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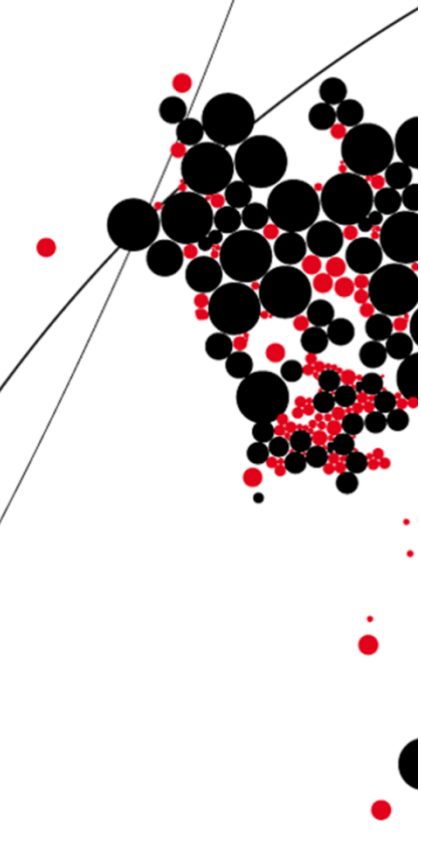
Using the Prototype Willingness Model (PWM) to Detect Gender Differences in High Energy Drink Consumption



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Abstract

Background: Energy Drinks started to become increasingly prevalent and hyped among different age groups in different situations. Besides the primary goal of this drink which was targeted at sportspersons, a lot of people, especially males and youngsters make use of these drinks in their daily life based on different determinants. The Prototype Willingness Model (PWM) is a successfully used model to analyse risk behaviours, such as High Energy Drinking. Currently there are little studies targeted at High Energy Drinks, especially with the use of the PWM. Therefore, this study aims is to detect gender differences in High Energy Drinking Consumption and the variables of the Prototype Willingness Model, that predictively explain the risk behaviour. **Methods:** A cross-sectional survey that integrated several questions referring to the variables of the PWM and the risk behaviour was used. ANOVA tests and univariate correlation analyses were conducted to determine differences and associations in the variables of the PWM. Hierarchical multiple regression analyses of the variables of the reasoned and social reactive pathway were conducted to detect significant predictors of HED in both genders. **Results:** Males consumed significantly more Energy Drinks than females. Additionally, they had more positive beliefs about these drinks and were more aware of the disadvantages of these on one's health. The correlations showed that except prototype perceptions negative, all variables of the PWM correlated with HED behaviour, intention and willingness in the total group. The most important variables that correlated with the risk behaviour were attitude direct, intention and willingness. Nevertheless, the variable intention of the reasoned pathway had the strongest significant association with the risk behaviour. A significant difference between genders was found in attitude direct which was a significant predictor for HED only in females. **Conclusion:** Based on the results, it can be concluded that reducing the consumption of Energy Drinks and increasing the knowledge about the side effects might be useful. Interventions specified on raising awareness of the risks of High Energy drinking and presenting healthier Drink options could help in reducing the risk behaviour.

Keywords: Energy Drinks, Prototype Willingness Model, Gender differences

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1. Introduction

Energy Drinks entered our life years ago in the nineteen sixties with the primary goal of serving as a dietary supply that pushes the consumer's energy level higher. During the development of these drinks, they were primarily targeted at sportspersons (Reissig, Strain, & Griffiths, 2009). Nowadays, the consumption of Energy Drinks is constantly growing among people of different age groups worldwide. Moreover, they developed into a must-have, go-to drink for men, women, youngsters or even kids from early mornings into late nights on different occasions, for example, while studying late at night or doing sports (Bulut, Beyhun, Topbas, & Can, 2014).

1.1 Ingredients and Negative Health Consequences of Energy Drinks

The main ingredients of Energy Drinks are taurine, caffeine, vitamins B, carbohydrates, and sugar (Bigard, 2010). Thus, the milligram of caffeine, which varies from Energy Drink to Energy Drink, generally known to be between 80 to 141 mg per drink, plays an essential role in the achievement of a certain effect either related to one's physical or mental skills (Bigard, 2010).

Next to its energy-enhancing effect, the ingredients and especially caffeine, have several side effects on one's health too. First of all, according to Gunja and Brown (2012), reaching a high level of caffeine through the consumption of Energy Drinks can lead to "palpitations, agitation, tremor, gastrointestinal upset, serious cardiac or neurological toxicity, including hallucinations, seizures, arrhythmias or cardiac ischaemia" (Gunja & Brown, 2012). Further, since caffeine enhances the blood glucose level, there is the risk of developing Type 2 diabetes (Dewar & Heuberger, 2017). In addition to that, the consumption of an Energy Drink increased the consumers' anxiety range from "minimal level of anxiety" to a "mild level of anxiety", and from no level of depression to showing certain features, fitting to a pathological profile (Petrelli et. al, 2018)

Moreover, consuming huge amounts of these drinks at an early age and especially with the combination of alcohol, is related to becoming more at risk for using for example tobacco or drugs, developing an alcoholic addiction, and getting depressions (Azagba, Langille, & Asbridge, 2014; Hamilton, Boak, Ilie, & Mann, 2013). Next, to these negative effects, the consumption harms the dental health of the consumers too (Jean, 2017).

1.2 Reasons to Engage in Drinking Energy Drinks

Even though the consumption of Energy Drinks contains several negative side effects, there are various reasons for people to still consume these drinks. For example a study conducted by Malinauskas, Aeby, Overton, Carpenter-Aeby, and Barber-Heidal in 2007, determined in total six different occasions in which the participants, who were college students, made use of Energy Drinks, namely a) in times of a lack of sleep, b) to enhance their level of energy, c) during exam times, d) when driving long distances, e) in combination with alcohol, and f) and to handle after-party days. Moreover, 51% of the college students that took part in the study communicated that they consume more than one Energy Drink in a month (Malinauskas et. al, 2007). This demonstrates the change in the situations in which the Energy Drink is nowadays in use, compared to its main goal mentioned above in the nineteen sixties. Thus, even though a lot of people tend to consume such drinks in various circumstances, there is a lack of attention paid on the ingredients and the downsides of Energy Drinks (O'Dea, 2003; Ward, 2009).

1.3 The Prototype Willingness Model

The Prototype – Willingness Model (PWM) (Figure 1), developed by Gibbons, Gerrard and colleagues (Gibbons, Gerrard, Blanton, & Russel, 1998; Gibbons, Gerrard, & McCoy, 1995), is used in order to give reasons for the risk aspects of decisions that are made related to the behaviour in adolescents (Todd, Kothe, Mullan, & Monds, 2014).

A special feature of the PWM is that it uses two different information-processing pathways for the analysis of behaviour (Hammer & Vogel, 2013). On the one hand a *reasoned*

pathway, which is determined by intentions and deals with the determinants attitude and subjective norm. These variables predict intention to engage in that behaviour, and intention subsequently predicts actual behaviour (Todd, Kothe, Mullan, & Monds, 2014). On the other hand, there is the *social reactive pathway* that affects one's behaviour through willingness (Hammer & Vogel, 2013). More specifically, this pathway is about the variables 'prototypes' and 'willingness'. According to Elliott et.al, the prototype perceptions can be defined as "positive or negative valences that are attached to the cognitive representations that people hold for the typical members of social categories" (Elliott et. al, 2017). Moreover, there are two different kinds of prototype perceptions, namely on the one side, the prototype favourability perception, which refers to one's evaluation either positively or negatively towards the prototype. On the other side, there is the prototype similarity perception that is related to the particular degree of alikeness, one has the belief to show or have towards the prototype (Elliott et. al, 2017).

Besides that, the two proximal variables 'intention' and 'willingness' that were mentioned above and are pictured in *Fig. 1* can be distinguished. The difference between these variables can be understood as the following: According to Gibbsons et al. (1998), intentions are related to planned behaviours, thus an active engagement with a risky behaviour that is often based on a process where one has thought of and reasoned, until deciding to finally engage in a certain risk behaviour (Gerrard et. al, 2005). Willingness, as opposed to intentions, deals with an unplanned action and the conduction of a certain behaviour when there is an opportunity offered. So, for example, a youngster, who does not smoke, goes to a party where a lot of people do smoke. Such a situation indirectly increases the tendency for him/her to smoke, thus it is one's willingness to show a certain openness to take a risk which leads to the final behaviour (Gerrard et. al, 2005).

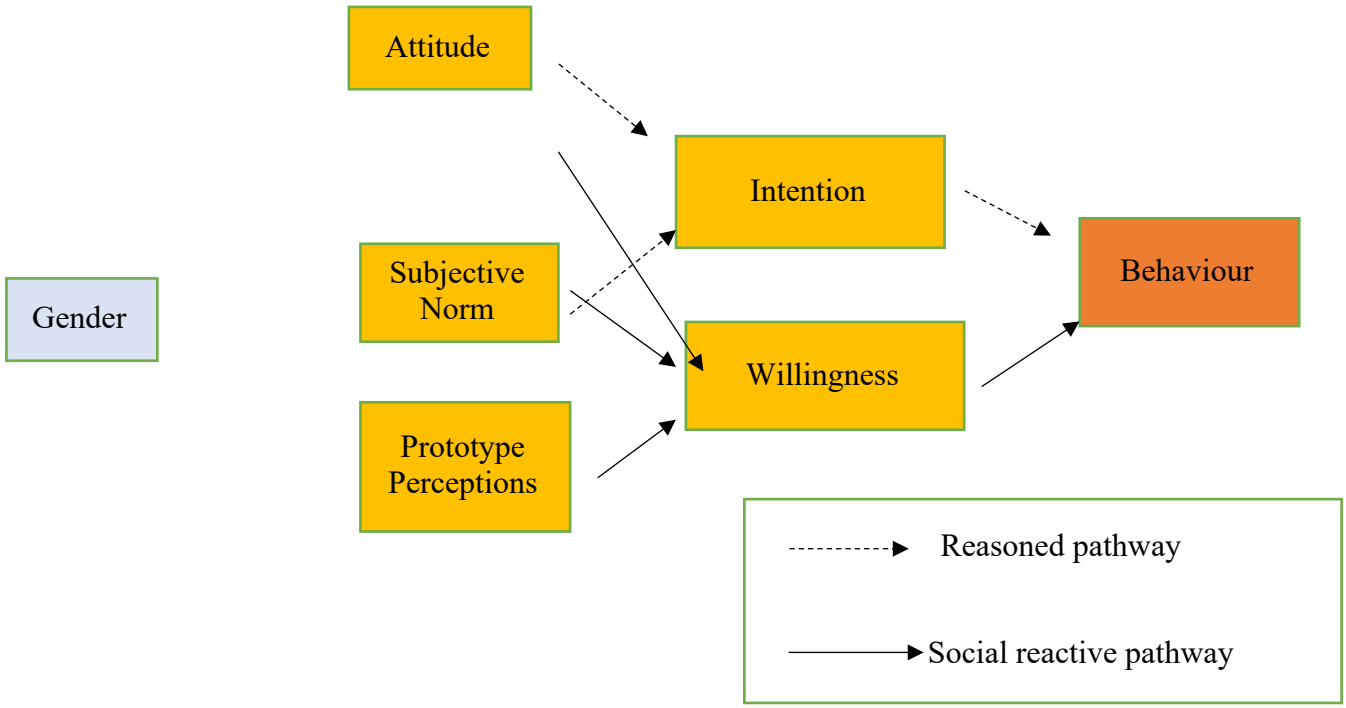

Figure 1. A Prototype Willingness Model applied to the Consumption of Energy Drinks

1.4 Youngsters, as a particular At-Risk Group

Despite the negative consequences, Energy Drinks are increasingly consumed also by non-athletes. Hence, nowadays there is a huge consumer group, involving different female and male age groups with an extremely growing consumption among young people. As it was found in the study conducted by Jacob, Tambawel, Mohammed Trooshi, and Alkhoury (2013), 92% of the students who took part in the study, had their first Energy Drink at an age of 15 and onwards. Thus, people nowadays start to consume Energy Drinks at an early age that might be associated with a lack of knowledge concerning the risks of such drinks on one's health. Next to this feature, describing one side of Energy Drink consumers, Poulos and Pasch (2015) found further specific characteristics that are related to that target group, more specifically to a 'prototypical' consumer. Namely, that people consuming Energy Drinks generally have a greater tendency to be male, white and have a higher BMI (Poulos and Pasch, 2015).

1.5 Gender Differences

Energy Drinks are highly popular among different age groups, but according to several studies men generally tend to consume more Energy Drinks than women (Dillon et. al, 2019; Miller, 2010). According to Statista (2016), who studied the Energy Drink Consumption frequency among 1,491 respondents in the age group 18 to 69 years in the U.S in 2016, 49% of males compared to 43% of female respondents consumed Energy Drinks several times per week. Based on these findings, the first expectation of this study is that men consume more Energy Drinks than females.

Concerning the different underlying determinants that lead to the consumption of Energy Drinks in males and females, there is little known for now. A study conducted by Roberson (2005) found an association between masculinity and Energy Drink consumption. Moreover, Thorlton and Collins (2017) who used the Theory of Planned Behaviour (TPB) to show the association between underlying beliefs and Energy Drink consumption, concluded that attitudes had a huge impact on the intention to drink Energy Drinks, especially in males (Thorlton & Collins, 2017). Hence, a possible reason given for that is that men tend to have more positive opinions towards Energy Drinks compared to women. Based on these findings, it is expected that men might have more positive beliefs towards Energy Drinks compared to females. Thus, all in all, it can be concluded that, even though there is some evidence, showing the difference between males and females regarding the consumption of Energy Drinks, there is still the need to find out more about the different underlying determinants generally and gender specifically.

Based on the fact that the Prototype Willingness Model is a successfully used model to analyse risk behaviour and explain an important amount of one's intentions with regard to a risk behaviour (Rivis, Sheeran, & Armitage, 2009), it will be used for this study of High Energy Drinking consumption in general and among gender differences. Hence, it is expected that the variables of the PWM can predict the consumption of HED. Furthermore, a study conducted by Armenta, Hautala, and Whitbeck (2015) that used the Prototype Willingness Model for

predicting alcohol consumption, found a relation between subjective norms and positive prototype perceptions and one's expectations about the drinking in both genders equally. Based on associations found between Energy Drink and Alcohol consumption (O'Brien, McCoy, Rhodes, Wagoner, &Wolfson, 2008), it is expected that subjective norm and positive prototype perceptions might have an association with Energy Drinking Consumption too. Moreover, it is expected that willingness compared to intention would be a stronger predictor for the consumption of Energy Drinks, due to the fact that a study conducted by Dal Cin et. al (2009) concluded that willingness serves as a strong mediator and predictor for drinking alcohol (Dal Cin et. al, 2009). This is based on its association with reducing the weighing up of consequences of a certain behaviour (Gerrard, et al. 2002). Regarding gender differences, it is expected that attitude might be a strong predictor for HED in males, based on their generally positive attitude regarding Energy Drinks which associates with the consumption of these drinks (Douglas & Nkporbu, 2018; Thorlton & Collins, 2017).

Based on what was mentioned above, the goal of this study is to determine and compare the factors of the PWM that trigger male and female students to consume High Energy Drinks. Therefore, the research questions are:

1) "To what extent do males and females differ in the consumption of High Energy Drinks and the underlying determinants: attitudes, subjective norm, and prototype perceptions?"
2) "To what extent is the consumption of High Energy Drinks predicted by the variables of the Prototype Willingness Model, and which variables are the most important?"
3) "Is High Energy Drinking explained by different determinants in males than in females?"

2. Methods

2.1 Design

This presented quantitative study is a cross-sectional survey that deals with the variables of the PW Model and the association with the additional variable gender. The independent variables in this study are gender, attitude direct, attitude advantage, attitude disadvantage, subjective norm, prototype perception positive and prototype perception negative. The dependent variables are High Energy drinking behaviour, intention, and willingness.

2.2 Participants and Procedures

This study was approved by the BMS Ethics Committee of the University of Twente. The Ethics Committee of the University of Twente provided the request number: 190314.

The data was collected via an online questionnaire, that was compiled in Qualtrics, an online application that is used for research purposes. Participants were informed about the study through SONA systems, via WhatsApp messages, and a post on the social media platform Instagram, describing shortly the aim of the study and its most important requirements for participation. Through a hyperlink, the SONA system brought the participants to the actual survey where they could complete the questionnaire.

The inclusion criterion for this study was to be at least 12 years old. Moreover, having a sufficient level of English to complete the questionnaire which counted for participants who are 18 years old or older was an additional criterion. Participants between 12 and 17 years received a Dutch version of the questionnaire so that there were no misunderstandings of the items in the questionnaire.

This online survey took approximately 30 minutes. As a reward, the participants, more specifically only students of the University of Twente, were provided with 0.5 SONA points. The scheduled time frame for the collection of the data ran from April 9 through May 16, 2019.

In total, 262 respondents completed the questionnaire. Of these, 56 participants were excluded due to incomplete data, not agreeing on the terms mentioned in the informed consent and being younger than 12 years. Hence, the statistical analyses were conducted with the final sample of 206 participants. For the full description of the information that was provided to the participants concerning the study, see Appendix A.

2.3 Materials

The material used for the study was a questionnaire that covered questions related to the following topics: (1) demographics, (2) behaviour of High Energy Drinking consumption and (3) the Prototype Willingness Model (PWM).

The first part of the survey referred to the participant's Energy Drinking behaviour in general. Then, questions that are based on the variables of the PWM were presented. The last part of the survey was about demographics. Below the complete operationalisations of the variables are described.

Demographic questions. The demographic questions used in this study were gender, age, nationality, the highest level of education one has completed. Nationalities were determined in three parts, namely a) Dutch, b) German, and c) other, where the participant could fill in the specific nationality. The level of education that one has completed was asked by providing the following options: a) Student, b) High school diploma, c) College diploma, d) Bachelor's degree, e) Master's degree and f) Others, where there was again the possibility to add that education one has completed.

Behaviour of High Energy Drinking Consumption. This construct was measured with three items. The first item was "Have you ever drunk Energy Drinks?" and the second item was "Have you drunk an Energy Drink in the last month?". Both had to be answered with either a yes or a no. Participants who answered in both cases with a no were treated throughout the study and the statistical analyses as no Energy Drink consumers. The third item was "Over the last few months, on how many days during the week did you usually drink Energy Drinks?",

which had to be evaluated (1= 1 day; 7= 7 days). The participants were categorized into three different groups according to their summed scores. If a participant answered the first two questions with "no", (s)he was categorized into the group of "No Energy Drinkers". Participants who drank on one or two days during the week Energy Drinks were considered as "Low Energy Drinkers". If a participant drank on three to seven days during the week, (s)he was categorized into the group of "High Energy Drinkers".

(Direct) Attitude. This construct measured the attitude of the participants about on the one hand the general and on the other hand the regular consumption of Energy Drinks.
This was measured with five items, more specifically adjectives plus their opposites, hence such as "bad -good" or "worthless – valuable", per general and regular consumption. Both, thus 10 items in total were averaged into a scale. Based on a 5-point Likert scale, they had to evaluate what the consumption of an Energy Drink is like. The answer on the five items was summed into a scale score (Cronbach's α =0.92). The scale scores can be interpreted in the way that higher scores refer to a more positive attitude.

Attitude advantages. These items referred to positive beliefs towards the consumption of Energy Drinks. These were measured with 5 items. Example statements which had to be answered with a 5-point Likert scale (1= Strongly disagree; 5=Strongly agree) are "Drinking Energy Drinks improves one's attention span" or "Drinking Energy Drink improves one's athletic performances". The answer on the five items was summed into a scale score (Cronbach's α =0.71). Higher scores refer to more positive beliefs towards the consumption of Energy Drinks.

Attitude disadvantages. This construct was measured with 10 items. Examples for this part of the questionnaire are "Drinking Energy Drinks increases one's heart rate" and "Drinking Energy Drinks regularly leads to overweight", which were answered with a 5-point Likert scale (1= Strongly disagree; 5= Strongly agree). The answer on the time items was summed into a scale score of Cronbach's α for them equals 0.75. Higher scores refer to more negative beliefs.

Subjective norm. This variable of the PWM deals with the subjective norm that is related to the closest people one is surrounded by. The construct has in total six items, which participants had to evaluate. The first two were on the one hand related to the family and on the other hand related to the friends. Answer options were based on a 5-point Likert scale (1=Strongly disagree; 5=Strongly agree). An example is the statement "Friends important to me think that … consume energy drinks". Statements three to six had to be answered through a 5-point Likert scale again too (1=Strongly disagree; 5= Strongly agree). As an example, there is the item "The people in my life whose opinion I value would … with my weekly consumption of energy drinks". Based on the fact, that all items summed into one scale had low reliability, the three items that measured the normative beliefs were summed into a scale, which had a higher Cronbach's alpha value, namely Cronbach's α =0.85. This scale, called "Subjective norm – normative beliefs" were used for further statistical analyses. Higher scores refer to a high level of perceived social pressure to perform the risk behaviour.

Prototype perception. This construct was assessed with 20 items that fit according to the participants to the following statement "A typical person your age who regularly consumes energy drinks is.". Negative and positive adjectives such as cool, dynamic, lazy, chaotic that describe a prototypical Energy Drinker were provided to the participants which they had to evaluate based on a 5-point Likert scale (1 =Not at all; 5= very much). Based on a factor analysis that was conducted, the scale was divided into 11 items for the positive ones and 9 items for the negative ones. The answer on the eleven positive items concerning the prototype perceptions was summed into a scale score (Cronbach's α =0.90). Higher scores refer to more positive prototypical perceptions regarding an energy drinker. The answers on the nine negative items about the prototype perception were summed into a scale score (Cronbach's α =0.88). Higher scores refer to more negative prototypical perceptions regarding an Energy Drinker.

Prototype Similarity. This part of the prototype variable deals with one's similarities concerning a typical energy drink consumer. This construct was measured with four items which had to be evaluated with a by choosing one of a 5-point Likert scale. Examples for this

scale are: “Do you resemble the typical person your age that regularly consumes Energy Drinks?” or “I am comparable to the typical person my age that regularly consumes Energy Drinks”. The answers on the four items were summed into a scale score (Cronbach’s α =0.87). Higher scores refer to fewer similarities concerning a typical Energy Drink consumer.

Intention. The intention in this context is related to the participants’ intention to consume an Energy Drink. This was measured with four items, more specific statements such as “I intend to consume at least one energy drink in the next month”, which had to be answered with a 5-point Likert scale (1=Strongly disagree; 5=Strongly agree). The answer on the four items was summed into a scale score (Cronbach’s α =0.94). Higher scores refer to a higher intention to consume Energy Drinks.

Willingness. This variable refers to the participant’s level of willingness to execute the behaviour of drinking Energy Drinks in different situations and conditions. Willingness was measured with seven items that had to be evaluated based on a 5-point Likert scale (1=Definitely not willing; 5=Definitely willing). An example item is “Suppose you have to drive home late at night, and you get tired. Your co-driver offers you an energy drink. How willing are you to consume that drink?”. The answer on the seven items was summed into a scale score (Cronbach’s α = 0.90). Higher scores refer to more willingness towards consuming Energy Drinks at different situations and conditions.

2.4 Data analysis

To analyse the data and to start with the analysis to investigate the research questions, the data that was retrieved from Qualtrics was transferred to SPSS Statistics 25.

For a general impression of the demographic variables (i.e. gender, age, nationality, & educational level, Energy Drinking behaviour, and PWM-variables) frequencies, means, standard deviations and ranges of the data were computed.

To examine the first research question, which was about the comparison or differences in males and females concerning the consumption of High Energy Drinks and the underlying

determinants attitudes, subjective norms, and prototype perception of the PWM one-way ANOVA analyses were conducted.

The second research question was focused on the predictability of the Prototype Willingness Model and the correlations between the variables of the PWM concerning HED consumption, intention, and willingness. Hence, through conducting univariate correlation analyses the correlations between the variables of the PWM were analysed in order to determine those variables that had the most important influence on HED. The relationships were analysed by using Pearson's r. The rule is that if Pearson's r is between 0.6 and 1, there is a strong correlation between the variables. Pearson's r between 0.3 and 0.6 means there is a moderate correlation and values between 0.0 and 0.3 describe a weak correlation (Mukaka, 2012).

To examine the third research question, which was focused on analysing if different determinants between males and females predictively explained High Energy Drinking, hierarchical multiple regression analyses were conducted. One regression analysis was conducted for the variables of the reasoned pathway and the other one for the variables of the social reactive pathway of the PWM to determine the predictors for HED. In these analyses, p-values $< .05$ were considered statistically significant.

3. Results

Demographics

In table 1, the demographic characteristics of the respondents are displayed, with the total number and percentages regarding gender, education level, nationality, and age.

Table 1.
Socio-demographical Characteristics (Gender, Education, Nationality, Age) of the Total Sample (N=206)

	Total (n=206)
Gender, n %	
Male	84 (40.8)
Female	122 (59.2)
Education, n (%)	
Student	82 (39.8)
High School Diploma	52 (25.2)
College Diploma	11 (5.3)
Bachelor's Degree	28 (13.6)
Master's Degree	13 (6.3)
Other	20 (9.8)
Nationality, n (%)	
Dutch	56 (27.2)
German	125 (61.2)
Other [1]	25 (11.6)
Age in years, M (SD)	28.63 (13.88)
12 – 17 years old, n %	20 (9.6)
18 – 30 years old, n %	131 (63.7)
31 – 40 years old, n %	13 (6.5)
41 + years old, n %	42 (20.2)

[1] Aramean, Austrian, Brazilian, British, Danish, French, Greek, Indian, Kurdish, Lebanese, Luxembourgish, Moroccan, Russian, Somalian, Turkish

In total there were 206 participants, of which the majority was female (59.2 %). The participants varied in their education level, but most were higher educated or were still (university) students. The respondents varied in age from 12 to 75 years, but the far majority (63.7%) fell in the age group of 18 – 30 (mean age =28.63) and were German.

Drinking of High Energy Drinks

Table 2 displays the frequencies of the consumption of High Energy Drinks in the total group, males, and females. Moreover, the displayed p-values of the one-way ANOVA emphasize the statistically significant differences between males and females. Participants who answered the first two questions with a "no", were categorized into the group "No Energy Drinkers". Participants who drank on one or two days during the week Energy Drinks were classified as "Low Energy Drinkers". A participant who consumed between three to seven days during week Energy Drinks were categorized into the group "High Energy Drinkers".

Table 2.
Frequencies of High Energy Drinking in Total Sample (N=206), Males (N=84), and Females(N=122)

Items	Total group (n=206)		Males (n=84)		Females (n=122)		P-value*
	Yes n,%	No n,%	Yes n,%	No n,%	Yes n,%	No n,%	
Have you ever drunk Energy Drinks?	172 (83.5)	34 (16.5)	77 (91.7)	7 (8.3)	95 (77.9)	27 (22.1)	.009*
Have you drunk an Energy Drink in the last month?	56 (27.2)	116 (56.3)	30 (39.0)	47 (61.0)	26 (27.4)	69 (72.6)	.108
Over the last few months, on how many days during the week did you usually drink Energy Drinks? n (%)							
1-2 days	38 (67.9)		21 (70)		17 (65.4)		.186
3-7 days	18 (32.1)		9 (30)		9 (34.6)		
Energy Drinking Consumption, n %							.050*
1)No Energy Drinkers	150 (72.8)		54 (64.3)		96 (78.7)		
2)Low Energy Drinkers	38 (18.4)		21 (25.0)		17 (13.9)		
3)High Energy Drinkers	18 (8.8)		9 (10.7)		9 (7.4)		

*Differences of means significant at the 0.05 level

Of the total sample (N=206), the majority (83.5%) has ever drunk Energy Drinks. Nevertheless, the minority (27.2%) has drunk an Energy Drink in the last month. When having a look at the number of days during the week the participants consumed Energy Drinks, it became obvious that the majority of the total sample (67.9%), consumed in one to two days during the week. Based on the Energy Drinking Consumption of the total sample, around 73% were categorized into the group of No Energy Drinkers. Thirty-eight participants (18.4%) were categorized into the second group, namely Low Energy Drinkers. Nearly 9% (n=18) of the total sample were categorized into the group of High Energy Drinkers.

When looking at gender differences, it can be concluded that significantly more males (91.7%) than females (77.9%) have ever consumed Energy Drinks. When taking the frequencies of the drinking behaviour in both genders into account, it can be concluded that there were significantly more female participants (n=96) compared to males (n=54), who were categorized into the group of No Energy Drinkers. Twenty-five % of males compared to nearly

14% of the females were categorized into the group of Low Energy Drinks. However, more males (10.7%) than females (7.4%) were categorized into the group of High Energy Drinkers.

The Prototype Willingness Model

Table 3 shows an overview of the ranges, means, standard deviations and p-values of the one-way ANOVA which display differences in genders in the variable's behaviour, attitudes, subjective norm, prototype perceptions, willingness and intention for the total group, males, and females.

Table 3.
Ranges, Means, Standard Deviations and P-values of the Variables of the PW Model in Total Group (N=206), Males (N=84), and Females (N=122)

	Total group (n=206)				*Males (n=84)				Females (n=122)				p-value**
Item	Min	Max	M	SD	Min	Max	M	SD	Min	Max	M	SD	
Behaviour (1-5)	1	3	1.4	0.6	1	3	1.5	0.7	1	3	1.3	0.6	.050*
Attitude direct (1-5)	1	5	2.2	0.9	1	5	2.3	0.9	1	4.4	2.0	0.8	.015*
Attitude Advantag. (1-5)	5	24	14.2	3.3	5	24	14.5	3.5	5	19	13.9	3.1	.225
Attitude Disadvan. (1-5)	1.1	4.8	2.4	0.4	1.2	4.8	2.5	0.6	1.1	3.8	2.3	0.4	.001*
Subjective Norm (1-5)	1	4.7	1.4	0.6	1	4	1.5	0.5	1	4.7	1.4	0.6	.163
Prototype Perception (pos) (1-5)	1	4.2	2.4	0.7	1	3.7	2.5	0.7	1	4.2	2.4	0.7	.427
Prototype Perception (neg) (1-5)	1	4.8	2.9	0.7	1	4.2	2.8	0.8	1	4.8	2.9	0.7	.164
Willingness (1-5)	1	4.7	2.3	1.0	1	4.6	2.5	1.0	1	4.7	2.2	0.9	.026*
Intention (1-5)	1	5	1.7	1.0	1	5	1.9	1.1	1	5	1.6	1.0	.085

*Differences between groups were tested with ANOVA
**Difference of means significant at the 0.05 level

Regarding the total group, it became apparent that the participants, in general, had a weak positive attitude towards the consumption of Energy drinks (m= 2.2) which was underlined by the low mean of Attitude advantage (m=14.2). Moreover, the whole group perceived on average some pressure to consume Energy Drinks (m=1.4). When referring to the prototype perceptions

positive and negative, it can be concluded that the sample had more negative prototypical perceptions than positive ones. The scores of willingness and intention indicated that the willingness of the total group compared to their intention to consume energy drinks was slightly higher.

When comparing males and females, the significant difference in Energy Drinking behaviour between males and females became again apparent. Namely, males (m=1.5) compared to females (m=1.3) consumed more Energy Drinks. Additionally, what was very striking and interesting was that whereas males were significantly more positive in general about Energy Drinks (p=0.015), they also perceived significantly more disadvantages compared to females (p=0.001). Nevertheless, males (m=2.5) showed a significantly higher willingness to consume Energy Drinks compared to females (m=2.2). There were no significant differences between males and females in subjective norm, both prototype perceptions, and intention.

Table 4 displays the outcomes of the univariate correlation analyses of the variables prototype perception (negative and positive), attitudes (direct, advantages, and disadvantage), and subjective norm concerning the variables Energy Drinking behaviour, willingness, and intention. The correlations are displayed with Pearson's R. These analyses were conducted for the total group, males and females and showed the relationships between the variables. The Prototype Willingness Model (Figure 1) predicts correlations on the one hand via the reasoned pathway, including attitudes, subjective norm, and intention. And on the other hand, via the social reactive pathway, including attitudes, subjective norm, prototype perceptions, and willingness. Hence, according to the model, intention and willingness are those two determinants that directly correlate with the risk behaviour of High Energy Drinking Consumption.

Table 4.
Pearson's Correlations Between the Variables of the Prototype Willingness Model for Total Group (N=206), Males (N=84), and Females (N=122)

	Total group (n=206)			Males (n=84)			Females (n=122)		
	1	2	3	1	2	3	1	2	3
1.Behaviour **Pearson R**	1			1			1		
2.Willingness **Pearson R**	.61**			.57**			.63**		
3.Intention **Pearson R**	.79**	.63**		.79**	.64**		.78**	.61**	
4.Prototype perc. (neg) **Pearson R**	-.16*	-.12	-.13	-.01	-.01	-.03	-.26**	-.17	-.18*
5.Prototype perc. (pos) **Pearson R**	.23**	.32**	.26**	.28*	.38**	.26*	.19*	.26**	.25**
6.Attitude (direct) **Pearson R**	.57**	.69**	.62**	.51**	.64**	.62**	.60**	.72**	.60**
7.Attitude (advantage) **Pearson R**	.32**	.35**	.31**	.28**	.19	.29**	.33**	.45**	.31**
8.Attitude (disadvantage) **Pearson R**	.16*	.28**	.20**	.18	.32**	.22	.09	.19*	.14
9.Subjective norm **Pearson R**	.20**	.26**	.31**	.06	.23*	.21	.29**	.26**	.36**

*N.B.: *Correlation Significant With p<.05 **Correlation Significant With p<.01*

When having a look at the outcomes of the total group the first thing that became apparent was that there were significant correlations between the variables of the reasoned pathway attitudes and subjective norm with intention. Attitude direct had an especially strong relationship with intention (r=.62**) and additionally with the risk behaviour (r=.57**). Intention had as predicted by the PWM a significantly strong relationship with the risk behaviour (r=.79**).

Focusing on the variables of the social reactive pathway, it can be concluded that all variables except prototype perceptions negative, significantly correlated with willingness. Prototype perception negative only significantly negatively correlated with High Energy Drinking Behaviour. Attitude direct had a significantly strong relationship with willingness (r=.69**) and willingness had a significantly strong correlation with the risk behaviour (r=.61**), as it is predicted in the PWM.

Thus, the most important variables predicting High Energy Drinking in the total group when ordered according to their strength were: intention, willingness, and attitude direct.

Considering gender differences, it became apparent that attitude disadvantage and prototype perception negative in both genders and attitude advantage and subjective norm only in males did not correlate with intention or willingness. Besides that, it can be concluded that willingness (r=.63**) and attitude direct (r=.60**) had a stronger significant correlation in females than in males to the risk behaviour. Nevertheless, the highest significant correlation in both genders was between intention and High Energy Drinking behaviour.

Table 5 summarizes the outcomes of the hierarchical multiple regression analyses that were conducted to predict High Energy Drink Consumption based on the variables of the reasoned pathway of the Prototype Willingness Model, namely attitudes direct, advantage, disadvantage, subjective norm, and intention. The outcomes are displayed through betas, p-values, R2 and F. The hierarchical multiple regression analyses were conducted in two steps for the total group, males, and females. In the first step, the variables of the reasoned pathway, namely attitude direct, attitude advantage, attitude disadvantage, and subjective norm were entered as the independent variable and HED as the dependent variable. At that point, the amount of explained variance of attitude and subjective norm on the risk behaviour was displayed. In step 2, intention was added as an additional independent predictor next to the variable's attitudes and subjective norm to detect changes in the amount of explained variance in the total model for HED for the total group, males, and females.

Table 5.
Hierarchical Multiple Regression Analyses of the Variables in the Reasoned Pathway to Predict High Energy Drinking in Total Group (N=206), Males (N=84), and Females (N=122)

Predictor	Total group (N=206)		Males (N=84)		Females (N=122)	
	HED		HED		HED	
Step 1	ß	p	ß	p	ß	p
Attitude Direct	.54	.000***	.48	.000***	.56	.000***
Attitude Advantage	.09	.185	.15	.174	.06	.468
Attitude Disadvantage	-.01	.850	.07	.535	-.08	.273
Subjective Norm	.05	.433	-.08	.443	.14	.076
Model total	**R2=.33**	**F=26.5**	**R2=.27**	**F=8.5**	**R2=.37**	**F=18.7**
Step 2						
Attitude Direct	.14	.021*	.02	.812	.22	.005**
Attitude Advantage	.05	.262	.09	.264	.04	.530
Attitude Disadvantage	-.01	.752	.04	.646	-.07	.248
Subjective Norm	-.06	.198	-.13	.071	.00	.976
Intention	.71	.000***	.78	.000***	.65	.000***
Model total	**R2=.63**	**F=70.9**	**R2=.64**	**F=29.4**	**R2=.62**	**F=40.9**

*Note *p<.05, **p<.01, ***p<.001

After conducting step 1, it became apparent that attitudes and subjective norm were able to significantly explain 37% (F(4,117)=18.688, p=0.000) in females, 33% (F(4,200)=26.487, p=0.000) in the total group and 27% (F(4,78)=8.520, p=0.000) in males of the variance in HED. Adding intention to the variables of the reasoned pathway led to a remarkably significant increase of the amount of variance to 64% (F(5,76)=29.368, p=0.000) in males, 63% (F(5,198)=70.941, p=0.000) in the total group, and 62% (F(5,116)=40.949, p=0.000) in females. Hence, intention was a highly significant independent predictor of High Energy Drinking consumption in males, females and the total group. Moreover, a striking point was that attitude direct was in females (ß=0.22) and the total group (ß=0.14) an additional predictor variable for HED. Hence, with each one-unit increase in attitude direct, the High Energy Drinking behaviour rose by 0.22 in females and 0.14 in males. In males, attitude direct was not a predictor, which is according to the PWM in general not a predictor variable for the risk behaviour. Hence, this is a new finding and based on this it can be concluded that

HED through the reasoned pathway was explained in females by intention and attitude direct, whereas in males it was explained only by intention.

Table 6 displays the outcomes of the multiple regression analyses, conducted to predict HED based on the variables of the social reactive way. The outcomes are displayed through betas, p-values, R2 and F. The hierarchical multiple regression analyses were conducted in two steps for the total group, males, and females. The first step included entering attitude direct, attitude advantage, attitude disadvantage, subjective norm, prototype perception positive and prototype perception negative. Hence, the variables of the social reactive pathway were entered as the independent variable and HED as the dependent variable. In step 2, willingness was included as an independent predictor, so that possible changes in the amount of explained variance in the total model for HED for the total group, males, and females can be analysed.

Table 6.
Hierarchical Multiple Regression Analyses of the Variables in the Social Reactive Pathway to Predict High Energy Drinking in Total Group (N=206), Males (N=84), and Females (N=122)

Predictor	Total group (N=206)		Males (N=84)		Females (N=122)	
	HED		HED		HED	
Step 1	ß	p	ß	p	ß	p
Attitude Direct	.52	.000***	.46	.000***	.53	.000***
Attitude Advantage	.08	.214	.14	.252	.07	.416
Attitude Disadvantage	-.03	.652	.06	.582	-.12	.137
Subjective Norm	.04	.520	-.07	.523	.12	.109
Prototoype (neg)	-.05	.445	-.01	.956	-.12	.164
Prototype (pos)	.05	.468	.07	.513	.01	.873
Model total	**R2=.33**	**F=17.7**	**R2=.25**	**F=5.6**	**R2=.37**	**F=12.8**
Step 2.						
Attitude Direct	.27	.001***	.22	.094	.27	.013**
Attitude Advantage	.07	.306	.17	.128	.01	.917
Attitude Disadvantage	-.06	.316	.01	.936	-.13	.099
Subjective Norm	.01	.862	-.13	.202	.10	.157
Prototype (neg)	-.08	.230	-.05	.619	-.14	.087
Prototype (pos)	.02	.748	.00	.999	.01	.859
Willingness	.39	.000***	.42	.001***	.40	.000***
Model total	**R2=..41**	**F=20.9**	**R2=.34**	**F=7.1**	**R2=.44**	**F=14.6**

*Note *p<.05, **p<.01, ***p<.001

The outcomes of step 1 showed that attitudes, subjective norm and prototype perceptions accounted for the highest percent of variance in females (R^2= 37%) (F(6,115)=12.801, p=0.000). In the total group it accounted for 33% (F(6,198)=17.701, p=0.000) and in males 25% (F(6,76)=5.642, p=0.000). After entering the predictor variables willingness, the amount of explained variance significantly increased in the total group, males, and females. The highest amount of variance for the variables of the social reactive pathway was found in females with (44%) (F(7,114)=14.627, p=0.000). The most important predictor in the total group (ß=0.39), males (ß=0.42), and females (ß=0.40) was willingness. Additionally, again attitude direct, as in the reasoned pathway, was an additional significant predictor variable for HED in the total group (ß=0.27) and females (ß=0.27), but not in males. Hence it can be

concluded that HED through the social reactive pathway was explained in females by willingness and attitude direct, whereas in males it was explained only by willingness.

All in all, it can be summed up that the variables of the reasoned pathway showed more importance and explanation towards the behaviour of High Energy Drinking, compared to the social reactive pathway. Moreover, in both genders willingness and intention were predictors for HED. Nevertheless, a main difference in females and males was that attitude direct was an additional predictor variable for the risk behaviour only in females.

4. Discussion

The purpose of this study was to add more insight into the Energy Drinking behaviour by connecting this risk behaviour with the variables of the Prototype Willingness Model. Moreover, the focus was set on the one hand on determining those variables that have an impact on the consumption of High Energy Drinks. On the other hand, there was an emphasis on detecting gender differences in the variables of the PWM. To fulfil these, cross-sectional data were statistically analysed.

First of all, the findings showed that from the sample of 206 participants, 172 (83.5%) have ever drunk an Energy Drink and only a minority of 56 participants (27.2%) have drunk an Energy Drink in the last month. Out of these, 18 drank over the last few months on more than two days during a week Energy Drinks. Based on this, 72.8 % of the sample were categorized as No Energy Drinkers, 18.4% as Low Energy Drinkers, and 8.7% as High Energy Drinkers. Thus, the consumption of Energy Drinks of this sample is lower than in other studies (Malinauskas et. al, 2007; Statista, 2016; Oteri, Salvo, Caputi, & Calapai, 2007). Hence, for future research, it is recommended to conduct the study with more participants and to specify it to a smaller age group such as adolescents to get outcomes that are generalizable to a representative sample of High Energy Drink consumers.

The first objective of the study was to detect on the one hand differences in males and females concerning the consumption of High Energy Drinks and on the other hand in the underlying determinants attitude, subjective norm and prototype perceptions. When looking at the differences in High Energy Drinking Consumption in males and females, the outcomes are in line with findings in previous studies, namely that men tend to consume more energy drinks than women (Dillon et. al, 2019; Miller, 2010). Possible reasons for that might be on the one side that males compared to females tend to have a style of living that is rather unhealthy (Courtenay, 2000). On the other side, a study conducted by Wimer and Levant (2013), found that the consumption of Energy Drinks has a strong association with a "traditional masculinity ideology and risk taking" (Wimer & Levant, 2013). As already examined by Poulos and Pasch (2015), future research should focus on detecting triggers and causes leading to the consumption of Energy Drinks in males (Poulos & Pasch, 2015). After detecting these, interventions could be focused on showing consumers coping strategies, they can use to overcome times of cravings for Energy Drinks. Nevertheless, this outcome of the study could be already used in interventions focusing on providing the consumer with healthier Drink options and alternatives instead of drinking Energy Drinks.

When focusing on gender differences in the underlying determinants of HED consumption, it can be concluded that males generally had a more positive attitude towards Energy Drinks. This was in line with what was expected based on the study of Roberson (2005) who found that men tend to consume Energy Drinks in order to "enhance their sense of their own masculinity or their masculine image to others" (Roberson, 2005). Interestingly, in spite of a more positive attitude, males compared to females were more aware of the disadvantages of Energy Drinks, namely the potential risks of Energy Drinks on one's health. This was unexpected and contradicts with previous findings that showed that people generally lack awareness about the negative sides of Energy Drinks (O'Dea, 2003; Ward, 2009). Nevertheless, a study conducted by Wards (2009) concluded that young people who had a negative attitude about Drinks containing caffeine still consumed Energy Drinks (Wards, 2009). Hence,

perceiving and being more aware of disadvantages might not be a reason for stopping to consume Energy Drinks. A possible explanation for this could be related to the outcomes of the study conducted by Kim, Jeon, Shim, and Seo (2015), who analysed the level of knowledge in both genders concerning Energy Drinks. Knowledge in their study was defined as "The level of basic knowledge of energy drinks, including the recommended daily consumption amount and the caffeine content". The outcomes of that study showed that males had more knowledge about these aspects of Energy Drinks which might be a possible explanation for the higher level of awareness of the disadvantages in males than in females. An additional explanation for such a level of perceived disadvantage in spite of a high level of consumption in males are the commercialisation strategies that are specially targeted to males and thus trigger and make them curious about the effectiveness of Energy Drinks (Kim, Jeon, Shim, & Seo, 2015). Hence, further research should focus on determining possible reasons for the perceived disadvantages in spite of the consumption of Energy Drinks and the positive attitude towards these Drinks. Nevertheless, based on these outcomes of the study, it is recommended, especially in order to reduce the positive attitude, to make interventions focused on promoting healthy behaviours and habits and educating people about the health risks of these Drinks. Moreover, due to the huge impact of commercialization strategies triggering the curiosity in people to consume such Drinks, it is recommended that Energy Drink Brands should make the consumers aware during the marketing of their Drinks of the health risks and side effects, as it is the case for example in the marketing of cigarettes. The success of implementing such a recommendation can be found in the USA, where adding the health risks on the labels of Energy Drinks, led to an important decline in one's willingness to consume such drinks (Ward, 2009).

The second objective of the study was to examine to what extent the consumption of HED is predicted by the variables of the PWM and which variables are the most important. First of all, the outcomes showed that all variables of the PWM, despite prototype perception negative correlated to different extents with the risk behaviour, intention, and willingness. This outcome is not completely in line with what the theory of the PWM predicts and what was

expected. A possible explanation for that could be that the predictability and usability of the PWM vary depending on the risk behaviour, showing the highest level of explanation in the risk behaviour of alcohol drinking (Todd, Kothe, Mullan, & Monds, 2006). Next to this, the outcomes of the study showed that especially intention, as the variable that showed to have the highest level of importance, and additionally willingness and attitude direct, were the most important variables in showing a significant amount of association with the consumption of High Energy Drinks. These findings seem to contradict the expectation that was based on the outcomes of the study conducted by Armenta, Hautala, and Whitbeck (2015), that used the PWM for predicting alcohol consumption. This study determined the variables subjective norms and positive prototype perceptions as having the most impact on one's expectations regarding the consumption in both genders. One possible explanation for this is that there are despite the similarities between Energy and Alcohol Drinking, several differences that could affect these variables. Moreover, the sample of the study of Armenta, Hautala, and Whitbeck (2015) included only adolescents from ages 12 to 14 years. Hence there were differences in the age group of the sample and thus consequently might led to a certain level of variation in the answers given by the people according to their age and experiences. So, this which could be an explanation for the differences in the underlying determinants too. Additionally, it was expected that willingness would be a stronger predictor than intention for the consumption of Energy Drinks (Dal Cin et. al, 2009), which contradicts with the outcomes of this study. A possible explanation for this comes from Shek and Zhu (2018), who examined that younger people tend to have a higher level of behavioural intention to conduct risk behaviours due to gaps in moral expertise, which gets improved with increasing age (Shek & Zhu, 2018). Hence, the fact that the far majority of the participants were between 18-30 years of age is additional support for this explanation. In addition to that, a previous study conducted by Todd and Mullan (2011), emphasized the predictive role of intention on risk behaviours and these can be based on a planned behaviour (Todd & Mullan, 2011). Thus, a recommendation for future research would be to specify the target group according to a certain age span to secure a certain level of

similarity between the characteristics of the participants that would additionally enhance the generalizability of the outcomes according to a targeted sample.

The third objective of the study was to examine if High Energy Drinking is explained by different determinants of the variables of the PWM in males than in females. The outcomes indicated that besides the fact that Intention was the strongest predictor for High Energy Drinking in both genders, attitude direct was an additional significant predictor for the risk behaviour in females, but not in males. This outcome was not as expected and not in line with previous findings, that examined attitude as a significant predictor in males, due to higher consumption and a generally more positive attitude towards Energy Drinks compared to females (Douglas & Nkporbu, 2018; Thorlton & Collins, 2017). A possible explanation comes from Mahboub, Al Malki, and Al Malki (2017), who examined that "factors predicting healthy behavior restricting ED consumption were negative attitude towards ED". Hence, even though the study outcomes did not show a significantly negative attitude of females, females had a less positive attitude towards Energy Drinks and lower level of consumption of these Drinks compared to males which might have an impact on the dominance of attitude in females. Moreover, several studies show that females are more risk averse than males (Carter, Franco, & Gine, 2017) which might associate with their attitude that has a significant relation with the risk behaviour. Nevertheless, further research is needed to detect reasons for attitude being a significant predictor of High Energy Drinking in females. Besides that, this outcome of the study opens doors for further research based on the fact that it contradicts with the usual theory of the PWM which says that intention and willingness are direct predictors of a risky behaviour (see Figure 1). Hence, when taking this into account, it could be considered for conducting further research with the PWM concerning HED. Next to this, generally working on the Model or even modifying the relations in the variables could be an additional recommendation, due to the fact that the model was constructed in 1998 and thus might need some adjustments (Gibbons, Gerrard, Blanton, & Russel, 1998).

5. Strengths and Limitations

A main strength of this study are the self-constructed instruments that are highly reliable, according to the Cronbach's Alpha scores of the variables of the PWM. This emphasizes that the instruments consistently measured what they were supposed to measure. Furthermore, studies that made use of the Prototype Willingness Model to analyse risk behaviours were generally focused on smoking (Sommer Hukkelberg & Dykstra, 2008), alcohol consumption (Armenta, Hautala &Whitbeck, 2015) or sexual behaviour (Walrave et al., 2015), which underlines the existing gap in research focused on Energy Drinking consumption. Based on this, the outcomes of this study would contribute to further researches in that area by making use of the Prototype Willingness Model.

A salient limitation of this study is the small number of High Energy Drinkers compared to the majority of participants who were No Energy Drinkers, which decreases the representativeness and generalizability of the outcomes of this sample for the larger population of Energy Drink consumers. Furthermore, the huge variation in age, namely including and comparing participants between 14-75 years, additionally decreases the generalizability of the study outcomes due to the fact that there is not a specific target group or age span given, that includes for example only adolescents, which are main consumers of Energy Drinks (Thorlton & Collins, 2017).

6. Recommendations

Based on the limitations, there are some improvement points regarding the study. First of all, it would be more appropriate to repeat the study with a specific age group or age span, for example, adolescents, who are a main target group of Energy Drinkers. This would help to have a sample that includes more High Energy Drinkers and to get outcomes that are generalizable, comparable and maybe more representative for Energy Drink consumers.

Next to this, there is need for further research referring to several parts of the study in order to develop and conduct useful and successful interventions. First of all, there is need to focus in future research on the reasons that lead to the high consumption of Energy Drinks in males. Then, based on the detected reasons, interventions could focus on coping strategies that help consumers overcome for example moments of cravings for Energy Drinks. Nevertheless, the outcomes of the study can already be used to develop interventions where consumers would be provided with healthier drink options instead of Energy Drinks. Moreover, there should be an additional emphasis on educating people about the health risks and side effects of these drinks, in order to decrease the positive attitude towards Energy Drinks. Next to this, due to the huge external impact of marketing strategies of Energy Drink brands on the consumption of Energy Drinks, it is recommended to label on the products the risks that are related to the consumption of these Drinks. This could make the consumers more aware of the health risks and might consequently lead to a reduction in their Energy Drink intake.

7. Conclusion

In conclusion, the results of the current study showed that first of all men consumed more energy drinks than females and that there were more male High Energy Drinkers than females. Regarding gender differences in the underlying determinants of the PWM for HED, it can be concluded that males had a more positive attitude and simultaneously perceived more disadvantages regarding Energy Drinks and the consumption than females. There were no significant gender differences in the variable's subjective norm and prototype perceptions. Concerning the reasoned pathway of the PWM, the variables attitude direct and intention were the important predictors for High Energy Drinking behaviour. In the social reactive pathway, the variables attitude direct and willingness showed the highest level of explanation for the risk behaviour. Nevertheless, a main gender difference was visible in females, where attitude direct was a significant predictor variable for the risk behaviour, whereas it was not in males. All in

all, intention was the most important predictor variable for HED in both genders. It was recommended, to educate people through interventions or awareness programs that are focused on the health risks of Energy Drinks. This could be additionally done by working on the marketing strategies, that are remarkable triggers for the purchasing and consequently consumption of these drinks. Hence, adjusting warning labels might be useful in order to increase the awareness of the consumers towards the risks of these drinks concerning their health which would be an important step towards a reduction in the consumption of such drinks. Moreover, presenting Energy Drink consumers with healthier drink options could help in decreasing the Energy Drink intake too.

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Appendix

Appendix A

Information letter

High Energy Drink Usage

This research aims to get an insight into the attitudes and considerations of adolescents and adults regarding the consumption of High Energy Drinks. The questionnaire contains questions about the consumption of these drinks, and about the beliefs, you and your environment have about these drinks. In addition, there will be some general questions about the type of person that you are e.g., if you are engaged in sports and if you like to do exciting things.

Participation in this study is based on a voluntary basis. Before being able to participate in this study, agreeing on the terms mentioned in the informed consent is required. Especially, for the participants between 12 and 16 years of age, thus who are underage, there is a need to obtain informed consent from you and your parents or your legal representative(s) before taking part. When agreeing on these terms, you can start with the online survey, which takes approximately 25 minutes. You have the right to decline to participate and withdraw from this research at any time. Withdrawing from the study does not have any negative consequences, and there is no need to provide any reasons for that. The data collection and the use of the data are meant only for this study. Besides this, anonymity and confidentiality are given during and after the data gathering.

If you are interested in the main findings of the study, you have the opportunity to get a summary of these. For this, you can write down your email address at the end of the questionnaire. Your email address will be saved separately from the data of the study.

If you have any questions, feel free to contact us.

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Informed Consent

As already stated, there are more aspects that need to be acknowledged before taking part in this study. There are no physical, legal or economic risks associated with participating in this study. Moreover, there are no guaranteed benefits for you by taking part in this study. Your privacy will be protected to the maximum extent allowable by law. No personally identifiable information will be reported in any research product. Moreover, only trained research staff will have access to your responses. Within these restrictions, the results of this study will be made available to you upon request. Moreover, the gathered data will only be used for the bachelor thesis and are not shown to third parties. Therefore, only the researchers Dilara Kocol, Nina Bergner, Jacob Heinze, and Janina Deiters plus their supervisors Dr. Marcel Pieterse, Dr. Stans Drossaert and Nienke Peeters, MSc, have access to the data.

By clicking on ‘Yes, I agree’, it indicates that you are at least 16 years of age or that you are the legal guardian of the participant and allow him or her to take part in this research; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree that you will participate in this research study.

' I hereby declare that

1. I agree to participate in a research project led by Dilara Kocol, Nina Bergner, Jacob Heinze, Janina Deiters.
2. I have been given sufficient information about this research project. The purpose of my participation in this project has been explained to me and is clear.
3. My participation in this project is voluntary. There is no explicit or implicit coercion whatsoever to participate.
4. It is clear to me that in case I do not want to continue the questionnaire, I am at any point of time fully entitled to withdraw from participation.
5. I have been given the explicit guarantees that, the researcher will not identify me by name or function in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure.
6. I have been given the guarantee that this research project has been reviewed and approved by Dr. Marcel Pieterse, Dr. Stans Drossaert and Nienke Peeters, MSc and by the BMS Ethics Committee. For research problems or any other question regarding the research project, the Secretary of the Ethics Commission of the faculty Behavioural, Management and Social Sciences at University Twente may be contacted through ethicscommittee-bms@utwente.nl
7. I have read and understood the points and statements of this form and I have had all my questions answered to my satisfaction. **'**

Do you agree?

Appendix B

In the following, you will be asked some questions about your behavior and consumption in relation to Energy Drinks. Before answering the next questions, it is important that you are aware of what an Energy Drink is. An Energy Drink usually contains sugar and stimulants like caffeine. Further, they may contain taurine, sweeteners, herbal extracts and amino acids. Its ingredients, mostly caffeine, are marked to provide the consumer with the benefits like alertness and enhancement of physical and mental activity. One Energy Drink unit is considered as 250ml. Typically, Energy Drinks are for example Rockstar, Red Bull or Monster, but other Energy Drinks do count as well.

Have you ever drunk Energy Drinks?

- Yes
- No

Have you drunk an Energy Drink in the last month?

- Yes
- No

Over the last few months, on how many days during the week did you usually drink Energy Drinks?

- Never
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- Every day

On a day on which you drink an Energy Drink, how many Energy Drinks (one drink = 250ml) do you usually have?

- 1 drink
- 2 drinks
- 3 drinks
- 4 drinks
- 5 or more drinks

Attitude towards Energy Drink consumption

The next few questions are about your attitude according to Energy Drink consumption. (Please tick and answer each of the following questions, ***also*** if you do not drink Energy Drinks). In the following two adjectives are opposed. Please indicate on the scale which adjective represent more your attitude towards Energy Drink consumption the more you.

On a day on which you drink an Energy Drink, how many Energy Drinks (one drink = 250ml) do you usually have?

- 1 drink
- 2 drinks
- 3 drinks
- 4 drinks
- 5 or more drinks

Attitude towards Energy Drink consumption

The next few questions are about your attitude according to Energy Drink consumption. (Please tick and answer each of the following questions, ***also*** if you do not drink Energy

Drinks). In the following two adjectives are opposed. Please indicate on the scale which adjective represent more your attitude towards Energy Drink consumption the more you.

Consumption is..

For me, Energy Drink consumption is...

harmful		beneficial
unpleasant		pleasant
bad		good
worthless		valuable
unenjoyable		enjoyable

For me, REGULAR Energy Drink consumption is...

harmful		beneficial
unpleasant		pleasant
bad		good
worthless		valuable
unenjoyable		enjoyable

Beliefs

Now, you will be presented with several statements which you have to evaluate by determining either your level of agreement or disagreement towards the specific statement. (Please tick and answer each of the following questions, ***also*** if you do not drink Energy Drinks).

In how far do you agree to the following statements:

1. Drinking Energy Drinks boosts one's energy.
2. Drinking Energy Drinks increases one's heart rate.
3. Drinking Energy Drinks improves one's attention span.
4. Drinking Energy Drinks improves one's athletic performances.
5. Drinking Energy Drinks regularly leads to an increased blood pressure.
6. Drinking Energy Drinks regularly leads to overweight.
7. Drinking Energy Drinks deteriorates one's mood.
8. Drinking Energy Drinks deteriorates one's academic performances.
9. Drinking Energy Drinks regularly deteriorates one's teeths.
10. Drinking Energy Drinks impairs one's athletic performances.
11. Drinking Energy Drinks improves one's mood.
12. Over time, you will have to drink more Energy Drinks to feel the effect.
13. Frequently drinking Energy Drinks could finally lead to addiction to these drinks.
14. Drinking Energy Drinks leads to sleeplessness.
15. Drinking Energy Drinks improves one's mental abilities, for example memory, imagination and thinking.

Opinions around you regarding Energy Drink consumption

This part of the questionnaire is about statements related to the ‘subjective norm’, which is about “the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991). (Please tick and answer each of the following questions, ***also*** if you do not drink Energy Drinks).

Please indicate what you think your friends/family expect you to do:

Strongly disagree
Disagree
neither agree nor disagree
Agree
Strongly agree

Friends important to me think that I should consume Energy Drinks.
My family thinks that I should consume Energy Drinks.

Please indicate on the scale in how far you agree with the following statements.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. It is expected from me that I consume Energy Drinks when I am surrounded by my friends.					
2. The people in my life whose opinion I value would agree with my weekly consumption of Energy Drinks.					
3. When it comes to Energy Drinks, I comply to the opinion of my friends.					
4. When it comes to Energy Drinks, I comply to the opinion of my family.					

A typical person consuming Energy Drinks

The next few questions are dealing with how you perceive a typical person your age, who is regularly drinking Energy Drinks. Therefore, think one minute about the typical person your age who regularly consume Energy Drinks. (Please tick and answer each of the following questions, ***also*** if you do not drink Energy Drinks).

Please indicate how far you think the following attributes represent a typical person who consumes Energy Drinks.

A typical person at your age who regularly consume Energy Drinks is...

Cool
Dynamic
Confident
Independent
Popular
Careful
Smart
Athletic
Extrovert
Adventurous
Hard Working
Careless
Childish
Boring
Not attractive
Immature
Selfish
Lazy
Unreliable
Chaotic

A typical Energy Drink consumer compared to you

The questions below are related in how far you think a typical Energy Drink consumers is similar to yourself. (Please tick and answer each of the following questions, ***also*** if you do not drink Energy Drinks).

Q Similarity 1
Do you resemble the typical person your age that regularly consumes Energy Drinks?

- Definitely not
- Probably not
- Might or might not
- Probably yes
- Definitely yes

Q Similarity 2
How similar or different are you to the type of person your age that regularly consumes Energy Drinks ?

- Not at all similar
- Not similar

- Neutral
- Similar
- Very Similar

Q Similarity 3

I am comparable to the typical person my age that regularly consumes Energy Drinks.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

Q Similarity 4

To what extent are you like the typical person your age that regularly consumes Energy Drinks?

- To no extent at all
- To almost no extent
- Neutral
- To some extent
- To a great extent

Behavioral Intention

The questions you will be presented in the following refer to your behavioral intention to consume an Energy Drink.(Please tick and answer each of the following questions, ***also*** if you do not drink Energy Drinks).

Please indicate how strongly you agree with the following statements.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I intend to consume at least one Energy Drink in the next month.					
I intend to drink an Energy Drink in the next week.					
I intend to consume at least some Energy					

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Drinks (3 or more) in the next month.					
I intend to consume at least some Energy Drinks (3 or more) in the next week.					

Willingness

In this part, you will be presented with questions regarding your level of willingness to execute the behavior of drinking Energy Drinks in certain situations.(Please tick and answer each of the following questions, ***also*** if you do not drink Energy Drinks).

Please indicate in how far you are willing to consume an Energy Drink in the following situations:

	Definitely not willing	Probably not willing	Might or might not willing	Probably willing	Definitely willing
Suppose you have to drive home late at night and you get tired. Your co-driver offers you an Energy Drink. How willing are you to consume that drink?					
Suppose you are at a party where everybody is drinking Energy Drinks. How willing are you to join them and take an Energy Drink yourself?					
Imagine you need to study a lot for an exam. A fellow student offers you an Energy Drink. How willing are you to consume the Energy Drink?					
When someone offers an Energy Drink to you at a party, how willing are you to consume it?					
Imagine you did not sleep a lot last night and you are tied. A friend offers you an Energy Drink. Would you					

	Definitely not willing	Probably not willing	Might or might not willing	Probably willing	Definitely willing
consume the Energy Drink?					
Suppose someone offers you an Energy Drink when you want to do sports. How willing are you to consume it?					
Imagine a friend of you offers you an Energy Drink. How willing are you to consume it?					

Demographic Data

What is your gender?

- Male
- Female
- Other
-

How old are you? Please fill in your age:

What is your nationality?

What highest level of education do you have?

- Student
- High School Diploma
- College Diploma
- Bachelor's degree
- Master's degree
- Other

There is the opportunity offered to get a summary of the main findings. Please enter your email address in the box, if you are interested to receive the main results.
If you have any comments or recommendations please indicate them in the box below.

Thank you for taking part in our survey. If you have any further questions or recommendations, please feel free to contact the researcher.

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