.

Monster Beverage

Monster Beverage is a California-based company that was founded in 1985. In 1997 Monster Beverages unsuccessfully launched a drink to compete with Red Bull. Since 2002 the company has been successfully selling Monster Energy drinks and is the second-largest energy drink company. Twenty variants of Monster Energy are sold in 500ml cans. Monster varieties include Monster Energy (added sugar), Monster Energy Ultra (zero-sugar), Juiced Monster (juice-infused), and Rehab Monster (tea-infused). In addition to Monster energy, the company holds eight different brands, including Burn, Predator, and NOS. A 500ml can contains 160mg caffeine and 80mg taurine. In 2014, Coca-Cola acquired a 16.7% stake in Monster Beverage. Monster uses “Monster girls” and its “unleash the Beast” slogan to portray a rebellious and energetic experience that aims to evoke an edgy and aggressive image. Similar to Red Bulls concept, Monster advertised its brand with action sports, e-sport, and music events. In an interview, Marianne Radley, the senior vice president of Monsters marketing, said that Monster

Energy “*is a lifestyle in a can. It’s about creating an emotional connection, excitement, and energy, and living in that space.*” (Radley, 2017).

Rockstar International

In 2001, Russ Weiner founded Rockstar International. The San Francisco-based company offers 500ml cans in 30 different flavors, ranging from original to low calories to no calories energy drinks, recovery drinks, coffee-flavored drinks, and many more. In 2021 Rockstar International introduced a 250ml can to the German market. PepsiCo acquired the former privately held Rockstar International Company for a purchase price of 3.85 billion dollars. The portfolio contains classic, zero-sugar, and various flavored drinks. Rockstar is promoting itself with the slogan “Life is Your Stage” and emphasizing its target group's hustle mentality.

Booster

Booster is a private label energy drink distributed through the Edeka retail chain. Booster energy drinks belong to the low-budget segment and can be purchased at German retail stores Edeka and Netto and are sold in 330ml cans. Booster is sold in 14 different variants. The classic booster can also be purchased in a 1.5 liters bottle. The low-budget energy drink is not heavily promoting its beverages through advertisement and gains its customers by being a more affordable option to all other established brands.

28 Black

28 Black is an energy drink brand from the Luxembourgian Splendid Drinks AG. The brand was founded in 2008 and was previously sold under the name “Schwarze Dose 28” (classic energy drink) and “Weiße Dose 28” (sugar-free energy drink). In 2012, the brand changed the German wording to English and is now known and sold under 28 Black. Compared to other energy drinks, 28 Black only contains caffeine. Thus their energy drinks are not infiltrated with taurine, which differentiates the brand from all other. In addition, the brand avoids artificial colors and preservatives. In Germany, 28 Black offers eleven different variants in 250ml cans. The design is kept simple and looks classy, and gains recognition value through its black cans. 28 Black acquired market shares in the German market through its differentiation strategy and novelty of its gummy bear flavor.

The following figure shows an overview of the five brands mentioned above, including nutrition facts and price points.






Energy Drink Brands					
	Red Bull	Monster	Rockstar	Booster	28 Black
					
Can Size	250 ml	500 ml	500 ml	330 ml	250 ml
Kcal/ 100ml	45 kcal	42 kcal	60 kcal	44 kcal	49 kcal
Caffeine in mg/ 100 ml	32 mg	29mg	32mg	32mg	30mg
Taurine in mg/ 100 ml	420 mg	430 mg	410 mg	Added – but mg n/a	not added
Price per can	1,29€	1,79€	1,49€	0,79€	1,59€
Price per liter	5,16€	3,58€	2,98€	2,39€	6,36€

Figure 2: Fact overview of classic energy drinks (Source: Nutrition facts on the can)






Energy Drink Brands					
	Red Bull	Monster	Rockstar	Booster	28 Black
					
Can Size	250 ml	500 ml	500 ml	330 ml	250 ml
Kcal/ 100ml	3 kcal	2 kcal	3 kcal	2 kcal	3 kcal
Caffeine in mg/ 100 ml	32 mg	29mg	32mg	32mg	30mg
Taurine in mg/ 100 ml	420 mg	430 mg	410 mg	Added – but mg n/a	not added
Price per can	1,29€	1,79€	1,49€	0,79€	1,59€
Price per liter	5,16€	3,58€	2,98€	2,39€	6,36€

Figure 3: Fact overview of sugar-free energy drinks (Source: Nutrition facts on can)

2.1.2 Demographic Background of Consumers

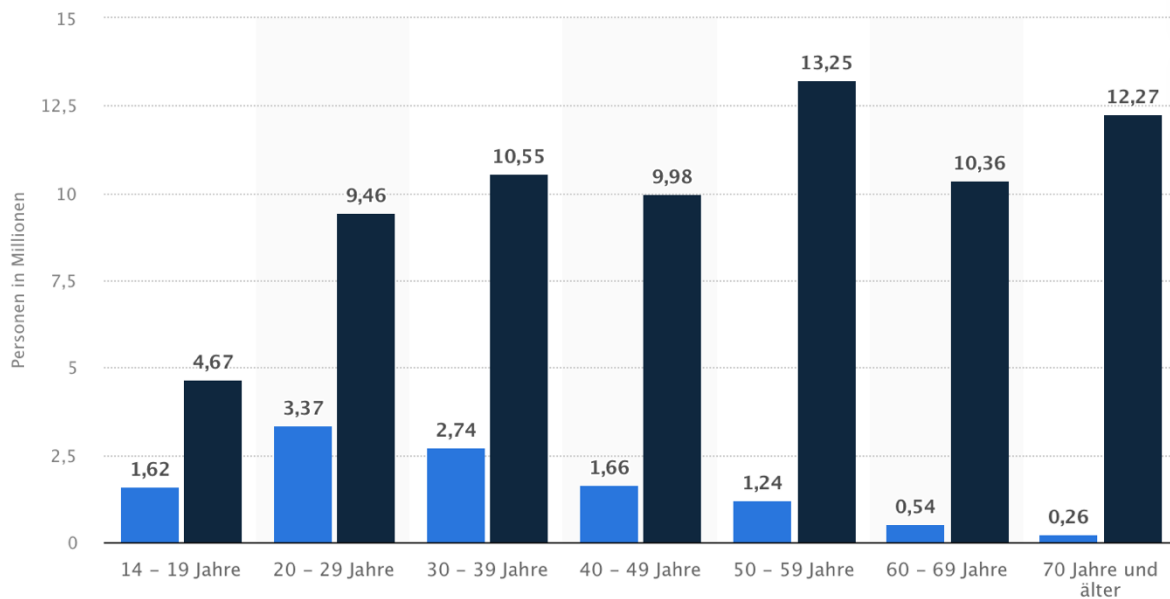


Figure 4: Consumers of energy drinks in Germany by age compared to the population (Statista, 2021)

The figure above shows the number of consumers within a specific age range in comparison to the total population in the according to age range. According to the statistic a, consumer is defined as a person who at least consumes more than one energy drink a month (Statista, 2021). To get a comprehensible picture of the demographic background of energy drink consumers, the share of the consumer to the total population of the age range was calculated.

Age range	% of total age range
14-19	34.7%
20-29	35.6%
30-39	26.0%
40-49	16.6%
50-59	9.4%
60-69	5.5%
Above 70	2.1%

Figure 5: Share of regular consumers within age ranges (Statista, 2021)

It can be observed that energy drinks are consumed mainly by 14-29 years old, in this age range, more than one third are consuming energy drinks regularly. Within the age range of 40-49 years old, still, every fourth person consumes energy drinks. In the flowing ages ranges, the percentual consumption steadily decreases.

2.2 Consumer Behavior Trends

2.2.1 Drivers

Caffeine works by inhibiting the effects of adenosine, a neurotransmitter responsible for relaxing the brain and so generating fatigue. Caffeine stimulates the central nervous system of the brain and the body, causing alertness and preventing exhaustion by increasing adrenaline release and enhancing brain activity for the neurotransmitter dopamine. Dopamine is a critical hormone in our biological reward system, governing and regulating sleep, learning, mood, motivation, movement, awareness, and blood flow, among other things (Dunwiddie & Masino, 2001) (Ferré, 2016). Taurine is an amino acid produced naturally in our bodies and is found primarily in the brain, eyes, heart, and muscles. It can also be found in beverages and food, naturally and chemically. Taurine is a popular supplement dubbed the "wonder molecule" by several scientists. It has also been found to increase human sports performance and lessen the chance of future health problems. Despite the perception that taurine is harmful, it has been proven to be exceedingly safe and has no known adverse effects when ingested in moderate amounts (Ripps & Shen, 2012) (Balshaw, Bampouras, Barry, & Sparks, 2013).

As previously stated, energy drinks contain both stimulants that aid in regulating wakefulness, fatigue, and physical performance. According to Goodhew, Perry, and Rehrer, energy drinks' reviving and awakening effects are heavily influencing their consumption. Energy drinks are either consumed as preventive to stay awake or curative to overcome tiredness and get an energy boost (Goodhew, Perry, & Rehrer, 2020).

H1: Helps to keep me awake and get an energy boost

H2: Helps to increase concentration and improve focus

Classic energy drinks have a very intense, sweet, and recognizable taste, and the range was expanded to include numerous flavors. Inconsistent statements about the taste of energy drinks can be found in the literature. Inconsistent statements about the taste of energy drinks can be found in the literature. Therefore, taste is subjective and is perceived differently by everyone. Regarding a study conducted in 2020, taste was both a key reason for energy drink consumption and a key reason for avoidance. Looking at previous research investigating barriers and drivers for energy drink consumption, it can be observed that taste is either a primary driver or the main barrier to consumption. A tendency could be observed that younger respondents are more likely to be driven by the taste of energy drinks. In comparison, older respondents indicated the need

to get stimulated and overcome fatigue (Kozirok, 2017) (Al-Islam & Faris, 2014) (Goodhew, Perry, & Rehrer, 2020).

H3a: Taste has a positive impact on consumer behavior

H3b: Taste has a negative impact on consumer behavior

H3c: Younger consumer are driven by taste

2.2.2 Barriers

Health awareness has become a significant and present aspect of human lives. The emerging health consciousness is shifting our way of thinking toward body nutrition, health, and well-being. Physical health through balanced exercise is becoming increasingly important as the consumption of selected and qualitative products. Consumer behavior has quickly adapted to healthier choices driven by the key preferences of freshness, health, and taste (Singh, Srivastava, & Prakash, 2018). During a study in 2020, consumers had to determine whether the purchase driver “healthfulness” impacts the buying decision more today than over the last ten years. Around 20% confirmed that healthfulness has much more impact nowadays than during the previous ten years. An additional 30% stated that healthfulness influences their buying decision somewhat more than in recent years (International Food Information Council, 2020). Energy drinks contain a large amount of sugar or artificial sweeteners. Consumption of high amounts of sugar comes with a higher risk of obesity and a greater risk of developing type 2 diabetes. Regular consumption of one to two cans of sugary beverages increases the risk of type 2 diabetes by 26% (Malik, et al., 2010). Soft drinks contribute about 40% of total sugar intake among adolescents and thus can lead to serious health concerns (Morgan, et al., 2021). Looking at sugar consumption in Germany, recent data shows that the recommendations are significantly exceeded. Policies promote a sugar-reduced diet to prevent adverse health influences (Ernst, et al., 2019).

In recent years, artificial sweeteners have been introduced to the market to follow the trend toward a healthy lifestyle and calories reduced diets. Artificial sweeteners are a sugar substitute. Added to either food or beverages, it duplicates the effect of sugar in taste but contains no to a few calories per serving (Tandel, 2011). Nowadays, artificial sweeteners are commonly used as substitutes in beverages and foods. The FDA classifies the following artificial sweeteners as unequivocally: saccharine, aspartame, sucralose, neotame, and stevia. In contrast, a recent study observed an increased risk of bladder cancer in humans when consumed excessively. Another study showed that consuming several servings of artificially sweetened beverages increases the

chances of coronary heart and chronic kidney disease. In addition, after consumption of aspartame, a similar rise in glucose and insulin levels compared to industrial sugar consumption was observed. In conclusion, artificial sweeteners are suitable for reducing daily total energy intake but cannot be considered a healthy alternative to sugar (Sharma, Amarnath, Thulasimani, & Ramawamy, 2016).

Looking at previous research investigation on why respondents avoid energy drinks, one main reason is that energy drinks are perceived as unhealthy (Goodhew, Perry, & Rehrer, 2020). This leads to the assumption that the amount of sugar or artificial sweeteners is a possible barrier to purchasing and consuming energy drinks.

H4: Energy drinks are perceived as unhealthy

Despite caffeine consumption's energizing and awakening effects, increased caffeine intake can also promote negative health effects. A caffeine intake of up to 400 mg caffeine a day is considered moderate and does not impact health negatively. Repeated and exceeding consumption of more than 1,000 mg of caffeine daily can lead to cardiovascular effects (Nawrot, et al., 2003). Adverse effects of caffeine have been intensively and comprehensively investigated and presented in numerous academic publications. According to this research, known undesired caffeine effects can potentially occur, including nervousness, increased anxiety, excitability, insomnia, gastrointestinal complaints, increased diuresis, respiration, body temperature, arrhythmias, tachycardia, and increased blood pressure, and reduction in myocardial blood flow. Exceeded consumption while pregnant can result in a decreased growth of the unborn fetus. (Federal Institute for Risk Assessment Germany, 2019)

Energy drinks that contain more than 150 mg of caffeine per liter include a consumption warning next to nutrition facts. Required by the German authorities, the beverage must contain the following slogan "Increased caffeine content. Not recommended for children and pregnant or lactating women". Additionally, a note about moderate consumption and the recommendation that energy drinks should not be mixed with alcohol must be printed on the can.

Health-aware consumers are committed to their well-being and aware of the risks associated with exceeded caffeine intake. According to Goodhew, Perry, and Rehrer, another key obstacle to not consuming energy drinks, is that people try to restrict their caffeine consumption in general (Goodhew, Perry, & Rehrer, 2020).

H4a: Consumers perceive caffeine as unhealthy

3. Research Methodology

Further research instruments are used to justify the research questions and provide preliminary findings on the hypotheses from the theoretical part of the thesis. Research Methodology is a process in which a topic is investigated by answering questions and problems. The literature presents a variety of methodologies and can be divided into quantitative and qualitative approaches. For the scope of this dissertation, a mixed-methods approach is used, which combines quantitative and qualitative data collection techniques and analysis approaches. This approach was chosen to mitigate the disadvantages of only using one method. (White & Rayner, 2014) By analyzing both datasets, the mixed-method approach provides a more comprehensive answer to the research questions. (Saunders, Lewis, & Thornhill, 2019) To follow the mixed-method approach, in-depth interviews are conducted. A survey is designed to collect data to explain what drives and prevents German consumers from drinking energy drinks.

3.1 In-depth Interviews

The first instance of the mixed-method approach is the qualitative data collection which can be collected through interviews or observations. In-depth interviews are individual interviews and are aimed to uncover underlying motives and aspirations regarding the research question, and primarily respondents' needs, desires, feelings, and thoughts are explored through these interviews. The observation method is a method to collect information through investigation without asking the respondent. For this dissertation, only the in-depth interviews were chosen because this approach allows an effective sample control and reformulation of questions whenever necessary to achieve a comprehensive understanding of the respondent's opinion about the consumption of energy drinks (Kothari, 2004). For this reason, non-standardized, semi-structured interviews were conducted.

The interviews were conducted one-on-one, either in person or through Zoom. With the consent of all participants, the interviews were recorded. In the context of this dissertation, ten in-depth interviews were conducted in total. People of varying ages, genders, social backgrounds, and professions were purposefully chosen to ensure that the responses were representative of socio-demographic factors. To gather a deep understanding of driving and preventing factors, five

respondents were selected who are frequent energy drink consumers. The other five respondents have at least tried an energy drink one time but have not consumed the beverages regularly.

3.2 Online Survey

The second instance of the mixed-method approach is a quantitative approach. The dissertations' primary objective is to examine consumer behavior toward energy drinks, and for this purpose, an online survey was selected. A survey is composed of a series of standardized questions to systematically gather data about people and their opinion, preferences, and behavior on a specific topic. It is a widely used research technique to explain consumer behavior (Bhattacharjee, 2012). A questionnaire was shared among a representative sample further to investigate the differences between energy drink consumers and non-consumers.

3.2.1 Sample Technique

This thesis used a non-probability sampling of volunteer samples for timesaving, cost-savings, and effectiveness reasons. Participation in this survey is voluntary, and one can choose whether to engage in the survey. However, because biases such as non-response bias may emerge, this may negatively impact the survey's representativeness. In order to conduct the online survey in a practical and efficient manner, Qualtrics was used to create and further analyze the survey. Qualtrics is a professional and commonly used data collection and analysis software that enables a timely and low-cost conduction (Saunders, Lewis, & Thornhill, 2019).

This dissertation focuses on German energy drink consumers, and thus for comprehensibility reasons, the questionnaire was translated into German, and respondents could choose the survey language between English and German. The survey was shared within my network via social media platforms to reach a broad target group. To increase the engagement and the number of participants, the survey was spread in Facebook groups with diet and beverages interests. This approach aims to target participants with a similar interest group to substantiate consumers' perceptions further.

3.2.2 Sample Size

The number of responses is crucial for deriving accurate conclusions from the collected data. The sample size represents the number of participants who finished the survey. To define the sample size, the population, the margin of error, and the level of confidence must be taken into

account (Saunders, Lewis, & Thornhill, 2019). The following formula shows the underlying calculation:

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

Figure 6: Formula for sample size calculation

Whereas,

- N=Population size
- e=margin of error
- z=z-score
- p=share of consumers

The population size is defined by the total number of people investigated. Since this thesis scope solely focuses on the German energy drink market, the German population must be considered as the population size. According to the World Bank, the German population in 2020 is 83,160,000. The margin of error indicates how accurately the survey results represent the opinion of the total population. The lower the percentage, the more accurate the response. The margin of error must be within a reasonable range and is therefore chosen at 5% for the purpose of this dissertation. The level of confidence is an indicator that reflects how confident the population is in selecting a response. The z-score indicates how far a proportion deviates from the mean. For the purpose of this thesis, a z-score of 1.96 is chosen, which is equivalent to a confidence level of 95%. According to Statista, 8,99 Million people who are living in Germany consumed at least one energy drink within the past 14 days. According to this data, the share of regular energy consumers in Germany is 10%. Calculating the sample size using the formula in the above figure, the minimum number of responses needed is 139.

3.2.3 Measurement Scale and Questionnaire Design

The survey included ten questions for consumers and non-consumers and is mainly in a multiple-choice and matrix format. The first questions are a yes or no to identify the target group, whether the participant lives in Germany. Afterward, the participants are divided into two groups: consumer and non-consumer. To gain a deep understanding of the drivers and

barriers of energy drink consumption and discover the relative importance of the respondent, ranking questions were placed in the survey. The participant must choose the three top reasons for consumption or avoidance of energy drinks (Saunders, Lewis, & Thornhill, 2019). To further collect data, opinion rating questions according to the Linkert style were used. Participants are asked to what extent they agree with the statement on a scale from 1 to 5, whereas number 3 indicates a neutral opinion (Kallus, 2016). The last part of the survey collects social demographic data of the respondents.

4. Analysis

4.1 Interviews

The conducted interviews aim to gather qualitative information about the interviewees' perspectives and opinions of energy drinks in the German market and compare this information to the findings from the literature that has been discussed. The focus group was built upon people who regularly consume energy drinks and those who have tried energy drinks but do not consume the beverage regularly. At least one-time consumption of an energy drink is essential to form an opinion and share individual perspectives.

Consumer	Age	Sex	Occupation	Location	Regular Consumer
C1	26	Male	Business Development	Hamm	Yes
C2	24	Female	Student	Stuttgart	No
C3	25	Female	Psychologist	Troisdorf	No
C4	26	Male	Public Services	Leverkusen	Yes
C5	28	Male	Mechanical Engineer	Cologne	Yes
C6	21	Male	Start-Up	Düsseldorf	No
C7	18	Male	Student	Bonn	No
C8	17	Female	Student	Bonn	Yes
C9	31	Male	IT-Consultant	Frankfurt	No
C10	30	Female	Civil Engineer	Frankfurt	Yes

Figure 7: Demographic overview of in-depth interview respondents

The figure above shows ten anonymized participants of the conducted interview. The content of the interviews includes personal information, included health-related issues, and information about the interviewees' identities. This sensitive information should be protected, and thus for the purpose of this thesis, the participants are named C1-C10. The overview presents basic

information about age, sex, occupation, and place of living and states if the person is a regular energy drink consumer or not. The interviews were conducted via Zoom or in-person and lasted an average of 20 to 25 minutes. The complete interviews, including all answers, can be found in the appendix. To identify different drivers and barriers to energy drink consumption, two different interview processes were conducted. While the regular consumers primarily identified the drivers, the non-regular consumers focused on the barriers.

What are the drivers of energy drink consumption?

Mainly, it can be said that the regular consumer focus group values the boosting and energizing effect of energy drink consumption. When asked about the expected effects of energy drink consumption, four out of five respondents stated the ability to focus better and overcome tiredness. This underlines the hypothesis that energy drinks are primarily consumed for their contained active stimulant, which causes the desired energizing effect. This thesis is supported by the fact that when asked about their favorite fact, the same four respondents named the boosting effect. Only one respondent claimed that the consumption is not driven by energizing effect but by the taste. However, C8 suffers from ADHD and said that “people with this illness are mostly not experiencing strong effects of caffeine consumption. Even with my high consumption of one to two cans of Monster Energy a day, I do not feel a rise in energy level, but rather the opposite. I often feel more tired after consuming my energy drink”.

To understand the consumers' circumstances in which energy drinks are consumed, the respondents were asked about in which situations they are consuming energy drinks. Three out of five stated that they drink energy in the office before an important task and need improved focus or before a task, they need improved concentration. C1 said that “especially during my master thesis, I consumed energy drinks to raise my energy and concentration level before writing; since I entered my professional career, I drink energy before important submissions when I am required to sit hours in front of my computer”. Respondent C4 only consumes energy drinks at the office, without exception. Two out of five are consuming energy drinks before going to the gym. C5 says, that he “only drinks before hitting the gym to become a better focus and an energy boost since I am working out after coming back from the office”. C1 only consumes energy drinks very seldom before going to the gym, only when he feels very tired.

All five responders experienced the taste of energy drinks as good to ok and valued the wide range of flavors. Four out of five respondents have tasted the various range of flavors and prefer

the flavored version over the “classic” energy taste. Three out of these four respondents mentioned Monster Energy as their favorite brand due to the biggest choice in terms of flavors and sugar-free flavored variants, while one prefers the Red Bull Editions series. Respondent C1 did not try flavored versions of energy drinks but liked the taste of the classic one. All five respondents mentioned that taste strongly influences choosing an energy drink. When being asked about the type of energy drinks consumed, all respondents answered with a specific brand. This is an indicator that consumers are loyal to a particular brand. C1 stated that his “choice of buying Red Bull is clear before entering the grocery store. I do not think about purchasing another brand than Red Bull, even though it is high priced. I am driven by the prestige and appearance of this brand.” Brand loyalty could be found as a new driver of energy drink consumption.

H5: Brand loyalty has a positive effect on energy drink consumption

What are the barriers to energy drink consumption?

All non-consumer interviewees have one common answer: The main reason why they are not consuming energy drinks is that they perceive them as unhealthy. Even three out of five regular consumers stated that they do not like the fact about energy drinks, that consumption has negative health effects, and thus trying to limit the amount. Ordinary consumers and non-consumers were asked if they think that energy drinks contain too much sugar and if they are worried about this fact. Seven out of the ten interviewees believe that energy drinks contain too much sugar and therefore affect health in a negative manner. When looking at the non-consumer, three out of five respondents generally try to avoid sugar intake. Participant C3 says that she is “already consuming hidden added sugar through her daily food” and does not want “even to increase her sugar intake through beverages.” Considering the regular consumers, all the consumer focus group respondents try to avoid or limit sugar intake. Because of this awareness, the respondents frequently or exclusively consume the sugar-free version. C5 answered that when he drinks the industrial sugar added variants, he indeed feels a fast energy boost but even a faster decline. This is due to the quick rise and fall in blood sugar levels. “When consuming the sugar-free variant, I feel a steady and slower drop in my energy level.” Respondent C10 favors sugar-free variants but does not “perceive artificial sweeteners as a healthy substitute.”

Another reason why some of the respondents perceive energy drinks as unhealthy is the amount of caffeine added. Two out of three interviewees answered that energy drinks contain too much

caffeine and thus are worried about getting a caffeine shock. The remaining three non-consumers were right about the fact that energy drinks contain less caffeine per 100ml than coffee. Looking at the energy drinks consumers, none of the respondents has the opinion that the beverage contain too much caffeine. However, four out of five respondents are limiting the number of cans. Respondent C5 experienced negative effects of caffeine consumption in the form of a more intense and faster heartbeat but said that he does not like the “unpredictability of caffeine since one day a can of Monster Energy results in a better focus and another day the same can led to increased heart rate.” One thing that all respondents have in common, regular consumers as well as non-consumers, is that there is a lack of knowledge about the amino asset taurine. None of the ten interviewees were aware of taurine's mode of action and effects. Due to the lack of knowledge and awareness, none of the respondents stated taurine as a negatively affecting ingredient.

Since taste is a subjective feeling, it can be either a driver or a barrier to energy drink consumption. Four out of five of the non-consumer focus group said that they do not like the taste of energy drinks because it is either too sweet or tastes too artificial. Another barrier to energy drink consumption is that caffeine intake, in general, is avoided. Three out of five non-consumers answered that they are not consuming any beverages containing caffeine or only very seldom.

4.2 Survey

Three hundred thirty-three participants completed the online survey, which took place between the 9th and 15th of May 2022. Since this dissertation exclusively investigates drivers and barriers of the German market, 31 answers need to be excluded from the analysis due to the fact that they do not live in Germany.

4.2.1 Sample Characterization

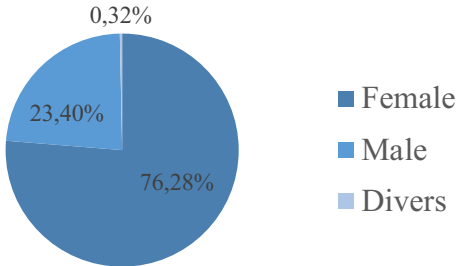


Figure 8: Pie Chart of Gender Distribution in Sample

Figure 8 above shows the ratio of genders who participated in the survey. The majority of the survey’s participants are female, which accounted for more than 75% of all participants. Under 25% of participants are male and one participant (0,32%) identified as divers.

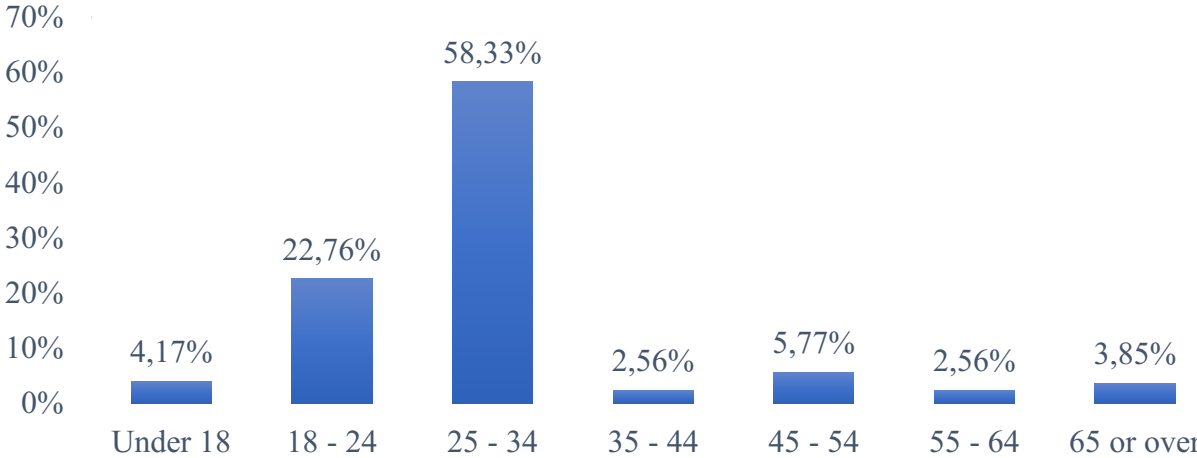


Figure 9: Age Range Distribution of Sample

Looking at the age demographic above, more than 85% of all participants are younger than 35. The biggest group who participated in the survey were interviewees between 25 and 34, which accounted for more than 55% of the survey’s participants. Only 45 participants, which amounts to around 15% of participants, indicated their age above 35.

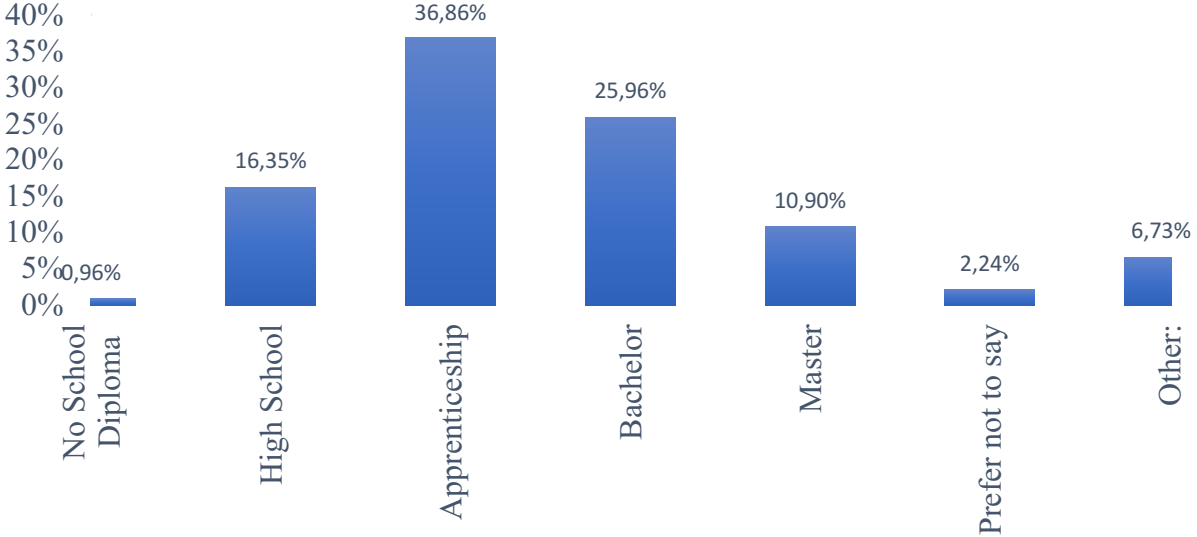


Figure 10: Education Distribution of Sample

When questioned about the highest degree achieved, 115 people answered to have finished an apprenticeship, which accounts for 36% of all participants. The second-largest group with 81 answers is interviewees with a bachelor’s degree, which amounts to over one-quarter of the total sample size. Followed by high school diploma, master’s degree, and other, with 51, 34,

and 21 answers respectively. Twenty-one participants preferred not to answer the question, and 3 participants stated to not finished any educational degree.

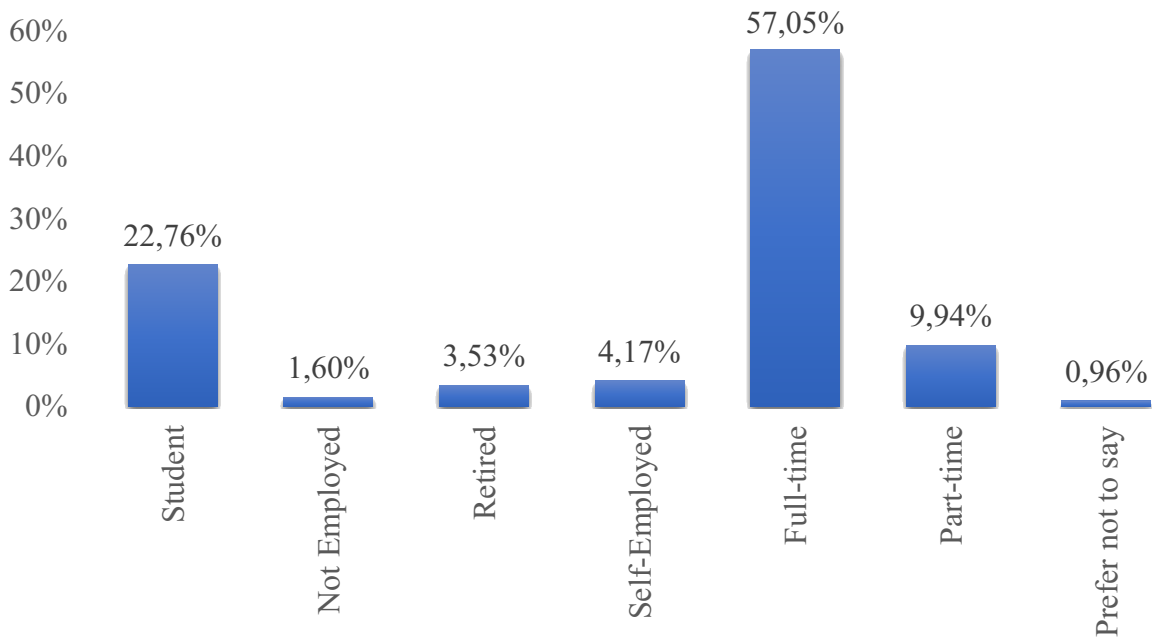


Figure 11: Occupation Distribution of Sample

When asked about participants' occupations, the largest group of 178 participants stated to be full-time employed and accounts for more than 55% of the sample group. The second largest occupation group with 71 answers is students, who account for almost 25% of the sample group. Thirty-one participants stated to be part-time employed. Other participants indicated their occupation as self-employed, retired, and currently not employed with 13, 11, and 5 answers respectively. Three participants preferred not to answer the question about their occupation.

4.2.2 Consumer Habits

To indicate a participant into consumers and non-consumers, the survey contained a question about whether they consume energy drinks. Over 70% of the sample group stated consuming energy drinks regularly (110 responses) or occasionally (110 responses). 25% of participants said that they tried energy drinks but not consume them at all, and 14 people stated they did not even try an energy drink. For the purpose of this dissertation, participants who are consuming regular or occasional are defined as consumers and participants who stated not to consume or not even tried energy drinks are defined as non-consumers.

Looking solely at the consumers, 5% of the participant consume multiple energy drinks a day. Almost 21% of all respondents consume one energy drink a day, and around 30% consume one

energy drink a week. Compared to the literature, a higher percentage of the sample group consumes energy drinks regularly. Another 18% consume energy drinks monthly, and 26% only drink four energy drinks a year or less.

4.2.3 Consumption Drivers

The group of consumers was asked to choose their top 3 reasons for energy drink consumption:

Question	No. 1 Reason	No. 2 Reason	No. 3 Reason	Total
I like the taste	65	32	42	139
As a refreshment	20	41	43	104
Get me back on track when I already feel tired	25	31	33	89
It helps me to stay awake	34	28	25	87
Increases my concentration	18	21	16	55
Quench thirst	10	21	7	38
After strenuous activities	1	8	12	21
Improves focus on a specific task	3	6	9	18
Before going to the gym or doing sports	11	3	3	17
Other:	6	1	7	14

Figure 12: Top 3 Reasons for consumption

The by far most stated reason for consumption, with 24% for driving consumption, is the taste of energy drinks. The second most mentioned reason with 104 votes is consumption as a refreshment, followed by 89 and 87 votes by getting me back on track when I already feel tired, and it helps me stay awake. Fifty-five participants mentioned consumption to increase concentration. A less significant reason with 38 votes is to quench thirst. 21, 18, and 17 votes, respectively, stated that after strenuous activities improve focus on a specific task and going to the gym or doing sports as a reason for consumption. Fourteen participants stated other reasons. By analyzing the data, it can be said that the main driver of energy drinks is taste and refreshment. At the same time, the active ingredients caffeine and taurine are subordinate motives for consumption.

4.2.4 Consumption Barriers

Question	No. 1 Reason	No. 2 Reason	No. 3 Reason	Total
Don't like the taste	21	13	21	55
Energy drinks are unhealthy	19	13	11	43

I prefer consuming coffee or tea	11	17	13	41
Because of the amount of sugar added	13	9	10	32
Containing too many artificial flavours and preservatives	2	10	14	26
Contain too much caffeine	3	4	3	10
Don't feel appealed by the brands aggressive marketing	0	2	8	10
Don't consume caffeine at all	2	3	1	6
Contain too much taurine	2	2	2	6
Other:	1	1	2	4

Figure 13: Top 3 Reasons against consumption

While taste is a top driver for consumption of the consumer group, at the same time, taste is the biggest barrier for the non-consumer group. Twenty-four percent of the non-consumer sample group stated taste as one of their top 3 reasons for not consuming energy drinks. Another obstacle to consuming energy drinks is that the beverage is perceived as unhealthy, and thus, health reason is one of the main barriers for 18% of the participants. Furthermore, another 18% of participants stated that one of their 3 top reasons is because they prefer consuming another caffeine source like coffee or tea. The statement that energy drinks contain too much sugar, artificial flavors, preservatives, caffeine, or taurine can be counted as a health reason. The ingredients caffeine and taurine play a minor role than sugar and artificial flavors and preservatives. When asked if there are any exception made, the majority answered to not make any exception and some participants stated to drink energy drinks mixed with alcohol at parties.

4.2.5 Hypothesis Validation

The Likert scale was chosen as a psychometric measure to investigate the respondents' attitudes towards specific statements and to identify different perceptions between groups. To validate these statements, the data has to be checked on validity and reliability. Cronbach's Alpha is calculated as an instrument to validate consistency among statements. The calculated Cronbach's Alpha for the 12 statements is 0.658. Statements are perceived as internal consistency with an alpha of 0.7. The sample statements show a good reliability coefficient and are thus further analyzed in this dissertation.

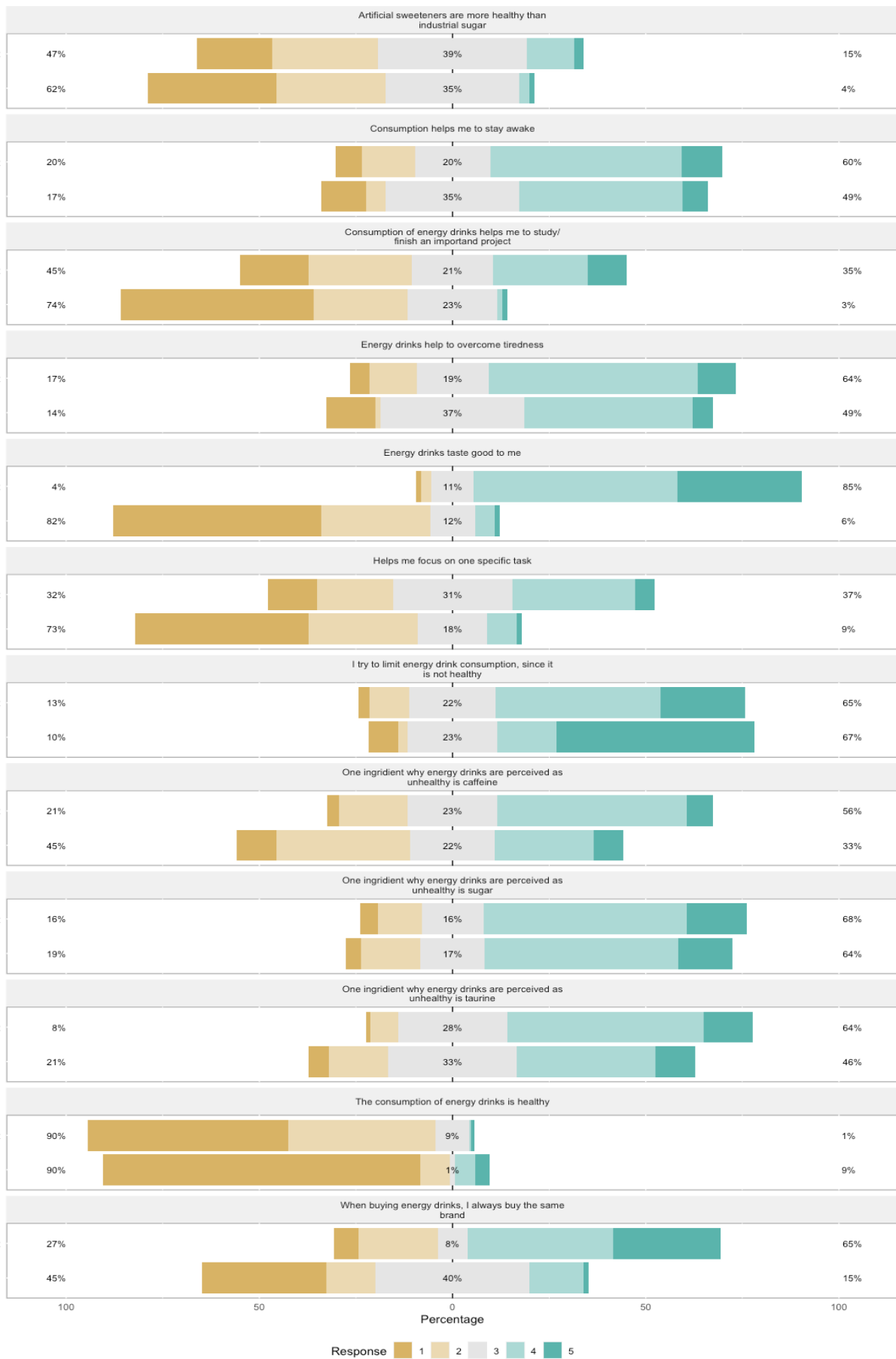


Figure 14: Likert scale answers divided by consumer group (1=non-consumer; 2=consumer)

The statements to which the participants specify to which extent they agree were chosen to further validate the hypothesis built from literature or in-depth interviews. The sample group for the purpose of the analysis is divided into consumers and non-consumers to get a deeper understanding of perception since significant differences between the groups were detected during the in-depth interviews.

H1: Helps to keep me awake and get an energy boost

To validate or reject Hypothesis 1, the statements “Consumption helps me to stay awake” and “Energy drinks help to overcome tiredness” are further inspected. 60% of consumers agree with the first statement, and 49% of non-consumers. Another 20% of consumers and 35% of non-consumers neither agree nor disagree with the statement that energy drink consumption helps to stay awake and thus have a neutral opinion about this statement. A similar picture can be observed this the second statement. 64% of consumers and 49% of non-consumers agree with this statement, while 19% of consumers and 37% of non-consumers perceive the statement as neutral. During the in-depth interview, the effects of the active ingredients, namely energizing effects, were the main driver for consumption. Based on the sample size data and resulting perceptions, the hypothesis that energy drinks help to keep awake and get an energy boost is supported.

H2: Helps to increase concentration and improve focus

To assess whether energy drinks increase concentration and improve focus, participants were asked to what extent they agree with the following two statements: “Consumption of energy drinks helps me study/ finish an important project” and “helps me focus on a specific task.” The two focus groups, consumer and non-consumer, have significantly different perceptions of the two statements. While 35% of consumers agree with the first statement, only 3% of non-consumer agree. However, there are also differences of opinion within the consumer group. 45% of consumers do not agree that energy drink consumption helps to study or finish an important project, and 74% of non-consumers disagree with the mentioned statement. Similar tendencies can be investigated in regard to the second statement. While 37% of consumers and 9% of non-consumer agree, 32% of consumers and 73% of non-consumers disagree. The results of the survey and the outcome of the in-depth interviews are biased. While the in-depth interview participants attribute the mode of action for a better focus to energy drinks, this hypothesis cannot be supported by the data of the survey. This bias may occur due to sample

size and confirms once again that a mixed approach is beneficial. In conclusion, hypothesis H2 can be rejected.

H3a: Taste has a positive impact on consumer behavior

H3b: Taste has a negative impact on consumer behavior

The literature analysis shows that taste can either be a strong driver for consumption or an obstacle. This assumption is clearly represented by the sample group of the survey. A significant difference can be detected by investigating taste in both consumer and non-consumer groups. While 85% of the consumers agree that energy drinks taste good, 82% of non-consumer reject that hypothesis. This insight is also reflected when participants were asked about the three reasons for or against energy drink consumption. In both groups, consumers and non-consumers, taste was the most often mentioned reason. A similar perception of taste was noted during the in-depth interviews and confirmed the different cognition between consumers and non-consumers again. As elaborated in this dissertation, the taste is a very subjective reception. Supported by the data, the taste is validated as a driver and a barrier to energy drink consumption.

H4: Energy drinks are perceived as unhealthy

To analyze if energy drinks are perceived as unhealthy, the survey included multiple statements about health in order to investigate further which ingredients energy drinks are perceived as unhealthy. Being asked if the consumption of energy drinks is healthy, 90% of consumers and 90% of non-consumers rejected that statement, thus both groups have the same perception in regard to the healthiness of energy drinks. The hypothesis H4 that energy drinks are perceived as unhealthy can clearly be accepted. To further investigate the reasons for the perception, the participants were asked whether sugar, caffeine, or taurine is one of the ingredients responsible for energy drinks not being healthy. Looking at the ingredient sugar, both focus groups have the same perception (68% consumer and 64% non-consumer) and agree that sugar is one of the ingredients why energy drinks are perceived as not healthy. While 56% of consumers believe that caffeine is one of the ingredients that make energy drinks not healthy, 33% of non-consumer are of that opinion. 25% of consumers do not make caffeine responsible for being unhealthy, while 45% of non-consumer have that opinion.

In conclusion, non-consumers perceive energy drinks containing caffeine as healthier than consumers. A similar perception can be detected about taurine. 64% of consumers agree that taurine is one of the ingredients, while 46% of non-consumers have that opinion. While during

the in-depth interviews, all ten participants stated that their knowledge is not sufficient to form an opinion about it, another perception is detected from the survey data.

During the in-depth interviews, several interviewees mentioned that they prefer artificial sugar substitutes over industrial sugar because they perceive it as healthier. The survey sample group does not represent this assumption. 47% of consumers and 62% of non-consumers reject the statement that artificial sweeteners are healthier than industrial, and 39% of consumers and 35% of non-consumer have a neutral opinion about the statement. In conclusion, among consumers and non-consumers, energy drinks are perceived as not healthy, with a tendency for consumers to perceive the two active ingredients, caffeine, and taurine, as more harmful than non-consumers.

H5: Brand loyalty has a positive effect on energy drink consumption

Looking at the scale of agreement of the statement “When buying energy drinks, I always buy the same brand,” 65% of consumers confirmed repeatedly buying the same brand, while 27% of consumers refused to stick to brands. This statement can also be underlaid with the in-depth interview responses. When asked what kind of energy drinks the interviewee is consuming, a certain brand was mentioned. One of the interviewees stated that his buying decision for the brand Red Bull is clear before entering the grocery store. Since the non-consumer group rarely or never buys energy drinks, the significance of this group is limited. The hypothesis that brand loyalty has a positive effect on energy drink consumption can be accepted.

4.2.6 Age Group Analysis

What are the differences in consumer behavior regarding energy drinks perception among age groups?

Previously this dissertation stated that the consumption of energy drinks among younger people is higher than among older people. To examine the differences in consumer behavior, the focus groups were divided into age subsets. In the first instance, a one-sided ANOVA test was performed at a significance level of 5% to examine if there is a significant difference in energy drink perception among age group subsets.

Statement	Age Group Subset								SS	MS	F-value	P-value
	Under				65 or older							
	18	18-24	25-34	35-44	45-54	55-64	65 or older	65 or older				
Energy drinks taste good to me	3,46	3,66	3,56	3,25	2,22	2,88	1,67	73,01	12,17	7,05	0,000	
The consumption of energy drinks is healthy	1,69	1,44	1,58	1,75	1,39	1,75	1,55	2,41	0,40	0,59	0,742	
Energy drinks help to overcome tiredness	3,77	3,42	3,46	3,50	3,44	3,63	2,08	23,73	3,96	3,92	0,001	
Consumption helps me to stay awake	3,54	3,39	3,38	3,38	3,50	3,38	2,25	15,74	2,62	2,31	0,034	
Artificial sweeteners are more healthy than industrial sugar	2,54	2,44	2,40	2,00	1,94	2,50	2,00	6,99	1,16	1,13	0,347	
Helps me focus on one specific task	2,62	2,87	2,66	2,50	2,17	3,13	2,25	11,56	1,93	1,41	0,209	
One ingredient why energy drinks are perceived as unhealthy is sugar	4,15	3,77	3,55	3,88	3,67	2,63	2,83	21,93	3,65	3,49	0,002	
One ingredient why energy drinks are perceived as unhealthy is caffeine	3,77	3,32	3,25	3,38	2,67	3,13	3,08	10,60	1,77	1,66	0,129	
One ingredient why energy drinks are perceived as unhealthy is taurine	3,46	3,76	3,58	3,50	3,06	3,50	3,50	7,63	1,27	1,63	0,139	
Consumption of energy drinks helps me to study/ finish an important project	2,62	2,66	2,53	2,00	2,17	2,63	2,08	8,36	1,39	0,89	0,505	
When buying energy drinks, I always buy the same brand	3,85	3,32	3,34	3,00	2,89	2,38	2,00	34,22	5,70	3,39	0,003	
I try to limit energy drink consumption, since it is not healthy	4,00	3,69	3,77	4,38	3,78	3,50	3,83	4,70	0,78	0,67	0,676	

Figure 15: Differences in energy drink perception divided into age groups; one-sided ANOVA

To determine whether the perception of a statement between the different age groups is statistically significant, the p-value has to be compared to the set significance level of 5%. A lower or equal p-value was calculated for the statements, and the null hypothesis had to be rejected, meaning a significant difference in the statements' perception between groups was detected. For calculated p-values greater than the 5% significance level, the null hypothesis is not rejected, thus, there is no difference in perception between groups.

Looking at figure 15, the null hypothesis for the following statements has to be rejected: Energy drinks taste good to me, energy drinks help me to overcome tiredness, and consumption helps me to stay awake. One ingredient why energy drinks are perceived as unhealthy is sugar when buying the beverage, I always buy the same brand.

When asked about whether the consumption is healthy, it can be validated that participants of all age groups perceive energy drinks as unhealthy, represented by the means between 1,39 and 1,75. The same picture appears for the statement to limit energy drink consumption since it is not healthy. The means reach between 3,83 and 4,38 and indicate that participants among all age groups limit consumption since energy drinks are not healthy. While the different age groups have a similar opinion on caffeine and taurine and perceive these two ingredients' as rather unhealthy, a significant difference in the ingredient sugar can be detected. While under 18 years old with a mean of 4,15 strongly believe that sugar is one of the ingredients why energy drinks are perceived as unhealthy, the respondents mean for the age of 55-64 is 2,63 and over 65 years old is 2,83. These values indicate that the older generation perceives sugar as less harmful than the younger generation. Considering artificial sweeteners as a healthier alternative to industrial sweeteners, it can be assumed that among all age groups, artificial sweeteners are

perceived as less healthy or equally harmful as industrial sugars, which can be observed by the mean range of 1,94 and 2,54.

Looking at the rating of taste of energy drinks, a tendency can be observed that with increasing age, the opinion about the taste of energy drinks decreases. While the mean for the statement that energy drinks taste good is between 3,25 and 3,66 for under 18 until 44 years old, the mean for from 45 onwards is between 1,67 and 2,22. As previously mentioned in this dissertation stated, taste is an intensely subjective perception and can be either a driver or barrier. For participants younger than 45, the taste can be observed rather than a driver, while taste may be more of an obstacle for participants 45 or older. The hypothesis H3c that younger consumers are driven by taste can be accepted.

Investigating the hypotheses if consumption of energy drinks helps to keep the consumer awake and get an energy boost, a closer look at the statement's "energy drinks helps me to overcome tiredness" and "consumption helps me to stay awake" is taken. A significant difference between the age groups is detected for both statements since the calculated p-values are 0,001 and 0,034, respectively. While participants' perception until the age of 64 is approximately around the same mean (3,42-3,77), and thus it can be assumed that energy drinks keep consumers awake and get an extra energy boost from consumption, the mean of those over 65 years old is 2,08. It can be observed that this age group rejects the boosting effects of energy drink consumption.

Considering the hypotheses that energy drink consumption helps to increase concentration and improve focus, the statements "help me focus on one specific task" and "consumption of energy drinks helps me to study/ finish an important project" are analyzed in more detail. With p-values of 0,209 and 0,505, there is no significant difference between the age groups detected. Based on the mean values ranging from 2,00 to 3,13, it can be assumed that increasing concentration and improved focus are not driving energy drink consumption.

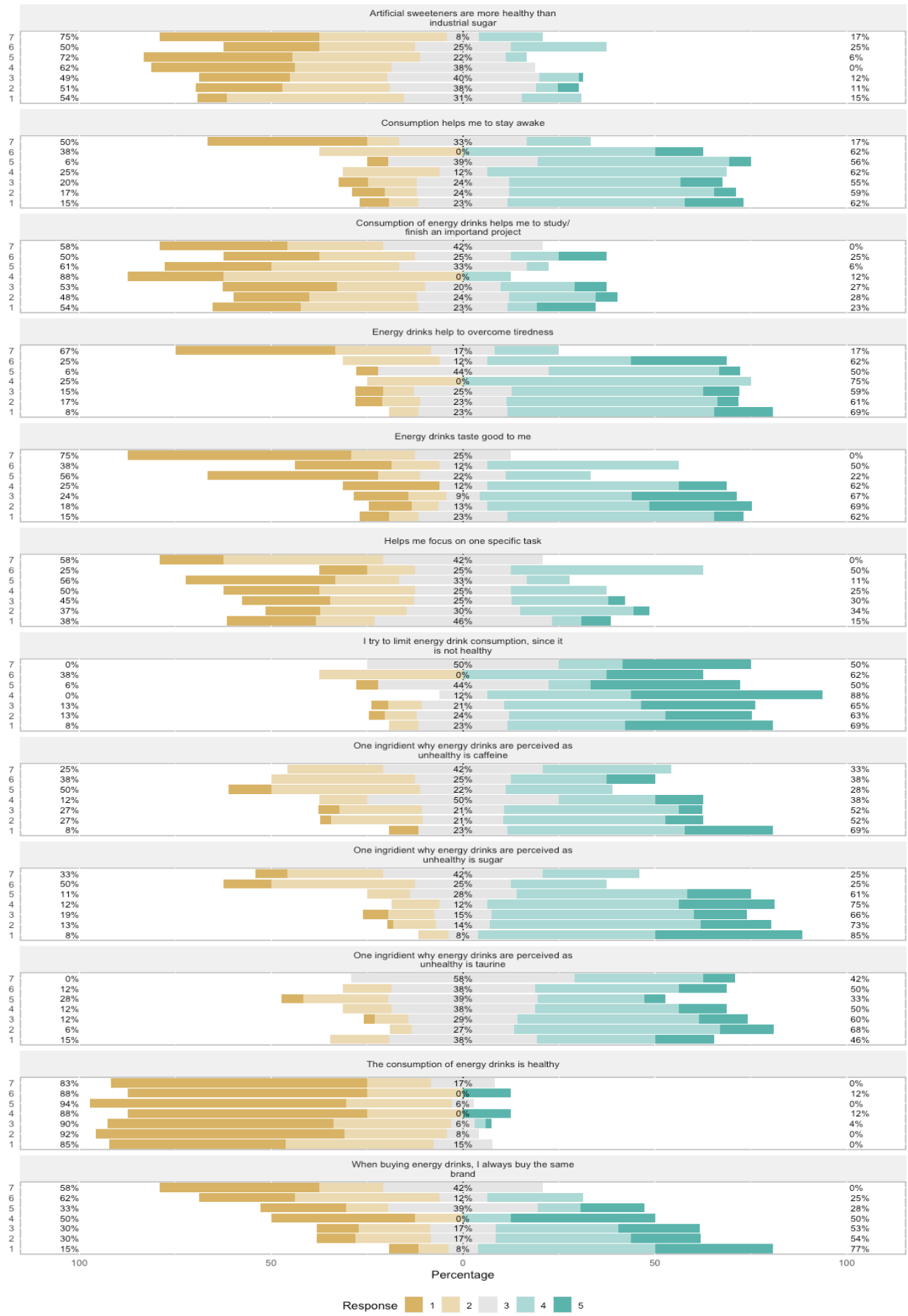


Figure 16: Likert scale answers divided by age group (1= <18; 2=18-24; 3=25-34; 4=35-44; 5=45-54, 6=55-64, 7= >65)

Regarding brand loyalty among age groups, with a p-value of 0,003, a significant difference can be detected. While under 18 years old (M=3,85) have strong brand loyalty and repeatably buy the same brand, the brand loyalty decreases with age (over 65 M= 2,00). Looking at the visualized Likert-scale answers divided among age groups, the above-analyzed participants' perception is also reflected in figure 16. The most significant shift visually can be detected in the statement, "When buying energy drinks, I always buy the same brand." Brand loyalty to a particular brand decreases with increasing age. While 77% of the under 18 age group confirm that they stick to buying a particular brand, none of the respondents above 65 stated to buy a specific brand continuously. In the age range of 18-24, 25-34, and 35-44, 54%, 53%, and 50%, respectively, declared brand loyalty. Looking at the figure, the graphs shifts from strongly agree to disagree strongly, brand loyalty is highly influencing the buying decision.

5. Managerial Implications for Emerging New Brands

The energy market is a relatively new emerging market and is expected to grow at a CAGR of 8.2%, which a few major players dominate. This highly competitive environment sets substantial entry barriers for a new brand to enter the market and gain a significant market share. The key to a new brand's successful go-to-market strategies relies on a deep understanding of the customer's needs and perceptions. This dissertation provides customer behavior insights to elaborate and design a market-entry strategy. Especially nowadays, where new products are introduced daily into the market, differentiation is the key to standing out.

Taste and refreshment are the driving factors for energy drink consumption and influence consumption even more than the awakening effect of the two active ingredients, caffeine, and taurine. New brands can introduce new flavors to attract new consumers to gain a significant share in the energy drink market. A best practice example is the brand 28 Black, which introduces a sort of energy drink that taste like gummi bears. This new and innovative taste has allowed the brand to differentiate and stand out from other brands since they were the only brand providing this specific taste, resulting in a market share gain.

As elaborated in this dissertation, brand loyalty strongly influences the buying decision among the younger generation. Once the young target group has found "its" brand, it will buy a particular brand repeatedly. Established brands built an extreme lifestyle around their brand by heavily and aggressively marketing in sports and extreme sports. Especially younger

generations are appealed by the extreme lifestyle they can identify with. A possible approach is to target young people beginning with energy drink consumption. A new brand's approach should be all about creating a lifestyle and emotionally engaging and connecting with the consumer to bind them to the brand in the long term. A starting point could be a niche sport where the brand establishes the new drink and grows further by adapting to more niche sports and slowly growing into the “mainstream” sports.

Energy drinks are perceived as unhealthy among consumers as well as non-consumers. Another differentiation opportunity for new brands is to introduce a healthier alternative into the market. However, the requirements are high, thus newly introduced energy drinks should not be inferior to existing flavors. One way to distinguish a new brand is to avoid industrial sugar and draw both sweetness and flavor only from natural resources. Since the two active ingredients, caffeine, and taurine, are perceived as not healthy as well, another healthier but still effectful substitute could be used. Introducing a “clean” and natural energy drink heavily emphasizes this fact in their marketing strategy. Red Bull and Monster Energy as well are driving awareness with vehicle advertisements. While Red Bull is known for its Mini Cooper, Monster Energy uses its Monster Truck for marketing purposes. A new “clean” energy drink brand could adapt and drive awareness with clean energy vehicles like Tesla.

To summarize, every managerial decision should be based on listening and learning from the target group. Strong emphasis should be placed on the fact that taste mainly drives energy drink consumption even more than the energizing ingredients and effects. A deep understanding of the customer is fundamental and targets them with the appropriate tailored message. Brands should aim to stand for a lifestyle and target and thus bind the consumer emotionally.

6 Conclusion

This dissertation aims to explore the German consumer regarding perceptions and consumption intentions toward energy drinks and further observe the following research questions: 1. Who is the consumer? 2. What are the drivers of consumption? 3. What are the barriers to consumption? and 4. What are the differences in energy drink perception among age groups?

A mixed-method approach was used to analyze consumer behavior toward energy drinks. The literature review presented motivations and barriers to the consumption of energy drinks. Through the ten qualitative interviews, a deeper understanding of the literature review

addressed hypothesis could be gathered. Furthermore, additional hypotheses could be built on the fundamental of these interviews. By choosing the quantitative approach, the existing and new hypotheses were tested on a bigger scale.

As elaborated in this thesis, consumers and non-consumers differentiate in energy drink perception. However, both groups agree clearly on one aspect: health. Both groups are firmly convinced that the consumption of energy is not healthy. Looking at the ingredient sugar, both groups perceive sugar as similarly harmful. After the active ingredients' caffeine and taurine, the consumer group is convinced that these ingredients are more harmful than the non-consumer group, which is biased since the consumer group consumes the drinks regardless of the fact of their unhealthiness. The study confirms that taste is either a strong driver or a solid barrier to the consumption of energy drinks. Surprisingly, the taste influences the consumption decision even more than the energizing ingredients, which define energy drinks. Energy drinks have a subordinate role in the consumption decision but still, play a vital role.

Regarding differences between age groups, the most striking difference was detected in brand loyalty, while the older generation does not repeatedly buy the same energy drink brands, the younger generation is very loyal to brands. This emphasizes that binding consumer emotional to the brand and associated lifestyle must be attributed even more importance since young consumers have a long life expectancy and will continue to be eligible as consumers for decades to come.

To conclude, management implication was advised on the fundamental of this thesis' findings on how new brands can prevail in the highly competitive environment and overcome entry barriers. As a go-to-market strategy, a differentiating strategy in either taste or healthiness is recommended to build a solid representing lifestyle brand.

Appendix

Interview Questions:

Introduction: Name, Sex, Age, Living Place, Profession

Topic 1: Opening Questions (for all)

1. Have you ever tried an energy drink? If yes, how many times?

Topic 2A: Energy Drink Consumption Questions (for consumers)

1. What type of energy drinks do you consume the most? (Brand, sugar/artificial, taste, format size)
2. Do you consume a specific brand (e.g., Monster) because of the brand's bottle size, price, and appeal?
3. Which effects do you expect from drinking energy drinks?
4. In which situations do you consume energy drinks?
5. What is your experience in terms of taste?
6. What is your favorite thing about consuming energy drinks?
7. If traditional energy were banned, what would be your alternative energy boost?
8. Is there anything you dislike about consuming energy drinks?
9. Are you concerned about the potential health problems derived from consuming energy drinks?
 - 9a. Do you think energy drinks contain too much sugar? Why are you worried about this?
 - 9b. Do you think energy drinks contain too much caffeine? Why are you worried about this?
 - 9c. Do you think energy drinks contain too much taurine? Why are your worries about this?

Topic 2B: Energy Drink Avoidance Questions (for non-consumers)

1. For which reasons are you not consuming energy drinks?
2. Are there any ingredients contained in energy drinks that you try to avoid?
 - 2a. Do you think energy drinks contain too much sugar? Why are you worried about this?
 - 2b. Do you think energy drinks contain too much caffeine? Why are you worried about this?
 - 2c. Do you think energy drinks contain too much taurine? Why are you worried about this?

3. The energy drink brands?
4. Is there any situation where you make the exception and consume energy drinks?
5. Do you regret making exceptions and consuming energy drinks? If yes, why? If not, why? (Only ask when exceptions are made)
6. Do you consume any other caffeine-containing beverages? If yes, which one? If not, why not?
7. Do you consume other stimulants to boost energy or concentration?

In-depth Interview Questions:

Question	Answer
Have you ever tried an energy drink? If yes, how many times?	<p>C1: Yes, the last one was consumed last week. Consuming seldom every 2 months</p> <p>C2: Yes tried, but consumption can be counted on one hand.</p> <p>C3: Yes, at a club I drank Vodka-Energy</p> <p>C4: Yes regular, at least once a week</p> <p>C5: Yes 1-2 times a week constantly over the last few months</p> <p>C6: Yes, but ages ago. Consumed when in 7-10th grade, so more than 10 years ago</p> <p>C7: Yes, did not like it since it only tasted like sugar.</p> <p>C8: Yes, a lot 1-3 cans a day</p> <p>C9: Yes, but not consuming regular maybe once in a quartal</p> <p>C10: Yes, regular but more in summer than winter</p>

Consumer Group Interview Questions:

Question	Answer
What type of energy drinks do you consume the most? (Brand, sugar/artificial, taste, format size)	<p>C1: Always Red Bull either classic or sugar-free in 330ml bottle</p> <p>C4: Monster Energy Zero in 0.5-liter cans. Always sugar-free because sugar-containing energy drinks are causing heartburn.</p> <p>C5: Priority is total caffeine contained. Is looking for an intake of 250mg of caffeine, try not to exceed it, but it does not matter if the amount is contained in 500ml or 330ml. Avoiding “classic” taste prefers added flavors: Favorite flavor: Monster Energy Zero White Can</p> <p>C8: Always Monster Energy sugar-free. Prefers the flavored series over “classic” energy taste.</p> <p>C10: Red Bull “Edition” cocos-blueberry is my go-to drink.</p>
Do you consume a specific brand (e.g., Monster) because of the bottle size, price,	<p>C1: Mainly because of the taste and prestige of the brand. Don’t think about other brands even though their higher prices</p> <p>C4: Tried lots of varieties in brands and tastes, and Monster Energy, in his opinion, is the best. Consumes variants with added flavors, “classic” tastes too artificial</p>

<p>and appeal of the brand?</p>	<p>C5: Sugar-free is prerequisite, afterwards the taste since all Monster cans contain the same amount of caffeine.</p> <p>C8: Attracted to the brand appearance, biggest choice in terms of flavors and biggest serving size</p> <p>C10: Editions from Red Bull taste like refreshing juices with a little touch of energy. Taste and refreshment is most important.</p>
<p>Which effects do you expect from drinking energy drinks?</p>	<p>C1: Avoiding getting tired, be able to focus on one specific taste, and increased energy drink</p> <p>C4: Increased concentration, overcome tiredness, especially in the office where is a lack of movement</p> <p>C5: Short-term performance improvement in sports, concentration, and better focus.</p> <p>C8: None – consuming because of the taste. Suffering from ASHS, so caffeine does not have any awakening and pushing effects</p> <p>C10: Awakening effect and also raise in mood.</p>
<p>In which situations do you consume energy drinks?</p>	<p>C1: To raise energy and concentration for writing master thesis or before important submission, when sitting hours in front of the computer. Exceptionally before going to the gym.</p> <p>C4: Solely at the office to improve concentration and overcome tiredness</p> <p>C5: Only before sports. Theoretically, I would also consume it at work, but I get coffee for free and since I am already consuming it before sports, I am kind of avoiding it at the office because I do not want to overconsume</p> <p>C8: Not a specific situation, is more a go-to drink</p> <p>C10: To treat myself, it is something I look forward to. Comparable with a piece of chocolate or eating ice-cream. Looking forwards to driving long distance, since it is a reason to consume energy. Seldom at work, also as a treat with awakening side effects.</p>

<p>What is your experience in terms of taste?</p>	<p>C1: Taste is good but thinks that other brands than Red Bull might taste better.</p> <p>C4: Taste is ok, but never craving for an energy drink</p> <p>C5: I like the taste, especially Monster Energy Zero the white can.</p> <p>C8: Taste is the most important aspect and likes the taste.</p> <p>C10: Taste is good, especially cocos-blueberry.</p>
<p>What is your favorite thing about consuming energy drinks?</p>	<p>C1: Ability of better focus and raised energy level</p> <p>C4: The effect of better concentration and overcoming tiredness</p> <p>C5: Improves Focus and taste</p> <p>C8: Taste</p> <p>C10: Refreshing beverage with the same effects as coffee.</p>
<p>If traditional energy were banned, what would be your alternative energy boost?</p>	<p>C1: Not sure, would not drink coffee. Would follow a balanced nutrition diet and avoid lots of carbs to prevent an insulin down</p> <p>C4: Caffeine consumption would decrease and maybe I would switch to black tea, since I don't like coffee at all.</p> <p>C5: Caffeine pills</p> <p>C8: Another soft drink that taste good</p> <p>C10: Coffee</p>
<p>Is there anything you dislike about consuming energy drinks?</p>	<p>C1: Price of Red Bull, even tough choice of brand Red Bull is clear, and taste could be optimized especially of the sugar-free version</p> <p>C4: Taste is very sweet and chemical</p> <p>C5: Unpredictability of caffeine: Sometimes feeling of overconsumption. Sometimes after consumption of same caffeine amount, I feel energized sometimes I feel a more intense and faster heartbeat.</p> <p>C8: Nothing, apart from new tastes that I don't like</p> <p>C10: Extremely unhealthy, full with chemicals and artificial ingredients</p>
<p>Are you concerned about the potential health problems derived from</p>	<p>C1: Aware of the negative influences when consumed extremely but his consumption is very moderate, so he is not worries about his personal health.</p>

<p>consuming energy drinks?</p>	<p>C4: Not worried since consumption is not regular and not excessive</p> <p>C5: Yes, concerned. Felt more intense and faster heartbeat. Try to limit consumption</p> <p>C8: Aware of health problems that energy drink consumption might cause, but not worried for myself since I did not experienced any negative effect.</p> <p>C10: Yes, reason for limited reduction. A lot of artificial flavors added. If energy drinks were healthy, consumption would increase a lot.</p>
<p>Do you think energy drinks contain too much sugar? Why are you worried about this?</p>	<p>C1: Only consuming 330ml bottles, do not worried about containing too much sugar but is also consuming sugar-free version when balancing diet to not unnecessary drive sugar intake.</p> <p>C4: Yes, containing lots of sugar also reason for consumption of sugar-free variants</p> <p>C5: Yes, consumption of huge sugar amounts is not health beneficial. Consuming industrial sugar leads to fast boost but even faster decline of energy level. When consuming sugar-free I have the feeling that the decline is slower than after consumption of sugar containing energy drinks.</p> <p>C8: Depends on brand. Only consumes sugar-free variants because suffering from diabetes.</p> <p>C10: Yes, contain lots of sugar. Trying to consume sugar-free but also not perceiving this substitute as healthy alternative. Does not know what is more harmful.</p>
<p>Do you think energy drinks contain too much caffeine? Why are you worried about this?</p>	<p>C1: No not at all, energy drinks containing less caffeine then for example an espresso or caffeine pills. Is not worried at all</p> <p>C4: Not worried since it is approved by German authorities. Trusts in the admission process</p> <p>C5: Yes, thinks that 160-250 mg of caffeine would already bring the desired effects but not worried.</p>

	<p>C8: Yes, some cans contain a warning for pregnant women and consumers who are suffering from illness. Since not feeling any effect of caffeine, not worried at all.</p> <p>C10: Not too much, the right amount to feel effects.</p>
<p>Do you think energy drinks contain too much taurine? Why are you worried about this?</p>	<p>C1: Knowing that energy drink contains taurine but is not enlightened enough to answer this question.</p> <p>C4: Not educated about effects of taurine. No opinion on whether it is healthy or not.</p> <p>C5: Knows too little about taurine, read that taurine is harmful, then that taurine is not as harmful as previously stated but does not know what the current state of science is.</p> <p>C8: Not worried, read to little about taurine so not aware of benefits and/ or risks.</p> <p>C10 Knowing that taurine is added to energy drinks but does not know about mode of action of taurine, thus not worried.:</p>

Non-Consumer Interview Questions:

Question	Answer
<p>For which reasons are you not consuming energy drinks?</p>	<p>C2: For me unnecessary, because I don't feel the energy boost, on top of that energy drinks are not healthy, and she avoids caffeine in generally because when consuming she is getting a headache</p> <p>C3: Containing way too much sugar, pumped with chemicals, smells weird</p> <p>C6: Started consuming coffee, prefers effect as well as taste in comparison to energy drinks. Perceives energy drinks as unhealthy</p> <p>C7: Does not like the taste at all. Does not feel the need for an energy boost, is energized enough, and perceives energy drinks as unhealthy. Can is too unpractical since once opened, it must be consumed.</p> <p>C9: Because energy drinks are super unhealthy</p>
<p>Are there any ingredients contained</p>	<p>C2: Caffeine in general, but also big amounts of sugar.</p> <p>C3: Sugar, not drinking sugared beverages at all.</p>

<p>in energy drinks that you try to avoid?</p>	<p>C6: Artificial flavors. C7: Sugar as well as artificial sweeteners. C9: Sugar and preservatives</p>
<p>Do you think energy drinks contain too much sugar? Why are you worried about this?</p>	<p>C2: Yes, although there are also sugar-free alternatives. Avoids industrial sugar because of the high rise and quick fall of insulin level which only boost you for a short period and leads you into a bigger tiredness. C3: Yes, containing lots of sugar. Not consuming sugar in beverages because she thinks that she consumed already too much hidden sugar trough her diet and thus does not want to even increase her sugar intake trough beverages C6: Sugar-containing yes but comparable to Coca-Cola. Is not worries about to high sugar intake and does not pay attention to a low sugar diet. C7: Yes, prefers sugar over artificial sweeteners since he is perceiving artificial sweeteners as even more harmful. C9: Yes, contain high amount of sugaer and yes is worries out of two reasons: risk of adipositats/ overweight and risk of high blood sugar level and the resulting risk of diabetes</p>
<p>Do you think energy drinks contain too much caffeine? Why are you worried about this?</p>	<p>C2: Yes, gets a headache when consuming but sensitive to caffeine in general. C3: Yes, contains lot of caffeine and has a stimulating effect and thus should be consumed conscios. Would never drink 1.5 liters of energy to avoid a caffeine shock. C6: In comparison to coffee not. Coffee contains more caffeine per 100 ml than energy drinks. Experienced effects of too high caffeine from coffee intake felt dizzy and more intense heartbeat. C7: Thinks that energy drinks contain same amount as coffee thus not worried. C9: No energy drinks contain less than a strong black coffee, thus not worried to exceed recommended caffeine amount by drinking one energy drink.</p>

<p>Do you think energy drinks contain too much taurine? Why are you worried about this?</p>	<p>C2: Not educated enough with taurine as a substance, but I think consumption is harmful</p> <p>C3: Does not have an opinion about taurine. Does not know about negative or positive effects</p> <p>C6: Not knowing effects of taurine.</p> <p>C7: Perceives taurine as unhealthy.</p> <p>C9: Does not know enough about taurine and thus not actively worried about health effects on body. More worries about sugar because of extreme awareness.</p>
<p>Energy drink brands approach an aggressive marketing. Did you not feel appealed by the energy drink brands?</p>	<p>C2: Energy drinks associate themselves with a lifestyle and extreme sports, but I do not link energy drink brands with a lifestyle, so no I don't feel appealed by the marketing</p> <p>C3: No, the appearance of the brand itself is too aggressive and also the cans look for me too dangerous. That is also a reason for avoidance.</p> <p>C6: No, rather averse to the pursued marketing strategy. For example, Red Bull bought a German soccer team and trying to artificially build and improve the team as a marketing instrument. Moving away from the initial idea of soccer. Does in general not understand why energy drinks are associated with extreme sports</p> <p>C7: No, associates energy drinks brands consumer with kids that want to be cool and must prove themselves. Does not identify with that type of group</p> <p>C9: Yes totally appealed by the brands marketing. I associate energy drinks with extreme- and motorsports. Monster Energy sponsored Ken Block for a extreme motorsport adventure in a desert. Awareness that these extreme athletes are not drinking energy drinks all day but since the brands are hosting and sponsoring events like this I do associate the brands with this extreme lifestyle and feel appealed.</p>
<p>Is there any situation where you make the exception and</p>	<p>C2: Only out of peer pressure at parties.</p> <p>C3: At parties, when somebody orders a round.</p> <p>C6: Very seldom. Only exception when friends order a round.</p>

<p>consume energy drinks?</p>	<p>C7: The only situation I could imagine drinking an energy drink is when driving a car long distance and I am very tired</p> <p>C9: Sometimes orders himself a Vodka mixed with energy drinks because it's a suitable mixing beverage. In exception also on long drives when feeling tired</p>
<p>Do you regret making exceptions and consuming energy drinks? If yes, why? If not, why? (Only ask when exceptions are made)</p>	<p>C2: Not regretting, but consumption is still unnecessary for me.</p> <p>C3: Regretting is a strong word; consumption is unnecessary but never says no to a sponsored drink</p> <p>C6: No, indifferent for me.</p> <p>C7:</p> <p>C9: Not regretting but has guilty conscience. Comparable to eating out at McDonald</p>
<p>Do you consume any other caffeine-containing beverages? If yes, which one? If not, why not?</p>	<p>C2: No</p> <p>C3: No, very occasionally coffee.</p> <p>C6: Yes, lots of coffee and sometimes Cola</p> <p>C7: Yes, Cola but not to get caffeine boost but because I like the taste</p> <p>C9: Coffee daily, and sometimes green tea. On one hand coffee is a habit/ routine and on the other handy is also a certain caffeine dependency.</p>
<p>Do you consume other stimulants to boost energy or concentration?</p>	<p>C3: Smoothies</p> <p>C4: No</p> <p>C6: Eating nuts especially cashews</p> <p>C7: Nuts, because of the healthy fats or dextrose.</p> <p>C9: Only coffee and get rid of all disturbance.</p>

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