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The Influence of movie on behavioral change in individual meat and dairy products consumption

Bachelor Thesis

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Abstract

The aim of this bachelor thesis is to test the influence of movie on humans attitudes, behavior and emotions. I focused on meat and dairy products consumption, speciesism, carnistic defense and positive and negative emotions induced by a movie.
The sample of 99 respondents included 64 female and 35 male participants between 18 and 59 years of age. The vegans and vegetarians were not included in the sample group.
For the purpose of this experiment, The Speciesism Scale and The Carnisn Inventory were translated into the Czech language. The Speciesism Scale wasn't used in final data analyses for bad psychometrics properties. Emotions were measured using PANAS scale and meat and dairy products consumption were measured using multiple choice table, which contains types of meat and dairy and frequencies of eating those products.
The data were analyzed using IBM SPSS Statistics 25. Repeated measures ANOVA didn't show a strong influence of watching a movie on change in meat and dairy products consumption and carnistic defense. Watching a documentary induced negative emotions, especially anger, shame and sadness and at the same time document induce a decrease of positive emotions. Regression analyses showed that change in carnistic defense predicts the change in meat and dairy products consumption.

Key words

fictional movie, documentary, behavior, attitude, meat and dairy products consumption, speciesism, carnism, emotions

Content

Introduction

Documentaries are one of the most commonly used interventions in the animal welfare movement. There are many 'must-see lists' with animal rights documentaries and movies on personal blogs but also animal advocacy organizations websites. For example, PETA published a list of Top Animal Right Movies which should change your students thinking and motivate them to take action for animals [1].

Although many vegans and vegetarians reduce their meat and dairy products consumption after watching a movie, there is no convincing research approving, describing or explaining the process of this behavioral change (Humane League Labs, 2014). Without this research, hundreds of thousands of dollars are spent on animal advocacy documentaries, which may inspire people to reduce their meat consumption, but may not.

Film and psychology are very connected fields. Psychology of film studies human perception, cognition, and emotions in connection to a film, but movies also have wide use in psychology experiments and intervention. There is evidence that film can change real-world beliefs and attitudes using narrative persuasion, which uses different process then rhetorical persuasion and the persuasion effect here is caused by a combination of entertainment and real arguments (Igartua & Barrios, 2012).
In addition, films also motivate people to act according to their new beliefs and they are often used in an activistic group to activate volunteers (Whiteman, 2010).

In this research, I am going to explore the influence of animal advocacy movies on the change in emotional experience, carnistic defense, speciesism, and behavior. Carnism and speciesism are still quite new concepts in the psychology field, but they can bring some valid information into the discussion about change in meat

[1] Available from: https://www.peta.org/teachkind/humane-classroom/animal-friendly-class-movies/

consumption. I am also going to compare the influence of a documentary movie and a fictional movie because every movie has specific features which play important role in persuasion and this distribution is a basic step to discuss and explore film in its entire width.

Theoretical part

1 Why I think it is important

1.1 Meat production in numbers

Meat production

Meat production is increasing rapidly every year. Today's meat production is almost five times higher than in 1961. The largest meat producer in the world is Asia which increased its production 15-times since 1961. In 2014 Asia produced around 40-45 percent of total meat production which is 135,71 millions of tons of meat.

Meat consumption per person per year increased approximately about 20 kilograms since 1961. In 2014 the average meat consumption was 43 kilograms of meat per person per year and the biggest consumer was Australia with 116 kilograms per person. Meat consumption is highest in high-income countries, but it has stopped increasing in the last 10 years. The largest increase in meat consumption was registered in China with 3,79 kg of meat per person per year in 1961 and 61,82 kg of meat per person per year in 2014 (Ritchie & Roser, 2018).

Trends in meat consumption are very different around the world. Regardless of cultural differences, the biggest groups of slaughtered animals consist of pigs (112,33 million of tons in 2013), poultry (109,02 millions of tons in 2013) and beef and buffalo (67,99 million of tons in 2013) (Ritchie & Roser, 2018).

Milk production

Together with meat production also milk production is increasing every year. In 2014 milk production was more than twice as big as in 1961 (791,79 million tons in 2014 and 344,18 million tons in 1961). The biggest producer of milk is Asia as well (307,33

million of tons in 2014) but the distinction towards other continents isn't so significant. The second biggest producer of milk is Europe with 222,94 million tons in 2014 (Ritchie & Roser, 2018).

The biggest milk consumer is Northern America with 248,03 kg of milk per person per year although its milk consumption decreased since 1961 (261,39 kg of milk per person per year). Exclude Northern America milk consumption increases around the world with the most significant difference in South America (Ritchie & Roser, 2018).

Egg production

The worldwide egg production has increased rapidly with 15,07 million tons in 1961 and 73,79 million tons in 2013. The biggest difference was registered in China, which increased its egg production more than 19 times.

The worldwide egg consumption increased twice betIen the years 1961 (4,55 kg per person per year) and 2013 (9,19 kg per person per year). The most significant difference was registered in China as well which increased its consumption more than nine times (Ritchie & Roser, 2018).

Fish and seafood production

Even though fish production and consumption is a very important component of meat consumption, I will not describe it closely in this work because the topic of fish production is very wide and complex. For those who are more interested in this topic, I added this link with statistic information from the same course as all the data above [2].

[2] Available from: https://ourworldindata.org/meat-and-seafood-production-consumption#global-seafood-production-by-type

1.2 Negative aspects of meat production

Meat

Though meat is considered a common part of human's everyday food, it has many opponents as well. National Health Servise recommends meat as part of a balanced diet. The average consumption of meat should be 70g a day. The biggest advance of meat is a high content of protein, vitamins, and minerals (NHS, 2018).

Nowadays there are many lifestyles which reduce meat in their everyday food. The most counting is vegetarians, vegans, and reductionists. Vegetarians eliminate all kinds of meat from their menu. Vegans avoid meat and all types of dairy products, eggs, and honey. Reductionists try to reduce their meat and dairy products consumption (Humane League Labs, 2014).

Three main reasons why people eliminate meat from their everyday food are the environmental impact of meat, the impact of meat on health and ethics (Waldmann et al., 2003).

Environmental impact of animal agriculture

Nowadays animal agriculture is a common subject of debates about the environment. According to the Institute of Physics, becoming vegan is the sixth best thing you can do to help the environment and it is, for example, four times more effective than recycling (Institute of Physics, 2017). There are many aspects of animal agriculture which are considered as unbeneficial for the environment. The animal products industry is responsible for approximately 30% of the world's greenhouse gas emissions (Petrovic, Djordjevic, Milicevic, Nastasijevic, & Parunovic, 2015). It uses about 70% of agricultural land which is about 30% of the whole land surface. Although livestock production is already the largest user of land, it is still expanding

which is the main cause of deforestation especially in Latin America (Steinfeld et al., 2006).

The impacts of animal agriculture on water resources are often misunderstood. There are direct impacts like using water for animals to drink or to wash animals. But there are also many indirect impacts like using water to keep factory farms clean, to grow crops for animals or to process the meat and dairy products (Steinfeld et al., 2006). In summary, the production of 1 kg of animal protein consumes about 100 times more water than the production of plant-based protein (Pimentel & Pimentel, 1996). Those are just three most visible impacts of animal agriculture on the environment but it has also a significant impact on pollution and stability of oceans.

Impact of meat on human health

Although meat is often recommended as part of a balanced diet many people skip meat for its possible health risks or in an effort to lose weight (Fox & Ward, 2008). According to research, the long term consumption of red or processed meat increases risk of cardiovascular diseases, type 2 diabetes, colorectal cancer and total mortality (Richi, Baumer, Conrad, Darioli, Schmid, & Keller, 2015). Processed meat is also placed in the same category of cancer risk as for example smoking cigarettes according to the World Health Organization (Petroff, 2015).

Oxford cohort study, with a sample size of almost 45 thousand people, explored that vegetarian diet could decrease the risk of heart disease by 32%, which can be explained by lower cholesterol and blood pressure in vegetarians (Crowe, Appleby, Travis, & Key, 2013). Research in Nutrition and Food Sciences found out that meat protein is hard to digest, which means that meat protein leaves a surplus of energy in the human body which is converted and stored as fat. Meat contributes to worldwide obesity as well as sugar (You & Henneberg, 2016). Meat consumption may also influence the occurrence of Alzheimer disease. According to the research, diet low on meat (like in Japan) correlates with a low occurrence of Alzheimer disease in

comparison to western diet significant on high consumption of animal products (Grant, 2014).

Ethical reasons for meat reduction

Ethical concerns about animals are the most cited reasons why people go vegan or vegetarian (Radnitz, Beezhold, & DiMatteo, 2015). In comparison to vegans who change their diet because of health, ethical vegans and vegetarians consume fewer animal products, feel stronger conviction and persist in the vegan diet for a longer time (Hoffman, Stallings, Bessinger, & Brooks, 2013). People who change their meat and dairy products consumption for ethical reasons are usually concerned about animal Ilfare, animal rights, and speciesism. Their biggest worries are that animals can feel pain and people's treatment causes animals to suffer mainly in factory farms. Some people also disagree with the idea that animals are here for people to use, to eat or to test cosmetics (Coleman, 2007).

1.3 The influence of meat reduction on mental health

The influence of meat reduction on physical health is more described in chapter upwards, but a plant-based diet may have a positive impact on human mental health as well. In research of 800 participants, including vegans, vegetarians, and omnivores, vegans reported less stress and anxiety than omnivores. Especially male vegans and vegetarians reported lower anxiety scores than male omnivores and female vegans reported loIr stress scores than female omnivores. This can be explained by lower intake of animal fats, which may activate inflammatory pathways in the brain which are responsible for stress and mood disorders. Another factor which can possibly influence the results is that vegans and vegetarians reported more time spending outdoors and exercising, as well as drinking less alcohol and eating fewer sweets than omnivores. Another factor is a higher consumption of fruit and vegetable by vegans and vegetarians which increases the content of Vitamin D in the organism (Beezhold, Radnitz, Rinne, & DiMatteo, 2015).

Despite the assumptions, that vegetarians and vegans experience more negative emotions than omnivores, the research explored the opposite. Vegans and vegetarians eat no or less fish than omnivores, which should decrease their positive mood states because of lower intake of essential fatty acids linked to positive mood states. Anyway, a study on Seventh Day Adventists explored that vegetarians have significantly less negative emotions than omnivores even though lower intakes of essential fatty acids (Beezhold, Johnston, & Daigle, 2010).

Meat reduction also leads to short term improvement in the mood. People, who stop eating meat, fish, and poultry significantly improved their mood states after two weeks on this diet than people, who continued eating meat, fish, and poultry and even than people who were eating only fish for two Ieks (Beezhold & Johnston, 2012).

In this chapter, I tried to demonstrate why meat consumption can be considered a problem. According to the numbers, meat and dairy products production increased rapidly in the last 50 years and meat and dairy products have a negative influence on human physical and mental health. Besides animal agricultural significantly contributes to important environmental problems.

2 Emotion

All humans, up to a few exceptions, feel and express emotions every day. It influences human thinking, actions, relationships, and physical and mental health. Nevertheless, there is no summarizing definition of the word ‘emotion’ and it seems like it cannot be defined in one unitary concept (Izard, 2010).

Emotions consist of three components which are physiological arousal, expressive behavior, and conscious experience. Physiological arousal is a biological reaction of our body which accompanies emotions. Some of these reactions are easy to recognize but most of them are less noticeable. If people feel scared, they can feel their heart race, muscle tense or mouth become dry but they can hardly recognize their pupils

dilate or their respiration rate. Those biological responses are activated by the sympathetic nervous system which releases the hormones adrenaline and noradrenaline to mobilize our body to fight or flee (Myers, 1989).

Emotional expression is an important part of human nonverbal communication. The best way to read someones emotion is by looking at their face. People are very sensitive to negative emotions so people are more likely to identify an angry face in the crowd of happy faces than the opposite (Hansen & Hansen, 1988). Human ability to identify emotion according to facial expression is universal and people around the world perceive smile the same way (Ekman et al, 1987).

The last component of emotion is affectivity, which is the human ability to experience negative and positive emotion. People can experience emotion on three different dimensions which are pleasant versus unpleasant, the intensity of emotion and the duration of emotion. It is easy to identify pleasant emotion from the unpleasant. If I think about intensity scale, happier is more delightful than happy. And joy lasts longer than anger, which lasts longer than fear (Watson & Tellegen, 1985; Matsumoto & others, 1988).

The human ability to experience emotion differs according to their personal differences. For example, people with a high level of neuroticism feel more negative emotions after an unpleasant situation than people with low neuroticism (Ng & Diener, 2009). Another reason why people experience emotion differently is their cultural background. People living in collectivistic cultures suppress emotions more than people living in individualistic cultures (Huwaë & Schaafsma, 2018).

Emotions are sometimes incorrectly exchanged with mood, which is another psychological concept similar to emotion but differentiates in duration and intensity. The mood has a longer duration than emotion, it is less intensive and it is also not intentional (Fredrickson & Losada, 2005).

In the empirical part of this thesis, I measure the change in negative and positive emotions measuring positive and negative affect and the influence of change in emotion on attitudes and behavior. For these reasons following chapters describe more the influence of change in emotion on attitudes and behavior.

2.3 Emotions induced by a movie

I can easily observe emotions induced by a movie, thanks to behavior manifestation of emotions. For the first time, this connection betIen movie and emotions was registered in 1895 on the screening of *L'Arrivée d'un train en gare de ka Ciotat* where people were hiding under their seats because they were too scared of the train on the screen. Today I can observe this connection every time I look around in the cinema or play some video record of the audience in a cinema on youtube (Tan, 2013). Besides the influence of movies on emotions was proved to measure also physiological responses like blood pressure or heart rate during or immediately after watching a movie (Gross & Levenson, 1995). The connection betIween emotion and movie is so definite, that movies are often used in psychology experiments to induce emotions.

2.4 The influence of emotion on the change in attitude and behavior

Based on the research, an affective experience can drive judgment and behavior.
The study about Rally 'round the flag effects explores that emotion has a major role in attitude change. The "Rally 'round the flag effects represent dramatical attitude change towards American president after an affective experience like when George W. Bush's popularity increased about almost 50 percent after attacks on the World Trade Center and Pentagon on September 11, 2001 (Lamber et al., 2010).

The influence of emotion on a change in behavior is often discussed in social psychology because emotion like sympathy increases helping behavior

(Harmon-Jones, 2004) and emotion reaction induced by job conditions like job stressors influence work behavior. Negative emotion caused by job conditions increases the likelihood of counterproductive work behavior like sabotage and positive emotion increase the likelihood of organizational citizenship behavior like an effort to help (Spector & Fox, 2002).

Emotion is often used as a part of therapy to induce or support behavioral change. It is the main subject of emotion-focused therapy for depression(Greenberg & Watson, 2006), but also play an important role in Cognitive-Behavior Therapy (Samoilov & Goldfried, 2000).
Emotion and mood are pivotal for the peripheral route of persuasion (more information in chapter 3), which means that emotion during persuasion usually causes an only temporary change in attitude and behavior (Petty & Igener, 1999).

3 Attitude

Attitudes were mainly explored by Gordon Alport who considered them as the most important area of social psychology according to their ability to explain human behavior. Atittudes are individual feelings and beliefs toward someone or something based on a human evaluation. They help people with orientation in the world and determine their behavior (Myers, Abell, & Sani, 2014).

Every attitude has its own bipolarity, range, and ambivalence. Bipolarity is scale representing valence with positive at the start and negative at the end. Every attitude takes place at this scale according to the fact how positive or negative the attitude is. The range is the intensity of the attitude and ambivalence of attitude is little more complex. Every attitude consists of numbers of specific beliefs about something, both positive and negative, with different intensity. And if I describe ambivalence of attitude, I mean the existence of that beliefs with different valency, which makes attitude ambient (Gálik, 2012).

The emergence of attitude is usually represented by the ABC-model. The shortcut ABC stands for 3 components which are affect, behavior and cognition. The formation of attitudes based on humans cognition is when people create an attitude on rational arguments. The affect represents formation based on our feelings about the subject and sometimes attitude is formed according to our current behavior. At first, people act somehow and from this behavior, they create the attitudes (Crano & Prislin, 2011).

The connection between attitudes and behavior is often discussed in the field of social psychology. There are many researches which confirm and also disprove the relationship between those two variables. The main reason why I doubt the connection between attitudes and behavior is the high amount of uncontrolled variables which often distort the results. Anyway, the meta-analysis of 88 attitude-behavior studies confirms that attitudes significantly predict future behavior (Kraus, 1995).

Batson and Thompson (2001) established 'moral hypocrisy' as one of the reasons why people's attitude and behavior isn't always in interplay. Being moral hypocritic means that human wants to appear moral but without costs of being so. Their research shows that for example, bigger awareness about the negative effects of television violence stimulates people to desire for less violent programming, but their viewing of violent programs didn't decrease. Another reason why people don't act based on their attitudes is a social influence which strongly controls what people do, but it's the influence on what people think is minimal. The moral hypocrisy is an important player in psychology research which uses self-report methods like this one.

Although the connection between attitude and behavior is generally poorly proved, it has strong evidence if I discuss the change in eating habits, especially meat consumption. Humans who are convinced that high meat consumption is bad for their health, animals or the environment reduce their meat consumption (Richardson, Shepherd, & Elliman, 1993; Macdiarmid, Douglas, & Campbell, 2016).

3.1 Persuasion

Persuasion, as many similar concepts in psychology, has many definitions. Combining those definitions and selecting identical elements, I can define persuasion as an intentional attempt to influence someone. It is a form of communication and if it is successful, the recipient's mental state changes. Persuasion differs from pressure by free will. Pressure uses the threat of negative consequences to influence recipient but persuasion doesn't (Gálik, 2012).

Persuasion and pressure are two border points of one continuum and every message takes its specific place at this continuum. The position of the message is influenced by the presence of a threat, availability to act differently and consciousness of free will (Petrof, 2010).

Persuasion is based on attitude change. To persuade someone, I have to change his attitude about the exact thing. That's why concept of persuasion and attitude change are highly connected and they can be considered as the same (Gálik, 2012).

The most used theory of persuasion is Elaboration likelihood model, which theorized that persuasion can take two different routes. People who are motivated and analytical usually use a central route. Those people focus on arguments, think about them and compare them with the information they already have. If the new arguments are strong and relevant, people are more likely to change their attitudes. When people are distracted and uninvolved in an issue, the strength of evidence doesn't matter, they are more influenced by their mood or appearance of the message. This process of persuasion is called the peripheral route and it usually changes attitude only temporarily (Petty & Igener, 1999). The second very important theory of persuasion is described below in the chapter about behavioral change in meat consumption (chapter 6.1).

Persuasion can be influenced by many factors. The first one is the authority of the source of the persuasion, which is perceived according to title and clothes of the source. The second is the credibility of the source. The credibility is designed of expertise of the source, truthfulness, and solicitude. Talking about the source, social attractivity such as being popular and empathy play a very important role as well. Persuasion can also be influenced by self-fulfilling prophecy, which means that expecting something causes it to really happen. It develops when someone misinterprets a situation, which causes the behavior to transform the original situation to the misinterpreted one. The last important factor is a fear appeal, which is commonly used in persuasion for example on cigarette boxes (Gálik, 2012).

In this chapter I briefly introduced attitudes, their influence on behavior and the process of attitude change also called persuasion. Attitudes are a key concept of this thesis because the theoretical part tests the attitude change caused by movie and connection betIen attitude change and behavioral change. In the following chapters, I more describe two main attitudes of this thesis, which is speciesism and carnism.

4 Prejudice

Prejudice is type of attitute towards a group or it's members, only based on their membership in it. As any other attitude, it consists of feelings, behavior tendency and cognition. The interest in prejudice increased in the 1920s and to this day the best-known example is probably sexism and racism (Myers, Abell, & Sani, 2014). In this study, I are going to explore speciesism and its influence on behavior.

4.1 Speciesism

Speciesism is one of the most important concepts in animal studies. It was introduced in the 1970s by British writer and psychologist Richard Ryder who was a

member of an activist group of intellectuals called the Oxford Group. Members of the Oxford Group are famous for public disagreement with people treating animals in science experiments or farms. Their biggest contribution is that they started the conversation about animal rights with newspaper articles, books, and protests. Member of this movement was also Peter Singer whose philosophy is principal for modern animal advocacy (Phelps, 2007).

Speciesism is a philosophical concept and psychological construction similar to sexism or racism which is splitting beings according to their species membership. Being speciesist means that you believe that other species like animals have less moral worth than people and also that you believe that animals with comparable intelligence and sentience like pigs and dogs should be treated differently. Speciesism is stable in time, variable among people and it is able to predict prosocial behavior towards animals and behavioral food choices. Thanks to speciesism, people are able to treat pets with love and provide them with health care equal to people and on the other hand, raise pigs
for food for their pets. And thanks to speciesism people don't consider it as something unusual or morally wrong (Caviola, Everett, & Faber, 2018).

Speciesism similarly to ethnic prejudice is observed across cultures but the object of speciesism is different based on tradition and history of the specific culture. The best example is difference in eating behavior across countries like China, India and western countries. Cows, which are considered sacred in India and it is prohibited to eat them are raised only for food in factory farms in western countries. On the other hand, cats and dogs are considered as family members for many western people and they are also regularly eaten in China (Caviola, Everett, & Faber, 2018).

For a long time, speciesism was only a philosophical concept but lately, it was defined as a psychological concept thanks to Caviola, Everett, & Faber (2018). As psychological construct speciesism is considered a form of prejudice because it correlates with other types of prejudice like sexism or racism and it is driven by socio-ideological factors like social dominance orientation and system-justification.

Besides it fills the definition of prejudice because it involves negative beliefs, emotion, and behavior towards a member of other species.

5 Carnism

If I want to divide people based on their food behavior, I have vegans and vegetarians who reduce their meat and dairy products consumption because they believe that the use of animals for food is not ethical and then I have the majority of people, who consume meat regularly because they believe it is natural and those people are carnists. Carnism is a non-conscious system of beliefs that eating meat is ethical and natural. It helps people to deny animals suffering caused by meat production so they can eat meat (Joy, 2011).

Reasons, why vegans don't eat meat, are more described in chapter one. Piazza (Piazza et al., 2015) explored 4 main reasons why carnists eat meat and call them 4N. According to 4N, it is natural, necessary and normal for people to eat meat. And also it is nice, which means that meat tastes good. 4N correlates with de-mentalization, which is a psychological process of denial animal capability to suffer which causes less moral concern for animals. Thanks to de-mentalization people categorize killed animals as food (if people talk about the meat they usually use pork instead of a pig) and judge animals in 'food category' with a loIr capability to suffer than animals in 'non-food category' like dogs or horses.

Monteiro, Pfeiler, Patterson and Milburn (2017) divide the carnistism theory into two components which is Carnistic Defence and Carnistic Domination. Human society is primarily carnistic which means that the majority of people eat meat just because it is common and they were raised to do so. That is why people call it natural or normal. And during lifetime some people get confronted with something called 'the meat paradox', which is the phenomenon of eating animals despite liking them and dislike of hurting them. When someone is confronted with 'the meat paradox'

the most countable answer is the Carnistic Defence which is defending the carnism and legitimizing the meat eating.

The second dimension, the Carnistic Dominance, are beliefs of human rights to kill animals and it is significant in people who have fewer sympathy towards animals and are actively involved in hunting or killing animals (Monteiro, Pfeiler, Patterson, & Milburn, 2017).

Carnistic defense predicts meat consumption and carnistic dominance is a predictor of having slaughtered an animal. Similarly to speciesism, they are both related to socio-ideological beliefs like social dominance orientation or right-wing authoritarianism, but only carnistic dominance is related to racism and sexism (Monteiro, Pfeiler, Patterson, & Milburn, 2017).

In this research I are going to meassure only carnistic defense for its suitability with purpose of this research and ability to predict meat consumption.

6 Behavior

Behavior can be defined as an action of a living organism. Human behavior is everything that people do including moving, thinking or feeling. It is not an attribute of the organism because it happens only when there is an interaction betIen organism and environment including its own body. Bodily movements produced by independent physical forces aren't behavior. Only movements caused by a living organism can be defined as behavior. To differentiate behavior from random actions, researchers use the analogy with a dead man. It says that if a dead man can do it, it is not a behavior (Cooper, Heron, & Heward, 2007).

As already mentioned upwards, behavior cannot exist without the environment, which is a complex of varied events. The organism reacts to the environment using receptor cells, which react to the stimulus in the environment. External stimuli are

detected by exteroceptors, which enable hearing or taste. Interoceptors perceive viscera stimuli like hunger and proprioceptors notice movement and balance (Cooper, Heron, & Heward, 2007).

There are many different types of behavior produced by human, but for purposes of this thesis, I will only describe more eating behavior which is measured in the empirical part of this thesis.

6.1 Eating behavior

Eating behavior or eating habits explain how people eat, what and why. The primary purpose of eating is to survive but eating behavior is learned from society. Society determines acceptable food or portion size. Which means that eating habits are also highly culturally dependent. The society also creates its eating rituals according to the time of the day or occasion (LoInberg et al., 1979)

Individual eating behavior is influenced by many aspects. Every person has their food preferences, which develop and change over life. Human eating habits are influenced by their social group and the behavior of its members. Some religions prohibited some types of food like pork, temporarily or just occasionally. Money and food prices play a very important role in human eating habits and what people can afford. And lately, especially environment is often discussed in connection to food choices when some types of food are more ecological than other (Haviland,1990).

Meat plays an important role in human evolution. In the beginning, there was a human, who was a spoil. But people work hard to become predators. To learn how to hunt properly, people have to learn how to communicate effectively and cooperate. For the purpose to prepare meat, people have learned how to use the fire. And thanks to meat, people receive more callories from food than ever before. Despite that, until industrial revolution in 19th century, human food was collected mainly from plant-based food and meat was eaten only by rich people. Industrial revolution

increased animal agriculture more than 200% and after world wars meat became cheap and available to everyone thanks to a large number of factory farms. This situation is still actual. Animal agriculture is huge sector and people consume meat on daily basis (Mullin, 1999).

6.2 Behavioral change in meat consumption

Research by Iibel, Ohnmacht, Schaffner, & Kossmann (2019) explained the behavioral change in meat consumption using the Theory of Planned Behavior. This theory is often used to explain the change in eating habits. According to this theory, behavior can be predicted by looking at a person's attitude (towards this form of behavior), social norms (how people around us judge this behavior) and perceived behavior control (the difficulty of changing current behavior). Besides these main predictors, TPB also takes into account problem-awareness (understanding of how important is the behavioral change), expected emotions (towards the behavioral change) and personal norm (if I evaluate the behavior as wrong or right).

The Theory of Planned Behavior divides behavior into 4 phases. The first phase is called pre-decisional and it serves for current behavior re-evaluation. In the second the pre-actional phase people set their specific goals of how they want to change their behavior in the future. The third phase called actional phase is the implementation of the behavioral intention. And the last, the post-actional phase is remaking the new behavior into a habit and keep it automatize.
According to this research women and Ill-educated people are more likely to decrease their meat consumption.

Summary of the theoretical background

In the theoretical part of this thesis, I have briefly described all concepts, which are important for understanding the practical part of this thesis. I started with an

explanation why is this researched topic important and relevant to explore. Then I described all measured variables, which are emotions, speciesism, carnism, and behavior and I put all variables in a wider theoretical context. I also explained the process of the attitude change also called persuasion and behavioral change in meat consumption using the theory of planned behavior.

In the empirical part of this thesis, I am going to explore the influence of watching a movie on change in emotions, attitudes, and behavior. I are also going to compare the influence of fictional movie and documentary.

Practical part

7 Methodology

7.1 Research aims

In this research, I assume that watching animal advocacy documentary or fictional movie will change individual's meat and dairy products consumption based on the change in speciesism or carnism and emotional change caused by watching a movie. Because there is no comprehensive research about this topic I partly create those hypothesis based on 15 interviews I have done with vegetarians and vegans who changed their meat consumption after watching a documentary or fictional movie. Those interviews were done with volunteers who reacted on my Facebook post in Facebook groups Vegetarian CZ/SK and Vegan CZ/SK. All interviews were done via phone call because there was no possibility of a personal meeting. During the calls, I asked about the movie, which caused the change in meat consumption. Then I discussed with every participant his exact motivation (health, ethics, ecology), the

emotion they felt during watching the movie and getting new information from the movie. I also talked about the process of going vegan and relationship towards animals which helped me understand participant's level of speciesism and carnism. Based on those interviews I suppose that people with a low level of speciesism and carnism are more likely to change their meat and dairy products consumption after watching the movie. A lot of participants said that the movie made them realize that the food they eat is the animal they love. They felt sad, shocked and helpless, so they changed their meat consumption immediately.

Based on those interviews and relevant research I assumed following hypotheses and research questions.

H1: Watching animal advocacy movie significantly decreases the level of speciesism.

As already explored, movies significantly influence real-world beliefs and attitudes (Butler, Koopman, & Zimbardo, 1995; Igartua & Barrios, 2012).

H2: Watching animal advocacy movie significantly decreases the level of a carnistic defense.

In interviews mentioned above, all participants talked about the change in the carnistic defense caused by watching a movie which helped them realize that food they eat comes from real animals who suffer.

H3: Watching animal advocacy documentary induces negative emotions.

According to LaMarre & Landreville (2009) watching documentary induces negative emotion more than watching a narrative movie.

H4: Change in speciesism, carnistic defense and emotion cause a significant change in individual meat and dairy products consumption.

Based on Caviola, Everett, & Faber (2018) people with low speciesism are more likely to choose vegetarian snack instead of a meat snack. Monteiro, Pfeiler, Patterson, & Milburn (2017) explored that carnistic defense predicts meat consumption. In interviews with people who reduced their meat and dairy products consumption after watching the movie, many of them mentioned being upset, ashamed, feeling guilty and angry after watching the documentary.

H5: Watching animal advocacy movie decreases meat and dairy products consumption.

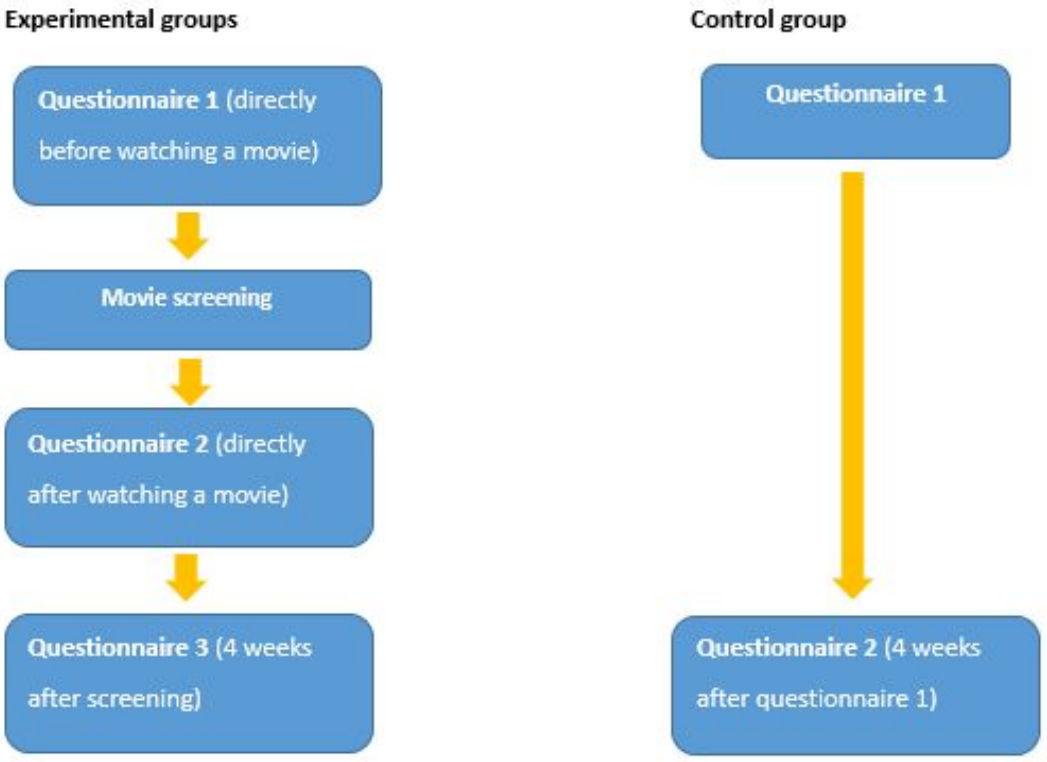
According to Humane League Labs (2014) almost 50% of vegans and vegetarians reduce their meat and dairy products consumption because of a movie or a book.

H6: People who already thought about meat reduction in the past will more likely change their meat consumption after watching the movie.

All vegetarians and vegans, who participate in the interviews said, that they were thinking about meat and dairy reduction before watching a movie. Watching a movie was something as a starter, which motivated them to take action.

7. 2 Study design

The study uses mixed design with three groups and repeated measures. For this research, I chose an experimental design using public screenings. The experiment



consists of 3 measures (only 2 in the control group). Figure 1 shows the study design for better understanding.

Figure 1. The study design

Questionnaire 1 of experimental groups contains

- The Positive and Negative Affect Schedule
- Survey about meat consumption
- The Carnism Inventory
- The Speciesism Scale
- Survey about basic demographics
- Survey about movie knowledge

Questionnaire 1 of the control group contains

- Survey about meat consumption

- The Carnism Inventory
- The Speciesism Scale
- Survey about basic demographics

Questionnaire 2 of the experimental groups (directly after watching document/movie) contains

- The Positive and Negative Affect Schedule
- The Carnism Inventory
- The Speciesism Scale

Questionnaire 2 of the control group (4 weeks after questionnaire 1) contains

- Survey about meat consumption
- The Carnism Inventory
- The Speciesism Scale

Questionnaire 3 of the experimental group (4 weeks after screening) contains

- Survey about meat consumption
- The Speciesism Scale
- The Carnism Inventory

7.3 Research sample

From the total sample of the size of 141 people, the data of two people have to be erased. One woman was eliminated because she filled the questionnaire incorrectly and one man was eliminated because he offered financial support to this experiment. Four people, one woman, and three men were executed from the final sample group because they watched both movies. The original intention was to create the fourth group composited of people who watched both movies, but there were only four people in this group, which makes this group unrepresentative. One person from the

control group was deleted because he was younger than 18. 35 people were eliminated from final data analysis because they were vegans or vegetarians. Following definition from NHS (NHS, 2017), I define vegetarian as somebody who doesn't eat any meat including fish and poultry, and vegan as someone who doesn't eat any meat and products from animals like dairy or eggs. Those people mark all items in meat consumption questionnaire as 'never' or items 'pork', 'chicken', beef' and 'fish/seafood' as 'never'.

The final sample group was composed of 99 participants, 64 women, and 35 men. 80 participants were from 18 to 25 years old, 17 participants were from 26 to 40 years old and only one person was from 41 to 59 years old. Layout based on the level of education is represented in table 1.

Table 1. Scatter among the level of education in the research sample

Level of education	Number of participants
Elementary school	1
Vocational school	1
Secondary school (finished with maturita exam)	66
Higher professional school	2
University degree	29

Participants were divided into 3 groups based on the watched movie. 32 people came to the screening of 'Babe', 33 people watched 'The Ghosts in our machine' and 34 people created the control group.

The highest dropout after four weeks (24%, 8 people) was in the control group, 3 people (9%) who saw 'The Ghost in Our Machine' didn't fill the last questionnaire and 1 person (3%) who saw 'Babe: the gallant pig' didn't fill the last questionnaire.

7.4 Methods

With the recent exploration of the replication crisis which especially strongly hit the field of psychology, I have decided to register this study prior data collection. You can find the registration form here: https://osf.io/h8nwq.

I use **PANAS (The Positive and Negative Affect Schedule)** scale by Watson, Clark, & Tellegen (1988) to measure the change in positive and negative emotion induced by watching a movie. I decided to use PANAS based on interviews with vegans and vegetarians. PANAS contains the same emotions described by vegans and vegetarians who changed their behavior after watching a movie. To measure the emotions before and after the movie I use an edited version of PANAS which consists of 28 emotions, both negative and positive. Participants are asked to mark their current feelings on scales from one "very slightly or not at all" to five "extremely". PANAS measures emotion in two levels as Positive Affect and Negative Affect. Positive Affect Score is counted as a mean score of items 'interested', 'excited', 'strong', 'enthusiastic', 'proud', 'alert', 'inspired', 'determined', 'attentive', 'active', 'calm', 'joyful', 'at ease' and 'relaxed'. Negative Affect Score is counted as mean score of items 'distressed', 'upset', 'guilty', 'scared', 'hostile', 'irritable', 'ashamed', 'nervous', 'jittery', 'afraid', 'downhearted', 'sad', 'sleepy' and 'blue'. Higher means represent a higher level of positive or negative affect. Both scales have high internal consistency with Cronbach's alpha of Positive Affect Score 0,880 and Cronbach's alpha of Negative Affect Score 0,861.

To measure speciesism, I use **The Speciesism Scale** by Caviola, Everett & Faber (2018) and to measure carnism, I use The Carnism Inventory by Monteiro, Pfeiler, Patterson, & Milburn (2017). Both those scales weren't used before in the Czech

Republic, so I translated them by back and forward translation. Five people cooperated on this translation. Both scales were translated from English to Czech by two professional translators. Then I discussed the translation with one Czech student studying English at the University of South Wales and one Czech student with C2 English level. Based on this small discussion group I made final Czech versions of those scales. One bilingual speaker helped me with translating scales back to English and comparing meanings in original scales and translated Czech scales. She evaluated the same meanings in every sentence in original and translated scales.

The Carnism Inventory (Monteiro, Pfeiler, Patterson, & Milburn, 2017) consists of eight clams divided into two sections Carnistic Defence and Carnistic Dominations. In this research, I used only the dimension of Carnistic Defence, which is measured by the first four items on a seven-point scale from one "strongly disagree" to seven "strongly agree". I only measured Carnistic Defence dimension because I had troubles translating Carnistic Dominance items into the Czech language. Based on discussion with a group of translators who cooperated on translating the scales into the Czech language and email conversation with the author of The Carnism Inventory Christopher Monteiro I have decided that carnistic dominance items are not suitable for this experiment. Because carnism is influenced by culture, carnistic dominance items have a different meaning in Czech than in English and using them would require rephrasing and different contextualization which is beyond this experiment. Also, the carnistic dominance predicts killing animals and carnistic defense predicts meat consumption which makes it more suitable for the purpose of this experiment. The internal consistency of the Czech translation of carnistic defense using Cronbach's alpha was 0,713.

The Speciesism Scale consists of six claims reflecting prejudice towards animals like "It is morally acceptable to trade animals like possessions" and it is measured on a seven-point scale from one "strongly disagree" to seven "strongly agree". The fifth item has to be reversed and after, all scores are averaged to create a mean of speciesism. The internal consistency of the Czech translation of The Speciesism Scale using Cronbach's alpha was 0.556. For this reason I also run Exploratory Factor

Analyses, which shows that the six items don't fit one factor, which is in the contradiction with english version of the Speciesism Scale. Because of this mistake in the translation I decided not to use the Speciesism Scale in the final data analyses.

The Czech and English version of PANAS and The Carnism Inventory are added in the appendix.

To measure meat and dairy products consumption, I created **multiple choice table** inspired by questionnaire by Humane League Labs study 'Diet Change and Demographic Characteristics of Vegans, Vegetarians, Semi-Vegetarians, and Omnivore'. The table consists of beef, chicken, dairy products, eggs, fish/seafood, and pork. Participants are asked to mark their consumption of every substation above on a five-point scale from 'never' to 'almost every day'. This table is also used to eliminate vegans and vegetarians from the research sample because vegan and vegetarian can be defined differently by every human. In this research, a participant who marked every meat (beef, chicken, fish/seafood and pork) as 'never' is defined as a vegetarian. A participant who marked every pool as 'never' is considered as a vegan. To evaluate meat and dairy products consumption, I expressed meat and dairy consumption using numbers from one to five, 'one' representing answer 'never' and 'five' representing answer 'almost every day'. The meat and dairy products consumption was calculated as a mean of all items.

The questionnaires also contain **survey about basic demographics** (gender, age and highest reached education) and the survey about movie knowledge ('Have you seen this movie before?', 'Do you know the plot of this movie?'). The last question to support the hypothesis number six was 'Have you ever thought about reducing meat and dairy products consumption in the past?'.

For the purpose of the experiment I chose one documentary and one fictional movie and discussed both in a focus group. The documentary I have chosen is 'The Ghosts in our Machine', which is highly recommended by Faunalytics (Faunalytics, 2014). Research by Faunalytics on 'The Ghosts in our Machine' indicates that it has a strong

influence on people's thinking about animals. The fictional movie I have chosen is 'Babe: The Gallant Pig', which was recommended to me by Animal Charity Evaluators as one the best options from fictional movies about animals.

I have conducted a focus group to consider the appropriateness of both movies for this experiment using tips from Anita Gibbs' chapter in Research Methods and Methodologies in Education (Gibbs, 2012). The focus group was conducted by seven people, three women, and four men. Four participants were students, three were employed. Two of seven people were foreigners living in the Czech Republic so the participants were free to speak both Czech and English languages. One member of the focus group was vegetarian, six were eating meat and dairy products frequently. The discussion of the focus group was recorded and anonymize, used only for the purpose of this experiment. The conversation was led by me. The focus group took place one evening, at first, the document was screened and discussed, following the fictional movie. Both movies were considered as ethically acceptable, not showing any new or traumatizing scenes. Participants also thought that movies didn't try to convince them to go vegan or vegetarian. Leading the focus group, I asked about aspects of speciesism and carnism to analyze if movies are sending the right message. Based on this focus group, I assumed that both movies are sending speciesism and carnism messages. For example, most of the group agreed that animals in the movies aren't represented as equal to people but they are represented as very similar beings who should have the basic right and should be treated with respect. Also, farm animals were presented the same way as pets. Based on the focus group I have decided to screen 'The Ghosts in Our Machine' and 'Babe' with a high possibility of right messaging and no concerns about ethical issues.

'The Ghost in our machines' is a Canadian documentary by Liz Marshall following the journey of animal rights activist and photograph Jo-Anne McArthur. In the documentary, Jo-Anne McArthur is creating a book about animals with a purpose to get some attention to the animal rights issue. It starts in a fur farm in Poland, where she pointed out a bad medical condition of animals kept for fur. After that, she visits a Farm Sanctuary where they are currently trying to save two cows from a

factory farm and the main hero explains her deep relationship with animals. Following part of the movie focuses on beagles kept for medical experiments, showing some video records of procedures and also showing adoption of those beagles. Afterwards, Jo-Anne describes marine mammals park and tells the story of her favorite chimpanzee Ron, who was kept in a small cage all his life with one blanket and was used for research purposes. She joins a protest against pigs being transported to a slaughterhouse and then meets the editor of NewsIek, shows him her pictures and explains some unknown facts about animal-human relationships. After this interview, many videos from factory farms are shown, Jo-Anne visits Farm Sanctuary again and then school, where students asked her questions about her work. The document ends with the sign 'for the ghosts'.

'Babe-the gallant pig' is a family comedy from 1996 about a pig who wants to be a sheepdog. It was directed by Chris Noonan and the main human character is played by animal-rights activist James CromIll. In the beginning, Mr. Hogget wins a little pig a decided to feed him up and spare him for Christmas dinner. Meanwhile, Babe makes friends on the farm and decided he wants to be a sheepdog because he lives with other sheepdogs in the barn and gets along with sheeps. One day, Mr. Hogget notices that Babe organizes animals in the yard and tests it on the grassland. When Babe expels sheeps from the corral, Mr. Hoggets decides to assign Babe for sheepdogs competition. And even though everybody laughs at Mr. Hogget for taking the pig on a sheepdogs competition, Babe actually wins. In the movie, animals have abilities to communicate with each other and besides Babe, even duck decides it wants to be a cock.

7.5 Data collection methods

To collect the data I organized eight public movie screenings in four Czech cities. All screenings were free of charge with free chips available for every participant. Four screenings took place in Brno, two of them were organized by the movie club Kabinet Filmůz in January and two of them were organized only by me in Faculty of Arts in March. Two movie screenings were organized in Olomouc by the movie club Pastiche

Filmz in March, one movie screening of ‘Babe’ took place in Žďár nad Sázavou and one movie screening of ‘Ghosts in our machine’ took place in Scout Institute in Prague. Another two screenings, one in Žďár nad Sázavou and one in Prague, were canceled because of technical issues in screenings places.

All screenings had their own Facebook event and they were shared by organizers of the screenings. Four screenings were started by organizers of the screenings (Kabinet Filmůz and Pastiche FIlmz) and four were started by me. In every screening, I introduced the experiment and said more about its purpose, process, anonymity, and the rights of the participants. The majority of questionnaires was filled online, only some participants filled the paper version of the questionnaire.

The email addresses were collected during movie screenings in purpose to send participants the last questionnaires after four weeks after movie screenings. The collection of the email addresses was consistent with research ethics. All participants signed the informed consent and agreed with the collection of their email addresses for the purpose of this experiment. Research ethics is more described in the following chapter.

To provide the most similar control group to experimental groups and decrease influence of self-selection between groups, participants of the control group were recruited on Facebook events of the screenings with post, that if there is anybody who couldn’t attend the screenings but still wants to join the experiment, they can fill the questionnaire below this questionnaire of focus group. I suppose that people who voluntary came to the psychological experiment and the movie screening of ‘Babe’ and ‘Ghosts in our machine’ have specific motives and interests in this area than the rest of the population so I want to get control group with similar motives and interests as an experimental group to provide the best results.

To motivate the participants and decrease the dropout, I announced a contest for six cash prices of five hundred crowns. This money was sponsored by an anonymous donor with no condition towards researcher or experiment. The participants of the

control group were motivated with winning two cash prices of five hundred crowns because their participation in experiment was shorter, they only filled two questionnaires (instead of three, like in the experimental groups) and didn't watch any movie.

7.6 Ethics

All participants signed the informed consent before the experiment, which was on the first page of the questionnaire number one. The informed consent contains information about the purpose of the experiment, the process of the experiment and the award for joining the experiment. It contains information about anonymity and treatment of email addresses, which were used only by me to send participants the last questionnaires and the results of the study if so requested. The informed consent also includes information about the option to leave the movie screening and experiment and include researchers email, so participants can contact the researcher if they feel the need to do so. All those ethical experimental standards were told at the beginning of every screening by the researcher with a possibility to ask any questions. The researcher was also available for questions or any other concerns after each movie screening.

The email addresses were collected to measure long-lasting behavioral change, but all the data was analyzed using anonymous codes and the email addresses were deleted after sending the last questionnaire. If participants asked for the results of the experiment, the email addresses were kept and deleted after sending a report about results.

Both screened movies were evaluated by the focus group as harmless with a low possibility of traumatizing participants.

8 Results

8.1 Descriptives

Table 2 shows the descriptives of measures variable, which are meat consumption, carnistic defense, and positive and negative affect.

Table 2. Descriptive statistics

	N	Mean	SD	Minimum	Maximum
Consumption	99	2.92	.460	2.00	4.00
Carnistic Defense	99	3.76	1.28	1.25	6.75
Negative affect	65	1.54	1.00	1.00	3.21
Positive affect	65	2.96	.700	1.23	4.30

To better understand measured variables, table 3 shows the correlation matrix using Spearman corelation. I used Spearman correlation because the most of variables are not normally distributed.

It is obvious that consumption and carnistic defense are highly correlated. Carnistic defense also significantly correlates with negative affect.

Table 3. The correlation matrix of measured variable

	Consumption	Carnistic Defense	Positive Affect	Negative affect
Consumption	1			
Carnistic Defense	.373**	1		
Positive Affect	.099	0.59	1	
Negative Affect	.107	-.285*	-.231	1

*P<.05, **P<.01

There was no significant difference between groups in meat consumption (F (2, 63. 1) = 1.72, p=0,187). Groups significantly differ in carnistic defence (F (2,63.8) = 4.665, p = .013).

To test the hypotheses one, two, three and five I used repeated measures ANOVA to compare differences in carnistic defense, meat consumption and emotions before and after watching the movie and compare the groups. To identify differences between the groups I ran a Turkey post hoc test, which is considered as the most preferable method when all pairwise comparisons are performed (Kim, 2015).

I can not use the nonparametric Friedman Test, because this experiment didn't satisfy the assumption of at least three measures in all groups (Schenkelberg, 2018).

To better understand the influence of the movie on carnism, this variable was also measured immediately after watching a movie. For this reason, change in carnism of only the experimental groups (without a control group) is analyzed with another repeated measures ANOVA.

Hypothesis 1: Watching animal advocacy movie significantly decreases the level of speciesism.

This hypotheses wasn't tested because of low internal consistency of the Speciesm scale.

Hypothesis 2: Watching animal advocacy movie significantly decreases the level of the carnistic defense

Hypothesis rejected.

Carnistic defense didn't significantly decreased after watching a movie F (2,84) = 0,160 p=0.852, η^2 =0.004. The level of carnistic defence slightly decreased in every group including control group, but the difference is negligible.

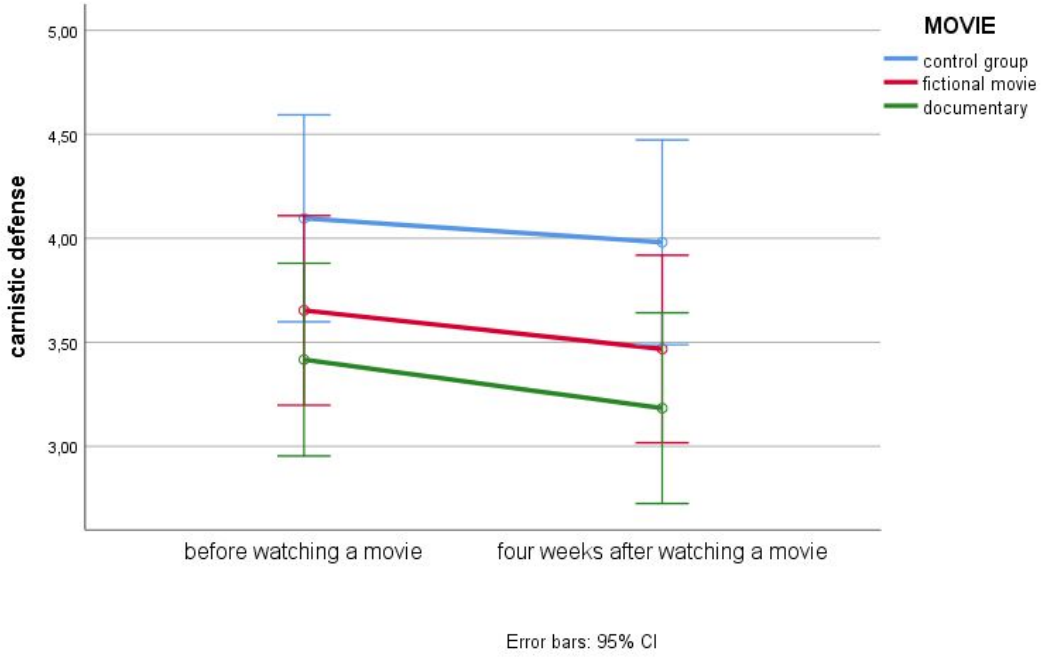


Figure 3. The change in carnistic defense after four weeks

Figure 4 shows the course of change in carnistic defense in both experimental groups. Carnistic defense after watching the fictional movie was decreasing continuously, it slightly decreased immediately after watching the movie and

continues decreasing. Carnistic defense decreased rapidly immediately after watching the documentary but then slightly increased again.

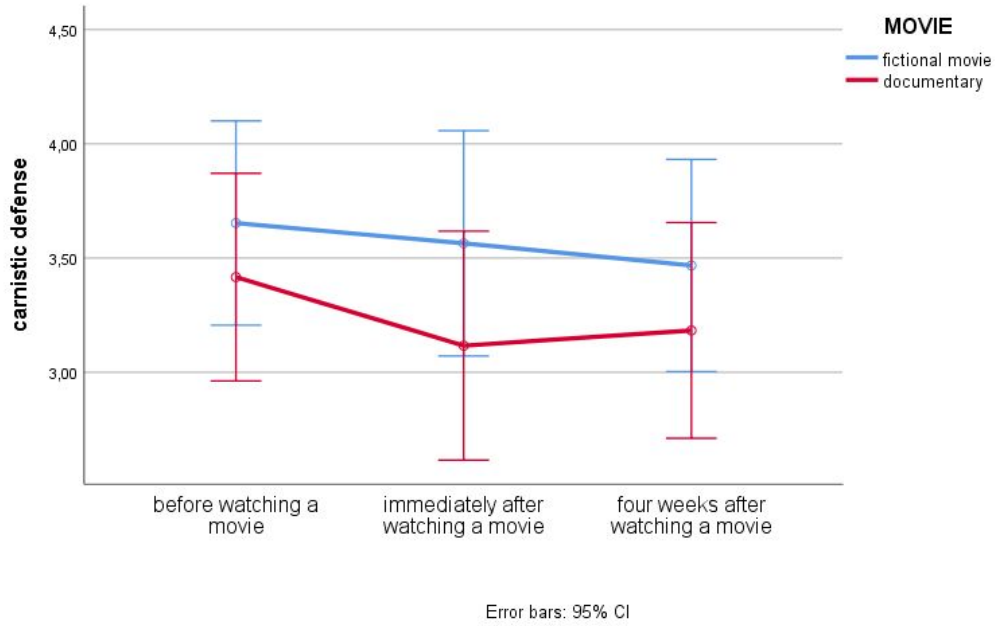


Figure 4. The change in carnistic defence in experimental groups

Hypothesis 3: Watching animal advocacy documentary induces negative emotions

Hypothesis confirmed.

Negative affect significantly increased after watching the movie with strong effect size, $F(1,63) = 36.741$, $p=.000$, $\eta^2 = .368$. Figure 11 shows that negative affect after watching a document rapidly increased, but negative affect after watching the fictional movie increased minimally.

If I focus more on negative emotions with the biggest change, people after watching the documentary become more distressed, upset, irritable, ashamed, sad and blue.

People after watching the fictional movie become more distressed, upset and ashamed. Analyzed with series with of t-test.

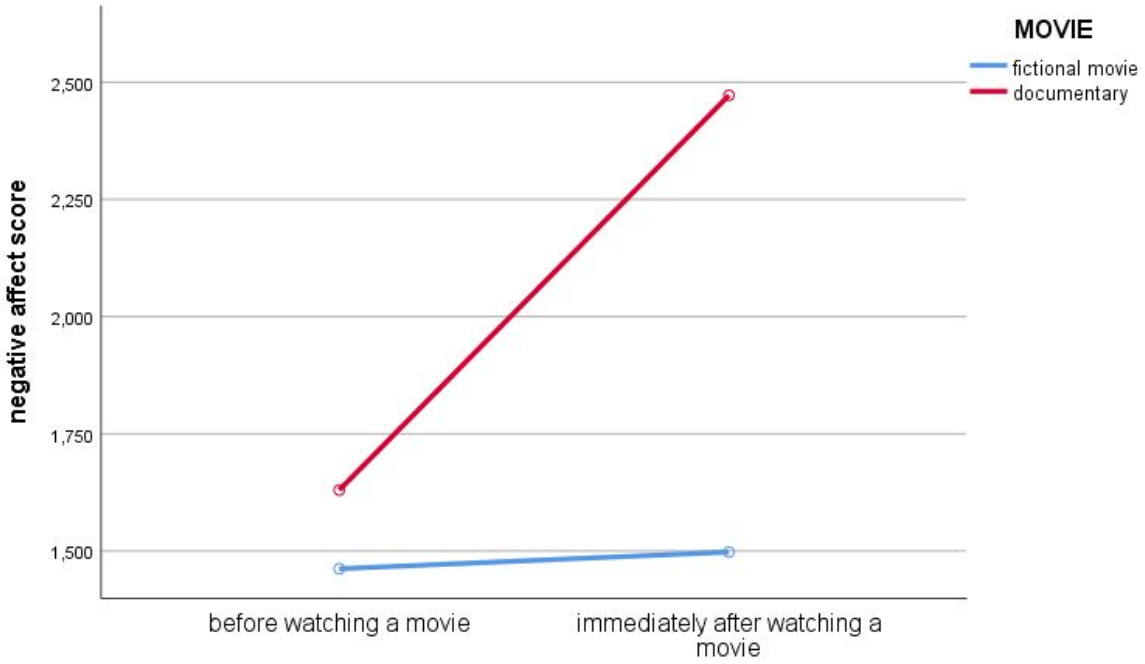


Figure 5. Change in negative affect after watching a movie

Positive affect decreased after watching a movie and the difference was close to being significant, but the effect size was small F (1,63) = 3.676, p=.060, η^2 =.055. The difference between the groups was significant and with medium effect size, F (1,63) = 11,503, p=.001, η^2 =.154. Figure 12 shows that positive affect after watching the document rapidly decreased, but positive affect after watching the fictional movie increased.

People become less enthusiastic, proud, at ease and relaxed after watching the documentary but after watching a fictional movie people became more interested, excited and enthusiastic.

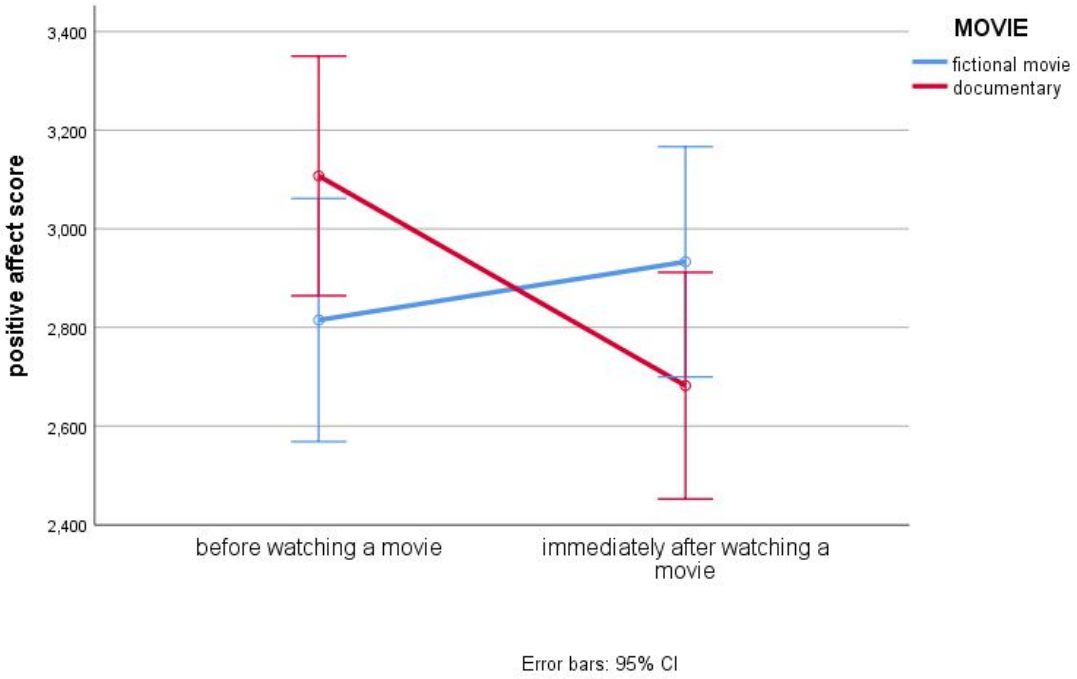


Figure 6. Change in positive affect after watching a movie

Hypothesis 4: Change in carnistic defense and emotion cause a significant change in individual meat and dairy products consumption

Multiple regression was run to predict the change in meat and dairy products consumption from the change in carnistic defense, and negative and positive emotions. Only change in carnistic defense significantly predicted 25% of the change in meat and dairy products consumption $F(3,57) = 6{,}304$, $p=.001$, $R^2=.249$. All variable are displayed in table 4.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	,054	,055		,985	,329
	DIF_CARNISMUS	,214	,054	,469	3,950	,000
	DIF_NAS	-,029	,076	-,051	-,386	,701
	DIF_PAS	,036	,074	,065	,480	,633

a. Dependent Variable: DIF_CONSUMPTION

Table 4.Results of multiple regression predicting change in meat consumption

Hypothesis 5: Watching animal advocacy movie decreases meat and dairy products consumption.

The meat and dairy products consumption after watching the movie didn't significantly decrease $F(1,84) = 2.187$, $p=.119$, $\eta^2 = .049$. Hypothesis was rejected.

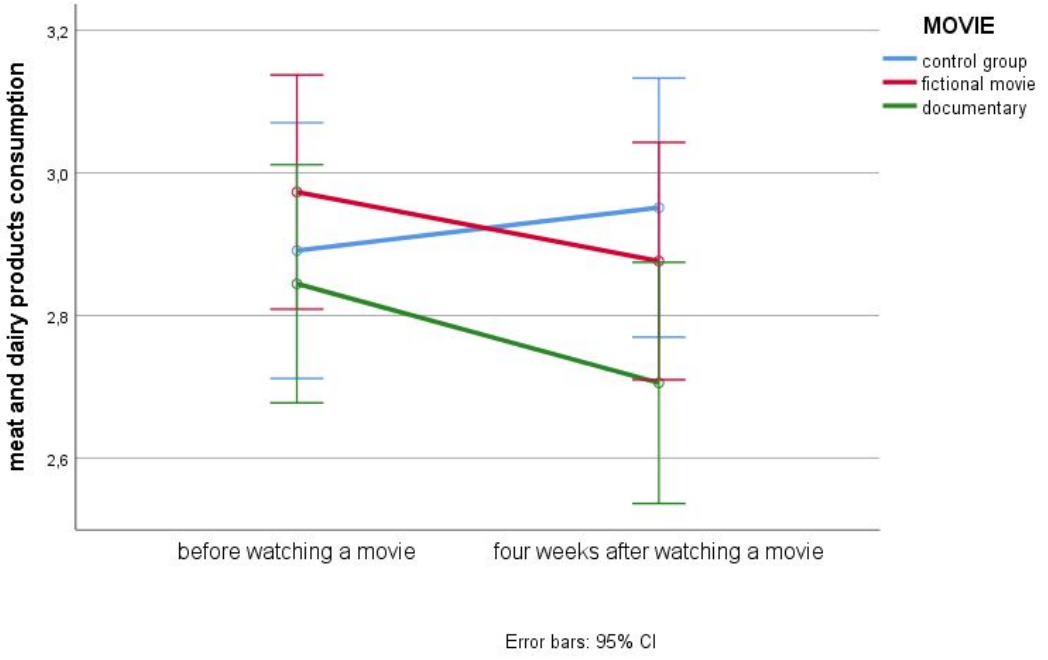


Figure 7. The change in meat and dairy products consumption after four weeks

Hypothesis 6: People who already thought about meat reduction in the past will more likely change their meat consumption after watching a movie

Results of this hypothesis are unrepresentative and should by taken with perspective because groups were highly unbalanced (N_1=21, N_2=27, N_3=9, N_4=4).

9 Discussion

Though the survey on vegans and vegetarians (Humane League Labs, 2014) states that majority of people became vegans or vegetarians after watching a movie, this experiment disprove the relationship between watching a movie and decreasing meat and dairy products consumption. These results can be explained in many possible ways.

In this study, I supposed that behavioral change caused by a movie can be predicted by the change in emotions and attitudes. But according to the theory of planned behavior (Iibel, Ohnmacht, Schaffner, & Kossmann, 2019), behavioral change in meat and dairy products consumption is a complex process, which is besides attitudes influenced also by social norms and perceived behavioral control. Those factors, which I didn't measure could negatively affect behavioral change in meat and dairy products consumption.

People often reduce their meat and dairy products consumption because of their concern about animals, health and the environment (Waldmann et al., 2003). Movies I have chosen for this experiment are focused only on the ethical concern about animals, which means that it covers only 33% of the potential motivation to reduce

meat and dairy products consumption. There is a possibility that many people weren't persuaded by this message.

For the purpose of this experiment, I used the document with a minimum of violent shots, which is the exception in animal advocacy. Majority of animal advocacy documents contains pictures of animals being killed etc. This could also influence the change in meat and dairy products consumption.

According to those results, it is save to say that documentaries with ethical messeging and minimal violance don't influence meat and dairy products consumption.

The progress of the attitude change is interesting. Graph 4 shows that carnistic defense decreased rapidly after watching the documentary, but then increased again. This can be explained by the change in negative affect, which significantly increased after watching a documentary because the affective experience can dramatically change the attitude (Lambert & all, 2010). This explanation is also supported by high correlation between negative affect and carnistic defense.

Anyway, the carnistic defense increased again during the following four weeks, which is in interplay with the theory of peripheral route of Elaboration likelihood model of persuasion (Petty & Igener, 1999). This raises a question about the importance of emotions in the persuasion process. If their influence is only temporal, we should try to find and use predictors of long-term effect.

The study is influenced by high self-selection of participants which was even more supported by us. I suppose that people who decided to go to animal advocacy documentary or fictional movie already have some interest in animal advocacy, veganism or are just more open-minded about these topics. That's why I tried to create the control group from people with similar properties to ensure high ecological validity. But the results are less generalizable on the whole population.

Results also suggest that fictional movies may have more long-term effect then documentaries. If we look on process of attitude change of the Carnistic Defense, we can see gradually decresing curve. Carnistic Defense in group watching documenary decreased immidiately after movie but then increased again. Those results suggest that documentary has only short-term effect on attitude change which is in the interplay with my explanation about influence of emotions on long-term effect.

Limits and recommendations

The biggest limitation of this research is the low internal consistency of Czech translation of the speciesism scale. The Cronbach's alpha of Czech version of the carnistic defense is also lower than English version. Both scales were translated by professional translators, but both concepts have a strong cultural background, so I recommend to standardize them before their next use.

All measures were done using self-report methods which can distort the results. But the questionnaires were anonymous with four weeks between questionnaires wich decrease probability of intentional distortion from participants.

It would be interesting to continue watching progress in Carnistic Defense in longer time period for many reasons:

1. If carnistic defense after watching a fictional movie keeps decreasing and after watching a documentary keeps increasing, the fictional movie can be a more powerful tool for meat consumption change then documentary.

1. Even when interventions strive for a long-term change in meat and dairy products consumption, 53% of people get back to meat eating after one year of meat reduction (Humane Research Council, 2014). That's why it is good to explore the influence of movie on change in meat and dairy products consumption in a long-term perspective.

Future research should control if participants have seen many animal advocacy movies before or if this is their first or second animal advocacy movie. This information can help to decide if it is just any kind of animal advocacy movie, which changes the meat consumption or if it is the one movie I have chosen for the experiment.

It is also good to control if people of the control group didn't watch the same movie on their own if the control group consists of people already interested in the movie. In case of this experiment, it is very unlikely because the Czech subtitles of the documentary are not available to the general public. And 'Babe - the gallant pig' had to be ordered from the production company or it can only be played on Netflix.

The last fact, which can influence the results is the deficit of information where do the participants buy their meat and dairy products. People who don't buy meat and dairy products from factory farm may feel free from the facts presented in the documentary and don't reduce their meat and dairy products consumption.

Conclusion

This study was created as a reaction to a lack of interest in testing effectivity of interventions, especially in animal advocacy. Majority of studies about meat consumption is mainly descriptive but what animal advocacy really needs is RTC testing of interventions for better understanding of behavioral change in meat and dairy products consumption and things which start or influence this change. Along with the constant increase of world's meat consumption and population growth, the request for effective interventions will increase as well.

This study is a part of a bachelor thesis, so it was conducted from limited resources, options, and skills, which is reflected in the limitation part of this work. Anyway, it offers interesting information about the influence of movie on attitude and behavior change in the time of four weeks. I believe it contains some useful information for other researcher interested in this area and animal advocates with individual outreach.

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