

Bachelor thesis

A tree must be bent while it is young

- a study about adolescents' attitude about a fat tax and its influencing factors -



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Abstract

Background: Germany is one of the leading countries in Europe when it is about overweight population. There are several interventions applied to avoid or improve the situation. But which one is the most effective? A few countries implement the fat tax, a tax on fatty, unhealthy food, to prevent that people buy too much unhealthy food. The question was is there a basis for a fat tax in Germany? And do the body mass index, the socio-economical status, the school type and the personality play a role for introducing a fat tax? **Respondents and Methods:** To find an answer on the research questions a survey is developed. 65 adolescents were participating in this research. They were recruited by the social network platform Facebook and by personal contact at their school. The adolescents were asked about their demographics, their personality according to the dimensions of the Big 5 (a psychological model of the 5 dimensions of personality: extraversion, agreeableness, conscientiousness, emotional stability and openness to experience), their attitude and their intention to join the fat tax. The variable attitude was formed by the dimensions evaluation and activity and the variable intention was formed by the dimensions willingness and probability. The questions were created in a 5-likert scale design. Next to descriptive statistics analyses, bivariate correlation methods were applied to measure the items. **Results:** The opinions about a fat tax are divided. Adolescents do support that the government is interfering in the eating behavior of the population, and they are also willing to eat more fruit and care more about a healthy diet. But they dislike the extra charge of 1,-€ on chocolate bars in their lunchroom. Furthermore they cannot imagine that a fat tax will affect their everyday life and they are also not willing to eat less chocolate. There is no correlation found between the variables SES and schooltype and the variables attitude and intention. The BMI correlates with one of the dimensions of the variable intention, namely willingness. The personality trait agreeableness is the only variable which correlates with both, attitude and intention. The remaining personality traits of the Big 5 do not correlate either with the variable attitude or with the variable intention. **Conclusions:** According to this research there is no basis for a fat tax in Germany. The majority is not willing to eat less chocolate, they do not like the idea of an extra charge of 1,-€, they even will get angry about an implementation of a fat tax. There is demand for other interventions conducted by the government. Adolescents like that the government is interfering in the affairs of the citizens. As a recommendation it can be said, that a new intervention should consider that agreeable persons are more likely to like the idea as well as to be willing to be part of this intervention.

Introduction

Today, more and more people are suffering from obesity. According to the medical definition it means that their body is accumulating too much fat, usually 20% more than the ideal weight of a person (Kopelman, 2000). Aside from the fact that the outward appearance does not fit into the western culture ideals, obesity involves many risks like severe diseases (WHO, 2000). The roots of obesity can often be found in the childhood or adolescence. In these periods of life most of our daily habits develop and henceforward accompany us a whole lifetime (Bull, 1992). Habits like eating fast food, relaxing on the couch after work, watching television, eating sweets and so on can lead to obesity.

Many people, who are suffering from obesity, do not know that the condition of their body is that bad. The consequences of obesity are disastrous. If the BMI (body mass index) is above 30 the chance to suffer from a cardiovascular disease is increasing, so does the chance to get diabetes mellitus type 2 and overstressing of the bones (Martini, Bartholomew, 2010). But despite the devastating physical risks, there are also mental ones. Current research has shown that obesity is correlated with the risk of getting dementia (Whitmer, Gunderson, Barrett-Connor, Quesenberry & Yaffe, 2005). The diseases mentioned above are only some examples of consequences that are likely to follow from abnormal overweight. Typical syndromes for an overweight person are also a high blood pressure, an elevated cholesterol level and being out of breath after little efforts (Martini, Bartholomew, 2010), to name only a few of them.

More than every second German citizen is overweight (Statistisches Bundesamt, 2009). The data of the number of people suffering from obesity should be alarming. Obesity is especially a problem in western cultures (Temple & Burkitt, 1994). This could be explained by the fact that the western culture is wealthy and everything you could imagine is available in the grocery stores (Temple, Burkitt, 1994). The food-industry invents many chemical additives to improve the taste of the meals which it sells. But more calories and fewer vitamins are often going along with those additives (Grimm, 2005).

Several interventions have been developed to prevent and to deal with the illness of obesity. The German association of obesity (Deutsche Adipositas-Gesellschaft) created 6 treatment-pillars as guidelines: dietetic arrangements, psychotherapy, movement therapy, drug treatment, conservative interventional therapy and surgical interventional therapy (Kielmann & Herpertz, 2001) are all methods to deal with the problems of obesity. The most effective

treatment seems to be the behavioral therapy, which is part of the psychotherapy, in combination with others (Kielmann & Herpertz, 2001, Kiess, Sergejev, Körner & Hebebrand, 2011).

A more preventive intervention would be to raise the prices for sweets and snacks as the Swedish government did for the alcohol prices. The idea behind it is that if the prices for sweets and snacks are increasing that the consumer will substitute those with alternatives or even do without (European spirits organization, 2011). In this case fruits could be substitutes, because they are also sweet. The difference would be that fruits have more nutrients than sweets do and of course less calories (Giesen, Havermans & Jansen, 2010).

There are several countries which imposed a tax on non-healthy food, like the United States, the United Kingdom, Denmark and France. In the US state New York they found out that an 18% tax on soft drinks would decrease consumption by 5 % and raise 404 US\$ for health care spending in the first year. The conducted research has also highlighted that especially the poor people are victims of unhealthy food. It indicates that there is a correlation between income and an unhealthy eating behavior (McColl, 2009). And indeed, there is evidence that people with a low SES (Socio-economic status) tend to be more often overweight than people with a high SES (Parsons, Power, Logan & Summerbell, 1999). A socio-economic status describes the This means that people with a low SES either do not get enough enlightenment / education regarding a healthy diet or healthy food is more expensive than unhealthy food.

Aside from the fact that the SES influences the eating behavior, it is proven that for example conscientious people are less susceptible to obesity than people who are not conscientious (Puhl & Heuer, 2009). Personality thus seems to play an important role as well. In a Norwegian study of children in the age of 6 to 12 it was investigated to which extent the personality traits play a role in consumption of “potentially obesogenic food”(Vollrath, Hampson & Juliusson, 2012). They found out that the probability to be overweight or even obese increases when boys and girls were less extraverted and when girls were less benevolent, less conscientious and less neurotic (Vollrath et al. 2012). According to Vollrath et al. (2012), the correlation of obesity and personality traits is understudied. In this examination the focus is not only on the attitude towards the fat tax and the intention to implement it but also how much the personality influences the attitude and the intention of the adolescents. Which personality traits have the most effect on the attitude and are the effects positive or negative?

In sum, this research wants to find an answer on the following questions:

Question 1: What is the attitude of adolescents of an increasing price of the chocolate bars in their lunchroom?

Adolescents do not need their parents to prepare the sandwiches for school, they do get their first pocket money and consequently also the first responsibility. So they are able to consider the decision to buy or not to buy a chocolate bar. On the other hand they are still young enough to form habits. In the adolescence the most habits are formed. So it is important to teach the adolescents early to get used to a healthy diet. The probability of becoming overweight will decrease.

Question 2: Is there a relationship between the BMI and the attitude and intention to implement the fat tax?

People who are concerned with a certain topic think more intensively about it than people who are not concerned with it. We can expect the same here: Overweight adolescents might think in another way about the fat tax than normal weight adolescents, because they will be the ones who will be the most affected.

H1: The scores of adolescents with a high BMI on attitude and intention to implement a fat tax varies from the scores of adolescents with a low BMI

Question 3: Is there a relationship between the SES and the attitude and intention to implement the fat tax?

As described earlier we know that the income influences the eating behavior but what about the attitude and intention to implement a “fat tax”?

H2: The scores of adolescents with a lower SES background on attitude and intention to implement a fat tax varies from the scores of adolescents with a higher SES background

Question 4: Is there a relationship between the school type and the attitude and intention to implement the fat tax?

In Germany there are several different school types. When children are around six/seven they visit the Grundschule (comparable to the basis school) for four years. After completing the 4 compulsory years the teacher, the parents and the pupil decide together which further school is appropriate for the pupil according to the leaving certificates and qualifications. The

choice is between Hauptschule (which provides pupils a basic general education), Realschule (which provides pupils a more extensive general education and the opportunity to switch to the Gymnasium or Gesamtschule), Gesamtschule (comparable to a comprehension school, where the courses Hauptschule, Realschule and Gymnasium can be chosen) and Gymnasium (which provides an in-depth general education aimed at the general higher education entrance qualification). Because the education varies so much we can expect different perspectives on a problem.

H3: The scores on attitude and intention to implement a fat tax are varying depending on the school an adolescent is visiting.

Question 5: Is there a relationship between personality and attitude and intention to implement the fat tax?

One of the facets of extraversion is assertiveness (Pervin & John, 1999). A study of Aspropoulos, Lazuras, Rodafinos and Eiser (2009) revealed that the more assertive a non-smoker was the earlier he/she dared to complain about the smokers. Less assertive non-smokers had the idea of complaining but did not dare. This shows that if assertive people have a plan they will also implement it.

Agreeable people are known for their trust. It can be expected that if an agreeable adolescent trust the state and its deeds, he/she will trust this intervention as well.

As mentioned earlier that less conscientious children are more likely to be overweight but what about adolescents? We know that conscientious people like rules and order. High prices for sweets might stop conscientious people to buy sweets rather than non-conscientious people.

Neurotic people are less risky than emotional stable people so it can be expected that neurotic people will think higher of the intervention because overweight is a risk and they avoid risks as much as they can.

People with an open character think very critical about things, consider all the advantages and disadvantages, and forge opinions in detail. This can be explained by the fact that openness to experience is related to creativity, intelligence and knowledge (Pervin & John, 1999). And according to Hashemi and Ghanizadeh (2012) intelligent people are more critical than non-intelligent people. Adolescents might think more critical of this intervention.

H4: Scores of adolescents on the questions about attitude and intention to implement the fat tax vary by personality traits.

Method

For this research a survey is developed to answer the research questions.

Participants & Procedure

90 German pupils were participating in this study, whereby 65 pupils completed the questionnaire. The participation was on voluntary basis. The adolescents were recruited via the social network platform Facebook and personal contact at their school. They received a link, either via Facebook or on a piece of paper, which led them to the questionnaire. The mean age of all respondents (N=65) was 16 years (range from 13 to 17 years). 82% of all respondents had a healthy weight (N=53) and only 3% were overweight (N=2). It was salient that 16% were underweight (N=10), 2% of those were very severely underweight (N=1), 3% were moderately underweight (N=2) and 11% were light underweight (N=7). Table 1 displays the frequencies of the demographics and the means of the variables age and BMI.

Table 1 – Demographics and the BMI for the respondents (n = 65)

Demographics	N	%	Mean	(SD)
Age	-	-	15.54	(0.9)
Gender				
Male	20	30.8	-	-
Female	45	69.2	-	-
School type				
Hauptschule	0	0.0	-	-
Realschule	17	26.2	-	-
Gesamtschule	6	9.2	-	-
Gymnasium	42	64.6	-	-
SES				
Lower class	0	0.0	-	-
Lower middle class	3	4.6	-	-
Middle class	40	61.5	-	-
Upper middle class	22	33.8	-	-
Upper class	0	0.0	-	-
BMI	-	-	20.66	(2.3)

Measures

Demographic information. Participants were asked about their age, gender, school type, SES of their parents and their height and weight. The BMI is calculated by the self-reported

weight and height with the formula: $[\text{weight in kg} : (\text{length in m})^2]$. Participants were also asked if they suffer from diabetes mellitus. If so, they have another motivation to buy chocolate bars than healthy children do, because if their blood sugar level is too low they need sugar quickly, which is in also in chocolate bars. Furthermore, does the BMI vary of diabetes patients because they need to inject themselves insulin which inhibits the depletion of the fat tissue.

Personality. To test if the personality influences the attitude or intention a short version of the the IPIP scale testing the Big 5 domain was used (Goldberg, Johnson, Eber, Hogan, Ashton, Cloninger & Gough, 2006). It contains 50 statements about the variables: Extraversion, agreeableness, conscientiousness, emotional stability and intellect. This test is a short version of the usual Big 5 test. It is chosen for a short version to keep the questionnaire short and thus keep the concentration of the respondents at a high level. In a 5-likert scale design the personality were tested with 10 statements to each variable.

Attitude. According to the rating scale semantic differentiation the questions were subdivided into 3 dimensions: evaluation, potency and activity. The variable evaluation is about the opinion, if it is positive or negative. Therefore, 4 items were used to test how the respondents rate the fat tax. Items are “Do you like the idea?”, “Is an extra charge of 1,-€ acceptable for you?”, “Do you like that the government is interfering in the eating behavior of the population?” and “Do you like the alternative to produce chocolate with less fat and less calories by nano technology?”. The variable potency is about how strong or weak does the participant thinks of the effects. 3 items were used to test the variable potency: “Is the price of a chocolate bar important to you?”, “Would you eat less chocolate in consequence of an increasing price of chocolate bars?” and “How much does the price have to increase to affect you?”. And the last variable is about the grade to which the participant is affected by the fat tax, passive or active. It is examined by 3 questions. The items are “Do you think that a fat tax will influence your everyday life?”, “How dramatic do you see the current situation in Germany when you think about overweight people?”, and “Would you be angry about an implementation of the fat tax?”. Higher scores on the items display a positive attitude towards the items. To enhance the internal consistency of the 3 dimensions (Cronbach’s alpha of 0.46), the variable potency is thrown out and neglected in this study. The internal consistency is still low, but it is close to the suggested Cronbach’s alpha of 0.7 to work with (Cronbach’s alpha of 0.61).

Intention. To display the usefulness of the fat tax the variable intention is tested with the help of the two dimensions willingness & probability (Fishbein & Ajzen, 1975). Each of these dimensions is tested with the help of 3 items. The items of willingness are “Are you willing to eat less chocolate?”, “Are you willing to eat more fruit?” and “Are you willing to care more about a healthy diet?”. The items of probability are “How likely is it that you will eat less chocolate with an implementation of a fat tax?”, “How likely is it that you will eat more fruit with an implementation of a fat tax?” and “How likely is it that you will care more about a healthy diet?”. The internal consistency is low (Cronbach’s alpha of 0.62), but it is close to the suggested alpha of 0.7.

The items of personality, attitude and intention were all designed in a 5-likert scale. Items which were negatively posed were recoded into the same variable. To examine if there are relationships between attitude and intention to implement the fat tax and the BMI, school type or one of the personality traits, the Pearson’s Correlation method was used. To find out more about a possible relationship between attitude and intention to implement the fat tax and the SES, the Spearman’s Correlation method was used. All correlations were tested two-sided. For the sake of displaying the frequencies a descriptive analysis is done.

Results

Question 1: What do adolescents think of an increasing price of the chocolate bars in their lunchroom?

According to table 2, there are adolescents who do like the idea of a fat tax (26.2%) and there are adolescents who do not like the idea of a fat tax (23.1%). But the most of the respondents (35.4%) do not have an opinion about that. They neither like nor dislike the idea of a fat tax. The extra charge of 1,-€ is mainly disliked by the adolescents. Approximately 40 % even get angry when a fat tax is put into reality. On the other hand it is salient that the most respondents do like that the government is interfering in the eating behavior of the population. More than half of the adolescents support the engagement of the government. The majority does not think that the fat tax will affect themselves in their daily life. When adolescents were asked about the current situation in Germany when it is about overweight people, then they do not perceive it as very dramatic. There are only a few respondents (12.3%) who think it is dramatic. Although adolescents are not in agreement about eating less chocolate, the most of

them do agree when it is about the will to eat more fruit and to care more about a healthy diet.
Even 61.5 % of the respondents are willing to care more about a healthy diet.

Table 2 – Means and frequencies for the items about attitude and intention (n = 65)

Frequencies	VeryDisagree	Disagree	Neither disagree nor agree	Agree	Very Agree	Mean
	%	%	%	%	%	
Attitude						
Do you like the idea of a fat tax	9.2	23.1	35.4	26.2	6.2	2.97
Is an extra charge of 1,-€ acceptable for you	20.0	41.4	13.8	16.9	7.7	2.51
Do you like that the government is interfering in the eating behavior of the population	1.5	6.5	18.5	49.2	24.6	3.89
Do you like the alternative to produce chocolate with less fat and less calories by nano technology	16.9	29.2	24.6	24.6	4.6	2.71
Do you think that a fat tax will influence your everyday life	21.5	35.4	23.1	16.9	3.1	2.45
How dramatic do you see the current situation in Germany when you think about overweight people	0.0	12.3	44.6	32.3	10.8	3.42
Would you be angry about an implementation of the fat tax	1.5	18.5	35.4	36.9	7.7	3.31
Intention						
Are you willing to eat less chocolate	3.1	27.7	24.6	33.8	10.8	3.22
Are you willing to eat more fruit	1.5	7.7	30.8	47.7	12.3	3.62
Are you willing to care more about a healthy diet	-	3.1	24.6	61.5	10.8	3.80
How likely is it that you will eat less chocolate with an implementation of a fat tax	9.2	18.5	20.0	38.5	13.8	3.29
How likely is it that you will eat more fruit with an implementation of a fat tax	12.3	29.2	29.2	23.1	6.2	2.82
How likely is it that you will care more about a healthy diet	9.2	29.2	29.2	24.6	7.7	2.92

Question 2: Is there a relationship between the BMI and the attitude and intention to implement the fat tax?

A Pearson product-moment correlation coefficient was computed to assess the relationship between the BMI and the attitude and intention. There could be no correlation be found for BMI except with the variable willingness ($r = 0.27$, $n = 65$, $p = 0.03$).

Question 3: Is there a relationship between the SES and the attitude and intention to implement the fat tax?

To figure out if there is a relationship between the SES and the variables attitude, intention and their subdivisions, a Spearman’s rank-order correlation coefficient was calculated. According to the results summarized in table 3, SES has correlations neither with attitude nor with intention.

Question 4: Is there a relationship between the school type and the attitude and intention to implement the fat tax?

Applying again a Pearson correlation analysis demonstrates that there are no relationships between school type and attitude and intention (see table 3).

Table 3 –Bivariate Correlation between the independent variables BMI, SES and school type and the dependent variables of Attitude and Intention (n = 65)

	BMI (Pearson Correlation)	SES (Spearman Correlation)	Schooltype (Pearson Correlation)
Attitude			
Evaluation	0.13	-0.04	-0.00
Activity	0.22	0.19	0.06
Intention			
Willingness	0.27*	0.22	-0.06
Probability	0.06	0.04	0.03

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Question 5: Is there a relationship between personality and attitude and intention to implement the fat tax?

Table 4 displays the theoretical minimum as well as the theoretical maximum, mean scores and the standard deviation of each personality trait. The maximum reachable score per personality trait is 50. For a better understanding it is easier to divide the mean score by ten (ten questions) to see how they scored in a range from 1 to 5 (5 = most approving). For example, if we take the variable extraversion, the mean score is actually 35.06, but divided by

10 it is 3.5. On a scale from 1 to 5 it means that the average is not extravert but not introvert either.

Table 4 – Mean scores of the personality traits (n = 65)

Descriptive Statistics

	Theoretical Minimum	Theoretical Maximum	Mean	Std. Deviation
Extraversion	5	50	35.06	5.48
Agreeableness	5	50	40.09	4.37
Conscientiousness	5	50	31.72	5.87
Emotional Stability	5	50	30.38	6.47
Intelligence	5	50	32.69	3.02

Conducting a Pearson correlation analysis with the variables extraversion, agreeableness, conscientiousness, emotional stability and openness to experience reveals statistically significant results only for the personality trait agreeableness (see table 5). The dependent variables evaluation, activity, willingness and probability show a positive relationship with the personal trait agreeableness. This means the more agreeable a person the more positive the person is rating the answer.

Table 5 – Pearson Correlation Matrix for the independent variables of the personality (n=65)

	Extraversion	Agreeableness	Conscientiousness	Emotional Stability	Openness to experience
Attitude					
Evaluation	0.15	0.40***	0.18	0.06	-0.13
Activity	0.09	0.36***	0.10	-0.17	0.01
Intention					
Willingness	0.14	0.43***	0.10	-0.23	0.17
Probability	0.23	0.24*	0.10	-0.11	0.12

* p < 0.05; ** p < 0.01; *** p < 0.001

Discussion

The aim of this research was to find out if there is a basis for the implementation of a fat tax in Germany and what are the factors, which have an important influence on that. Based on the results of the data analysis the hypotheses can be evaluated. Furthermore, limitations of this research and recommendations for further studies can be pointed out.

To come back to the research question 1 (what do adolescents think of an increasing price for chocolate bars in their lunchroom?), it can be said that the opinion about the fat tax is divided. There are adolescents who do like the idea and adolescents who dislike the idea. The facts that they do not like the extra charge of 1,-€, that they do not think that a fat tax will affect their everyday life, that they do not perceive the current situation of overweight in Germany as dramatic and that they are not willing to eat less chocolate, can be explained by the most frequent weight class (82 % of the respondents were classified as healthy weight). So they are not concerned with the topic of overweight. On the other hand the adolescents do like that the government is interfering in the eating behavior of the population can be interpreted as that they can imagine that it will help overweight people if the government makes decisions. So the division in the answers of the question about the idea of a fat tax can be seen as this: Adolescents do partly like the idea because they can imagine an effect of a fat tax for overweight people, adolescents who do not like the idea do not want to be involved in a fat tax, because they are not overweight but still want to buy a chocolate bar every now and then. The adolescents answered that they do not want to eat less chocolate, this can be an indicator for a fail of the fat tax in Germany. Several studies in other western countries could affirm these results.

In a Swedish study about the effect of the increasing prices of alcohol they found out that the higher prices for alcohol have only a limited effect on the consumption of alcohol per person. This is because the price-elasticity of alcohol is far too low to reduce the consumption. According to the European Rand study (Rabinovich, Brutscher, de Vries, Tiessen, Clift & Reding, 2009) the prices of alcohol have to increase by 900% to really reduce the consumption. So the effect is very low.

In the UK they tried to tax the soft drinks but it turned out that soft drinks are relatively inelastic. The UK wanted to raise the prices of soft drinks of 10%. For the consumer it seems very difficult to see raising prices of soft drinks because the price varies a lot depending on the supermarket, the seasons and the sales. So the consumer would not recognize a big difference. Another point of “neglecting“ the 10% tax is that they are willing to pay 950%

more for a Cola if it is from a popular brand like Pepsi or Coca Cola. The probability to change the now-a-days situation by adding 10% taxes on the normal price is very low (Winkler, 2012).

In Denmark they tried to tax the saturated fat products. They introduced this tax in 2011 and it lasted only one year to realize that the desired effect fails to appear. The Danish population bought their products across the border, in Germany (Matthiessen, Fagt, Biloft-Jensen, Beck & Ovesen, 2003).

These insights seem similar to the results of the current study.

Hypothesis 1, which states that answers of adolescents with a higher BMI varies to the answers of adolescents with a lower BMI on questions about the attitude and intention to implement a fat tax, is not completely supported by the data. The only fact about BMI, which is supported by the data, is the variable willingness. This means that the higher the BMI the more he/she is willing to renounce chocolate bars and eat more fruit instead and mind a healthy diet. A study of Harris, Warschul & Walters (1990) found out that overweight people are more talking about the willing to reduce their daily amount of eating than normal weight people. This also answers our second research question (what effect does the BMI have on the answers of the respondents?), according to this study there is no relationship found between the BMI and the attitude of the adolescents towards a fat tax.

The parental SES, which is mentioned in the second hypothesis, does not seem to correlate with any dependent variable. Neither does the school type (Hypothesis 3). This means that it does not matter if the adolescents are going to a Hauptschule or to a Gymnasium and it also does not matter if their parental SES is low or high, if one wants to predict the attitude towards the intervention or the intention to put it into practice. The research questions 3 and 4 can be answered with that they both have no effect on the answers of the adolescents.

Hypothesis 4, which states that the scores on the questions about attitude and intention to implement the fat tax vary by personality traits, is partly supported by the data. Extravert adolescents' scores do not vary from the scores of introvert adolescents. But results displayed that the more agreeable an adolescents is the higher the scores on questions about the attitude and intention to implement a fat tax. This can be explained by the fact that low agreeableness is often characterized by skepticism (Pervin & John, 1999). One result was that adolescents like that the government is interfering in citizen's eating behavior. A reason for this result can

be that agreeable persons are more likely to trust someone, in this case to trust the government.

In contrast to the research of Puhl & Heuer (2009), which said that conscientious people think higher of the intervention of changing the prices than less conscientious adolescent, is not proven. There is also no statistical evidence found for the personality trait emotional stability. The last personality trait, openness to experience, cannot be supported by the data, either.

Limitations and Recommendations

Only 65 respondents of 95 were completing the survey. The remaining 30 respondents stopped it in the middle of the questionnaire. Few of them just did not answer several questions. This can be explained that they did not understand the question or that they did not want to go on. The reason why they stopped is unclear.

The set of 65 respondents was chosen because it was a research to get an impression how adolescents think about the intervention, and if they think if it is useful or not. To find out more details about the results a study with more respondents is suggested.

In contrast to the statement that Germany is the number one in Europe of the most overweight people, this study figured out quite the opposite. Only 2 respondents were overweight, on the other hand there were 8 underweight adolescents participating in this study. The average BMI was ranged in the healthy weight class. This problem can be explained by the fact that the statistics about Germany's overweight people was made about the general population with no differentiation between old and young. In this study it is only focused on adolescents. It can be also explained by the possibility that overweight people did not complete or even did not participate in this research. For further research a more target-oriented selection of respondents is recommended.

All in all it can be said that at the moment there is no basis for a fat tax in Germany for adolescents. Adolescents are receptive for interventions to prevent overweight conducted by the government but as consequence of the homogeneous sample a fat tax is not demanded. The majority of the respondents were not overweight so the need for a fat tax does not exist neither does it be perceived as effective. For further research it is recommended that the respondents are carefully selected to achieve a heterogeneous sample and that they concern that agreeable adolescents are more likely to support an intervention.

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Appendix

Vielen Dank, dass du dich dafür entschieden hast an meiner Untersuchung teilzunehmen.

Auf den folgenden Seiten findest du Fragen über deine Persönlichkeit und über deine Meinung zum Thema „Preise

von Süßigkeiten erhöhen“.

Deine Antworten werden anonym behandelt.

Fülle die Antworten bitte so wahrheitsgetreu wie möglich aus.

1. Geschlecht

Männlich

Weiblich

2. Alter

12

13

14

15

16

17

3. Zu welcher Schule gehst du?

Gesamtschule

Gymnasium

Hauptschule

Realschule

4. Leidest du an Diabetes?

Ja

Nein

5. Welche gesellschaftliche Schicht trifft am meist en auf deine Eltern zu?

Unterschicht

Untere Mittelschicht

Mittelschicht

Obere Mittelschicht

Oberschicht

6. Wie groß bist du?

7. Wie schwer bist du?

Folgende Situation:

Aufgrund der wachsenden Zahl übergewichtiger Menschen, hat das Gesundheitsministerium beschlossen, die Steuern für

Süßigkeiten zu erhöhen. Sie erhoffen sich somit, die Zahl übergewichtiger Menschen zu reduzieren, da diese nun weniger

Süßigkeiten kaufen würden und dafür mehr Obst. Dies hat auch Auswirkungen für dich.

In der Cafeteria deiner Schule kostet nun ein Schokoriegel 1,-€ mehr als zuvor. Außerdem wird auch in gewissen Mengen

Obst und Gemüse billig angeboten.

Es folgen Fragen über deine Meinung über die Idee der Regierung.

8. Findest du diese Idee gut?

Ja, ich finde diese Idee sehr gut

Ja, ich finde diese Idee gut

Ich finde diese Idee weder gut noch schlecht

Nein, ich finde diese Idee nicht gut

Nein, ich finde diese Idee gar nicht gut

9. Findest du einen Aufpreis von 1,-€ akzeptabel?

Ja, ich finde 1,-€ absolut akzeptabel

Ja, ich finde 1,-€ akzeptabel

Ich finde 1,-€ Aufpreis weder akzeptabel noch unakzeptabel

Nein, ich finde 1,-€ nicht akzeptabel

Nein, ich finde 1,-€ gar nicht akzeptabel

10. Findest du es gut, dass der Staat sich einmisch?

Ja, das finde ich sehr gut
Ja, das finde ich gut
Ich finde es weder gut noch nicht gut
Nein, das finde ich nicht gut
Nein, das finde ich gar nicht gut

11. Mittlerweile lässt sich Schokolade schon mit Nanotechnologie herstellen, selber Geschmack aber mit weniger Fett und weniger Kalorien. Findest du, dass das eine bessere Option ist als die Preise zu erhöhen?

Ja, auf jeden Fall
Ja, finde ich schon
Weder ja, noch nein
Nein, finde ich nicht
Nein, auf gar keinen Fall

12. Ist dir der Preis von Schokoriegeln wichtig? Oder geht es dir beim Kauf mehr um den Geschmack?

Ja, der Preis ist mir sehr wichtig
Ja, der Preis ist mir wichtig
Der Preis ist mir weder wichtig noch unwichtig
Nein, der Preis ist mir nicht wichtig
Nein, der Preis ist mir gar nicht wichtig

13. Würdest du aufgrund dieser Idee weniger Schokoriegel essen?

Ja, auf jeden Fall
Ja, ich denke schon
Ich weiß nicht
Nein, ich denke nicht
Nein, auf gar keinen Fall

14. Wie stark müsste der Preis von Schokoriegeln erhöht werden, damit du weniger kaufen würdest?

0.10€ - 0.50€
0,50€ - 1,-€

1,-€ - 1,50€

1,50€ -2,00€

> 2,00€

15. Glaubst du, dass die Umsetzung dieser Idee Einfluss hat auf deinen Alltag?

Ja, auf jeden Fall

Ja, ich denke schon

Ich weiß nicht

Nein, ich denke nicht

Nein, auf gar keinen Fall

16. Wie dramatisch findest du die momentane Situation, sind wirklich zu viele Menschen in Deutschland

übergewichtig?

Sehr dramatisch

Dramatisch

Weder dramatisch noch undramatisch

Undramatisch

Sehr undramatisch

17. Wärst du wütend, wenn die Regierung diese Idee wirklich umsetzen sollte?

Ja, ich wäre sehr wütend

Ja, ich wäre wütend

Ich wäre nicht wütend aber auch nicht zufrieden

Nein, ich wäre nicht wütend

Nein, ich wäre gar nicht wütend

18. Möchtest du gerne weniger Schokoriegel essen?

Ja, ich möchte am liebsten gar keine Schokoriegel mehr essen

Ja, ich möchte gerne weniger Schokoriegel essen

Weder ja noch nein

Nein, ich möchte nicht auf Schokoriegel verzichten

Nein, ich möchte unter gar keinen Umständen weniger Schokoriegel essen

19. Möchtest du mehr Obst essen?

Ja, ich möchte viel mehr Obst essen

Ja, ich möchte mehr Obst essen

Weder ja noch nein

Nein, ich möchte nicht mehr Obst essen

Nein, ich möchte auf gar keinen Fall mehr Obst essen

20. Möchtest du mehr auf eine gesunde Ernährung achten?

Ja, ich möchte mich fast ausschließlich nur noch gesund ernähren

Ja, ich möchte mich gerne gesünder ernähren

Weder ja noch nein

Nein, ich möchte nicht auf eine gesunde Ernährung achten

Nein, ich möchte gar nicht auf eine gesunde Ernährung achten

21. Wie wahrscheinlich ist es, dass du weniger Schokoriegel isst, im Falle der Umsetzung dieser Idee?

Sehr wahrscheinlich

Wahrscheinlich

Weder wahrscheinlich noch unwahrscheinlich

Unwahrscheinlich

Sehr unwahrscheinlich

22. Wie wahrscheinlich ist es, dass du mehr Obst und Gemüse isst, im Falle der Umsetzung dieser Idee?

Sehr wahrscheinlich

Wahrscheinlich

Weder wahrscheinlich noch unwahrscheinlich

Unwahrscheinlich

Sehr unwahrscheinlich

23. Wie wahrscheinlich ist es, dass du nun mehr auf eine gesunde Ernährung achtest, im Falle der Umsetzung dieser Idee?

Sehr wahrscheinlich

Wahrscheinlich

Weder wahrscheinlich noch unwahrscheinlich

Unwahrscheinlich

Sehr unwahrscheinlich

Es folgen nun ein paar Fragen über deine Persönlichkeit. Bitte gebe an, in wie fern du zu folgenden Aussagen zustimmst

24. Ich bin eine Stimmungskanone

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

25. Ich bin gerne mit anderen Menschen zusammen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

26. Ich starte oft Konversationen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

27. Ich unterhalte mich mit vielen verschiedenen Menschen auf Partys

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

28. Ich stehe gerne im Mittelpunkt

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

29. Ich bin nicht gesprächig

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

30. Ich bleibe lieber im Hintergrund

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

31. Ich habe nur wenig zu erzählen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

32. Ich mag es nicht, wenn die Aufmerksamkeit auf mich gerichtet ist

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

33. Ich bin schüchtern, wenn Fremde um mich herum sind

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

34. Ich kann mich gut in andere Menschen hineinversetzen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

35. Ich kann gut mit Anderen mit fühlen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

36. Ich nehme mir Zeit für Andere

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

37. Ich habe ein warmes Herz

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

38. In meiner Anwesenheit fühlen sich Menschen wohl

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

39. Ich interessiere mich für andere Menschen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

40. Ich bin ein Egoist

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

41. Ich beleidige Menschen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

42. Ich bin nicht interessiert in Probleme Anderer

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

43. Ich fühle nur wenig Betroffenheit für Andere

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

44. Ich bin auf alles gut vorbereitet

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

45. Ich achte auf Details

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

46. Meine Hausaufgaben erledige ich immer sehr genau

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

47. Ich halte mich immer an Regeln

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

48. Ich liebe Ordnung

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

49. Ich bin perfektionistisch

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

50. Ich verliere oft meine Sachen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

51. Ich bin unordentlich

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

52. Ich verstaue Sachen oft nicht da, wo sie hingehören

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

53. Ich drücke mich oft vor Pflichten

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

54. Ich bin ein sehr entspannter Charakter

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

55. Ich fühle mich selten deprimiert

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

56. Ich mache mir eigentlich nie unnütze Sorgen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

57. Ich hab meine Gefühle immer unter Kontrolle

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

58. Ich bin leicht reizbar

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

59. Ich bin oft ohne Grund traurig

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

60. Ich bin launisch

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

61. Ich fühle mich oft gestresst

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

62. Ich fühle mich häufig deprimiert

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

63. Ich ändere häufig meine Stimmung

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

64. Ich habe einen reichen Wortschatz

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

65. Ich habe eine lebendige Fantasie

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

66. Ich habe gute Ideen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

67. Ich verstehe schnell neue Themen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

68. Ich verwende häufig schwierige Wörter

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

69. Ich philosophiere gerne über die Welt

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

70. Ich bin kreativ

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

71. Ich habe Schwierigkeiten abstrakte Ideen zu verstehen

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

72. Mich interessieren abstrakte Ideen nicht

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

73. Ich habe eine gute Vorstellungskraft

Ich stimme sehr zu

Ich stimme zu

Ich stimme weder zu, noch stimme ich nicht zu

Ich stimme nicht zu

Ich stimme gar nicht zu

Vielen Dank für deine Teilnahme.

Ende!