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SOUTĚŽNÍ TEXT

THE INFLUENCE OF MOVIES ON BEHAVIORAL CHANGE IN MEAT AND DAIRY PRODUCTS CONSUMPTION

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Abstract

The aim of this thesis is to test the influence of movie on meat and dairy products consumption, speciesism, carnistic defense and positive and negative emotions induced by a movie.

The sample consists of 99 respondents (64 female) 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 Carnism 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 Food Frequency Questionnaire.

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 increase of negative emotions and decrease of positive emotions. Regression analyses showed that change in carnistic defense predicts the change in meat and dairy products consumption.

Key words: movie, consumption, attitude, emotion

INTRODUCTION

Meat production is increasing rapidly every year. Today's meat production is almost five times higher than in 1961 (Ritchie & Roser, 2018).

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 of meat production (Waldmann et al., 2003).

One strategy to alleviate this problem is decreasing individual animal products consumption and changing people's attitudes towards animals. This advocacy strategy is used by many animal advocacy charities and includes interventions like leafleting and online ads (Animal Charity Evaluators, 2018).

One of the most commonly used interventions in the animal rights movement are documentaries. Although there is some cross-sectional evidence that many vegans and vegetarians say they reduced their meat and dairy products consumption and became vegans after watching a movie (Humane League Labs, 2014), there are no experimental studies supporting, describing or explaining the process of this behavioral change. Without such studies, we can not be sure this intervention works as suggested and hundreds of thousands of dollars spent on animal advocacy documentaries might thus not bring about the desired societal change.

PREVIOUS RESEARCH

According to the Theory of Planned Behavior, attitudes and emotions are one of the most important predictors of behavioral change in meat and dairy product consumption (Weibel, Ohnmacht, Schaffner, & Kossmann, 2019).

Emotion

According to previous 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).

Attitude

The meta-analysis of 88 attitude-behavior studies supports the hypothesis that attitudes significantly predict future behavior (Kraus, 1995). Also the connection between attitude and behavior has strong evidence if we 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 are more likely to reduce their meat consumption (Richardson, Shepherd, & Elliman, 1993; Macdiarmid, Douglas, & Campbell, 2016).

Prejudice

In this study, I am going to explore speciesism and carnism and their influence on behavior.

Speciesism is a 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 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 (Caviola, Everett, & Faber, 2018).

Carnism is a system of beliefs that eating meat is ethical, natural and normal for people (Piazza et al., 2015). Monteiro, Pfeiler, Patterson and Milburn (2017) divide the carnism into two components which are Carnistic Defence and Carnistic Domination. The Carnistic Defence is tendency to defend the carnism and legitimizing the meat-eating. The Carnistic Dominance, consists of belief that is is human right to kill animals.

Research hypothesis

Based on relevant research I assumed following hypotheses:

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 all interviews I conducted with vegans and vegetarians who changed their consumption after watching a movie, all participants talked about the change in the carnistic defense caused by watching a movie.

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.

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.

METHODS

I have decided to register this study prior data collection. You can find the registration form here: https://osf.io/h8nwq. The final study consists of only 2 experimental groups (in contrast with the pre-registration form), because I was not able to collect enough participants for the third experimental group (watching both movies).

Sample

From the total sample size of 141 people, 35 people were eliminated because they were vegans or vegetarians (according to NHS definition (NHS, 2017)) and 7 people were eliminated for other reasons. The final sample composed of 99 participants (64 women) from 18 to 59 years old.

There was even number of participants in each group (fictional movie - 32, documentary - 33, control=no movie - 34).

The dropout after four weeks was 8 people in the control group, 3 people watching the documentary and 1 person watching the fictional movie.

PANAS (The Positive and Negative Affect Schedule,Watson, Clark, & Tellegen (1988)) was used to measure the change in positive and negative emotion induced by watching a movie. PANAS contains the same emotions described by vegans and vegetarians who changed their behaviour after watching a movie. Participants are asked to mark their current feelings on scales from one "very slightly or not at all" to five "extremely". Both scales of questionnaire 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 Carnistic Defense, 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 (two professional translators, 2 Czech students studying English abroad and one bilingual speaker).

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". The internal consistency of the Czech translation of carnistic defense using Cronbach's alpha was 0,713.

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.

FFQ (**Food Frequency Questionnaire)** was used to measure meat and dairy products consumption. FFQ is a multiple-choice table consisting of types of meat and dairy products. Participants are asked to mark their consumption of every substation above on a five-point scale from 'never' to 'almost every day'.

Study design

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

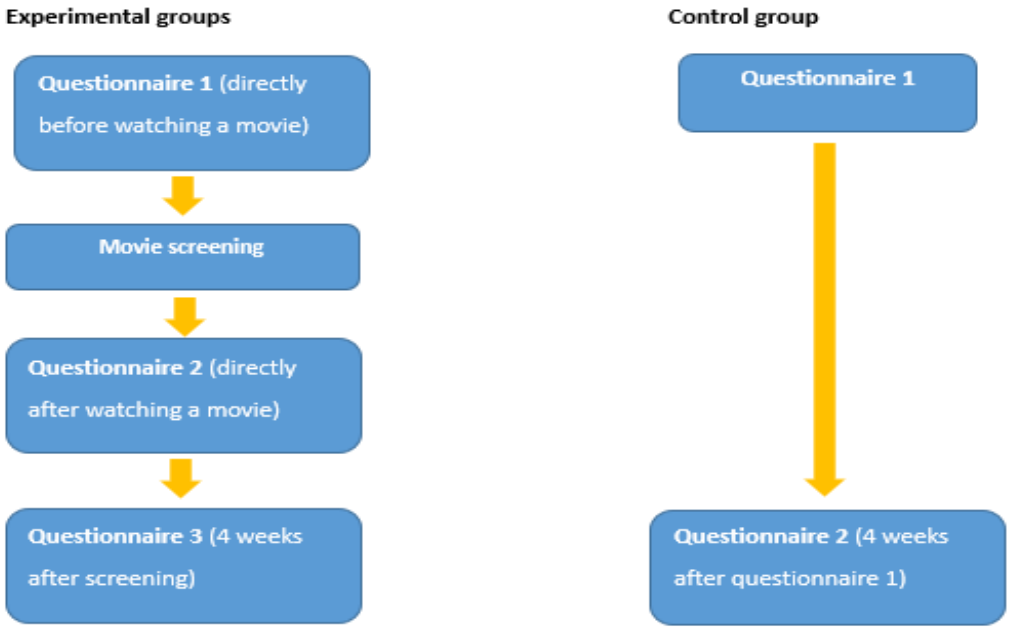

Figure 1. The study design.

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). 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 (N=7) to consider the appropriateness of both movies for this experiment. Both movies were considered as ethically acceptable, not showing any new or traumatizing scenes. Based on this focus group, I assumed that both movies are sending speciesism and carnism messages.

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.

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.

All participants signed the informed consent before the experiment, which was on the first page of the questionnaire number one.

RESULTS

Descriptives

To better understand measured variables, table 1 shows the correlation matrix using Spearman correlation. I used Spearman correlation because the most of variables are not normally distributed.

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

Main analysis

Repeated measures ANOVA doesn't show any significant difference in meat and dairy products consumption ($F(1,84) = 2.187$, $p=.119$, $\eta^2 =.049$) and Carnistic Defense ($F(2,84) = 0,160$ $p=0.852$, $\eta^2 =0.004$) after watching movies (both documentary and fictional movie). Hypotheses number 2 and 5 were rejected.

Figure 2 shows the course of change in carnistic defense in both experimental groups.

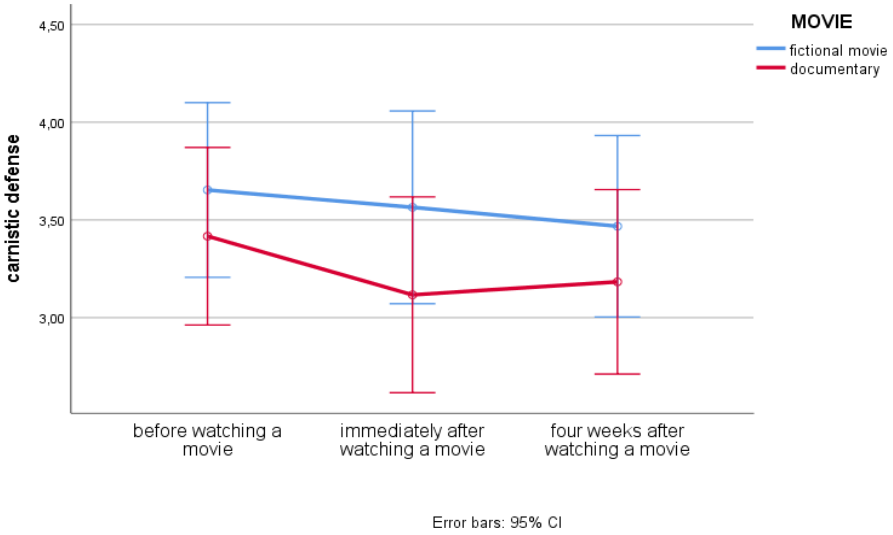

Figure 2. The change of the Carnistic Defense in experimental groups

Negative affect significantly increased after watching the movie with a strong effect size, F (1,63) = 36.741, p=.000, η^2 =.368. Negative affect after watching a document rapidly increased, but negative affect after watching the fictional movie increased minimally. Hypothesis number 3 was confirmed.

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. Positive affect after watching the document rapidly decreased, but positive affect after watching the fictional movie increased.

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 21% 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 2.

Table 2. Results of multiple regression predicting change in meat consumption

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

DISCUSSION

In this study, I supposed that behavioral change caused by a movie can be predicted by the change in emotions and attitudes. According to the theory of planned behavior (Weibel, 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.

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 (Waldmann et al., 2003).

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.

Carnistic defense decreased rapidly after watching the documentary, which can be possibly explained by the change in negative affect. 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.

Limits

The largest weakness of this thesis is its inability to detect smaller effect sizes due to modest sample size (N=99). This study was powered to detect 27% and higher difference between the

groups (d=0,38) in their meat consumption. However, even a smaller effect than this (e.g. 15 %) might still make this intervention worthwhile.

Another problem might be the use of self-reported measure of meat consumption. Although this measure seems to be one of the best of self-reports using more objective measure of meat consumption provide more reliable results.

CONCLUSSION

This study was created as a reaction to a lack of interest in testing effectivity of interventions, especially in animal advocacy. I hope this study provide some useful information to people interested in testing advocacy inherencies and help future researchers to conducted more rigorous and long-term research.

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PANAS (Watson, Clark, and Tellegen, 1988) – czech version

Následující škála se skládá z několika slov, která popisují různé pocity a emoce. Přečtěte si každou položku a pak označte vhodnou odpověď. Uveďte prosím, jak se aktuálně cítíte.

1 - velmi mírně nebo vůbec
2 - trochu
3 - středně
4 - docela dost
5 - extrémně

1.	Plný/á zájmu	1	2	3	4	5	15.	Nervózní	1	2	3	4	5
2.	Rozrušený/á	1	2	3	4	5	16.	Odhodlaný/á	1	2	3	4	5
3.	Plný/á vzrušení	1	2	3	4	5	17.	Pozorný/á	1	2	3	4	5
4.	Rozčilený/á	1	2	3	4	5	18.	Neklidný/á	1	2	3	4	5
5.	Silný/á	1	2	3	4	5	19.	Aktivní	1	2	3	4	5
6.	Provinilý/á	1	2	3	4	5	20.	Plný/á obav	1	2	3	4	5
7.	Vystrašený/á	1	2	3	4	5	21.	Klidný/á	1	2	3	4	5
8.	Nepřátelský/á	1	2	3	4	5	22.	Znuděný/á	1	2	3	4	5
9.	Nadšený/á	1	2	3	4	5	23.	Spokojený/á	1	2	3	4	5
10.	Hrdý/á	1	2	3	4	5	24.	Smutný/á	1	2	3	4	5
11.	Podrážděný/á	1	2	3	4	5	25.	Nenucený/á	1	2	3	4	5
12.	Bdělý/á	1	2	3	4	5	26.	Mátožný/á	1	2	3	4	5
13.	Zahanbený/á	1	2	3	4	5	27.	Uvolněný/á	1	2	3	4	5
14.	Nápaditý/á	1	2	3	4	5	28.	Sklíčený/á	1	2	3	4	5

The Carnism Inventory (only the carnistic defense) – english version

1. Humans should continue to eat meat because we've been doing it for thousands of years.
2. Eating meat is better for my health.
3. I've been eating meat my whole life, I could never give it up.
4. The production of meat causes animals to suffer.

The Carnism Inventory (only the carnistic defense) – czech version

1. Lidé by měli dál jíst maso, protože to tak děláme už stovky let.
2. Jíst maso je dobré pro mé zdraví.
3. Jím maso celý svůj život a nikdy bych se ho nemohl vzdát.
4. Produkce masa je důvod, proč zvířata trpí.

The Speciesism Scale – english version

1. Morally, animals always count for less than humans.
2. Humans have the right to use animals however they want to.
3. It is morally acceptable to keep animals in circuses for human entertainment.
4. It is morally acceptable to trade animals like possessions.
5. Chimpanzees should have basic legal rights such as a right to life or a prohibition of torture. (r)
6. It is morally acceptable to perform medical experiments on animals that we would not perform on any human.

The Speciesism Scale – czech version

1. Po morální stránce jsou zvířata vždy považována za něco méně než lidé.
2. Lidé mají právo využívat zvířata jakýmkoli způsobem.
3. Chovat zvířata v cirkusech pro lidskou zábavu je morálně přijatelné.
4. Obchodovat se zvířaty jako s majetkem je morálně přijatelné.
5. Šimpanzi by měli mít základní legální práva jako například prívo na život a mělo by být zakázáno je mučit. (r)
6. Provádět na zvířatech lékařské pokusy, které bychom neprovedli na člověku, je morálně přijatelné.