

**Game Changers: What does it take to change how we think of meat?**

A study measuring the impact of the *Game Changers* documentary  
on perceptions of veganism

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Master's Thesis  
*June 2020*

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### **ABSTRACT**

From being generally viewed as odd and deviant, diets that disregard the importance of meat for one's well-being have started to gain increasing traction in recent years. The Netflix documentary *Game Changers* has led people to question their beliefs about meat and reconsider their dietary choices with regards to their own health and that of their loved ones. Plant-based eating has furthermore been widely discussed in relation to environmental causes, sustainability, reducing human impact, animal sufferings as well as other modern social movements. This study briefly explores the history of veganism, meat's symbolic relationship with gender and media's role in teaching people about health. It specifically investigates how successful *Game Changers'* alternative portrayal of plant-based eating and veganism via storytelling and celebrity endorsements is in impacting viewers' general attitudes towards the consumption of meat and their willingness to reduce it, posing the question: *To what extent can watching the Game Changers documentary influence the overall perception of meatless consumption of female and male viewers?*. A sample of 169 men and women participated in an online survey distributed on MTurk. Half of participants were placed in an experimental condition, while the other half – in a control condition where no treatment was used to prime their answers. Both groups were asked about their dietary preferences, associations of plant- and meat- based diets, attitudes towards meatless meals, perceptions of meat and willingness to decrease their meat consumption. Results showed that the general reception of the documentary across conditions was highly positive, with respondents in the experimental condition showing significantly lower scores in their perception of meat as *natural, necessary, and nice*. Hence, *Game Changers* did impact the way diets without meat are perceived by both men and women. The only variable in which no difference was measured was the understanding of meat-eating as *normal*. While participants' intention to reduce their meat consumption can be manipulated by the documentary, their long-term behavioral change appears to be complex and difficult to alternate due to meat's prominent historical symbolic role in societies. Future research should further explore the role of socioeconomic and psychological factors in people's dietary choices in order to develop alternative views of meat that lead to its reasonable and sustainable place in our diets.

**KEYWORDS:** *veganism, meat, perceptions, media, #gamechangers*

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## 1. Introduction

From being predominantly viewed as odd and wimpy, today diets such as vegetarianism and veganism, which undermine the importance of animal products, are increasingly gaining popularity (Povey, Wellens & Conner, 2001). As of March 2020, more than 98 million Instagram posts have been hashtaged with #vegan or #veganism (Instagram, 2020; Instagram, 2020). Several studies showcase that among others, celebrities' endorsements are some of the largest contributors for alternating consumers' attitude towards veganism and behavioral intention to eat in more plant-based ways (Lundahl, 2018; Phua, Jin & Kim, 2019). Directed and presented by some big names such as Arnold Schwarzenegger, Lewis Hamilton, Novak Djokovic, etc., a documentary under the name of *Game Changers* was released on Netflix on the 16<sup>th</sup> of October, 2019. Similarly, the film has largely contributed to the controversial buzz in the media space regarding the role that meat plays for one's well-being. In essence, the 85-minute long film looks into the benefits of plant-based eating by following the stories of several athletes who live by that ideology (Murray, 2019). Rather than simply the message to eat more plants and fewer animal products, however, the film follows the journey of James Wilks, a retired mixed martial arts fighter and couch, over a period of time. It allows for multiple storylines to unfold before the eyes of the viewer, enabling them to join the quest and make their own conclusions about his diet but in a highly persuasive manner. Premiering on a large streaming platform like Netflix with a heavy celebrity involvement, the *Game Changers* production has been given an extensive reach and an opportunity to contribute to the destigmatization of veganism for the general public (Lundahl, 2018).

Aside from health benefits, the *Game Changers* documentary attempts to 'debunk' some claims regarding the link between meat and masculinity. Meat, particularly red meat, has become an archetypical symbol of masculinity in Western societies (Sobal, 2005). Historically speaking, it was women who took care of forging, while the hunting down of animals was men's task (Brubach, 2008). Women, to this day, are seen as caregivers, while men provide. In this sense, the link between men and meat remains untouched. The *Game Changers* documentary, thus, received controversial reactions due to the ways in which it challenges not only society's idea of a healthy diet, but also the essence of what makes men truly 'masculine'. Interestingly enough, the coverage *Game Changers* received in male versus female magazines can be defined as quite polarizing as well. While male-oriented media sources such as *Men's Health* magazine rejected the scientific credibility of the documentary and took a pro-meat stance (Kita, 2019), female-oriented media sources such as *Vogue* covered the film as highly informative, perhaps even ground-breaking (Branch,

2018). This finding, specifically, comes as no surprise given *Man's Health* magazine has been shown to consistently perpetuate the notion that only real men eat meat (Rothberger, 2013) and that being a meat eater is explicitly identified as one of the attributes of an ideal man (Stibbe, 2004). Other media channels such as talk shows, podcasts, YouTube commentary channels, etc. have also taken interest in challenging the legitimacy of the claims made in the documentary by hosting discussions on the topics of meat and plant-based eating. Comedian, UFC commentator, and podcast host Joe Rogan, for instance, conducted two sessions devoted on the topic (totaling almost seven hours in length) in attempt to clear the air as to why opinions on meat and plant-based eating in the documentary caused so much controversy (Pointing, 2019; Starostinetskaya, 2019). In their deliberation, it becomes clear that meat consumption is not only driven by health motivations but also by meat's symbolic and performative role in societies. In this sense, it is interesting to evaluate how impactful the *Game Changers* documentary really is by examining how this alternative perspective on plant-based eating and veganism influences viewers' general attitude towards the consumption of meat and plant-based meals, their justifications for eating meat as well as their willingness to try incorporating more plant-based meals in their diet. With this in mind, the following research question has been formulated:

*To what extent can watching the *Game Changers* documentary influence the overall perception of meatless consumption of female and male viewers?*

### **1.1. Rationale**

In order to investigate the proposed research question, this study explores two aspects of the *Game Changers* documentary. Firstly, storytelling or narratives will be discussed in relation to their usage by stigmatized communities to influence and shape the attitudes of others by presenting alternative perspectives which challenge the dominating stereotypes regarding that community (Potter, 2014; Napoli & Ouschan, 2019). Storytelling implies that humans create shared meanings by telling stories (Borman, 1982, referenced in McComas, Shanahan & Butler, 2010). Thus, since mass media have been the predominant storytellers over the past several decades, Gerbner and Gross (1976, referenced in McComas, Shanahan & Butler, 2010) argue that they have to a large extent shaped culture and tradition across societies. In this sense, mass media can very well also provide meaning to topics with which we might not have firsthand experience with (e.g. veganism and plant-based eating). The concept of storytelling will be further discussed in terms of its relation to

the shaping of society's view of meat consumption, on one hand, and understanding of ideologies that undermine the importance of animal products for one's well-being, on the other.

Aside from storytelling, *the halo effect* and the formation of a general cognitive bias impression are further elaborated on. The halo effect refers to the capability of the characteristics of one entity to be transmitted onto another (Dietrich, Fischer & Walcher, 2016). The phenomenon can be defined as a tendency of judges to assume that once a person possesses some known good (or bad) characteristics, their other, unrelated and unknown characteristics are also likely to be consistent (Pohl, 2016), thus, creating a positive or negative halo effect (Bragg, Roberto, Harris, Brownell & Elbel, 2017). In the context of this study, the halo effect will be used to measure the extent to which the *Game Changers* documentary's feature of celebrities will serve as an indirect endorsement (a positive halo) of following a plant-based/vegan diet and strengthen participants' conviction of its benefits.

The influence of media consumption, specifically, the impact of *Game Changers* on viewer perceptions of meat and plant-based eating, will be measured using the 4N scale as a main criterion. The scale was first developed by Joy (2010) as the 3Ns of meat consumption justifications. Those justify meat-eating as *normal*, *necessary*, and *natural*. The scale was later transformed into the 4N scale by Piazza et al. (2015), adding *nice* as the fourth element to the scale. Together, the 4Ns create a well-rounded evaluation of the general views on meat and its role in one's diet. The scale, furthermore, explores the depth of disassociation people experience when distinguishing meat as food from the animal it comes from and its suffering. Aside from the 4Ns, *Game Changers*' impact on participants' view of meatless consumption will be evaluated via questions regarding their dietary preferences, attitudes towards meatless consumption, physical activity habits, and general willingness to experiment with consuming less meat.

It is important to study the motivations for meatless consumption and develop a deeper understanding of the factors which could influence individual dietary choices for several reasons. Firstly, previous studies that look into the effective ways of promoting reduced meat consumption and veganism have discovered emotional appeal, disassociation removal and the provision of achievable steps to be the most common suggestions for convincing individuals to take action towards issues such as excessive meat consumption and climate change (Cole & Morgan, 2011; Francione, 2012; Cherry, 2015; Gray, 2015; Polish, 2016). However, Greenebaum (2012) discovers that the aforementioned promotion techniques are often silenced by stereotypes, misinformation, and conflict as a psychological defense mechanism by meat eaters to mask feelings of guilt. Instead, it has been discovered

that ‘face-saving’ techniques such as avoidance of confrontation, appropriate timing, focus on health benefits and leading by example have proved to be far more effective for the promotion of plant-based eating, in particular (Greenebaum, 2012; Cherry, 2015; Doyle, 2016; Slade, 2018). In this sense, studying the *Game Changers* documentary’s storytelling elements, celebrity endorsements, and impact on individuals’ perception of plant-based eating with help further expand the existing body of research on effective advocacy techniques.

Secondly, a growing number of large media organizations such as *the Guardian*, *the Washington Post*, *Insider*, *the New York Times*, etc. have begun writing about the history of food companies across industries with funding biased research to support their products. Among other, studies looking at the health benefits of soda and fruit juices (Moodie, 2016), red and processed meat consumption (Parker-Pope & O’Connor, 2019; Landsverk, 2020; Reiley, 2020), milk and dairy products (Good, 2015; Levin, 2016) have shown to be subsidized by interest parties in their respective industries, with only partial or fully hidden disclosure. In this sense, although this study does not explore the health benefits of plant-based eating but rather the communication around it, it does contribute to the number of independent and objective academic research on the topics of meat consumption and plant-based eating. Media coverage of nutrition research is essential in helping to bring awareness about new findings. Due to the shortage of time or space, however, it is often difficult for journalists, media hosts, and creators to provide the entire context needed for viewers to make sense of new information. In this sense, studying the effectiveness of the *Game Changers* documentary on impacting viewers’ dietary attitudes can enrich the array of existing ways of communicating about plant-based eating and their effectiveness.

Lastly, as human populations grow and affluence increases, meat consumption has significantly increased worldwide over the past couple of decades (Henchion, McCarthy, Resconi & Troy, 2014; Godfray et al., 2018) and that fashion is likely to continue in the future. In the past fifty years alone, meat production has, furthermore, quadrupled, exceeding 320 million tons in 2013 (Ritchie & Rose, 2017). Growth rates vary across different regions, with consumption in middle-income countries being highest and increasing, mostly static or declining in high-income countries, whereas in low-income countries, meat consumption is low and stable (Godfray et al., 2018). That tendency has been partially explained by the rising income and growth of the middle-class in the Global South (Vranken, Avermaete, Petalios & Mathijs, 2014), on one hand, but also meats’ non-decreasing prevalence in already established food chains in the West (Markowski & Roxburgh, 2019). Although meat is a concentrated source of nutrients for low-income families (Godfray et al., 2018) due

to the micronutrients it contains (e.g iron, zinc, B12, etc.), it is, in fact, the Western countries who generally consume more meat, with two-thirds of Americans having reported to regularly eat meat in 2016 (The Vegetarian Resource Group, 2016).

The associated with meat consumption demand livestock production requires large areas of land and leads to high nitrogen and greenhouse gas emission and land use (Westhoek et al., 2014). As a consequence, animal cultivation and meat production have undergone heavy industrialization and standardization processes, resulting in greater animal exploitation, water waste, and green gas emissions (Bryant, 2019). Meat produces more emissions per unit of energy compared with that of plant-based foods because energy is lost at every level of production (Godfray et al, 2018). Specifically, it has been concluded that farmed animals' contribution to global warming exceeds 40%, which is a larger percentage of all transport combined (Pew Commission on Industrial Farm Animal Production, 2008). Those findings showcase that global environmental challenges require changes in both the production and consumption of goods. For instance, countries like Finland have demonstrated a moderate level of consciousness on their meat consumption (Pohjilainen, Tapiio, Vinnari, Jokinen & Rasanen, 2016) due to the higher number of information-based and practical policies the country has introduced. However, the number of unsure consumers of meat globally is relatively high which raises various health and environmental issues, as well as moral concerns regarding farm animal welfare (Bonnet, Bouamra-Mechemache, Requillart & Treich, 2020). In summary, while global animal agriculture is highly unsustainable and a significant contributor to environmental degradation, such as excessive amounts of freshwater withdrawal and greenhouse gas emission, acidification, deforestation and decline in biodiversity, climate change (Schosler, de Boer & Boersema, 2014; Bryant, 2019) the industrialization and standardization of the production of meat and other animal products, as consequence, increasingly contribute to the exploitation, suffering, and extinction of some species (e.g. bees) of animals, thus raises ethical questions worth addressing (Greenebaum, 2012).

## 2. Theoretical framework

### 2.1. The *Game changers* film as predictor for attitude shift

The documentary film *Game Changers* was released on the streaming platform Netflix on the 16<sup>th</sup> of October 2019. It explores plant-based eating through the journey of James Wilks who is a Special Forces trainer and The Ultimate Fighter champion. According to *Game Changers*' official page, Wilks travels the world with the purpose of uncovering the optimal diet for human performance (The film, 2019). In essence, the 85-minute long film looks into the benefits of plant-based eating by following the stories of several athletes who live by that ideology (Murray, 2019). It places into question the role that meat plays in people's health and well-being and attempts to 'debunk' some claims regarding the symbolic link between meat and masculinity. Produced by popular names including James Cameron, Arnold Schwarzenegger, Jackie Chan, Lewis Hamilton and more, the film holds a compelling and persuasive take on plant-based eating and proposes the idea that meat consumption is not only driven by health motivations but also by meat's symbolic and performative role in societies. The film introduces the viewer to some health and performance benefits of plant-based eating using factual information, scientific experiments and the personal stories of various individuals, some of which the audience can identify with and relate to, and others who they may aspire to be. While its exclusive cast manages to draw viewers into watching the documentary in the first place, it is its immersive storyline that convinces them to complete watching it. In this sense, this study focuses on two aspects of the movie which arguably make it persuasive and compelling to viewers - *storytelling*'s usage to communicate to audiences about plant-based eating, and celebrity endorsements' *positive halo* effect, which creates an impact on viewer perceptions of plant-based eating.

In order to understand how the aforementioned factors could influence individuals' perceptions of plant-based eating, some context needs to be provided. Thus, in the following paragraphs, a brief historical background of the role which meat has played in ideologies over the years will firstly be provided. In addition, some key definitions will be clarified in order to specify how they will be understood in this study. Secondly, the cultivation theory will be used to illustrate how socialization around meat-eating has taken place over the years. Next, a literature review on some of the factors which have contributed to the stigmatization of veganism as an ideology will be provided. Finally, *storytelling* and the *halo effect* will be elaborated on as the two major aspects of the *Game Changers* documentary which this study argues will impact participants' view of plant-based eating. The aforementioned sections, lastly, will result in several hypotheses along the way.

## 2.2. The role of meat in ideologies

### 2.2.1. *Origins and definition of veganism*

Plant-based eating is not new to society. Meat abstention, today known as vegetarianism, can be first found in ancient Indian and eastern Mediterranean societies. Mentions of vegetarianism can be traced back to as early as 500BCE. It was promoted by the Greek philosopher and mathematician Pythagoras as benevolence among all species rooted in the notion that all living things are kindred and the corollary that it is wrong to cause suffering to animals (Nordstrom, 2019). Meat abstention was advocated by Buddhism, Hinduism, and Jainism as the belief that humans should not inflict pain on other animals, mainly for religious reasons (Suddath, 2008). Over the course of its long history, vegetarianism's core values have remained unchanged. While ancient Indian and Mediterranean societies abstained from eating meat for religious, ethical, and philosophical reasons, there was no name or term provided to meat abstention, indicating that no specific movement was associated or attached to their decision not to eat meat. It was only later on in the early nineteenth century, when the animal rights movement began uprising, that today's understanding of vegetarianism was beginning to form (Nordstrom, 2019). The term vegetarian was coined in the 1840s, followed by the formation of the Vegetarian Society in 1847, allowing for a new type of social movement to arise. There was no distinction between vegetarianism and veganism up until the 1940s when factory farming and the dairy and egg industry began developing (Rich & Wagner, 2018, referenced in Nordstrom, 2019). As factory farming continued to grow and became a subject of attention to the animal rights movement, the mistreatment of the animals in these factories was eventually noticed (Ridoutt, Hendrie & Noakes, 2017). It was only in 1944 when the British woodworker Donald Watson coined the word vegan to define those vegetarians who also choose to refrain from eggs and dairy (Suddath, 2008).

According to the UK Vegan society, which is seen as one of several authoritative voices in the vegan community, the definition of veganism is 'a way of living which seeks to exclude, as far as is possible and practicable, all forms of exploitation of, and cruelty to, animals for food, clothing or any other purpose.' (Definition of veganism, 2020). Based on that definition, veganism does not only entail the exclusion of animal products from one's diet but also extends to all aspects of living (e.g. clothing, accessories, bathroom items, products tested on animals, etc.) (Sneijder & te Molder, 2009; Napoli & Ouschan, 2019). Greenebaum (2012) distinguishes between ethical, health, or environmental vegans based on individuals' motivations for following a plant-based diet. For some, veganism is firmly ingrained and connected to their identity for indirect reasons, whether that would be a strong

environmental concern or wish to reduce animal suffering (Larsson, Rönnlund, Johansson & Dahlgren, 2003), while for others it is simply a dietary choice motivated by mostly direct, individualistic health reasons. Ethical and environmental vegans tend to have a higher commitment to the cause compared to health vegans and are more likely to remain vegan in the longer term (Stagler, 2010; Napoli & Ouschan, 2019). They also tend to hold more extreme opinions on topics such as the animal rights movement, green gas emission, global warming, etc. Although evidence about veganism's positive effect on the environment exists, ethical vegans' argument is often less about what is true and false, but more about what is moral and immoral.

Today, vegetarianism is no longer tied up to its philosophical and religious roots and is accepted within the majority of societies. Veganism, on the other hand, is still highly associated with the animal-rights movement. Cherry (2006) argues that a proportion of vegans, in fact, represent a new form of a social movement that does not depend on legislation or identity politics but rather on everyday choices and practices. This notion has been further explored in recent studies as well (Gelderloos, 2011; Elorinne, Kantola, Voutilainen & Laakso, 2016; Polish, 2016; Lundahl, 2018) where the vegan diet is claimed to be experienced as a part of one's life and self-identity, position in society and status quo. All and foremost, as a voluntary lifestyle choice, some consider veganism to be a privilege experience for those living in developed and affluent societies, where food choices are wide and survival is not in question (Fiddes, 1997; Napoli & Ouschan, 2019). Although one can be persuaded to follow a plant-based diet for personal reasons rather than altruistic ones, veganism is still strongly associated with larger social issues, political stance, and position in society.

### *2.2.2. Definition of carnism and the notion of the meat paradox*

The relationship between humans and the rest of the natural world, including animals, has been radically and profoundly changing over the course of history. From gatherers, men became hunters, shepherds, and farmers, thus discovering the benefits of agriculture and animal domestication. With that, from a connection solely based on respect and sometimes praise, humans' relation to the world began to evolve into this of master-slave (Russom, 2019) and spread to all aspects of our existence. The everlasting culture which sees some animals as food (e.g. chickens, pigs, cows) and others as pets (e.g. cats, dogs, mice) is the currently dominant ideology in today's society, and is referred to as carnism (Joy, 2001; Joy, 2011; Monteiro, Pfeiler, Patterson & Milburn, 2017; Martinelli, 2018; Murray, 2019; Russom, 2019). While veganism is clearly distinguished as a deviant,

abstract ideology, carnism, in this sense, is rather invisible, meaning that people are often unaware of the fact that meat-eating is a matter of choice rather than a fact, in the same manner, that vegetarianism and veganism are. Social psychologist Melanie Joy, who was the first one to define meat-eating in its ideological, social, and cultural sense, argues that carnism's primary aim is to establish that the perception of animal products as food is highly cultural (2001). While a dog may be a beloved pet in some societies, it can be viewed as a delicacy in others (Martinelli, 2018). Bullfighting and whaling both have very strong cultural significance for Spain and Norway, respectively, but each country is yet disgusted by the practices of the other (Dhont & Hodson, 2019). Islam and Judaism preach not to eat pork, while Hinduism preaches not to eat beef and so on. Although there is a variety of animal kinds worldwide, humans generally only choose to eat a few of them on a regular basis (Martinelli, 2018). Hence, like all ideologies, carnism needs to be understood as a shared set of beliefs and practices surrounding them (Joy, 2011).

Despite the increasing role which meat plays in people's diet today, meat-eaters often have a difficult time relating animal killing to food. Dhont and Hodson (2019) refer to that phenomenon as 'the meat paradox'. 'The meat paradox' refers to the idea that, on one hand, humans hold the belief that meat is healthy and necessary for one's development, while on the other, each individual finds comfort in the idea that their nature is good, that they would never harm an animal for personal benefit, but rather, welcome animals to their families as so-called pets. Those two beliefs are highly oppositional. When placed together, they can result in the occurrence of cognitive dissonance among meat-eaters. Cognitive dissonance refers to the simultaneous existence of knowledge elements that, one way or another, do not agree, and results in an effort from the individual to reduce their inconsistency, and make them better agree (Cooper & Carlsmith, 2001; Loughnan, Haslam, & Bastian, 2010; D'Mello & Graesser, 2012; Creyemey, 2017; Dhont & Hodson, 2019). It centers around the idea that people strive for consistency between their cognitions and actions, and that they apply a variety of methods to achieve it (Benningstad & Kunst, 2019). For instance, some can be direct and explicit such as the denial of animal's pain, moral status or intelligence, endorsement of hierarchy (e.g. humans are superior to non-human species), embracement of pro-meat attitudes, while others can be indirect and implicit, like the justification of meat consumption based on nutritional and normative grounds (Bastian, Loughnan, Haslam, & Radke, 2012; Rothgerber, 2013; Piazza, Ruby, Loughnan, Luong, Kulik, Watkins & Seigerman, 2015; Benningstad & Kunst, 2019). Rothgerber (2013) actually decided to test that assumption out by studying how undergraduate students justify their preference for eating meat. He discovered that, among female and male students, men tended to showcase

more direct and explicit justifications of their meat consumption such as pro-meat attitudes, animal suffering denial, beliefs in the lower significance of animals in society, religious and health justifications, etc (i.e., humans are predators; nothing nicer than medium cooked steak and beer). Female undergraduates, on the other hand, tend to use more indirect justifications which avoided thinking about the treatment of animals or the fairness, righteousness, normality of their exploitation for food such as the justification of meat consumption based on nutritional and normative grounds (i.e., all of my friends eat meat, it must be normal; doctors claim that you need meat to be healthy, you must need it). Furthermore, out of all meat options available in the study, female students choose those displaying least relationship to their original source such as white meat, ham etc. as opposed to raw red meats which are seen as more masculine. Thus, generally speaking, there can be an association found between women showcasing higher degree of intrinsic values (e.g. emotionality, care and concern) and their stronger wish for disassociation of meat products from their original sources. On the contrary, Greenebaim and Dexter (2018) discover that when it comes to men, prioritizing intrinsic values such as refusing to eat meat due to compassion for animals can result in questioning the solidity of their masculinity. Hence, those men who choose to follow a plant-based diet, regardless of the associations that might come with it, essentially pose a threat to the concept of a stoic and domineering view of hegemonic masculinity. Gal and Wilkie (2010) also confirm that men often experience a conflict between their relatively intrinsic preferences and gender norms, and as a result, choose to forgo them in order to conform to a masculine gender identity.

In relation to the notion that people continuously try to justify those of their actions that are inconsistent with their inner beliefs, Joy (2011) has developed a scale of the three Ns of justification of meat consumption: *natural*, *necessary*, and *normal*, used to solidify the carnism ideology (Joy, 2011). A set of practices becomes *natural* via the process of naturalization. Naturalization supports a certain ideology by giving it an inherently strong and logical foundation, thus, establishes how things should be based on 'the common belief' (Martinelli, 2018). Hence, naturalization has the ability to make an ideology historically, scientifically, and theoretically indisputable. The conviction that eating meat is *necessary* for human survival, although it has been proven that it is not, is what turns something *natural* into a given or a norm. *Norms*, in this sense, are social constructs used to define the ways in which humans should behave in order to maintain their position in society and status quo (Martinelli, 2018). In this sense, deviation from those established norms is viewed as unnatural, hence creating a closed, everlasting cycle. Piazza et al. (2015) later on transform the scale by adding a fourth N, justifying meat consumption as *nice*. *Nice*, in this sense,

measures the level of enjoyment people derive from eating meat as a major barrier to reducing meat consumption and/or adopting a vegetarian diet. The transformed 4N scale will be used to measure participants' attitudes towards meat and will be further introduced in the methodology section of this study. Alternatively, another technique used to avoid dissonance is when the animal identity of animal products is technically removed from our plates and replaced with 'food', now viewed as a symbol of privilege and pleasure (Rothgerber, 2013; Kunst & Hohle, 2016; Tian, Hilton & Becker, 2016; Benningstad & Kunst, 2019; Dhont & Hodson, 2019). In this sense, similarly to Joy (2001, 2011), Dhont and Hodson (2019) argue that meat-eating is not just an accident but rather a consequence of heavy marketing and socialization around animal consumption.

The aforementioned findings explain that women tend to experience a stronger wish for disassociation between animal products and their original sources in order to avoid thinking about the treatment of animals in that process (Rothgerber, 2013). In their attempt to reduce the level of cognitive dissonance they experience, women are more inclined to use indirect justifications for meat consumption, which outweigh the importance of their intrinsic values (e.g. emotionality, care and concern) (Segers, 2012; Rothgerber, 2013; Schösler, de Boer & Boersema, 2014). Men, on the other hand, display stronger pro-meat attitudes which often openly neglect animal suffering in the social hierarchy and align with their masculine identities (Gal & Wilkie, 2010; Greenebaim and Dexter, 2018). This study will, thus, test the extent to which patterns of different means of justification can be found among participants as well. It assumes that, among those participants who consume meat, women will score higher on indirect justifications which rely more on the normative framing of meat consumption (e.g. *necessary* and *normal*), while men will emphasize on direct and explicit justifications which embrace meat consumption as *natural* and *nice*, resulting in the following hypotheses:

*H1: Male respondents will indicate a stronger justification for meat consumption as natural as opposed to those of female respondents.*

*H2: Female respondents will indicate a stronger justification for meat consumption as necessary as opposed to those of male respondents.*

*H3: Female respondents will indicate a stronger justification for meat consumption as normal as opposed to those of male respondents.*

*H4: Male respondents will indicate a stronger justification for meat consumption as nice as opposed to those of female respondents.*

### 2.3. Socialization of meat-eating: the cultivation theory

Since childhood, humans have been socialized into meat-eating as a biological given and a part of the food chain. Carnism, thus, has been normalized and solidified over the course of years of socialization around meat-eating via television, radio, and other public media channels. A sociocultural theory about the role of media in shaping viewers' perceptions, beliefs, attitudes, and values is the cultivation theory (Gerbner & Gross, 1976; Shrum, 2017). First to conceptualize cultivation as a theory was George Gerbner (1967). In its original form, the theory addressed broader questions about media's role in shaping culture, primarily through storytelling (Potter, 2014). It consists of three components – media institutions and how media messages are produced and disseminated; message production and how messages are actually conveyed by media; message effects and how exposure to media messages influences recipients' conceptions of the real world (Potter, 2014; Shrum, 2017). In its essence, the theory suggests that mass communication media influence culture through the production of publicly-available messages (Gerbner, 1967) and is a part of a dynamic, ongoing process of interaction between messages and contexts via a communication medium and the interaction through messages of viewers and programs (Morgan & Shanahan, 2010; Wei, McIntyre & Straub, 2020). Due to the time of development of the cultivation theory, most of the theory's development and testing is focused on the influence and effects of television on viewers' perceptions of social reality (Morgan, Shanahan & Signorielli, 2017; Wright, 2018). However, the emergence of social media platforms and their undeniable impact on the functioning of businesses individuals alone as well as society as a whole have inspired a body of research which measures the effects of such platforms on perceptions (Williams, 2006; Stein, Krause & Ohler, 2019), attitudes, value judgments, behaviors (Petty & Cacioppo, 1986; Shrum, Lee, Burroughs & Rindfleisch, 2011; Wei, McIntyre & Straub, 2020), marketing strategies (Lumberton & Stephen, 2016; Kumar et al., 2017), etc.

In prior studies, the cultivation theory has been used to investigate media effects in relation to a variety of domains such as violence (Lett, DiPietro & Johnson, 2004; Jamieson & Romer, 2014), sex-role perceptions (Morgan, Shanahan, Signorielli, Morgan & Shanahan, 2014; Scharrer & Blackburn, 2018), political attitudes (Morgan, Shanahan & Signorielli, 2017), discrimination (Wright, 2018), disorders (Stein, Krause & Ohler, 2019), as well as within communities of people including the LGBTQ+ community (Tzikas, 2018; Miller & Behm-Morawitz, 2020), minorities (Vergeer, Lubbers & Scheepers, 2000; Wilson, Longmire & Swymeler, 2009; Zhang, 2010; Wright, 2018), vegans (Deckers, 2013; Napoli & Ouschan, 2019), etc. In the context of this study, cultivation is used to exemplify the

emergence of culture around meat-eating through years of normalization and solidification of carnism in media spaces (Morgan & Shanahan, 2010; Potter, 2014; Shrum, 2017; Wei, McIntyre & Straub, 2020). Although the general notion that greater exposure to media can cultivate the likelihood that audience members will develop the view that mirrors media accounts of the world is widely accepted, the theory has received some critique regarding audience characteristics impact on susceptibility to media influence (Gerbner & Gross, 1976). Thus, a subsequent body of research has emerged which proposes two hypotheses (Nabi & Riddle, 2008). The resonance hypothesis implies that media effects can be stronger for those individuals with relevant, real-world personal experiences and characteristics. Thus, it is argued that when people see information from media that is consistent with their own experiences, the strength of cultivation may be significantly strengthened (Nabi & Riddle, 2008; Morgan, Shanahan, Signorielli, Morgan & Shanahan, 2014; Scharrer & Blackburn, 2018). The mainstreaming hypothesis, on the other hand, suggests that the media can encourage the development of a common worldview among different audience members (Shrum & Bischak, 2001) where the media exposure has the capacity to overpower differences in perspectives which viewers have gained from personal experiences.

Another critique of the cultivation theory also questions whether the television message system is as coherent and consistent across genres as originally assumed by cultivation theorists (Potter, 2014; Scharrer, 2018) as media viewing is now highly customizable for viewers, thus, the idea that viewers are experiencing the same basic features of television content is placed under question. However, Morgan, Shanahan, Signorielli, Morgan and Shanahan (2014) suggested that even though the way that we consume media and receive our stories today has changed, important aspects of their content have not, arguing that the implication of television viewing are generally still relevant in today's media environment. As long as media channels and genres are a source of consistent ideological messages, the original notion that media is a source of consistent cultural stories still applies (Scharrer, 2018).

#### 2.4. Veganism in media

Although plant-based eating has been rapidly gaining popularity during the past several years, the word 'vegan' has become a loaded term, often taking on a rather negative connotation (Wright, 2015). Previous studies which explore perceptions of meatless consumption and representations of plant-based eating and veganism have predominantly focused on describing the general internal and external opinions on the topics (Hauwer & Bruycker, 2008; Rodgers, 2009; Cole & Morgan, 2011; Love & Sulikowski, 2018),

explaining the symbolic associations between foods and symbolic personality traits (Jensen & Holm, 1999; Sobal, 2005; Sellaeg & Chapman, 2008; Gal & Wilkie, 2010; Rothgerber, 2012; Schösler, de Boer & Boersema, 2014; Greenebaum & Dexter, 2017), news coverage (Cole & Morgan, 2011; Wright, 2015; MacInnis & Hodson, 2017; Nordstrom, 2019). A study by Cole and Morgan (2011), for instance, discovered that out of 397 UK newspaper articles covering the topic of veganism in 2011, 74.3% were negative, 20.2% were neutral and only 5.5% were positive. Their findings showed veganism as a craze in which people participate as an attempt to keep up with trends, rather than for ethical, environmental, or health reasons (Wright, 2015). They also suggest that vegans tend to be mostly represented within the stereotype of being white, female, privileged, and oversensitive (Wright, 2015, Nordstrom, 2019). In a series of studies that took place several years later, MacInnis and Hodson (2017) not only discovered similar results but also added that vegan males were viewed more negatively than female vegans. Furthermore, veganism was perceived to be highly associated with left-wing ideologies, specifically by those endorsing right-wing ideologies, suggesting that vegans support the status quo and resist social change - an idea extensively discussed by Cherry (2006), Joy (2011), Wright (2015) among others as well. From being predominantly associated with the animal-rights movement after its establishment as an ideology in the 1940s, veganism has evolved into a highly politicized and gendered ideology and movement (Cherry, 2006). In the following paragraphs, the link between diet and gender will be further explored.

#### *2.4.1. The symbolic relationship between gender and food*

Although there are multiple factors that determine one's likelihood of adopting a plant-based diet, gender appears to be an important moderator of attitudes towards vegetarianism, animal rights, and meat consumption (Rothgerber, 2013). Prior research comparing the opinions of women and men has discovered that, on average, women tend to hold stronger negative attitudes towards animal exploitation (Knight, Vrij, Cherryman, & Nunkoosing, 2004), are more likely to oppose experiments on animals ((Broida, Tingley, Kimball, & Miele, 1993), favor the animal rights movement, and show more concern for the suffering of animals held in labs (Eldridge & Gluck, 1996).

The difference in attitudes towards meat consumption, according to Rothgerber (2014), can be best understood by studying the construction of masculinity. The connection between meat and masculinity has been made salient historically, especially with the emergence of perceived 'threats' to traditional masculinity (Rogers, 2009). The idea that by consuming certain types of food, one performs gender is quite common in academia and

referred to as gendered foods (Sobal, 2005). Foods such as red meat and alcohol, for instance, are typically seen as masculine, while vegetables, fruit and sour dairy products are usually associated with femininity. Similarly, larger portion sizes and foods with sharper edges are mostly associated with men, while oval, soft-edged foods with women (Gal & Walkie, 2010). The performance of gender can be especially intensified in marriage, where joint meals often require some negotiation, which usually revolves around whether, what types, when and how much meat is consumed (Sobal, 2005) – men tend to highlight while women tend to undermine the importance of meat (Dhont & Hodson, 2019). Men often refer to eating as a necessity and routine, while women tend to refer to it as indulgent. Dieting and cooking, in this sense, are also primarily seen as feminine activities given diets often consist of predominantly ‘feminine foods’ while cooking often entails the preparation of nutritious, healthy meals (Sellaeg & Chapman, 2008), which if dieting serve as indulgent. Men are alternatively associated with the lack of knowledge regarding healthy eating and the need of directions. Food genders can also be found in the way people communicate about food, where diets lacking animal products (e.g. plant-based eating) are predominantly perceived as feminine, while diets which primarily consisted of animal products (e.g. keto; high protein low carb) - as masculine.

As aforementioned, media is highly responsible for creating a shared culture around meat consumption, its normalization, and solidification (Morgan & Shanahan, 2010; Potter, 2014; Shrum, 2017; Wei, McIntyre & Straub, 2020). Fast-food chains, specifically, are some of the largest contributors to the gendering of foods. Burger King, Jack in the Box, TGI Fridays, Domino's pizza, Taco Bell and McDonald's are among the first companies to promote their businesses using the association between meat and masculinity. In their advertisements released between 2006 and 2007, meat is often promoted as a tool for real men to maintain their manliness (Rogers, 2009) and that compromised masculinity can be regained through meat consumption (Rogers, 2008). The need to restore one's masculinity implies that threats to its perseverance have emerged. Important social movements such as the civil rights, women's rights, gay rights, antiwar and, with those, environmental movements, among others, have shaped today's society and are essential to many individuals' social identities. However, Rogers (2009) argues that regardless of their discriminatory relevance, such movements are perceived as challenges to the privilege and ideological position of the dominating (e.g. white, heterosexual, economically productive, socially valued) male. In this context, a majority of the aforementioned movements are linked to femininity & perceived as transgressive.

Similarly to Rogers (2009), in her book *The Sexual Politics of Meat*, Carol Adams

argues that flesh-eating is associated with power, meaning maleness, white skin, rich and powerful nations, hence, also linked to virility, intelligence, courage, and material affluence (Slicer, 1992; Adams, 2015). She implies that not only does meat communicate gender, but it also determines power relations within society, where the superior sex requires and consumes more flesh in their diet than the inferior one, which can survive on inferior foods (e.g. fruit, vegetables, grains, etc.). Although her theory proposes an entirely new and complex narrative around the performative and symbolic role of meat in society, her view can also be extended beyond gender, and seen in the impact of societal power dynamics on other socioeconomic factors such as race, sexual orientation, class, nations. In this sense, it is argued that by opposing these movements via masculinist symbolism such as the usage of messages disregarding the importance of environmental causes, animal rights, etc., some fast food companies target wide male audiences, thus, satisfy their monetary interests (Rogers, 2009). Similarly, the idea that veganism is by itself a movement, on one hand, and its association with 'feminine causes' such as environmental and animal concerns, on the other, both result in the framing of veganism as 'feminine' by association. In this sense, the cultivation hypothesis suggesting that the more strongly one resonates with the beliefs, values, and ideas communicated to them by such companies' advertisements, the more likely they are to restrain from practices that would distance them from such ideas, for instance, proves to be relatively accurate. What this means is that men who take pride in being masculine will tend to engage in practices which reinforce their masculinity (e.g. consumption of 'masculine foods such as meat, neglect for environmental causes, etc.) and limit practices symbolically associated with femininity (e.g. consumption of feminine foods such as fruit, showing concern for environmental causes, etc.).

#### *2.4.2. Stigma as a social predictor for dissociation with veganism*

As previously discussed, prior research has shown that vegans tend to be represented in media rather negatively (Sobal, 2005; Sellaeg & Chapman, 2008; Gal & Wilkie, 2010; Cole & Morgan, 2011; Rothgerber, 2012; Wright, 2015; MacInnis and Hodson, 2017; Markowski & Roxburgh, 2019; Nordstrom, 2019). Several of those studies (Cole & Morgan, 2011; Potts & Parry, 2010; Wright, 2015; Markowski & Roxburgh, 2019), in particular, propose that because of vegans' dietary deviance and, thus, disruption of social conventions related to food, they are more prone to being stigmatized. Stigma, in this context, can be defined as the negative perceptions and biased treatment of those with undesirable statuses and characteristics (Goddman, 1963, referenced in Markowski & Roxburgh, 2019). Eating is a deeply social activity which humans often use to spend time with others and to bond in the

sharing of common meaning and experiences (Ochs & Shohet, 2006). The process of sharing meals also facilitates the definition of boundaries around a group, strengthening and maintaining the relationships with those in the group, and teaching and reinforcing cultural beliefs and values (Ochs & Shohet, 2006). Vegetarian, and particularly vegan dietary deviances, which are linked with modern symbolic movements and non-traditional ideologies, as aforementioned, thus, are prone to being stigmatized (Markowski & Roxburgh, 2019). On one hand, therefore, stigma can be more visible and found in the negative, sometimes derogatory portrayal of vegans and veganism in media, referred to as vegaphobia (Cole & Morgan, 2011). For instance, Cole and Morgan discover veganism to be discredited in newspapers through ridicule, or as being difficult or impossible to maintain in practice, while vegans to be stereotyped as ascetics, faddists, sentimentalists or hostile extremists. On the other, stigma can also be less visible and, instead, found in the biased treatment of those who are deviant (e.g. distancing oneself socially and behaviorally) (Markowski & Roxburgh, 2019). For instance, stigma indirectly shows in the way men tend to only engage in practices which reinforce their masculinity and deter from those who do not.

The strong wish from detachment from the practices of the stigmatized community is mostly common among dissociative reference groups to that community. The stronger of a symbolic role a practice, belief or value has, the more strongly a dissociative reference group would experience a wish for dissociation (White and Dahl, 2006). However, given not all non-vegans feel equally strongly about meat consumption, two more group classifications can be distinguished - in-groups and out-groups. In the context of this study, in-groups represent vegans and plant-based eaters, while out-groups refer to those who consume meat and animal products, however, do not necessarily have a personal view on veganism and plant-based eating. While out-groups might not experience a direct concern towards the idea, dissociative reference groups are concerned with and, thus, strongly wish to disassociate from the idea (Escalas & Bettman, 2005). In this context, members of dissociative reference groups often restrain from being associated with the stigmatized group due to the perceived threat its characteristics might pose on their personal identity, thus, often engaging in biased treatment.

Based on the aforementioned findings, this study firstly tests the assumption that, on average, plant-based diet is more frequently associated with femininity, while diets rich on meat tend to predominantly be viewed as masculine. Stronger associations are, furthermore, expected to show more among male than female respondents. In addition to that, this study proposes that, among those respondents who consume meat, men participating in this study

will display more negative attitudes towards the consumption of meals without meat. Furthermore, based on the concept of gendered foods and the idea that gender is performed via the foods which one consumes (Sobal, 2005; Sellaeg & Chapman, 2008; Rogers, 2009; Rothberger, 2014; Dhont & Hodson, 2019), it is assumed that, among those respondents who consume meat, men participating in this study, as a symbolic expression of their masculinity, will generally indicate to consume more meat than women, resulting in the following hypotheses:

*H5: Respondents will perceive a meat-based diet as masculine.*

*H5a: Male respondents will perceive a meat-based diet as more masculine than female respondents.*

*H6: Respondents will perceive a plant-based diet as feminine.*

*H6a: Male respondents will perceive a plant-based diet as more feminine than female respondents.*

*H7: Male respondents will indicate more negative attitudes towards meatless consumption as opposed to female respondents.*

*H8: Male respondents will indicate significantly higher frequency of meat consumption as opposed to female respondents.*

*H9: Female respondents will indicate a stronger willingness to try meatless meals as opposed to male respondents.*

## 2.5. Current study

As introduced earlier, the purpose of this study is to explore the factors behind the successful reception of the Netflix documentary film *Game Changers*. In this context, it is assumed that there are two factors that make the film highly impactful and persuasive.

Firstly, discussed will be storytelling and its usage to build a narrative around plant-based eating that deviates from the general media discourse around it earlier on. Secondly, explored will be extent to which the role of celebrity endorsement in the documentary will result in a *positive halo*, thus, solidifying the argument in support of the benefits of a plant-based diet.

### 2.5.1. *Storytelling*

Prior research shows evidence for the usage of storytelling across various field including advertising (Escalas, 2004; Clowley, 2014; Muniz, Woodside & Sood, 2015; Boje, Haley & Saylors, 2016), organizations (MaxLeod & Davidson, 2007; Svane, Gergerich & Boje, 2016), sustainability communication (Benites-Lazaro, Mello-Thery & Lahsen, 2017;

Jones & Peterson, 2017; Moezzi, Janda & Rotmann, 2017), and more. Narratively structured advertisements, for instance, have shown to result in more positive product and brand attitudes (Muniz, Woodside & Sood, 2015). Narratives have also proven effective in convincing others to follow a certain course of action or adopt a certain mindset with respect to climate change (Moezzi, Janda & Rotmann, 2017). But what is it that makes stories effective?

Humans are storytelling animals, homo narrans (Fisher, 1985). The interaction of storytelling practices across various forms of communication serves as a fundamental shaper of our knowledge about life and understanding of our social world (Moezzi, Janda & Rotmann, 2017). Storytelling can be traced back to the beginning of humanity when stories used to be handcrafted, homemade and community inspired (Gebner, 1999). All useful knowledge was captured in legends, tales, incantations, and ceremonies, thus, writing stories was rare and holy. The industrial revolution, however, gave birth to the printing press which entirely transformed the way people learn and interact. Gebner (1999) explains that its product, the book, now became available to those who could read. It motivated many to seek education and, therefore, created a whole new literate generation of people. With that, everyone could interpret the book on their own and follow their own personal conviction. It was not until the digitalization era, however, that the role of education in the new world began being questioned (Gebner, 1999). For the first time in history, children were being born into homes where mass-produced stories could reach them at all times. Rather than from their families, schools, churches, a large portion of these stories emerged as a result of complex manufacturing and marketing processes, mostly mass-produced and policy-driven. Today, stories socialize us into gender roles, age, class, lifestyles and teach us how to behave accordingly in a symbolic environment. But how is that the case if most people do experience a degree of agency when it comes to their food choices? Since there is plenty of untruth about what a nutritious, healthy diet entails but not one universal definition of 'truth' in the real world, truthfulness becomes a matter of perspective. Similarly to what the story of the Blind Men and the Elephant implies, there always are multiple interpretations readily existing in various circumstances (Moezzi, Janda & Rotmann, 2017). Even if several blind men touch one elephant, they can each reach seemingly objective, but different conclusions about how the whole animal relates to its parts. Our human understanding of the world is almost always based on emotion and personal beliefs (Moezzi, Janda & Rotmann, 2017). Despite our best efforts to acknowledge physical and measurable scientific data, we often prioritize our own convictions over facts, thus, are very easily influenced. This is how 'truth' becomes cultivated.

As discussed earlier, cultivation can take place via the communication of universal messages across media channels. The universally negative reputation of members of the vegan community as disruptors of social conventions due to their deviant dietary preferences and lifestyle, therefore, may result in their stigmatization to outsiders (Ochs & Shohet, 2006; Potts & Parry, 2010; Wright, 2015; Markowski & Roxburgh, 2019). The longer the exposure to stereotypes via mass media (e.g. news, entertainment) viewers endure, the more likely they become to adapt their beliefs about veganism to what they see. Buselle and Bilandzic (2008) argue that individuals induce meaning from narratives by creating mental representations of the events, or situation models which link events, locations, characters and other aspects of a story together. Similarly, extensive exposure can make such portrayals seem representative of vegans over time (Potter, 2014; Napoli & Ouschan, 2019). However, the history of storytelling teaches us that how a message is framed can influence individuals' perceptions of the ideologies around which a community (e.g. the vegan community) is formed and its members. In this sense, narratives can influence and shape attitudes of others or even recruit new participants (Cherry, 2006; Beverland, 2016; Napoli & Ouschan, 2019) by presenting a different perspective on veganism that challenges the prevailing stereotypes.

Nutritional advice from professionals, furthermore, is another factor which changes consistently over the years. While some medical professional advice for the consumption of a variety of fruit and vegetables, others undermine it and promote the consumption of foods high in fats & proteins instead. Similarly, some advice for the reduction of gluten and sugar, while others oppose it. As evidence points to the fact that there is not one 'optimal' diet for good health, many instead get on a search for their own truths about health by prioritizing instincts and senses to nutritional myths. This is how we end up in today's saturated on- and off- line spaces, where everyone perpetuates their own story about what they think is right at that point of time.

Similarly, the *Game Changers* documentary presents the story of the protagonist's quest to ultimate health. The general consensus among storytellers agrees that a good story has a central message, uses conflict to make stories suspenseful and exciting, has strong characters that consumers can identify with and a plot with a compelling beginning, middle, and end (Fog, Budtz & Yakaboylu, 2010). Based on Gerbner's work, moreover, it is suggested that in order to prove effective, *Game Changers'* narrative needs to fulfill three primary tasks: to reveal how things work, to describe what things are, and to tell us what to do about them (1999). The *Game Changers* documentary, in this sense, facilitates several of these elements. The film follows James Wilks on his journey of 'truth' about food. Rather than starting off with the common altruistic slogan that reducing meat consumption will help

reduce humans' environmental impact, the main premise of the film is that James is concerned with his fathers' health due to his late age. This fact alone reframes the narrative of the film from viewers having someone push an ideology on them to, instead, sharing their empathy with a regular man who experiences strong concern about a loved one. Since many people care about their parents and wish to do anything to keep them happy and healthy, the narrative predisposes viewers to leave their convictions behind for a bit and metaphorically accompany Wilks on his quest. In this sense, his story entails a strong moral argument and central plot that is rational, believable and makes a connection with the audience, as suggested by Truby (2007) and Kent (2015). Later into the film, the viewer is slowly exposed to a series of scientific information from 'experts' in the field and indirectly socialized into the benefits of plant-based eating. The narrative is also strengthened via the involvement of a diverse cast. On one hand, the movie educates viewers about the short-term benefits of the diet using experiments on regular, relatable individuals who viewers can identify with. On the other, celebrities and professional athletes' long-term experience with the diet is linked to their professional performance over the years and used to solidify the credibility of experts. In this sense, the later effect is also accounted to the experience of *a positive halo* among viewers - the second aspect of the film this study will focus on and further discuss in the following section.

### 2.5.2. *The halo effect*

During the past couple of decades, an increasing number of celebrities have entered the worlds of politics in the United States (Weiskel, 2005) and have become advocates for an array of social, environmental, and health issues. For instance, we have witnessed the singer Taylor Swift endorsing American Democrats, actress Angelina Jolie raising awareness about the dangers of breast cancer among women, actor Leonardo DiCaprio making waves in the fight for environmental action, as examples. Some individuals, thus, manage to gain knowledge on these issues because their favorite celebrities used their platform to shed light on them. Research on the way information addressed by celebrities is processed by individuals has shown that a celebrity spokesperson's words are often taken as gospel on a given issue, thus, their information is processed peripherally versus centrally (Emmers-Sommer & Teran, 2020). In this sense, while central processing involves a careful deconstruction, consideration, and evaluation of a message, peripheral processing only involves minimal deconstruction and consideration of a message (Petty & Cacioppo, 1986). What this means is that an individual would more often than not take the celebrity directly at their word response and internalize their opinion. This process has been attributed to *the*

*halo effect.*

The halo effect refers to the capability of the characteristics of one entity to be transmitted onto another (Dietrich, Fischer & Walcher, 2016). It can be defined as a tendency of judges to assume that once a person possesses some known good (or bad) characteristics, their other, unrelated and unknown characteristics are also likely to be consistent, that is, good or bad (Pohl, 2016) and is often attributed to popularity, familiarity (Beckwith, Kassarjian & Lehmann, 1978), physical attractiveness, social status, having an unusual name, interpersonal style, etc (Nufer & Alesi, 2018). It was first described by Edward Thorndike in 1920 as a general cognitive bias impression formation and can result in a *positive or negative halo effect* (Bragg, Roberto, Harris, Brownell & Elbel, 2017).

Previous studies which explore the halo effect predominantly focus on marketing trends (Fleck, Korchia & Le Roy, 2012), quality matters (Beckwith, Kassarjian & Lehmann, 1978; Choi, Yoo, Hyun Baek, Reid & Macias, 2013; Henchion, McCarthy, Resconi & Troy, 2014) and user behavior (Barwise & Ehrenberg, 1985; Van Doorn, 2008; Al-Qeisi, Dennis, Alamanos & Jayawardhena, 2014; Minge & Thuring, 2018), health associations and calories perceptions (Chandon & Wansink, 2007; Ebneter, Latner & Nigg, 2013; Wei & Miao, 2013; Adise, Gavdanovich & Zellner, 2014; Dietrich, Fischer & Walcher, 2016; Her & Seo, 2017; Besson, Bouxom & Jaubert, 2019), athlete endorsements (Boatwright, Kalra & Zhang, 2008; McGhee, 2012; Vanace, Raciti & Lawley, 2016; Bragg, Roberto, Harris, Brownell & Elbel, 2017), etc. For instance, it has been discovered that someone who is a fan of a celebrity will act favorably toward all things the star speaks out about in a positive manner (Fleck, Korchia & Le Roy, 2012). Similarly, celebrity fans tend to show more activism towards topics their favorite celebrities advocate for (Casey et al., 2013) as was the case with fans of the basketball player Earvin ‘Magic’ Johnson’s public HIV disclosure.

In *Game Changers*, the celebrity figure argued to impact viewers’ perception of plant-based eating the most is Arnold Schwarzenegger. Arnold Schwarzenegger is most known for his prominent presence in the bodybuilding world (winning the Mr. Universe title at the age of 20, and the Mr. Olympia title seven times afterwards) and memorable action film roles (Gentilcore, 2018). He also served as a Governor of California between 2003 and 2011, and has since become a ‘green activist’ on various environmental issues (Goldenberg, 2010), also reinforced by public support of Greta Thunberg’s climate change positions (O’Connor, 2019). Above all, Arnold Schwarzenegger has become an inspiration for many to pursue their dreams regardless of how difficult to achieve they seem through his motivational speeches (ProjectLifeMastery, n.d.). In the documentary, he speaks about how meat has been promoted as a symbol of masculinity by various food chains and admits to

being a victim to that conviction during his bodybuilding years as well. He, thus, proposes that meat consumption is not a necessary condition for a healthy, nutritious diet. Instead, he reduces it to a product of the industry's heavy marketing campaigns. In the context of this study, it is argued that his celebrity endorsement will result in *a positive halo*, thus, solidifying the argument in support of the benefits of a plant-based diet. However, it should also be acknowledged that prior research on the halo effect suggests for gender differences to exist between women and men in their reception of celebrity endorsements (O'Regan, 2014). It has been shown that women tend to evaluate a female celebrity's credibility higher while men, alternatively, tend to find more value in male celebrities' credibility, confirming the cultivation hypothesis that different audience members may resonate with some media messages more as opposed to others.

Based on the assumption that the narrative provided in the documentary *Game Changers* moves beyond stereotypes portrayed in mass media before (Truby, 2007; Kent, 2015), this study proposes that the film has the potential to gain traction across new audiences and positively impact their general view of plant-based/vegan diets. Specifically, it is assumed that participants who view parts of *Game Changers* early on during the survey will be influenced to consider that meat consumption, as it exists today, is less *natural*, *necessary*, *normal* or *nice* (4Ns scale) in contrast to those participants who see the clip at the end of the survey. Furthermore, the study proposes that the Netflix documentary *Game Changers*' feature of celebrities will successfully serve as an indirect endorsement (positive halo) of following a plant-based/vegan diet among participants, hence, the likeability of featured celebrities should be prescribed to the topic of meatless consumption as well (Bragg, Roberto, Harris, Brownell & Elbel, 2017) and make respondents indicate that they are more willing to try plant-based meals, as opposed to those participants who only see the clip at the end of the survey. The assumptions only apply for respondents who recognize the individuals featured in the stimulus clips. These findings result in the following hypotheses:

*H10: Participants exposed to clips from the Game Changers film will indicate a weaker justification for meat consumption as natural as opposed to those who do not receive a treatment.*

*H11: Participants exposed to clips from the Game Changers film will indicate a weaker justification for meat consumption as necessary as opposed to those who do not receive a treatment.*

*H12: Participants exposed to clips from the Game Changers film will indicate a weaker justification for meat consumption as normal as opposed to those who do not receive a treatment.*

*H13: Participants exposed to clips from the Game Changers film will indicate a weaker justification for meat consumption as nice as opposed to those who do not receive a treatment.*

*H14: Participants exposed to clips from the Game Changers film will show more positive attitudes towards meatless consumption as opposed to those in the control group.*

*H15: Participants exposed to clips from the Game Changers film will indicate a stronger willingness to try meatless meals as opposed to those in the control group.*

### 3. Methodology

#### 3.1. Research design

In this study, a quantitative method of approach was used for two reasons. To begin with, a quantitative approach allows for a large amount of data to be collected within short periods of time (Babbie, 2014). Secondly, the method allows for results from data to build upon existing theories and contribute to the academic field (Babbie, 2014). The proposed research design can be further defined as experimental. An experimental research design can be characterized by the possibility for variable manipulation & categorization and is hence suitable for this research (Babbie, 2014). The selected means of collecting data within this quantitative study is via a survey. Surveys are associated with being cost-effective and highly efficient, due to their ability to gather data from a representative sample and generalizing it to a larger population (Babbie, 2014). The surveys used in this study are created via the online platform Qualtrics.com. This platform allows for the exportation of all retrieved data from surveys (descriptive and numerical) into statistical formats, making it very convenient to use. The scales included in surveys were well-established and pre-validated in order to ensure the reliability of results.

The aim of this study is to examine the ways in which a film could influence the perception of meatless consumption among participants. For this reason, respondents are divided into two groups. Approximately half of participants were placed into an experimental group where a stimulus treatment is applied first, and only then relevant questions were addressed. The other half of respondents, alternatively, were placed into a control condition where instead, relevant questions were measured first, and a stimulus was displayed only after. This is done with the purpose of measuring the difference in values of answers between the two, thus, determining the effectiveness of the stimulus. Each group was, furthermore, required to complete a manipulation check by answering several questions about the stimulus' contents. Specifically, questions about who the first celebrity to be displayed in the video and its core message were posed. The questions tested whether participants payed attention while the stimulus treatment was being applied.

#### 3.2. Sample

Apart for being aged 18 or older, no specific inclusion criteria were required for participation in the survey. However, in order to maximize the effect of the selected stimulus and avoid bias on participants' end, those who had not seen the *Game Changers* documentary were preferred for the study. After deleting all pre-test cases, a total of 236 responses were recorded in Qualtrics. However, out of those, an additional 67 cases had to

be deleted due to incomplete survey, failed manipulation check, misunderstanding of questions, or having seen the *Game Changers* documentary. It was important to remove such responses in order to prevent any interference with data results.

After data was cleared and fully prepared for analysis, a total of N=169 respondents successfully completed the survey. Out of all participants, 51.5% were prescribed into an experimental condition, while the rest 48.5% were placed into a control group. The finalized sample consisted of 100 males (59.2%) and 69 females (40.8%), all over the age of 18. The largest portion of participants (40.2%) was between the ages of 25 and 34 (N = 68), followed by 20.7% of participants who indicated being between 18 and 24 years of age (N = 35). However, overall respondents from each age group were gathered (16.6% between 35 and 44; 11.2% between 45 and 54; 8.9% between 55 and 64; and 2.4% aged 75 or above), providing for well-randomized age diversity. When asked about the highest level of education which they have followed, 57.4% of respondents identified having studied for a bachelor's degree, followed by 20.1% master's students, 13.6% primary/secondary school education, 7.1% with high school education and 1.8% with a PhD, doctorate or an alternative professional degree.

Generally speaking, after looking at participants' dietary preferences it was found out that 4.7% of all respondents were vegetarian or vegan (i.e. did not consume meat at all), the rest 95.3% had a meat-inclusive diet. Although no direct correlation between allergies and meat substitutes consumption was found, several respondents identified additional underlying conditions which prevent them from replacing meat with meat substitutes including diabetes, anemia, or non-health related reasons such as high pricings. In terms of physical exercise habits, 8.9% of participants reported to never or rarely exercise. The largest portion of respondents – 24.9%, however, engaged in physical activities 1-2 times per week.

### 3.3. Procedure

Participants were requested to fill out an online survey (*see Appendix A*), which was distributed via the online platform Amazon Turk. AmazonTurk is a website that generates respondents for surveys in exchange for a small amount of money. AmazonTurk is an efficient way to collect a large number of respondents within a short amount of time. Overall, a sample collected from MTurk is likely to be more diverse than a sample of undergraduate students (Buhrmester et al., 2011) as participants are generally older, more geographically representative of the US, and more diverse than participants collected from undergraduate samples. Participants who respond using MTurk generally answer reliably

and consistently, as evidenced by high test-retest reliability rates even after a period of 3 weeks (Buhrmester et al., 2011). Given not all individuals in a targeted population have an equal chance of participation, the term non-probability sampling can be used to describe the main means of survey distribution (Babbie, 2014). Furthermore, the method for participants' recruitment can be referred to as convenience sampling, which most generally entails that the recruitment of participants is guided by convenience, often on a random basis. Before their participation in the survey, participants were informed about the general aim of the study via a few introductory paragraphs.

At the very beginning of the questionnaire, each participant was asked to agree to some general terms required for their participation such as legal age (ages of 18 and older) and voluntary participation. This is done with the purpose of filtering out minors with ethical concerns in mind. Before the beginning of the actual survey, participants were additionally warned about the presence of possible spoilers regarding the *Game Changers* documentary and asked to make sure that their sound system works properly. Thus, only respondents who sufficed the participation criteria of being 18 or older and have given consent were directed to the questionnaire.

Once participants agreed to the general terms this survey proposed, a few questions regarding their age, gender, educational level, meat consumption (and allergies) as well as their exercise routine were asked. On a random basis, then, approximately half of participants were prescribed to the control block of the survey, while the other half – to the experimental one. Those respondents in the control condition were first required to answer questions regarding their attitude towards meatless meals, their opinion on meat (based on the 4N scale (Piazza et al., 2015)), and finally exposed to the stimulus material. In this sense, their measured opinions were not influenced by the stimuli. However, a few more questions which measure whether participants paid attention to the video were asked as a part of the manipulation check, followed by a question regarding the extent to which they are interested in seeing the full film. The other half of respondents that were redirected to the experimental block of the survey are, alternatively, first exposed to the stimuli treatment and a manipulation check which make sure that the treatment did indeed work. In both conditions, participants were first required to indicate who the first celebrity shown in the clip was out of four possible options (Lewis Hamilton, Jackie Chan, Arnold Schwarzenegger, or other). Secondly, respondents were also asked to recall the core message of the clip in an open-ended question afterwards. Those respondents who failed the manipulation check were directly forwarded to the end of the survey and thanked for their time and participation. After that, similarly to participants in the control group, respondents in the experimental

condition were also asked questions regarding their attitude towards meatless meals, their opinion on meat (based on the 4N scale (Piazza et al., 2015)). Questions regarding participants liking of the film, people, and message of the film were addressed next (Igartua, 2010). Lastly, all participants were asked about their willingness to try eating more plant-based meals in the future. Once a sufficient number of responses are gathered, data was exported from Qualtrics and imported into SPSS, cleared and prepared for analysis.

Major key concepts studied in this research design are have been classified into independent and dependent variables. The independent variables (IVs), thus, are age and gender. The dependent variables (DVs), alternatively, are 4N subscales (*natural, necessary, normal, nice*), attitude scale, frequency of meat consumption, frequency of meat substitute consumption, femininity association, masculinity association, attitude shift. Since a comparison between the values of scales before and after treatment will take place, some dependent variables (e.g. 4N, attitude) might serve as IVs in several models as well.

### 3.4. Stimulus

The stimulus material used in this study is derived from the Netflix documentary *Game Changers*. The 85-minute long film looks into the benefits of plant-based eating by following the stories of several athletes who live by that ideology (Murray, 2019) and attempts to ‘debunk’ some claims regarding the link between meat and masculinity. The film was purposefully chosen due to its controversial reception by the general audience – with some individuals criticizing, while others – embracing the message behind it. Furthermore, a number of people have stepped forward with their decision to adopt a plant-based diet after watching the documentary, including some popular names such as bodybuilder Kai Greene, Tour De France champion Chris Foome, CEO of Greggs Roger Whiteside, NRL star Darius Boyd, among others.

Although the full-length documentary would perhaps manage to exert a higher impact on viewers, in this study, only several clips from *Game Changers* are displayed. To begin with, the main celebrity which this study assumes will create a positive halo effect towards participants’ plant-based eating perception is Arnold Schwarzenegger, therefore, is displayed talking about his experience with meat and bodybuilding first. He expresses that nobody can relate to the idea that ‘real men eat meat’ better than him due to his years of experience in the bodybuilding industry. This conviction, he adds, is a consequence of the various advertisements promoting meat in its symbolic functions throughout the years. Secondly, the focus is taken by James Wilks which tells the viewer about his journey towards finding what the best diet for one’s wellbeing is. In this part of the documentary, the

viewer is introduced to James Wilks' background story, relationship with his family, career, falls and future goals, therefore, presenting the beginning of his storytelling act. He poses a major question: 'How come the roman gladiators, the original professional fighters, were so powerful eating only plants?'. As follows, he narrates viewers through footage of expert information regarding plant-based food, experiments, as well as the experiences of professional athletes across different disciplines with following a plant-based diet.

### 3.5. Measurements

A total of eight scales were used to measure respondents' opinions and attitudes:

#### *Demographics*

Firstly, several questions addressing participants' demographics were asked at the very beginning of the questionnaire, where they were required to specify their age group, gender, and education. These demographics provided detailed insights which were later used during the analysis and interpretation of data. Based on the extensive body of literature regarding the symbolic role of gender in society, focus was be placed on gender as an independent/control variable and its relationship to several other variables. For this reason, gender has been recoded into a dummy variable with values of 0 and 1, representing female and male respondents, respectively.

#### *Frequency*

A food frequency question was asked in order to establish the frequency of which participants consumed meat and meat substitutes and their frequency of physical exercise. They were also asked to point out any allergies or underlying conditions, which may affect their dietary preferences, and allowed a free text entry ( $M = 1.22$ ,  $SD = .53$ ). Each question is measured on a 9-point scale (0 – rarely/never; 1 - once per week; 2 – 1-2 times per week; 3 – 3-4 times per week; 4 – 5-6 times per week; 5 – once/day; 6 – 2-3 times per day; 7 – 4-5 times per day; 8 – more than 6 times per day) (Mackenzie & Shanahan, 2018). Among all aforementioned measurements, meat consumption frequency alone is what this study predominantly focused on. The highest frequency of meat consumption indicated among participants was 1-2 times per week (24.9%), followed by 23.1% of participants who reported to eat meat between 3 and 4 times per week, 13% who reported their meat consumption frequency to be once per day and 11.8% who are meat between 5 and 6 times per week. With regards to gender, men indicated more frequent meat consumption than women, on average.

### *Association of meat-based diet*

Participants were asked to agree or disagree with the statement that a meat-based diet is associated with masculinity on a 1–7 scale (1 - *Strongly disagree*; 7 - *Strongly agree*). Based on the mean ( $M = 4.27$ ,  $SD = 1.81$ ) of their reports, it can be identified that participants indeed seemed to associate a meat-based diet with masculinity more than not.

### *Association of plant-based diet*

Participants were asked to agree or disagree with the statement that a plant-based diet is associated with femininity on a 1–7 scale (1 - *Strongly disagree*; 7 - *Strongly agree*). Similarly, the mean of this question ( $M = 4.12$ ,  $SD = 1.91$ ) signified that a plant-based diet is, too, associated with femininity by participants.

### *Attitudes toward meatless meals*

Participants ‘attitudes toward meatless meals are measured on a 1–7 scale (1 - *Strongly disagree*; 7 - *Strongly agree*). They were asked whether eating meals without red meat or chicken is easy, whether meals without red meat or chicken are delicious, and whether the food the participants eat contributes to animal suffering (Caldwell, 2017). Due to the fact that the topic of attitudes towards meatless meals has not been very frequently studied in prior research, this scale was adopted from a research design by Caldwell (2017) that attempts to measure the overall effectiveness of climate change campaigns on the general audience. In this sense, attitudes towards meatless meals have been measured using precise, straightforward questions, thus, have been adapted as a measurement in this research design as well.

The 3 items which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues ( $> 1.00$ ),  $KMO = .56$ ,  $\chi^2 (N = 169, 3) = 79.71$ ,  $p < .001$ . The three items loaded onto one factor (factor loadings respectively, .84, .85, and .54), explaining 57.5% of the variance in attitudes towards meatless meals. This scale had a reliability of .61 but could be improved to .73 by deleting the third item. Hence, the scores of the first two items were averaged to create one scale score for attitude. The mean ( $M = 5.00$ ,  $SD = 1.36$ ) of this newly created variable pointed towards the presence of relatively favorable attitudes towards the consumption of meatless meals.

### *4N Scale*

The 4N scale was first developed by Joy (2010) as the 3Ns of justification. The scale was later transformed into the 4N scale by Piazza et al. (2015) and it attempts to measure people's understanding of meat-eating. The scale consists of sixteen items, rated on 1-7 scale (1 - *completely disagree*; 7 – *completely agree*), and placed into four subscales. Because the four subscales are used as separate independent variables, separate factor analyses were conducted to determine their factorial structure and reliability.

First, the extent to which participants view meat consumption as *natural* was measured with four items: "It is only natural to eat meat", "Our human ancestors ate meat all the time", "It is unnatural to eat an all plant-based diet", "Human beings are natural meat-eaters – we naturally crave meat". The 4 Likert-scale based items were entered into a factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues ( $> 1.00$ ),  $KMO = .78$ ,  $\chi^2 (N = 169, 6) = 203.06, p < .001$ . Factor loadings of individual items onto the factor were .79, .76, .75 and .86, respectively. The resultant model was reliable (Cronbach's  $\alpha = .79$ ) and explained 62.4% of the variance in attitudes towards meatless meals. Therefore, the four items were averaged and used to create a new variable, the mean of which ( $M = 4.75; SD = 1.23$ ) indicated that, on average, the consumption of meat was viewed as more *natural* than not by participants.

Second, four items were used to determine whether participants deemed meat consumption *necessary*: "It is necessary to eat meat in order to be healthy", "A healthy diet requires at least some meat", "You cannot get all the protein, vitamins and minerals you need on an all plant-based diet", "Human beings need to eat meat". The 4 Likert-scale based items were entered into a factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues ( $> 1.00$ ),  $KMO = .82$ ,  $\chi^2 (N = 169, 6) = 415.93, p < .001$ . Factor loadings of individual items onto the factor were .92, .88, .78 and .90, respectively. The resultant model was reliable (Cronbach's  $\alpha = .89$ ) and explained 75.6% of the variance in attitudes towards meatless meals. Therefore, the four items were averaged and used to create a new variable, the mean of which ( $M = 4.48; SD = 1.57$ ) showcased that participants generally viewed the consumption of meat as more *necessary* than not.

Third, another four items were used to assess whether participants perceived meat-eating as *normal*: "It is normal to eat meat", "It is abnormal for humans not to eat meat", "Most people eat meat, and most people can't be wrong", "It is common for people to eat meat in our society, so not eating meat is socially offensive"). The 4 Likert-scale based items were entered into a factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues ( $> 1.00$ ),  $KMO = .72$ ,  $\chi^2 (N = 169, 6) = 169.80, p < .001$ . Factor loadings of individual items onto the factor were .47, .81, .85 and .80, respectively.

The resultant model was reliable (Cronbach's  $\alpha = .74$ ) and explained 56.5% of the variance in attitudes towards meatless meals. Therefore, the four items were averaged and used to create a new variable, the mean of which ( $M = 4.42$ ;  $SD = 1.27$ ) once again displayed the overall perception of meat consumption as *normal* by participants.

Finally, four items measured whether participants thought meat consumption is *nice* ("Meat is delicious", "Meat adds so much flavor to a meal it does not make sense to leave it out", "The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish)", "Meals without meat would just be bland and boring"). The 4 Likert-scale based items were entered into a factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues ( $> 1.00$ ),  $KMO = .75$ ,  $\chi^2 (N = 169, 6) = 270.53$ ,  $p < .001$ . Factor loadings of individual items onto the factor were .67, .86, .90 and .80, respectively. The resultant model was reliable (Cronbach's  $\alpha = .82$ ) and explained 65.7% of the variance in attitudes towards meatless meals. Therefore, the four items were averaged and used to create a new variable. Out of all four variables, the mean of this one was, in fact, highest ( $M = 5.02$ ;  $SD = 1.25$ ), indicating that the enjoyment of meat was the largest motivator for its consumption within this sample.

### *Evaluation of the film*

This scale was retrieved from Igartua (2010)'s study and aims at measuring the extent to which respondents enjoyed a film they saw. In Igartua's original study, enjoyment was rated by a single item: "to what extent did you like the film?" (ranging from 0 – I didn't like it at all; to 10 – I like it very much). For the purpose of this study, the formulation of this item is altered into three questions measuring participants' liking of the clip ("to what extent did you like this clip"), participants' linking of its characters ("to what extent did you like the people who appeared in the clip") and participants' linking of its message ("to what extent did you like the message of the clip"), each measured on a scale from 0 (I didn't like it at all) to 10 (I liked it very much).

The 3 Likert-scale based items were entered into a factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues ( $> 1.00$ ),  $KMO = .47$ ,  $\chi^2 (N = 169, 3) = 35.86$ ,  $p < .001$ . The three items loaded onto one factor (factor loadings respectively, .85, .65, and .56), explaining 48.4% of the variance in the evaluation of the film. This scale had a reliability of .44. Hence, the scores of the first two items were averaged to create one scale score, the mean of which ( $M = 8.32$ ;  $SD = 1.72$ ) showed that, on average, participants enjoyed the documentary as a whole. However, an improvement in reliability could not be made even after deleting the factor with lowest loading. In this sense,

although this variable was intended to be used as a control variable in a large portion of the analysis, due to low reliability rates, it has been left out. It is important, nevertheless, to acknowledge that the stimulus as a whole ( $M = 8.15$ ;  $SD = 2.60$ ), the people in it ( $M = 8.02$ ;  $SD = 1.75$ ) and its core message ( $M = 8.80$ ;  $SD = 3.00$ ) were, in fact, very well received by the sample population, with majority of participants showing favorable attitudes towards all three variables. These findings suggest that the stimulus material can indeed exert a strong impact on general attitudes and perceptions of meatless and plant-based meals. With regards to gender, the clip as a whole found higher appeal to men ( $M = 8.28$ ,  $SD = 2.48$ ) than women ( $M = 7.97$ ,  $SD = 2.78$ ). The people who appeared in the clip were also better received by men ( $M = 8.25$ ,  $SD = 1.54$ ) than women ( $M = 7.68$ ,  $SD = 1.99$ ). However, women ( $M = 9.24$ ,  $SD = 4.28$ ) did seem to like the core message of the clip better than men ( $M = 8.50$ ,  $SD = 1.61$ ).

#### *Attitude shift*

Participants are asked whether they are willing to attempt to eat more meatless meals after partaking in this survey on a 1-7 scale (1 - *Strongly disagree*; 7 - *Strongly agree*). The variable had a mean of 5.47 ( $SD = 1.30$ ) which indicated that the majority of respondents were generally inclined to attempt to eat less meals with meat after participating in the study.

## 4. Results

As aforementioned, this study proposed several hypotheses (*Table 1*). Firstly, it was discussed that gender might have an impact on participants' justifications of meat consumption. To test this assumption, separate independent sample t-tests were conducted for the applied 4N (i.e. *natural*, *necessary*, *normal*, *nice* scales) (H1 to H4). Secondly, an extensive body of literature pointed towards the assumption that meat is perceived as a predominantly 'masculine food' due to its symbolic and performative role in societies over the course of years. In this sense, participants' associations of diets inclusive and exclusive of meat were measured via two one sample t-tests as well (H5 and H6). Independent sample t-tests were furthermore used to explore whether differences among genders in their diet associations occurred (H5a and H6a). Thirdly, it was discussed that, given gender could be related to participants' perceptions and associations of meat, it could, perhaps, also be a predictor of their attitude towards meals without meat. In this sense, this study also explored whether gender is related to participants' frequency of meat consumption as well as their willingness to try eating less meat. These assumptions were tested via two additional independent sample t-tests and one chi-square test (H7, H8 and H9). Once gender's role in this study was established, the effectiveness of *Game Changers* as a stimulus treatment could be then measured. Thus, several regression analyses were first used to explore the impact of the treatment of respondents' perceptions of meat, and afterwards, on their attitudes towards meals without meat and their willingness to eat less meat in the future. Each regression, furthermore, controlled for the effect of gender on each of the four variables, hence establishing its integral role in the study. The results of the aforementioned analyses are orderly presented in the following paragraphs.

### 4.1. Influence of gender on justifications of meat consumption.

Firstly, four independent sample t-tests were conducted to measure the relationship between gender and the 4N sub-scales. According to the hypotheses, men would score higher on the *natural* and *nice* variables (i.e., H1 and H4), whereas women would score higher on *necessary* and *normal* (i.e., H2 and H3). These assumptions were only partially confirmed. H1 and H4 were accepted as women ( $M = 4.51$ ,  $SD = 1.25$ ) and men ( $M = 4.92$ ,  $SD = 1.20$ ) scored significantly differently on the '*natural*' justifications index,  $t(167) = -2.123$ ,  $p = .035$ ; Women ( $M = 4.81$ ,  $SD = 1.24$ ) and men ( $M = 5.16$ ,  $SD = 1.24$ ) also scored significantly differently on the '*nice*' justifications index,  $t(166) = -1.754$ ,  $p = .041$  (one-tailed). These findings suggest that men scored higher in their justifications of meat consumption as '*natural*' and '*nice*' as opposed to women.

In contrast, no significant differences were found between men and women in their '*necessary*' justifications index,  $t(167) = -1.047, p = .297$ , or in their '*normal*' justifications index,  $t(167) = -1.924, p = .056$ . Hence, we must conclude that women ( $M = 4.33, SD = 1.53$ ) and men ( $M = 4.59, SD = 1.60$ ) did not differ in the scores on their '*necessary*' justifications index; neither did women ( $M = 4.20, SD = 1.20$ ) and men ( $M = 4.58, SD = 1.29$ ) differ in their score on '*normal*' justifications. Hence, both H2 and H3 are rejected.

#### 4.2. Influence of gender on associations of plant- and meat- based diets

Both genders' associations with meat- and plant-based diets were measures on a 5-point Likert scale, with the score of 3 representing a neutral stance and the scores of 4 and five representing agreement with the statement that the meat-based diet is masculine, and the plant-based diet is feminine. Using one sample t-tests it was possible to determine whether respondents' gender associations are significantly stronger than 'neutral'. The one sample t-test for the association between the meat-based diet and masculinity revealed that the mean of this study's sample ( $M = 4.27, SD = 1.81$ ) was indeed significantly different from the mean of the scale,  $t(168) = 9.161, p < .001$ . This means that a meat-based diet was generally perceived as more masculine than not by participants, thus, accepting H5. However, a follow-up independent-samples t-test showed that there were no significant differences between groups of women ( $M = 4.19, SD = 1.73$ ) and men ( $M = 4.33, SD = 1.86$ ) in their perception of meat-based diet on the masculine index,  $t(167) = 1.469, p = .618$ . Thus, since men and women did not significantly differ in their associations of meat-based diet, H5a can be rejected.

Another one-sample t-test for the association between the plant-based diet and femininity showed that the mean of this study's sample ( $M = 4.12, SD = 1.91$ ) was significantly different from the mean of the scale,  $t(168) = 1.655, p < .001$ . Hence, a plant-based diet was perceived as feminine by participants in this study, accepting H6. Again, a follow-up independent samples t-test showed no significant differences between women ( $M = 4.38, SD = 1.86$ ) and men ( $M = 3.95, SD = 1.93$ ) in their perception of plant-based diet on the feminine index,  $t(167) = 1.433, p = .154$ . Similarly to their associations of masculinity, men and women did not significantly differ in their associations of femininity either. Therefore, H6a can be rejected.

#### 4.3. Influence of gender on attitude towards meatless meals, frequency of meat consumption and willingness to try eating less meat.

In order to discover whether gender could predict participants' overall attitudes towards meatless meals, how often they ate meat and whether they were likely to try eating less meat, three independent sample t-tests were conducted for each dependent variable. No significant differences were found between women ( $M = 5.17, SD = 1.34$ ) and men ( $M = 4.88, SD = 1.37$ ) in their attitude towards meatless meals index,  $t(167) = 1.382, p = .169$ . In order to discover whether biological gender was related to meat consumption frequency of participants, a chi-square test was conducted. Due to the fact that the initial test violated the assumption of having a count of minimum 5 per category, the meat frequency variable has been recorded by merging the first two and last two categories together, leaving 7 out of 9 possible levels of measurement – (1 – Never/Once per week, 2 – Once/Twice per week, 3 – 3-4 times per week, 4 – 5-6 times per week, 5 - Once per day, 6 – 2-3 times per day, 7 – 4 times per day or more). When conducted once again, no significant differences in consumption frequency between women and men were discovered  $\chi^2 (N = 169, 6) = 9.86, p = 0.131$ , therefore, no relationship between gender and frequency of meat consumption among participants was revealed (*Table 2*). Lastly, women ( $M = 5.54, SD = 1.35$ ) and men ( $M = 5.43, SD = 1.27$ ) showed an equally strong willingness to try eating less meat  $t(167) = .521, p = .603$ , therefore, did not significantly differ. Hence, H7, H8 and H9 have been rejected.

Table 2

*Frequency of meat consumption among groups of men and women.*

| Frequency of meat consumption | Women (in %) | Men (in %) | Total (%) |
|-------------------------------|--------------|------------|-----------|
| Never/Once per week           | 13.0         | 18.0       | 16.0      |
| Once/Twice per week           | 33.3         | 19.0       | 24.9      |
| 3-4 times per week            | 23.2         | 23.0       | 23.1      |
| 5-6 times per week            | 14.5         | 10.0       | 11.8      |
| Once per day                  | 5.8          | 18.0       | 13.0      |
| 2-3 times per day             | 7.2          | 10.0       | 8.9       |
| 4 times per day or more       | 2.9          | 2.0        | 2.4       |

#### 4.4. Influence of gender and group on justifications of meat consumption.

To determine the effect of the condition (i.e., experimental vs. control) and gender on the justification of meat consumption, four separate multiple regressions were conducted –

one for each dependent variable (i.e., perceiving meat-eating as *natural*, necessary, *normal*, and *nice*). The first model for perceiving meat-eating as *natural* was found to be significant  $F(2,166) = 5.56, p = .005, R^2 = .063$ . Although the explained variance of this model is rather low (being 6.3%), both condition and gender had a significant effect. The effect for the condition was negative and small ( $\beta = -.19, p = 0.012$ ), indicating that participants in the experimental condition scored lower in their justifications of meat consumption as *natural* compared to those in the control condition. Therefore, H10 can be accepted. The effect for gender was positive and small ( $\beta = .18, p = 0.017$ ), showing that men scored generally higher in their '*natural*' justifications, confirming the accuracy of H1 once again.

The second model on justifying meat consumption as *necessary* was found to be insignificant as a whole  $F(2,166) = 2.50, p = .085, R^2 = .029$ . Condition, however, did prove to be a significant predictor ( $\beta = -.15, p = 0.050$ ) and its effect was negative and small. Therefore, H11 must be accepted. Alternatively, gender ( $\beta = .10, p = 0.208$ ) proved to be insignificant.

The third model which looked at participants' justifications of meat consumption as *normal* was similarly found to be insignificant as a whole  $F(2,166) = 2.97, p = .054, R^2 = .035$ . While gender was found to be a significant predictor ( $\beta = .16, p = 0.039$ ), group was not ( $\beta = -.11, p = 0.139$ ). In this sense, male participants did indeed perceive meat consumption as more *normal* as opposed to women, confirming the accuracy of H3 once again. However, the lack of significant differences between the justifications of participants in the experimental condition and those in the control condition means that H12 must be rejected.

The fourth & final model regarding participants' justifications of meat consumption as *nice* was found to be significant as well  $F(2,165) = 3.36, p = .037, R^2 = .039$ . Although the explained variance of this model was relatively low (being 3.9%), both condition ( $\beta = -.15, p = 0.050$ ) and gender ( $\beta = .15, p = 0.059$ ) (single-tailed) were found to be significant predictors. Condition had a negative and small effect on justifications, meaning participants in the experimental conditions were less likely to claim that meat consumption is *nice* as opposed to those in the control condition. Therefore, H13 can be accepted. On the other hand, gender's effect was small and positive, hence, the assumption behind H4 can be confirmed once again. This means that between groups of men and women, male respondents showed higher scores in terms of justifying meat consumption as '*nice*' than female ones.

#### 4.5. Influence of gender and group on attitude towards meatless meals and willingness to try eating less meat.

Finally, in order to determine the effects of condition (i.e., experimental vs. control) and gender on attitudes towards meatless meals and willingness to eat less meat, two linear regression with the respective dependent variable scores as criterium were conducted. The first model, which explores respondents' attitudes was found to be insignificant  $F(2,166) = 1.29, p = .279, R^2 = .015$ , with both condition ( $\beta = -.06, p = 0.416$ ) and gender ( $\beta = -.10, p = 0.201$ ) showing to be insignificant predictors. No significant difference in scores found between neither the experimental and control conditions, nor between male and female participants. Similarly, the second model which looks into respondents' willingness to eat less meat was found to be insignificant as well  $F(2,166) = .55, p = .576, R^2 = .007$ . As can be expected based on this model fit, neither gender ( $\beta = -.03, p = 0.677$ ) nor condition ( $\beta = -.07, p = 0.362$ ) impacted participants' willingness to try eating less meat. Therefore, both H14 and H15 are rejected.

Table 1  
*Outcome of hypotheses testing.*

| Hypothesis | Independent variable | Dependent variable                   | Accepted | Rejected |
|------------|----------------------|--------------------------------------|----------|----------|
| H1         | Gender               | <i>Natural</i> justifications        | X        |          |
| H2         | Gender               | <i>Necessary</i> justifications      |          | X        |
| H3         | Gender               | <i>Normal</i> justifications         |          | X        |
| H4         | Gender               | <i>Nice</i> justifications           | X        |          |
| H5         | -                    | Masculinity index                    | X        |          |
| H5a        | Gender               | Masculinity index                    |          | X        |
| H6         | -                    | Femininity index                     | X        |          |
| H6a        | Gender               | Femininity index                     |          | X        |
| H7         | Gender               | Attitudes towards meals without meat |          | X        |
| H8         | Gender               | Frequency of meat consumption        |          | X        |
| H9         | Gender               | Willingness to eat less meat         |          | X        |
| H10        | Condition            | <i>Natural</i> justifications        | X        |          |
| H11        | Condition            | <i>Necessary</i> justifications      |          | X        |

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|     |           |   |   |
|-----|-----------|---|---|
| H12 | Condition | <i>Normal</i> justifications            | X |
| H13 | Condition | <i>Nice</i> justifications              | X |
| H14 | Condition | Attitudes towards meals<br>without meat | X |
| H15 | Condition | Willingness to eat less<br>meat         | X |

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## 5. Discussion and conclusion:

### 5.1. Review of findings

The aim of this study was to explore the degree to which the *Game Changers* documentary can influence the overall perception of meatless consumption of female and male viewers. To establish the effect on overall perception, several criteria were dedicated to its measurement – those being attitude towards meatless meals alone, general perceptions of the *normality*, *necessity*, *naturality*, and *niceness* of meat consumption as well as individuals' willingness to eat less meat in the future. Furthermore, in order to establish that the changes in overall perception are impacted by the documentary's elements, an additional measurement evaluating the enjoyment of the film as a whole, its cast and message were included.

On average, it can be witnessed that the general reception of the documentary across conditions was highly positive. Participants in both the experimental and control conditions displayed generally high evaluations of their enjoyment of the documentary and interest in watching the full version. However, the most prominent findings of this study also showed differences in the scores of the two conditions in their overall perception of and attitude towards meatless consumption. In this sense, respondents in the experimental condition, who were exposed to a stimulus treatment early on during their participation in the survey, showed significantly lower scores in their perception of meat as *natural*, *necessary*, and *nice*. Hence, to answer the proposed research question, the *Game Changers* documentary did indeed impact participants' perception of meat.

In order to investigate the aforementioned assumptions, several hypotheses were introduced. While some of the results were in line with what the study assumed, others showed contrasting findings. The first cluster of hypotheses aimed at understanding whether men and women in the sample differed in their overall meat perception justification scores. As anticipated, findings showed that men did indeed display higher scores on the scales measuring the *naturality* and *niceness* of meat, therefore, H1 and H4 were accepted. Significant differences between the two genders, however, were not found with regards to the *normality* and *necessity* of meat, thus H2 and H3 were rejected. While H1 and H4 did go in line with previous research, H2 and H3 did not. In this sense, men showed more positive attitudes to all four means of justifications of meat consumption which generally shows that concept of gendered foods and the idea of meat being a 'masculine food' both held in this sample as well.

The notion that meat is generally perceived as a 'masculine' food was explored further in the second cluster proposed of hypotheses, generally aimed at examining the

relationship between gender and associations of plant- and meat- based diets. It was discovered that respondents generally associate a plant-based diet with femininity and a meat-based diet with masculinity. Both of those hypotheses (i.e., H5 and H6) held in theory and confirmed Sellaeg and Chapman (2008)'s suggestion that diets lacking animal products are predominantly perceived as feminine, while diets which primarily consisted of animal products - as masculine. H5 and H6 were therefore accepted. However, no significant differences between groups of men and women were found in neither their associations of meat-based, nor of plant-based diets. These findings suggest that despite their outstanding biological differences, men and women aren't all that different in their perceptions of meat after all, therefore rejecting H5a and H6a.

The third group of hypotheses was devoted to discovering whether female and male participants in this sample differed in their frequency of meat consumption, attitudes towards meatless consumption, and in their willingness to try eating less meat. Based on the concept of gender foods and the idea that gender is performed via the foods which one consumes (Sobel, 2005; Sellaeg & Chapman, 2008; Rogers, 2009; Rothberger, 2013; Dhont & Hodson, 2019) it was assumed that men will indicate higher frequencies of meat consumption and more negative attitudes towards meals without meat than women, as a symbolic expression of their masculinity. In this sense, it was also proposed that women will show a higher likelihood of trying to eat less meat in the future. However, there were no significant results found in support of these hypotheses (e.g. H7, H8, and H9) and they were hence rejected. Nevertheless, the t-test and chi-square analyses for H7 and H8 showed large effect sizes and proved nearly significant (single-tailed) -  $p = .085$  and  $p = .066$ , respectively. Therefore, it can be argued that if having provided a larger sample size, those differences would, in fact, gain significance.

The final two clusters of hypotheses measured the effectiveness of the stimulus treatment in alternating perceptions and attitudes of participants. With regards to justifications of meat consumption, participants in the experimental condition scored significantly lower on their justification of meat consumption as *natural*, *necessary*, and *nice* as opposed to those in the control condition, therefore H10, H11, and H13 have been accepted. In this sense, the clips from the documentary have succeeded in creating a narrative that introduces a deviant view of meat's role in our diets without being immediately discarded by meat-eaters as 'another vegan documentary'. It can be, furthermore, argued that it is precisely the role of celebrities in the clip that has enabled it to gain traction among alternative audiences, on one hand, and serve as a positive endorsement, on the other, as their familiarity is prescribed to the topic of meatless consumption as well

(Bragg, Roberto, Harris, Brownell & Elbel, 2017). The only measurement in which no significant differences between conditions was justifying meat consumption as *normal*. Although this finding goes against the study's predictions, it can be easily rationalized as evidence for the prevalence of carnism as a dominant ideology in today's society. As extensively discussed in early chapters of this study, since childhood, meat-eating has been introduced to the majority of us as a biological given and a part of the food chain. As with all ideologies, carnism must be understood as a shared set of beliefs and practices surrounding them (Joy, 2011), all of those normalized. In this sense, when stripped from the majority of their underlying beliefs regarding meat, the one thing participants could fall onto was the normality and general acceptance of meat-eating, reflected in the findings.

The very last couple of hypotheses investigated *Game Changers'* impact on participants' overall attitudes towards meals without meat and their willingness to eat less meat in the future. Neither of the findings were significant, therefore, participants in the control condition and in the experimental condition did not differ in neither attitude, nor willingness to shift. It is an interesting result given the documentary clips did partially impact their perception of meat in the first place, as shown in the aforementioned results. However, it is very likely that the stimulus has succeeded in priming respondents in opening up to an alternative lifestyle and creating an intent for eating less meat with the help of storytelling and a positive halo effect, yet has not managed to reach deep into their belief systems that define each individuals' understanding of reality (Moezzi, Janda & Rotmann, 2017). In this sense, the abundance or lack thereof perceived control people experience over their dietary behavior can vary based on multiple factors.

According to the Theory of Planned Behavior (TPB), on one hand, intention follows reasonably and consistently from beliefs and is the predecessor of any behavior in question (Ajzen, 2015). Behavior, thus, depends on subjective social norms and perceived control over and action, and the consequences the respective behavior may result in. Therefore, individuals can differ in their capability of maintaining a diet not only due to subjective utility differences but also self-discipline, for instance. The greater the perceived control, the more likely it is that a person will form an intention to perform the behavior in question. Similarly to TPH, the Self-Determination Theory (SDT) also assumes that choices can be self-determined (*intrinsic*) or non self-determined (*extrinsic*) and *internalized* motivations (consciously determined) (Deci & Ryan, 2000). SDT, however, also takes into account people's the innate psychological needs for *competence*, such as the ability to cook and taste, *autonomy*, such as the freedom to choose what foods to eat and what to restrain from, and *relatedness*, such as the sense of connection to people or nature (Schösler, de Boer &

Boersema, 2014). As it appears in my findings as well, some surface-level needs can be manipulated via a stimulus treatment with a psychological appeal (i.e., the *Game Changers* documentary). However, that is not the case for the fundamental beliefs which each of us holds with regards to what is right and wrong, usual and unusual, normal and abnormal. Taking into consideration the premises of TPH and SDT, it can be concluded that while intention can be created and manipulated relatively easily, behavioral change is far more complex and difficult to forcefully establish.

In conclusion, the *Game Changers* documentary was indeed successful at impacting the way diets exclusive of meat are perceived by groups of both men and women. Given that an understanding of meat's importance (or lack thereof) for one's diet is created in a long and complex process, where factors such as upbringing, norms, general media discourses each play a role, it is important to acknowledge that interpersonal differences can very well steer the effectiveness of storytelling and celebrity endorsement in the promotion of lifestyles, ideologies, and diets which are especially viewed as 'deviant' in today's society. With regards to the general stigmatization of veganism, it can be concluded that the display of positive deviants, or representations that go beyond the stereotypical view of veganism, certainly do aid the degree of openness which individuals experience to learning about it. The inclusion of clips from *Game Changers*, in this sense, resulted in a higher degree of dissonance and led to the reporting of less favorable attitudes towards meat in both groups of women and men. It should, however, be noted that the current study did indeed discover that meat consumption was still associated with masculinity, while meatless consumption – with femininity.

## 5.2. Limitations and directions for future research

This current study was based on a survey methodology and has received a reasonable number of participants, which would not have been feasible if this research took a qualitative approach. However, it should be noted that the significance of several findings could have been increased given a larger number of responses had been recorded. This research used a convenience sample which, due to the saturated user base of AmazonTurk, consisted of individuals from predominantly Western countries (e.g. American and European). The study, however, includes a wide range of individuals – that is age, gender, education, experience, occupation -wise. For this reason, the findings it presents are consistent across the sample but cannot be generalized over one particular population. In this sense, future research can be further validated by including a larger and more culturally diverse range of participants. Similarly, the reliability of several measurements (e.g. elements of the

enjoyment scale) could have further been improved, hence enabling their inclusion as control variables in the analysis of attitude shift of participants. In this sense, future studies on the topic can include alternative measurements in their designs in order to solidify these findings.

A few limitations that emerge based on the internal consistency of the sample in this study should also be noted. Cultural understanding of meat varies internationally, due to the fact that perception is often based not only on personal experiences but also on media reports across national environment (Potter, 2014; Shrum, 2017; Morgan & Shanahan, 2010; Wei, McIntyre & Straub, 2020). Thus, findings can show significant differences among groups of participants. Similarly, it must be taken into consideration that misinterpretation of words due to language differences could have occurred. For instance, the words ‘meatless’ and ‘plant-based’, or ‘plant-based’ and ‘vegan’ are often used interchangeably and might have resulted in the confusion of some participants. However, despite those limitations, this study shows that general perceptions and associations of meat consumption are remarkably similar across individuals.

This study did not focus on individual differences; however, it does seem likely that different types of individuals may experience different levels of pressure as to the lifestyle, diet, ideology, etc. that they follow (Rothgerber, 2013). For instance, some men strongly aim at being perceived as very ‘traditionally’ masculine by their surroundings as they build their identity around gender. In those cases, the degree of dissociation from symbolically ‘feminine’ movements, foods, ideologies they might experience can be far higher as opposed to men who do not pay as much importance to their gender identity. In this sense, future research may examine how men deal with societal pressure to engage in ‘masculine practices’ or whether a need for compromising gender identity while engaging in ‘feminine practices’ might occur.

Lastly, although my findings successfully rationalize the role of *Game Changers* in portraying an alternative perspective on plant-based eating and veganism that impacts viewer’s temporary attitudes towards the consumption of meat and plant-based meals, it is yet unclear whether their expressed intent will hold over time and result in behavioral follow-up changes as well. Research on the cultural, symbolic and performative role of food in today’s society can explain what solidifies individuals’ perceptions of and attitudes towards groups of foods or the ideologies associated with them, yet little account for the gap between behavioral intention and behavioral change in individuals. In this sense, it would be interesting for future research to investigate ideologies such as veganism, which are typically seen as socially deviant through the lens of SDT and TPB, in order to further explore the

intertwined role of socioeconomic (e.g. culture, social status, lifestyle, political orientations, etc.) and psychological factors (e.g. core values, autonomy, competence, relatedness, perceived sense of control) in one's dietary choices.

### 5.3. Strengths & practical implications

This work adds to the literature regarding plant-based diets in several ways. Firstly, this study's findings are predominantly consistent with other research on the topic of veganism (Hauwer & Bruycker, 2008; Rodgers, 2009; Cole & Morgan, 2011; Love & Sulikowski, 2018), stigma (Cole & Morgan, 2011; Rothgerber, 2013; Wright, 2015; MacInnis and Hodson, 2017; Markowski & Roxburgh, 2019; Nordstrom, 2019), gender differences in the perception of meatless diets (Sobal, 2005; Sellaeg & Chapman, 2008; Gal & Wilkie, 2010; Rothgerber, 2012; Schösler, de Boer & Boersema, 2014; Greenebaum & Dexter, 2017) and the associations between meat and masculinity (Sobal, 2005; Rogers, 2009; Rotherberg, 2012; Dhont & Hodson, 2019). Secondly, this research has discovered significant effects of storytelling and celebrity endorsements on individuals' willingness to learn more about plant-based eating and even engage in eating less meat. Thirdly, all the measurements used in this research design are valid and reliable. Moreover, the usage of the 4N scale allows for perceptions of meat to be measured from different angles, hence creating a depth aspect to this study & providing for multidimensional findings. Lastly, the usage of a real-life documentary for this research creates a real possibility for future productions to study, adapt and experiment with scientifically proven, effective techniques and formats.

Having said that, results contribute to the overall understanding of how storytelling (narratives) and celebrity endorsements can be used across various domains including advertising, organizations, and especially, sustainability and health communication. As a general resistance to sustainability campaigns that place emphasis on emotional appeal has developed among audiences today, it is of great importance that alternative views of meat, which provide individuals with more personal motivations to reduce their meat consumptions, are developed by both scholars and practitioners. Lastly, over the course of the past couple of decades, humans have witnessed an array of progressive changes in our understanding of normality in the domains of politics, equality, human rights, environmental sustainability among others. In this sense, bringing awareness to stigmatized issues, developing an understanding of and rationalizing human behavior is essential in order to continue moving forward as one and provide a brighter future to generations to come.

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## Appendix A: Survey

### Survey regarding Game Changers' impact on plant-based attitudes, Word version

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#### Screen 1

Welcome!

You have been invited to participate in the survey designed for my MA thesis study at Erasmus University Rotterdam. The aim of this survey is to learn about your opinions regarding multiple types of eating diets (e.g. plant-based, vegetarian, meat inclusive, etc.). **You can participate in the study if you are aged 18 or above.**

This survey contains spoilers of the Netflix documentary film Game Changers. It is important that:

- 1/ you **have not seen** the documentary Game Changers before;
- 2/ you have a **working sound system**;
- 3/ you **do not mind** seeing clips from the film in this survey.

Please do not hesitate to ask questions about anything you do not understand, before deciding to participate or not. The purpose of this study is to examine perceptions of plant-based eating and meat consumption. The duration of the survey is about **10-15 minutes**. If any of the questions you encounter make you feel uncomfortable, feel free to drop out. All of your responses are completely anonymous.

For questions and further information please do contact Alex at  
gamechangersstudy@gmail.com

Thank you in advance for your consideration of participation.

By pressing "I agree." you indicate that you wish to voluntary participate in this survey. If this is not the case and you wish to exit, then click "I disagree." and you will be escorted to the end of the survey.

I agree.

I disagree.

---

## Screen 2

Firstly, we would like to ask you a few questions regarding your demographic background.

(Q1) What is your age?

- Under 18 (1)
- 18-24 (2)
- 25-34 (3)
- ...
- 65-74 (7)
- 75 and above (8)

(Q2) What is your gender?

- Male (1)
- Female (2)
- Other (3)

(Q3) What is the highest level of school you have followed?

- Primary school (1)
- Secondary school / high school (2)
- Vocational degree after high school (3)
- Bachelor degree (4)
- Master degree (5)
- PhD, MBA, or other equivalent (6)
- Other, namely (7)

*At this point, respondents under the age of 18 will be forwarded to an automated message saying “Thank you for your interest in our study. Unfortunately, you do not fit the target group of interest. You will now be forwarded to the end of the survey.”*

---

## Screen 3

Thank you for your answers. In the following section, you will be asked some general questions regarding your dietary preferences and physical activity habits.

(Q4) On average, how often do you eat meat throughout the week?

- Rarely/Never (1)
- Once a week (2)
- 1 - 2 times per week (3)
- 3 - 4 times per week (4)
- 5 - 6 times per week (5)
- Once a day (6)
- 2 - 3 times per day (7)
- 4 - 5 times per day (8)
- 6 times per day or more (9)

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#### Screen 4

(Q5) On average, how often do you eat meat substitutes throughout the week?

- Rarely/Never (1)
- Once a week (2)
- 1 - 2 times per week (3)
- 3 - 4 times per week (4)
- 5 - 6 times per week (5)
- Once a day (6)
- 2 - 3 times per day (7)
- 4 - 5 times per day (8)
- 6 times per day or more (9)

(Q6) Do you have an allergy to soy, gluten, pea or other products used as basis for meat substitutes?

- No (1)
- Yes, namely .... (2)
- I am not sure (3)

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#### Screen 5

(Q7) On average, how often do you exercise throughout the week (e.g. weightlifting, running, yoga, etc.)?

- Rarely/Never (1)
- Once a week (2)
- 1 - 3 times per week (3)
- 2 - 4 times per week (4)
- 5 - 6 times per week (5)
- Once a day (6)
- 2 - 3 times per day (7)
- 4 - 5 times per day (8)
- 6 times per day or more (9)

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### Screen 6

(Q8) To what extent do you agree with the following statement:

'I associate a meat-based diet with masculinity?'

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

(Q9) To what extent do you agree with the following statement:

'I associate a plant-based diet with femininity?'

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

---

### Screen 7

#### **START OF CONTROL GROUP BLOCK:**

***The following questions (Q10 – Q28) will only be shown to respondents in the control group.***

Now that we know more about your dietary preferences and physical activity habits, we would like to ask you some questions about your meat consumption:

(Q10 – Q12) What is the degree to which you **agree or disagree** with the following statements:

|   | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Eating meals without red meat or chicken is easy            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Meals without red meat or chicken are delicious             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The food that I usually eat contributes to animal suffering | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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**Screen 8**

(Q13 – Q16) What is the degree to which you **agree or disagree** with the following statements:

|  | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| It is only natural to eat meat                                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our human ancestors ate meat all the time                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is unnatural to eat an all plant-based diet                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Human beings are natural meat-eaters – we naturally crave meat | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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**Screen 9**

(Q17 – Q20) What is the degree to which you **agree or disagree** with the following statements:

|   | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| It is necessary to eat meat in order to be healthy  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A healthy diet requires at least some meat  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You cannot get all the protein, vitamins and minerals you need on an all plant-based diet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Human beings need to eat meat   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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**Screen 10**

(Q21 – Q24) What is the degree to which you **agree or disagree** with the following statements:

|  | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| It is normal to eat meat   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is abnormal for humans not to eat meat  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Most people eat meat, and most people can't be wrong   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is common for people to eat meat in our society, so not eating meat is socially offensive | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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**Screen 11**

(Q25 – Q28) What is the degree to which you **agree or disagree** with the following statements:

|   | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Meat is delicious   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Meat adds so much flavor to a meal it does not make sense to leave it out                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Meals without meat would just be bland and boring   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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### Screen 12

(Q29) Finally, in the following section of this survey, you will be presented with a clip from the documentary film Game Changers. Please play the video yourself and patiently watch it. Once the video has reached its end, continue with the survey.

\*video\*

---

### Screen 13

(Q30) Thank you for completing the clip!

Can you please name the first celebrity you saw in the clip:

- Jackie Chan (1)
- Lewis Hamilton (2)
- Arnold Schwarzenegger (3)
- Other \_\_\_\_\_ (4)

---

### Screen 14

(Q31) Based on what you saw in the clip, what do you believe the core message of the documentary is:

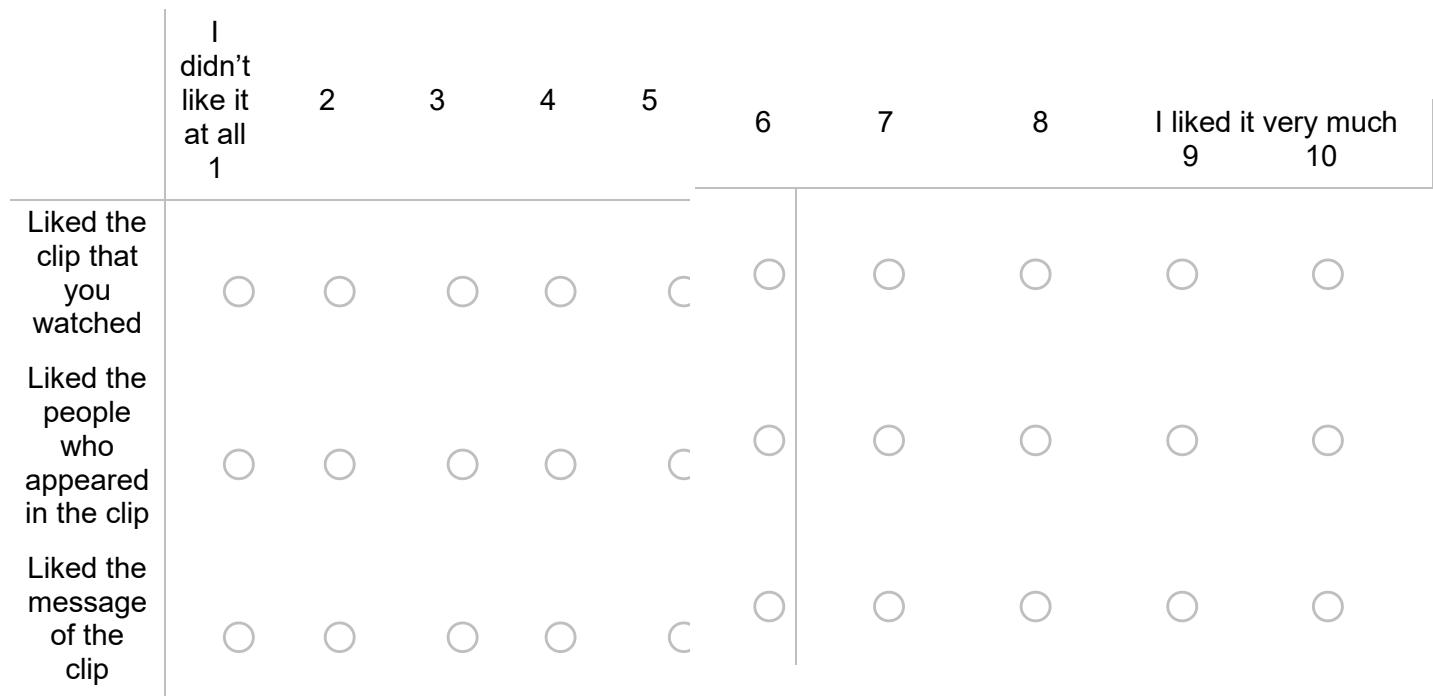
---

<those respondents who get it wrong will be forwarded to the end of the survey and shown an automated message saying *“Thank you for your interest in our study. Unfortunately, you did not manage to complete our manipulation check. You will now be forwarded to the end of the survey.”*>

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**Screen 15**

(Q32 – Q34) What is the extent to which you:



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**Screen 16**

(Q35) Would you be interested in watching the full documentary?

- Yes (1)
- No (2)
- Maybe (3)
- Other \_\_\_\_\_ (4)

(Q36) Do you think the documentary could reveal some insights that could make you want to attempt to change your diet?

- Yes (1)
- No (2)
- Maybe (3)
- Other \_\_\_\_\_ (4)

**END OF CONTROL GROUP BLOCK**

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**Screen 17****START OF EXPERIMENTAL GROUP BLOCK**

(Q37) Thank you for your answers! In the following section of this survey, you will be presented with a clip from the documentary film Game Changers. Please play the video yourself and patiently watch it. Once the video has reached its end, continue with the survey.

\*video\*

<Q37 – Q61 will be shown only to respondents in the control group>

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**Screen 18**

(Q38) Thank you for completing the clip!

Can you please name the first celebrity you saw in the clip:

- Jackie Chan (1)
- Lewis Hamilton (2)
- Arnold Schwarzenegger (3)
- Other \_\_\_\_\_ (4)

(Q39) Based on what you saw in the clip, what do you believe the core message of the documentary is:

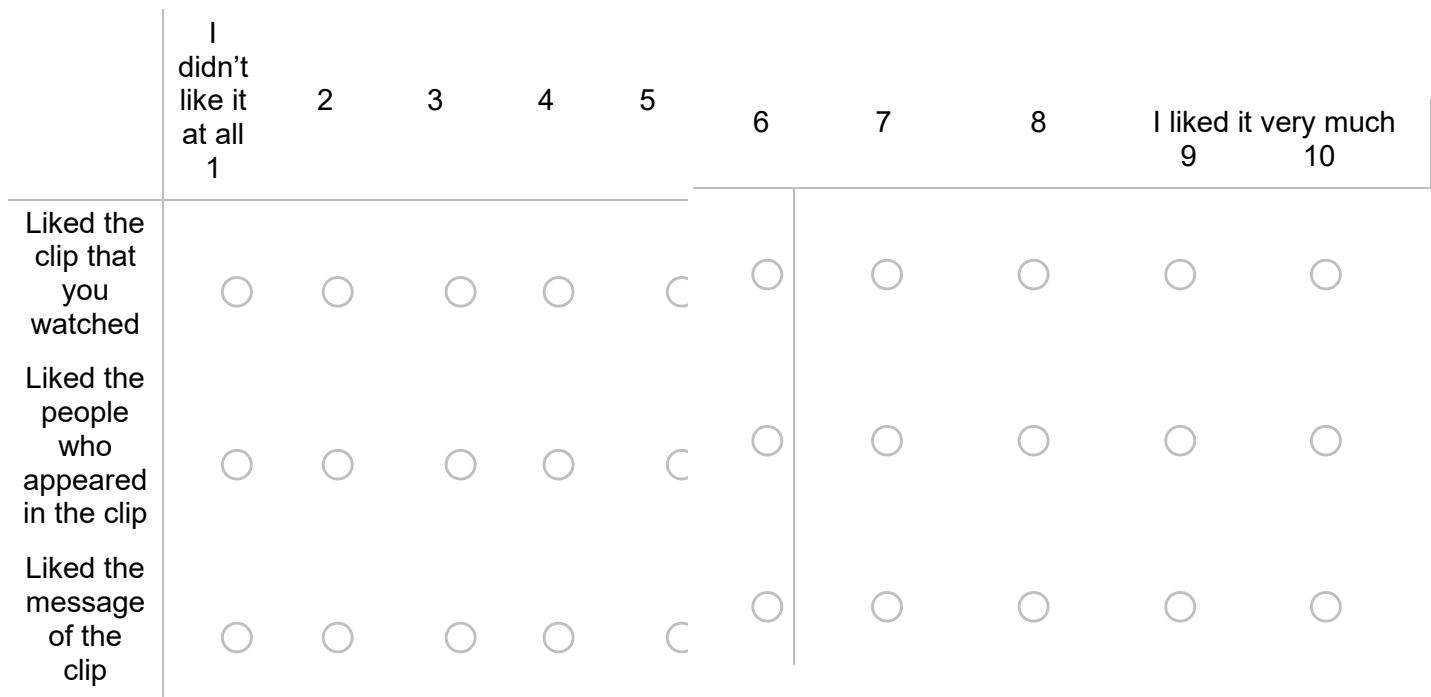
---

<those respondents who get it wrong will be forwarded to the end of the survey and shown an automated message saying “*Thank you for your interest in our study. Unfortunately, you did not manage to complete our manipulation check.*”>

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**Screen 19**

(Q40 – Q42) What is the extent to which you:



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## Screen 20

(Q43 – Q45) Now we would like to ask you some questions regarding your meat consumption: What is the degree to which you **agree or disagree** with the following statements:

|   | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Eating meals without red meat or chicken is easy            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Meals without red meat or chicken are delicious             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The food that I usually eat contributes to animal suffering | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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## Screen 21

(Q46 – Q49) What is the degree to which you **agree or disagree** with the following statements:

|  | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| It is only natural to eat meat                                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our human ancestors ate meat all the time                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is unnatural to eat an all plant-based diet                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Human beings are natural meat-eaters – we naturally crave meat | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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**Screen 22**

(Q50 – Q53) What is the degree to which you agree or disagree with the following statements:

|   | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| It is necessary to eat meat in order to be healthy  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A healthy diet requires at least some meat  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You cannot get all the protein, vitamins and minerals you need on an all plant-based diet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Human beings need to eat meat   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

---

**Screen 23**

(Q54 – Q57) What is the degree to which you agree or disagree with the following statements:

|  | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| It is normal to eat meat   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is abnormal for humans not to eat meat  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Most people eat meat, and most people can't be wrong   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is common for people to eat meat in our society, so not eating meat is socially offensive | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

---

**Screen 24**

(Q58 – Q61) What is the degree to which you agree or disagree with the following statements:

|   | Strongly disagree     | Disagree              | Somewhat disagree     | Neither agree nor disagree | Somewhat agree        | Agree                 | Strongly agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Meat is delicious   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Meat adds so much flavor to a meal it does not make sense to leave it out                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Meals without meat would just be bland and boring   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

---

**Screen 25**

**This last question is shown to all participants:**

(Q62) After participating in this survey, to what degree do you agree with the following statement:

'I am willing to try eating more plant-based meals.'

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

---

**Screen 26**

(Q63) You have now reached the end of the questionnaire. Thank you for your time and effort. Your help is highly appreciated! If you have questions or comments about this questionnaire, please list them below.....

**PLEASE PRESS THE NEXT BUTTON TO STORE ALL YOUR ANSWERS.**

---

## Appendix B: Output

### 1. SAMPLE DESCRIPTION:

#### *Gender frequencies:*

##### **Frequencies**

##### **Statistics**

What is your gender?

|   |         |     |
|---|---------|-----|
| N | Valid   | 169 |
|   | Missing | 0   |

##### **What is your gender?**

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1         | 100     | 59.2          | 59.2               |
|       | 2         | 69      | 40.8          | 100.0              |
| Total | 169       | 100.0   | 100.0         |                    |

#### *Group frequencies:*

##### **Frequencies**

##### **Statistics**

group

|   |         |     |
|---|---------|-----|
| N | Valid   | 169 |
|   | Missing | 0   |

##### **group**

|       | Frequency    | Percent | Valid Percent | Cumulative Percent |
|-------|--------------|---------|---------------|--------------------|
| Valid | control      | 82      | 48.5          | 48.5               |
|       | experimental | 87      | 51.5          | 100.0              |
| Total | 169          | 100.0   | 100.0         |                    |

#### *Age frequencies:*

##### **Frequencies**

##### **Statistics**

What is your age?

|   |         |     |
|---|---------|-----|
| N | Valid   | 169 |
|   | Missing | 0   |

##### **What is your age?**

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 2         | 35      | 20.7          | 20.7               |
|       | 3         | 68      | 40.2          | 60.9               |
|       | 4         | 28      | 16.6          | 77.5               |
|       | 5         | 19      | 11.2          | 88.8               |
|       | 6         | 15      | 8.9           | 97.6               |
|       | 7         | 4       | 2.4           | 100.0              |
| Total | 169       | 100.0   | 100.0         |                    |

## ***Education frequencies:***

### **Frequencies**

#### **Statistics**

What is the highest level of school you have followed?

|   |         |     |
|---|---------|-----|
| N | Valid   | 169 |
|   | Missing | 0   |

#### **What is the highest level of school you have followed?**

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 2         | 23      | 13.6          | 13.6               |
|       | 3         | 12      | 7.1           | 20.7               |
|       | 4         | 97      | 57.4          | 78.1               |
|       | 5         | 34      | 20.1          | 98.2               |
|       | 6         | 3       | 1.8           | 100.0              |
| Total | 169       | 100.0   | 100.0         |                    |

## ***Meat frequencies:***

### **Frequencies**

#### **Statistics**

On average, how often do you eat meat throughout the week?

|                |         |       |
|----------------|---------|-------|
| N              | Valid   | 169   |
|                | Missing | 0     |
| Mean           |         | 4.14  |
| Std. Deviation |         | 1.746 |

#### **On average, how often do you eat meat throughout the week?**

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1         | 8       | 4.7           | 4.7                |
|       | 2         | 19      | 11.2          | 11.2               |
|       | 3         | 42      | 24.9          | 24.9               |
|       | 4         | 39      | 23.1          | 23.1               |
|       | 5         | 20      | 11.8          | 11.8               |
|       | 6         | 22      | 13.0          | 13.0               |
|       | 7         | 15      | 8.9           | 8.9                |
|       | 8         | 2       | 1.2           | 1.2                |
|       | 9         | 2       | 1.2           | 1.2                |
| Total | 169       | 100.0   | 100.0         |                    |

## ***Meat substitutes frequencies:***

### **Frequencies**

#### **Statistics**

On average, how often do you eat meat substitutes throughout the week?

|                |         |       |
|----------------|---------|-------|
| N              | Valid   | 169   |
|                | Missing | 0     |
| Mean           |         | 2.81  |
| Std. Deviation |         | 1.848 |

#### **On average, how often do you eat meat substitutes throughout the week?**

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1         | 55      | 32.5          | 32.5               |
|       | 2         | 25      | 14.8          | 47.3               |
|       | 3         | 43      | 25.4          | 72.8               |
|       | 4         | 22      | 13.0          | 85.8               |
|       | 5         | 8       | 4.7           | 90.5               |
|       | 6         | 5       | 3.0           | 93.5               |
|       | 7         | 8       | 4.7           | 98.2               |
|       | 9         | 3       | 1.8           | 100.0              |
| Total | 169       | 100.0   | 100.0         |                    |

## Allergy frequencies:

### Frequencies

#### Statistics

Do you have an allergy to soy, gluten, pea or other products used as basis for meat substitutes?

|                |         |      |
|----------------|---------|------|
| N              | Valid   | 169  |
|                | Missing | 0    |
| Mean           |         | 1.22 |
| Std. Deviation |         | .531 |

#### Do you have an allergy to soy, gluten, pea or other products used as basis for meat substitutes?

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1         | 140     | 82.8          | 82.8               |
|       | 2         | 20      | 11.8          | 94.7               |
|       | 3         | 9       | 5.3           | 100.0              |
| Total | 169       | 100.0   | 100.0         |                    |

## Exercise frequencies:

### Frequencies

#### Statistics

On average, how often do you exercise throughout the week (e.g. weightlifting, running, yoga, etc.)?

|                |         |       |
|----------------|---------|-------|
| N              | Valid   | 169   |
|                | Missing | 0     |
| Mean           |         | 3.91  |
| Std. Deviation |         | 1.772 |

#### On average, how often do you exercise throughout the week (e.g. weightlifting, running, yoga, etc.)?

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1         | 15      | 8.9           | 8.9                |
|       | 2         | 19      | 11.2          | 20.1               |
|       | 3         | 42      | 24.9          | 45.0               |
|       | 4         | 35      | 20.7          | 65.7               |
|       | 5         | 24      | 14.2          | 79.9               |
|       | 6         | 25      | 14.8          | 94.7               |
|       | 7         | 4       | 2.4           | 97.0               |
|       | 8         | 1       | .6            | 97.6               |
|       | 9         | 4       | 2.4           | 100.0              |
| Total | 169       | 100.0   | 100.0         |                    |

## 2. MEASUREMENTS:

### Frequency.

#### Frequencies

#### Statistics

On average, how often do you eat meat throughout the week?

|                |         |       |
|----------------|---------|-------|
| N              | Valid   | 169   |
|                | Missing | 0     |
| Mean           |         | 4.14  |
| Std. Deviation |         | 1.746 |

#### On average, how often do you eat meat throughout the week?

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1         | 8       | 4.7           | 4.7                |
|       | 2         | 19      | 11.2          | 11.2               |
|       | 3         | 42      | 24.9          | 24.9               |
|       | 4         | 39      | 23.1          | 23.1               |
|       | 5         | 20      | 11.8          | 11.8               |
|       | 6         | 22      | 13.0          | 13.0               |
|       | 7         | 15      | 8.9           | 8.9                |
|       | 8         | 2       | 1.2           | 1.2                |
|       | 9         | 2       | 1.2           | 1.2                |
| Total | 169       | 100.0   | 100.0         |                    |

## T-Test

| Group Statistics   |                             |   |      |                              |                 |                 |                 |                       |
|--|-----------------------------|---|------|------------------------------|-----------------|-----------------|-----------------|-----------------------|
|  | What is your gender?        | N                                       | Mean | Std. Deviation               | Std. Error Mean |                 |                 |                       |
| On average, how often do you eat meat throughout the week? | 0                           | 69                                      | 3.00 | 1.543                        | .186            |                 |                 |                       |
|  | 1                           | 100                                     | 3.29 | 1.701                        | .170            |                 |                 |                       |
| Independent Samples Test                                   |                             |   |      |                              |                 |                 |                 |                       |
|  |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |                 |                 |                 |                       |
|  |                             | F                                       | Sig. | t                            | df              | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
| On average, how often do you eat meat throughout the week? | Equal variances assumed     | 3.248                                   | .073 | -1.131                       | 167             | .260            | -.290           | .256                  |
|  | Equal variances not assumed |   |      | -1.151                       | 154.992         | .251            | -.290           | .252                  |
|  |                             |   |      |                              |                 |                 | -.796           | .216                  |
|  |                             |   |      |                              |                 |                 | -.788           | .208                  |

## Association of meat-based diet.

### T-Test

#### One-Sample Statistics

|             | N   | Mean   | Std. Deviation | Std. Error Mean |
|-------------|-----|--------|----------------|-----------------|
| fem_recoded | 169 | 4.1243 | 1.90924        | .14686          |

#### One-Sample Test

|             |       |     | Test Value = 3  |                 |  |   |        |
|-------------|-------|-----|-----------------|-----------------|--|---|--------|
|             | t     | df  | Sig. (2-tailed) | Mean Difference |  | 95% Confidence Interval of the Difference |        |
| fem_recoded | 7.655 | 168 | .000            | 1.12426         |  | .8343                                     | 1.4142 |

## Association of plant-based diet.

### T-Test

#### Group Statistics

|              | What is your gender? | N   | Mean   | Std. Deviation | Std. Error Mean |
|--------------|----------------------|-----|--------|----------------|-----------------|
| masc_recoded | 0                    | 69  | 4.1884 | 1.73439        | .20880          |
|              | 1                    | 100 | 4.3300 | 1.85894        | .18589          |
| fem_recoded  | 0                    | 69  | 4.3768 | 1.86375        | .22437          |
|              | 1                    | 100 | 3.9500 | 1.92996        | .19300          |

#### Independent Samples Test

|              |                             |  | Levene's Test for Equality of Variances |      |                              |         |                 |                 |
|--------------|-----------------------------|--|---|------|------------------------------|---------|-----------------|-----------------|
|              |                             |  |   |      | t-test for Equality of Means |         |                 |                 |
|              |                             |  | F                                       | Sig. | t                            | df      | Sig. (2-tailed) | Mean Difference |
| masc_recoded | Equal variances assumed     |  | 1.469                                   | .227 | -.500                        | 167     | .618            | -.14159         |
|              | Equal variances not assumed |  |   |      | -.506                        | 152.649 | .613            | -.14159         |
| fem_recoded  | Equal variances assumed     |  | .201                                    | .654 | 1.433                        | 167     | .154            | .42681          |
|              | Equal variances not assumed |  |   |      | 1.442                        | 149.599 | .151            | .42681          |
|              |                             |  |   |      |                              |         |                 | .29595          |
|              |                             |  |   |      |                              |         |                 | -.15798         |
|              |                             |  |   |      |                              |         |                 | 1.01160         |

## Attitudes toward meatless meals.

### Factor analysis

#### Factor Analysis

[DataSet1] /Users/alkatana/Downloads/media&bus

#### KMO and Bartlett's Test

|  |                    |        |
|--|--------------------|--------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .565   |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 79.711 |
|  | df                 | 3      |
|  | Sig.               | .000   |

#### Communalities

|   | Initial | Extraction |
|---|---------|------------|
| What is the degree to which you agree or disagree with the following statements:<br>Meals without red meat or chicken are delicious             | 1.000   | .726       |
| What is the degree to which you agree or disagree with the following statements:<br>The food that I usually eat contributes to animal suffering | 1.000   | .288       |
| What is the degree to which you agree or disagree with the following statements:<br>Eating meals without red meat or chicken is easy            | 1.000   | .711       |

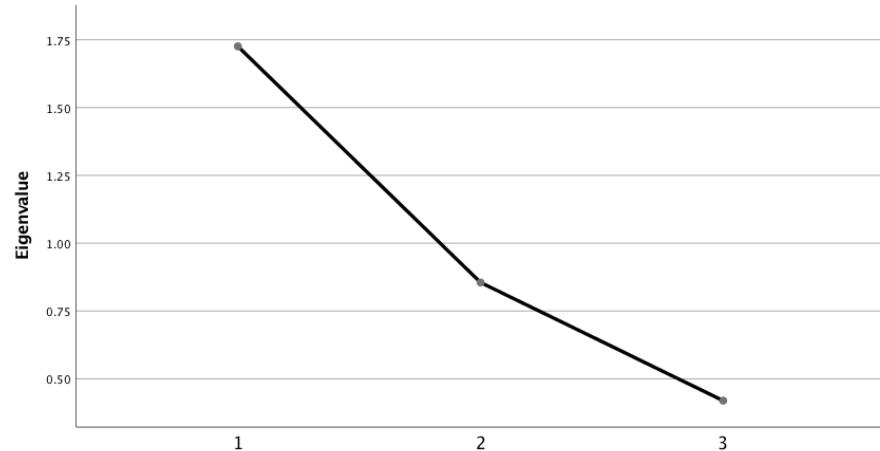
Extraction Method: Principal Component Analysis.

#### Total Variance Explained

| Component | Initial Eigenvalues |               |              | Extraction Sums of Squared Loadings |               |              |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 1.725               | 57.512        | 57.512       | 1.725                               | 57.512        | 57.512       |
| 2         | .855                | 28.504        | 86.016       |                                     |               |              |
| 3         | .420                | 13.984        | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

#### Scree Plot



### Component Matrix<sup>a</sup>

| Component  | 1    |
|--|------|
| What is the degree to which you agree or disagree with the following statements: Meals without red meat or chicken are delicious             | .852 |
| What is the degree to which you agree or disagree with the following statements: The food that I usually eat contributes to animal suffering | .537 |
| What is the degree to which you agree or disagree with the following statements: Eating meals without red meat or chicken is easy            | .843 |

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

### Reliability analysis Reliability

#### Scale: ALL VARIABLES

| Case Processing Summary                                       |  | Item Statistics |      |                |
|---|--|-----------------|------|----------------|
| Cases   | N  | %               | Mean | Std. Deviation |
| Cases   | 169  | 100.0           | 5.15 | 1.512          |
| Valid   | 0  | .0              |      |                |
| Excluded <sup>a</sup>   |  |                 |      |                |
| Total   | 169  | 100.0           |      |                |
| a. Listwise deletion based on all variables in the procedure. |  |                 |      |                |
| Reliability Statistics  |  |                 |      |                |
| Cronbach's Alpha  | Cronbach's Alpha Based on Standardized Items | N of Items      |      |                |
| .614  | .614   | 3               |      |                |

#### Inter-Item Correlation Matrix

| What is the degree to which you agree or disagree with the following statements: Meals without red meat or chicken are delicious             | 1.000 | .241  | .580  |
|--|-------|-------|-------|
| What is the degree to which you agree or disagree with the following statements: The food that I usually eat contributes to animal suffering | .241  | 1.000 | .219  |
| What is the degree to which you agree or disagree with the following statements: Eating meals without red meat or chicken is easy            | .580  | .219  | 1.000 |

| Summary Item Statistics |      |         |         |       |                   |          |
|-------------------------|------|---------|---------|-------|-------------------|----------|
|                         | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
| Inter-Item Correlations | .346 | .219    | .580    | .361  | 2.654             | .033     |

| Item-Total Statistics  |                            |                                |                                  |                              |                                  |
|--|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
|  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
| What is the degree to which you agree or disagree with the following statements: Meals without red meat or chicken are delicious             | 9.73                       | 5.771                          | .528                             | .350                         | .359                             |
| What is the degree to which you agree or disagree with the following statements: The food that I usually eat contributes to animal suffering | 10.00                      | 7.429                          | .258                             | .067                         | .734                             |
| What is the degree to which you agree or disagree with the following statements: Eating meals without red meat or chicken is easy            | 10.04                      | 5.713                          | .506                             | .343                         | .388                             |

| Scale Statistics |          |                |            |
|------------------|----------|----------------|------------|
| Mean             | Variance | Std. Deviation | N of Items |
| 14.88            | 11.891   | 3.448          | 3          |

## Frequencies

### Frequencies

#### Statistics

| attitude_scale |         |
|----------------|---------|
| N              | Valid   |
|                | 169     |
|                | Missing |
| Mean           | 5.0000  |
| Std. Deviation | 1.36277 |

| attitude_scale |           |         |               |                    |       |
|----------------|-----------|---------|---------------|--------------------|-------|
|                | Frequency | Percent | Valid Percent | Cumulative Percent |       |
| Valid          | 1.50      | 1       | .6            | .6                 | .6    |
|                | 2.00      | 6       | 3.6           | 3.6                | 4.1   |
|                | 2.50      | 9       | 5.3           | 5.3                | 9.5   |
|                | 3.00      | 4       | 2.4           | 2.4                | 11.8  |
|                | 3.50      | 13      | 7.7           | 7.7                | 19.5  |
|                | 4.00      | 14      | 8.3           | 8.3                | 27.8  |
|                | 4.50      | 18      | 10.7          | 10.7               | 38.5  |
|                | 5.00      | 15      | 8.9           | 8.9                | 47.3  |
|                | 5.50      | 34      | 20.1          | 20.1               | 67.5  |
|                | 6.00      | 22      | 13.0          | 13.0               | 80.5  |
|                | 6.50      | 21      | 12.4          | 12.4               | 92.9  |
|                | 7.00      | 12      | 7.1           | 7.1                | 100.0 |
| Total          | 169       | 100.0   | 100.0         |                    |       |

## 4N Scale.

### Natural:

#### Factor analysis

## Factor Analysis

### KMO and Bartlett's Test

|  |                    |         |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .775    |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 203.061 |
|  | df                 | 6       |
|  | Sig.               | .000    |

### Communalities

|   | Initial | Extraction |
|---|---------|------------|
| What is the degree to which you agree or disagree with the following statements: It is only natural to eat meat                                 | 1.000   | .625       |
| What is the degree to which you agree or disagree with the following statements: Our human ancestors ate meat all the time                      | 1.000   | .569       |
| What is the degree to which you agree or disagree with the following statements: It is unnatural to eat an all plant-based diet                 | 1.000   | .567       |
| What is the degree to which you agree or disagree with the following statements: Human beings are natural meat-eaters – we naturally crave meat | 1.000   | .733       |

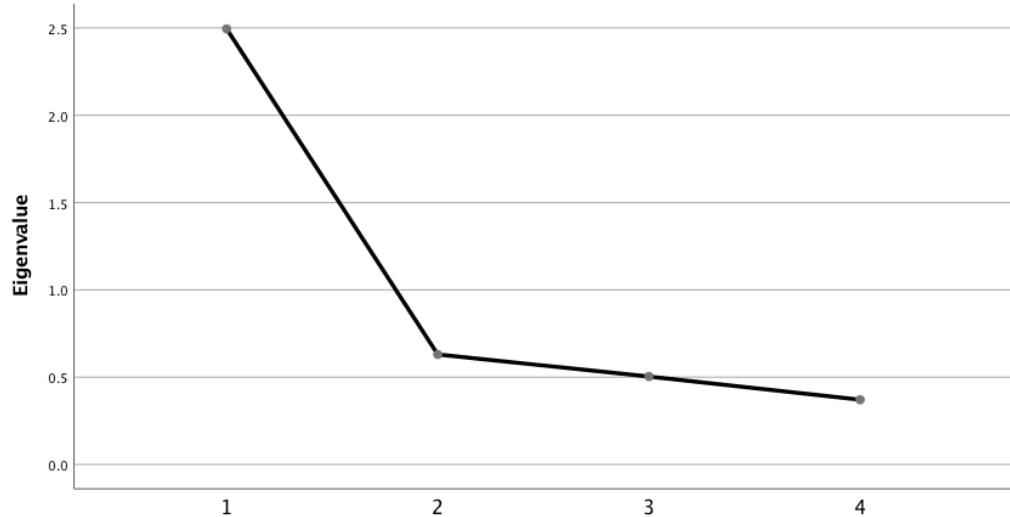
Extraction Method: Principal Component Analysis.

### Total Variance Explained

| Component | Total | Initial Eigenvalues |              | Extraction Sums of Squared Loadings |               |              |
|-----------|-------|---------------------|--------------|-------------------------------------|---------------|--------------|
|           |       | % of Variance       | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 2.495 | 62.374              | 62.374       | 2.495                               | 62.374        | 62.374       |
| 2         | .630  | 15.753              | 78.127       |                                     |               |              |
| 3         | .504  | 12.598              | 90.725       |                                     |               |              |
| 4         | .371  | 9.275               | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

### Scree Plot



## Component Matrix<sup>a</sup>

| Component<br>1  |      |
|---|------|
| What is the degree to which you agree or disagree with the following statements: It is only natural to eat meat                                 | .791 |
| What is the degree to which you agree or disagree with the following statements: Our human ancestors ate meat all the time                      | .755 |
| What is the degree to which you agree or disagree with the following statements: It is unnatural to eat an all plant-based diet                 | .753 |
| What is the degree to which you agree or disagree with the following statements: Human beings are natural meat-eaters - we naturally crave meat | .856 |

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

## Reliability analysis

| Reliability   |  | Item Statistics |                |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
|---|--|-----------------|----------------|---|--|---|---|--|--|-------|-------|-----|-------|--|--|-----------------------|---|----|--|--|-------|-----|-------|--|
| Scale: ALL VARIABLES  |  | Mean            | Std. Deviation | N |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
| <b>Case Processing Summary</b>  |  |                 |                |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
| <table border="1"> <thead> <tr> <th></th> <th>N</th> <th>%</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Cases</td> <td>Valid</td> <td>169</td> <td>100.0</td> <td></td> </tr> <tr> <td></td> <td>Excluded<sup>a</sup></td> <td>0</td> <td>.0</td> <td></td> </tr> <tr> <td></td> <td>Total</td> <td>169</td> <td>100.0</td> <td></td> </tr> </tbody> </table> |  |                 |                |   |  | N | % |  |  | Cases | Valid | 169 | 100.0 |  |  | Excluded <sup>a</sup> | 0 | .0 |  |  | Total | 169 | 100.0 |  |
|   | N  | %               |                |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
| Cases   | Valid  | 169             | 100.0          |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
|   | Excluded <sup>a</sup>                        | 0               | .0             |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
|   | Total  | 169             | 100.0          |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
| a. Listwise deletion based on all variables in the procedure.   |  |                 |                |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
| <b>Reliability Statistics</b>   |  |                 |                |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
| Cronbach's Alpha  | Cronbach's Alpha Based on Standardized Items | N of Items      |                |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |
| .791  | .798   | 4               |                |   |  |   |   |  |  |       |       |     |       |  |  |                       |   |    |  |  |       |     |       |  |

### Inter-Item Correlation Matrix

| What is the degree to which you agree or disagree with the following statements: It is only natural to eat meat                                 | What is the degree to which you agree or disagree with the following statements: Our human ancestors ate meat all the time | What is the degree to which you agree or disagree with the following statements: It is unnatural to eat an all plant-based diet | What is the degree to which you agree or disagree with the following statements: Human beings are natural meat-eaters – we naturally crave meat |       |
|---|--|---|---|-------|
| What is the degree to which you agree or disagree with the following statements: It is only natural to eat meat                                 | 1.000  | .489  | .434  | .569  |
| What is the degree to which you agree or disagree with the following statements: Our human ancestors ate meat all the time                      | .489   | 1.000   | .386  | .527  |
| What is the degree to which you agree or disagree with the following statements: It is unnatural to eat an all plant-based diet                 | .434   | .386  | 1.000   | .575  |
| What is the degree to which you agree or disagree with the following statements: Human beings are natural meat-eaters – we naturally crave meat | .569   | .527  | .575  | 1.000 |

### Summary Item Statistics

|                         | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|-------------------------|------|---------|---------|-------|-------------------|----------|------------|
| Inter-Item Correlations | .496 | .386    | .575    | .189  | 1.490             | .005     | 4          |

### Item-Total Statistics

|   | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| What is the degree to which you agree or disagree with the following statements: It is only natural to eat meat                                 | 13.94                      | 15.866                         | .605                             | .384                         | .742                             |
| What is the degree to which you agree or disagree with the following statements: Our human ancestors ate meat all the time                      | 14.01                      | 15.631                         | .557                             | .335                         | .761                             |
| What is the degree to which you agree or disagree with the following statements: It is unnatural to eat an all plant-based diet                 | 14.93                      | 13.371                         | .564                             | .351                         | .769                             |
| What is the degree to which you agree or disagree with the following statements: Human beings are natural meat-eaters – we naturally crave meat | 14.17                      | 13.675                         | .706                             | .500                         | .685                             |

### Scale Statistics

| Mean  | Variance | Std. Deviation | N of Items |
|-------|----------|----------------|------------|
| 19.02 | 24.327   | 4.932          | 4          |

### Frequencies

| natural_scale |           |         |               |                    |
|---------------|-----------|---------|---------------|--------------------|
|               | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid         | 1.00      | 1       | .6            | .6                 |
|               | 2.00      | 3       | 1.8           | 1.8                |
|               | 2.25      | 2       | 1.2           | 1.2                |
|               | 2.50      | 4       | 2.4           | 2.4                |
|               | 2.75      | 5       | 3.0           | 3.0                |
|               | 3.00      | 5       | 3.0           | 11.8               |
|               | 3.25      | 6       | 3.6           | 3.6                |
|               | 3.50      | 8       | 4.7           | 4.7                |
|               | 3.75      | 9       | 5.3           | 5.3                |
|               | 4.00      | 8       | 4.7           | 4.7                |
|               | 4.25      | 5       | 3.0           | 3.0                |
|               | 4.50      | 18      | 10.7          | 10.7               |
|               | 4.75      | 8       | 4.7           | 48.5               |
|               | 5.00      | 10      | 5.9           | 5.9                |
|               | 5.25      | 11      | 6.5           | 6.5                |
|               | 5.50      | 23      | 13.6          | 13.6               |
|               | 5.75      | 9       | 5.3           | 5.3                |
|               | 6.00      | 13      | 7.7           | 7.7                |
|               | 6.25      | 11      | 6.5           | 6.5                |
|               | 6.50      | 4       | 2.4           | 2.4                |
|               | 6.75      | 4       | 2.4           | 2.4                |
|               | 7.00      | 2       | 1.2           | 1.2                |
| Total         | 169       | 100.0   | 100.0         |                    |

## Frequencies

### Statistics

#### natural\_scale

|                |         |         |
|----------------|---------|---------|
| N              | Valid   | 169     |
|                | Missing | 0       |
| Mean           |         | 4.7544  |
| Std. Deviation |         | 1.23306 |

### Necessary:

#### Factor analysis

#### Factor Analysis

### KMO and Bartlett's Test

|  |         |
|--|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .823    |
| Bartlett's Test of Sphericity                    |         |
| Approx. Chi-Square                               | 415.928 |
| df   | 6       |
| Sig.   | .000    |

### Communalities

|  | Initial | Extraction |
|--|---------|------------|
| What is the degree to which you agree or disagree with the following statements: It is necessary to eat meat in order to be healthy  | 1.000   | .843       |
| What is the degree to which you agree or disagree with the following statements: A healthy diet requires at least some meat  | 1.000   | .769       |
| What is the degree to which you agree or disagree with the following statements: You cannot get all the protein, vitamins and minerals you need on an all plant-based diet | 1.000   | .604       |
| What is the degree to which you agree or disagree with the following statements: Human beings need to eat meat   | 1.000   | .809       |

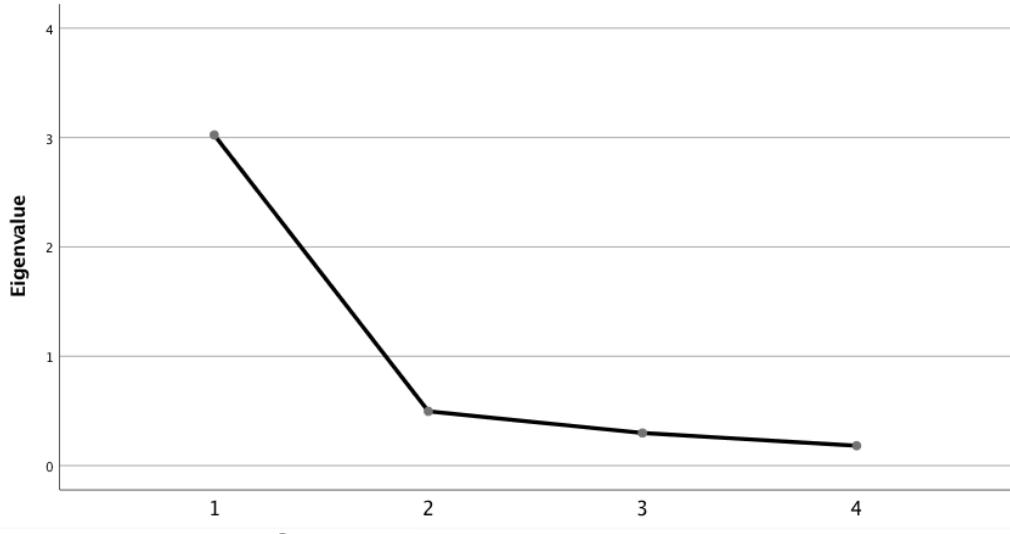
Extraction Method: Principal Component Analysis.

### Total Variance Explained

| Component | Total | Initial Eigenvalues |              | Extraction Sums of Squared Loadings |               |              |
|-----------|-------|---------------------|--------------|-------------------------------------|---------------|--------------|
|           |       | % of Variance       | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 3.024 | 75.588              | 75.588       | 3.024                               | 75.588        | 75.588       |
| 2         | .496  | 12.408              | 87.997       |                                     |               |              |
| 3         | .298  | 7.454               | 95.451       |                                     |               |              |
| 4         | .182  | 4.549               | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

### Scree Plot



### Component Matrix<sup>a</sup>

|  | Component |  |
|--|-----------|--|
|  | 1         |  |
| What is the degree to which you agree or disagree with the following statements: It is necessary to eat meat in order to be healthy  | .918      |  |
| What is the degree to which you agree or disagree with the following statements: A healthy diet requires at least some meat  | .877      |  |
| What is the degree to which you agree or disagree with the following statements: You cannot get all the protein, vitamins and minerals you need on an all plant-based diet | .777      |  |
| What is the degree to which you agree or disagree with the following statements: Human beings need to eat meat   | .899      |  |

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

## Reliability analysis

### Item Statistics

#### Reliability

#### Scale: ALL VARIABLES

##### Case Processing Summary

|                       | N   | %     |
|-----------------------|-----|-------|
| Cases                 | 169 | 100.0 |
| Valid                 | 169 | 100.0 |
| Excluded <sup>a</sup> | 0   | .0    |
| Total                 | 169 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

##### Reliability Statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .890             | .891   | 4          |

|  | Mean | Std. Deviation | N   |
|--|------|----------------|-----|
| What is the degree to which you agree or disagree with the following statements: It is necessary to eat meat in order to be healthy  | 4.46 | 1.769          | 169 |
| What is the degree to which you agree or disagree with the following statements: A healthy diet requires at least some meat  | 4.59 | 1.814          | 169 |
| What is the degree to which you agree or disagree with the following statements: You cannot get all the protein, vitamins and minerals you need on an all plant-based diet | 4.38 | 1.861          | 169 |
| What is the degree to which you agree or disagree with the following statements: Human beings need to eat meat   | 4.51 | 1.813          | 169 |

### Inter-Item Correlation Matrix

|  | What is the degree to which you agree or disagree with the following statements: It is necessary to eat meat in order to be healthy | What is the degree to which you agree or disagree with the following statements: A healthy diet requires at least some meat | What is the degree to which you agree or disagree with the following statements: You cannot get all the protein, vitamins and minerals you need on an all plant-based diet | What is the degree to which you agree or disagree with the following statements: Human beings need to eat meat |
|--|---|---|--|--|
| What is the degree to which you agree or disagree with the following statements: It is necessary to eat meat in order to be healthy  | 1.000   | .747  | .605   | .814   |
| What is the degree to which you agree or disagree with the following statements: A healthy diet requires at least some meat  |   | .747  | 1.000  | .572   |
| What is the degree to which you agree or disagree with the following statements: You cannot get all the protein, vitamins and minerals you need on an all plant-based diet |   |   | .605   | 1.000  |
| What is the degree to which you agree or disagree with the following statements: Human beings need to eat meat   |   |   |  | .572   |
|  |   |   |  | 1.000  |

### Summary Item Statistics

|                         | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|-------------------------|------|---------|---------|-------|-------------------|----------|------------|
| Inter-Item Correlations | .671 | .572    | .814    | .242  | 1.423             | .009     | 4          |

### Item-Total Statistics

|  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|--|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| What is the degree to which you agree or disagree with the following statements: It is necessary to eat meat in order to be healthy  | 13.47                      | 22.477                         | .835                             | .730                         | .830                             |
| What is the degree to which you agree or disagree with the following statements: A healthy diet requires at least some meat  | 13.34                      | 22.953                         | .769                             | .607                         | .854                             |
| What is the degree to which you agree or disagree with the following statements: You cannot get all the protein, vitamins and minerals you need on an all plant-based diet | 13.55                      | 24.439                         | .637                             | .407                         | .904                             |
| What is the degree to which you agree or disagree with the following statements: Human beings need to eat meat   | 13.42                      | 22.531                         | .802                             | .693                         | .842                             |

### Scale Statistics

| Mean  | Variance | Std. Deviation | N of Items |
|-------|----------|----------------|------------|
| 17.93 | 39.614   | 6.294          | 4          |

### Frequencies

#### necessary\_scale

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1.00      | 7       | 4.1           | 4.1                |
|       | 1.25      | 1       | .6            | .6                 |
|       | 1.50      | 1       | .6            | 5.3                |
|       | 1.75      | 2       | 1.2           | 1.2                |
|       | 2.00      | 6       | 3.6           | 3.6                |
|       | 2.25      | 5       | 3.0           | 3.0                |
|       | 2.50      | 7       | 4.1           | 4.1                |
|       | 2.75      | 8       | 4.7           | 4.7                |
|       | 3.00      | 4       | 2.4           | 2.4                |
|       | 3.25      | 5       | 3.0           | 3.0                |
|       | 3.50      | 4       | 2.4           | 2.4                |
|       | 3.75      | 4       | 2.4           | 2.4                |
|       | 4.00      | 5       | 3.0           | 3.0                |
|       | 4.25      | 4       | 2.4           | 2.4                |
|       | 4.50      | 8       | 4.7           | 4.7                |
|       | 4.75      | 5       | 3.0           | 3.0                |
|       | 5.00      | 16      | 9.5           | 9.5                |
|       | 5.25      | 21      | 12.4          | 12.4               |
|       | 5.50      | 12      | 7.1           | 7.1                |
|       | 5.75      | 11      | 6.5           | 6.5                |
|       | 6.00      | 12      | 7.1           | 7.1                |
|       | 6.25      | 10      | 5.9           | 5.9                |
|       | 6.50      | 5       | 3.0           | 3.0                |
|       | 6.75      | 4       | 2.4           | 2.4                |
|       | 7.00      | 2       | 1.2           | 1.2                |
| Total | 169       | 100.0   | 100.0         | 100.0              |

### Frequencies

### Statistics

#### necessary\_scale

| N              | Valid   | 169     |
|----------------|---------|---------|
|                | Missing | 0       |
| Mean           |         | 4.4822  |
| Std. Deviation |         | 1.57349 |

**Normal:****Factor analysis**  
**Factor Analysis****KMO and Bartlett's Test**

|  |                    |         |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .716               |         |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 169.800 |
|  | df                 | 6       |
|  | Sig.               | .000    |

**Communalities**

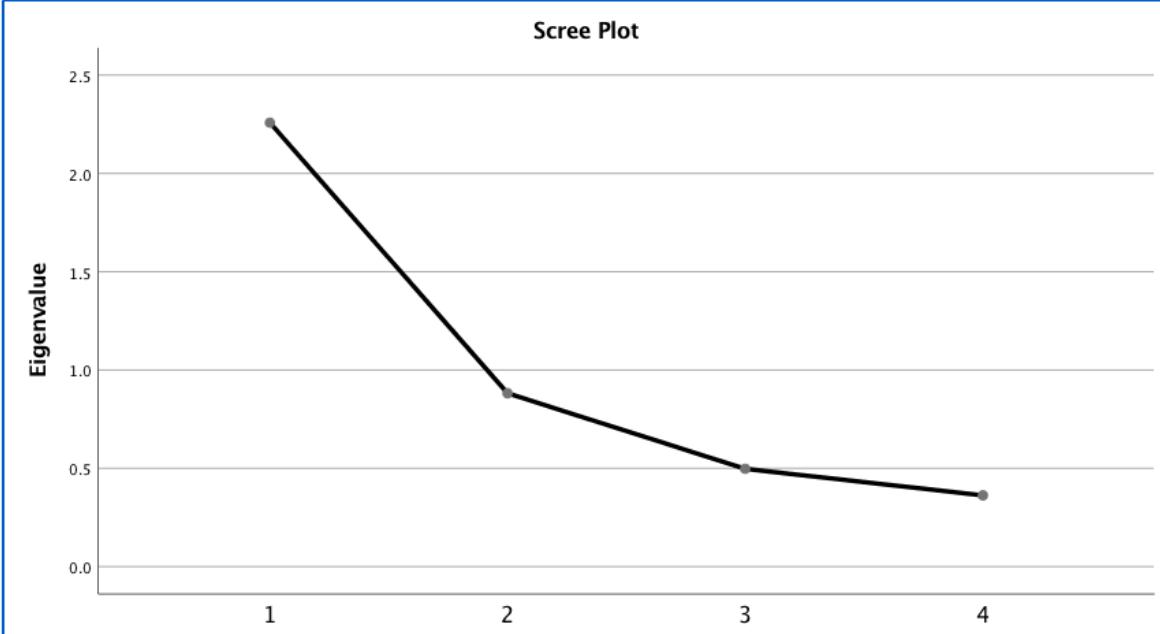
|   | Initial | Extraction |
|---|---------|------------|
| What is the degree to which you agree or disagree with the following statements: It is normal to eat meat   | 1.000   | .222       |
| What is the degree to which you agree or disagree with the following statements: It is abnormal for humans not to eat meat  | 1.000   | .657       |
| What is the degree to which you agree or disagree with the following statements: Most people eat meat, and most people can't be wrong   | 1.000   | .727       |
| What is the degree to which you agree or disagree with the following statements: It is common for people to eat meat in our society, so not eating meat is socially offensive | 1.000   | .652       |

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

| Component | Total | Initial Eigenvalues |              | Extraction Sums of Squared Loadings |               |              |
|-----------|-------|---------------------|--------------|-------------------------------------|---------------|--------------|
|           |       | % of Variance       | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 2.258 | 56.452              | 56.452       | 2.258                               | 56.452        | 56.452       |
| 2         | .882  | 22.045              | 78.497       |                                     |               |              |
| 3         | .498  | 12.439              | 90.936       |                                     |               |              |
| 4         | .363  | 9.064               | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

**Scree Plot**

### Component Matrix<sup>a</sup>

| Component   |      |
|---|------|
|   | 1    |
| What is the degree to which you agree or disagree with the following statements: It is normal to eat meat   | .472 |
| What is the degree to which you agree or disagree with the following statements: It is abnormal for humans not to eat meat  | .810 |
| What is the degree to which you agree or disagree with the following statements: Most people eat meat, and most people can't be wrong   | .852 |
| What is the degree to which you agree or disagree with the following statements: It is common for people to eat meat in our society, so not eating meat is socially offensive | .808 |

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

### Reliability analysis

|   |  | Item Statistics |                |   |
|---|--|-----------------|----------------|---|
|   |  | Mean            | Std. Deviation | N |
| <b>Reliability</b>  |  |                 |                |   |
| <b>Scale: ALL VARIABLES</b>                                   |  |                 |                |   |
| <b>Case Processing Summary</b>                                |  |                 |                |   |
|   |  | N               | %              |   |
| Cases   | Valid  | 169             | 100.0          |   |
|   | Excluded <sup>a</sup>                        | 0               | .0             |   |
|   | Total  | 169             | 100.0          |   |
| a. Listwise deletion based on all variables in the procedure. |  |                 |                |   |
| <b>Reliability Statistics</b>                                 |  |                 |                |   |
| Cronbach's Alpha  | Cronbach's Alpha Based on Standardized Items | N of Items      |                |   |
| .741  | .727   | 4               |                |   |

### Inter-Item Correlation Matrix

| What is the degree to which you agree or disagree with the following statements: It is normal to eat meat   | What is the degree to which you agree or disagree with the following statements: It is abnormal for humans not to eat meat | What is the degree to which you agree or disagree with the following statements: Most people eat meat, and most people can't be wrong | What is the degree to which you agree or disagree with the following statements: It is common for people to eat meat in our society, so not eating meat is socially offensive |       |
|---|--|---|---|-------|
| What is the degree to which you agree or disagree with the following statements: It is normal to eat meat   | 1.000  | .298  | .234  | .188  |
| What is the degree to which you agree or disagree with the following statements: It is abnormal for humans not to eat meat  | .298   | 1.000   | .567  | .490  |
| What is the degree to which you agree or disagree with the following statements: Most people eat meat, and most people can't be wrong   | .234   | .567  | 1.000   | .622  |
| What is the degree to which you agree or disagree with the following statements: It is common for people to eat meat in our society, so not eating meat is socially offensive | .188   | .490  | .622  | 1.000 |

### Summary Item Statistics

|                         | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|-------------------------|------|---------|---------|-------|-------------------|----------|------------|
| Inter-Item Correlations | .400 | .188    | .622    | .434  | 3.313             | .031     | 4          |

### Item-Total Statistics

|   | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| What is the degree to which you agree or disagree with the following statements: It is normal to eat meat   | 12.14                      | 21.432                         | .284                             | .095                         | .792                             |
| What is the degree to which you agree or disagree with the following statements: It is abnormal for humans not to eat meat  | 13.51                      | 14.370                         | .608                             | .378                         | .638                             |
| What is the degree to which you agree or disagree with the following statements: Most people eat meat, and most people can't be wrong   | 13.54                      | 13.488                         | .672                             | .480                         | .595                             |
| What is the degree to which you agree or disagree with the following statements: It is common for people to eat meat in our society, so not eating meat is socially offensive | 13.88                      | 13.379                         | .601                             | .415                         | .644                             |

## Scale Statistics

| Mean  | Variance | Std. Deviation | N of Items |
|-------|----------|----------------|------------|
| 17.69 | 25.643   | 5.064          | 4          |

## Frequencies

### normal\_scale

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1.00      | 2       | 1.2           | 1.2                |
|       | 2.00      | 2       | 1.2           | 2.4                |
|       | 2.25      | 2       | 1.2           | 3.6                |
|       | 2.50      | 8       | 4.7           | 8.3                |
|       | 2.75      | 6       | 3.6           | 11.8               |
|       | 3.00      | 9       | 5.3           | 17.2               |
|       | 3.25      | 12      | 7.1           | 24.3               |
|       | 3.50      | 13      | 7.7           | 32.0               |
|       | 3.75      | 7       | 4.1           | 36.1               |
|       | 4.00      | 12      | 7.1           | 43.2               |
|       | 4.25      | 8       | 4.7           | 47.9               |
|       | 4.50      | 8       | 4.7           | 52.7               |
|       | 4.75      | 10      | 5.9           | 58.6               |
|       | 5.00      | 11      | 6.5           | 65.1               |
|       | 5.25      | 9       | 5.3           | 70.4               |
|       | 5.50      | 17      | 10.1          | 80.5               |
|       | 5.75      | 7       | 4.1           | 84.6               |
|       | 6.00      | 14      | 8.3           | 92.9               |
|       | 6.25      | 5       | 3.0           | 95.9               |
|       | 6.50      | 5       | 3.0           | 98.8               |
|       | 6.75      | 2       | 1.2           | 100.0              |
| Total | 169       | 100.0   | 100.0         |                    |

## Frequencies

### Statistics

#### normal\_scale

| N              | Valid   | 169     |
|----------------|---------|---------|
|                | Missing | 0       |
| Mean           |         | 4.4231  |
| Std. Deviation |         | 1.26597 |

Nice:

Factor analysis

Factor Analysis

### KMO and Bartlett's Test

|  |                            |
|--|----------------------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .748                       |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square 270.528 |
|  | df 6                       |
|  | Sig. .000                  |

### Communalities

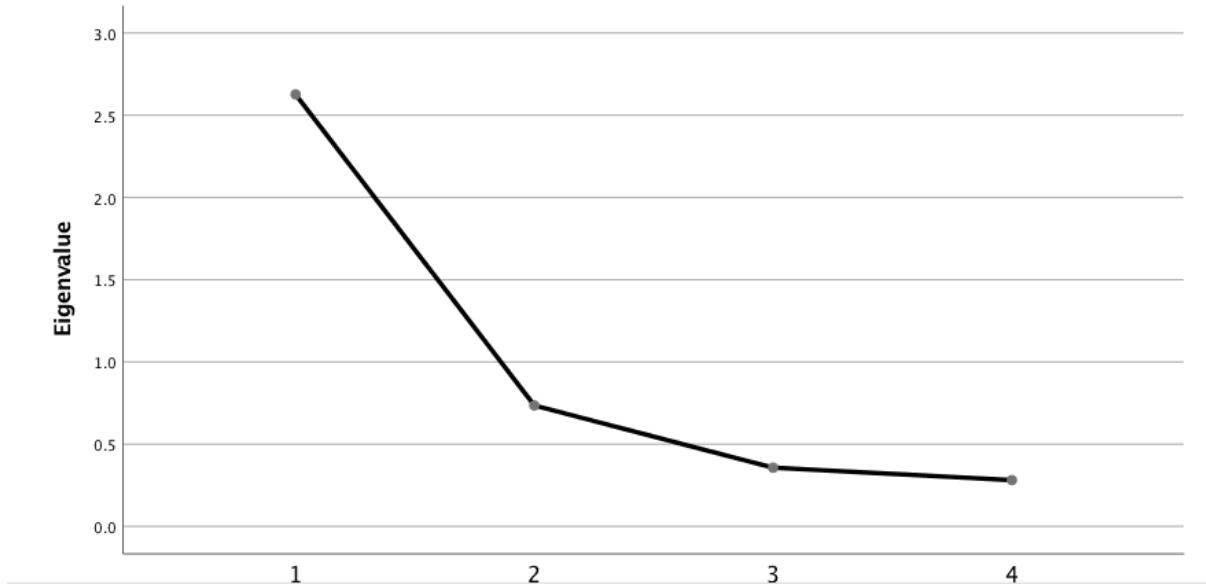
|  | Initial | Extraction |
|--|---------|------------|
| What is the degree to which you agree or disagree with the following statements: Meat is delicious   | 1.000   | .447       |
| What is the degree to which you agree or disagree with the following statements: Meat adds so much flavor to a meal it does not make sense to leave it out                       | 1.000   | .733       |
| What is the degree to which you agree or disagree with the following statements: The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) | 1.000   | .802       |
| What is the degree to which you agree or disagree with the following statements: Meals without meat would just be bland and boring   | 1.000   | .644       |

### Total Variance Explained

| Component | Total | Initial Eigenvalues |              | Extraction Sums of Squared Loadings |               |              |
|-----------|-------|---------------------|--------------|-------------------------------------|---------------|--------------|
|           |       | % of Variance       | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 2.627 | 65.673              | 65.673       | 2.627                               | 65.673        | 65.673       |
| 2         | .735  | 18.378              | 84.050       |                                     |               |              |
| 3         | .357  | 8.919               | 92.969       |                                     |               |              |
| 4         | .281  | 7.031               | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

### Scree Plot



### Component Matrix<sup>a</sup>

|  | Component | 1    |
|--|-----------|------|
|  |           |      |
| What is the degree to which you agree or disagree with the following statements: Meat is delicious   |           | .669 |
| What is the degree to which you agree or disagree with the following statements: Meat adds so much flavor to a meal it does not make sense to leave it out                       |           | .856 |
| What is the degree to which you agree or disagree with the following statements: The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) |           | .896 |
| What is the degree to which you agree or disagree with the following statements: Meals without meat would just be bland and boring   |           | .803 |

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

## Reliability analysis

### Reliability

#### Scale: ALL VARIABLES

##### Case Processing Summary

|       | N                     | %         |
|-------|-----------------------|-----------|
| Cases | Valid                 | 168 99.4  |
|       | Excluded <sup>a</sup> | 1 .6      |
|       | Total                 | 169 100.0 |

a. Listwise deletion based on all variables in the procedure.

##### Reliability Statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .817             | .821   | 4          |

### Item Statistics

|  | Mean | Std. Deviation | N   |
|--|------|----------------|-----|
| What is the degree to which you agree or disagree with the following statements: Meat is delicious   | 5.71 | 1.170          | 168 |
| What is the degree to which you agree or disagree with the following statements: Meat adds so much flavor to a meal it does not make sense to leave it out                       | 4.90 | 1.495          | 168 |
| What is the degree to which you agree or disagree with the following statements: The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) | 5.02 | 1.561          | 168 |
| What is the degree to which you agree or disagree with the following statements: Meals without meat would just be bland and boring   | 4.44 | 1.907          | 168 |

##### Inter-Item Correlation Matrix

|  | What is the degree to which you agree or disagree with the following statements: Meat is delicious | What is the degree to which you agree or disagree with the following statements: Meat adds so much flavor to a meal it does not make sense to leave it out | What is the degree to which you agree or disagree with the following statements: The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) | What is the degree to which you agree or disagree with the following statements: Meals without meat would just be bland and boring |
|--|--|--|--|--|
| What is the degree to which you agree or disagree with the following statements: Meat is delicious   | 1.000  | .435   | .540   | .289   |
| What is the degree to which you agree or disagree with the following statements: Meat adds so much flavor to a meal it does not make sense to leave it out                       |  | .435   | 1.000  | .673   |
| What is the degree to which you agree or disagree with the following statements: The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) |  |  | .540   | 1.000  |
| What is the degree to which you agree or disagree with the following statements: Meals without meat would just be bland and boring   |  |  |  | .647   |

### Summary Item Statistics

|                         | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|-------------------------|------|---------|---------|-------|-------------------|----------|------------|
| Inter-Item Correlations | .534 | .289    | .673    | .384  | 2.332             | .020     | 4          |

### Item-Total Statistics

|  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|--|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| What is the degree to which you agree or disagree with the following statements: Meat is delicious   | 14.36                      | 18.854                         | .471                             | .315                         | .839                             |
| What is the degree to which you agree or disagree with the following statements: Meat adds so much flavor to a meal it does not make sense to leave it out                       | 15.17                      | 14.559                         | .720                             | .525                         | .733                             |
| What is the degree to which you agree or disagree with the following statements: The best tasting food is normally a meat-based dish (e.g., steak, chicken breast, grilled fish) | 15.05                      | 13.603                         | .779                             | .610                         | .701                             |
| What is the degree to which you agree or disagree with the following statements: Meals without meat would just be bland and boring   | 15.63                      | 12.679                         | .640                             | .493                         | .785                             |

### Scale Statistics

| Mean  | Variance | Std. Deviation | N of Items |
|-------|----------|----------------|------------|
| 20.07 | 25.008   | 5.001          | 4          |

### Frequencies

| nice_scale |           |         |               |                    |
|------------|-----------|---------|---------------|--------------------|
|            | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid      | 1.00      | 2       | 1.2           | 1.2                |
|            | 1.50      | 1       | .6            | .6                 |
|            | 1.75      | 1       | .6            | .6                 |
|            | 2.00      | 1       | .6            | .6                 |
|            | 2.25      | 2       | 1.2           | 1.2                |
|            | 2.50      | 1       | .6            | .6                 |
|            | 2.75      | 2       | 1.2           | 1.2                |
|            | 3.00      | 7       | 4.1           | 4.2                |
|            | 3.25      | 2       | 1.2           | 1.2                |
|            | 3.50      | 6       | 3.6           | 3.6                |
|            | 3.75      | 5       | 3.0           | 3.0                |
|            | 4.00      | 8       | 4.7           | 4.8                |
|            | 4.25      | 5       | 3.0           | 3.0                |
|            | 4.50      | 8       | 4.7           | 4.8                |
|            | 4.75      | 11      | 6.5           | 6.5                |
|            | 5.00      | 16      | 9.5           | 9.5                |
|            | 5.25      | 11      | 6.5           | 6.5                |
|            | 5.50      | 12      | 7.1           | 7.1                |
|            | 5.75      | 18      | 10.7          | 10.7               |
|            | 6.00      | 22      | 13.0          | 13.1               |
|            | 6.25      | 12      | 7.1           | 7.1                |
|            | 6.50      | 8       | 4.7           | 4.8                |
|            | 6.75      | 4       | 2.4           | 2.4                |
|            | 7.00      | 3       | 1.8           | 1.8                |
|            | Total     | 168     | 99.4          | 100.0              |
| Missing    | System    | 1       | .6            |                    |
| Total      |           | 169     | 100.0         |                    |

### Frequencies

| Statistics     |         |         |
|----------------|---------|---------|
| nice_scale     |         |         |
| N              | Valid   | 168     |
|                | Missing | 1       |
| Mean           |         | 5.0164  |
| Std. Deviation |         | 1.25019 |

## **Evaluation of the film.**

### **Factor analysis**

#### **Factor Analysis**

##### **KMO and Bartlett's Test**

|  |                    |        |
|--|--------------------|--------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | .472   |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 35.861 |
|  | df                 | 3      |
|  | Sig.               | .000   |

##### **Communalities**

|  | Initial | Extraction |
|--|---------|------------|
| What is the extent to which you: Liked the clip that you watched           | 1.000   | .714       |
| What is the extent to which you: Liked the people who appeared in the clip | 1.000   | .419       |
| What is the extent to which you: Liked the message of the clip             | 1.000   | .318       |

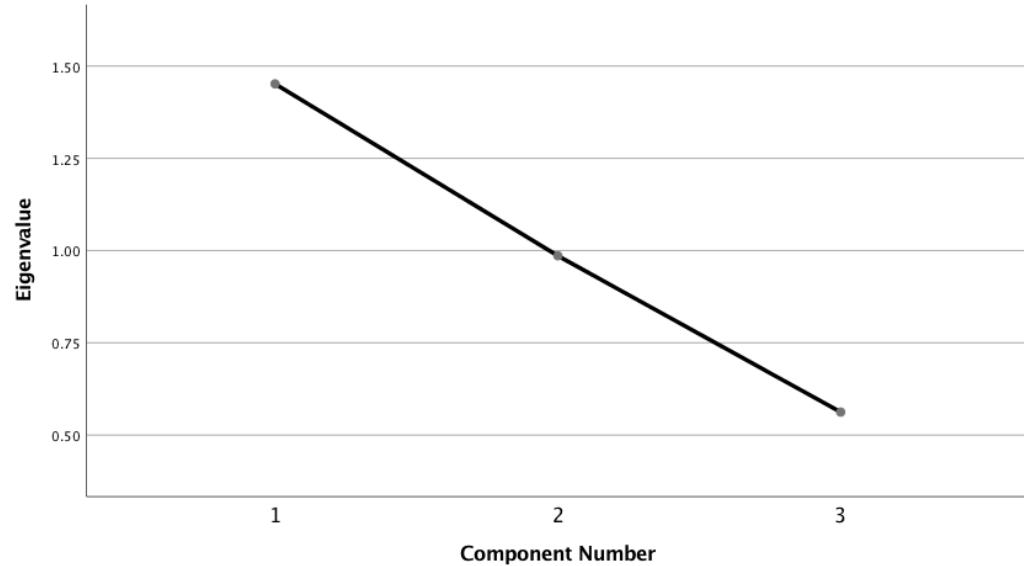
Extraction Method: Principal Component Analysis.

##### **Total Variance Explained**

| Component | Total | Initial Eigenvalues |              | Extraction Sums of Squared Loadings |               |              |
|-----------|-------|---------------------|--------------|-------------------------------------|---------------|--------------|
|           |       | % of Variance       | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 1.452 | 48.396              | 48.396       | 1.452                               | 48.396        | 48.396       |
| 2         | .986  | 32.860              | 81.256       |                                     |               |              |
| 3         | .562  | 18.744              | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

##### **Scree Plot**



##### **Component Matrix<sup>a</sup>**

|  | Component |  |
|--|-----------|--|
|  | 1         |  |
| What is the extent to which you: Liked the clip that you watched           | .845      |  |
| What is the extent to which you: Liked the people who appeared in the clip | .648      |  |
| What is the extent to which you: Liked the message of the clip             | .564      |  |

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

## Reliability analysis

### Item Statistics

|  | Mean | Std. Deviation | N   |
|--|------|----------------|-----|
| What is the extent to which you: Liked the clip that you watched           | 8.15 | 2.604          | 168 |
| What is the extent to which you: Liked the people who appeared in the clip | 8.02 | 1.753          | 168 |
| What is the extent to which you: Liked the message of the clip             | 8.80 | 3.002          | 168 |

### Reliability

[DataSet1] /Users/alexatanasova/Docu

#### Scale: ALL VARIABLES

##### Case Processing Summary

|       | N                     | %         |
|-------|-----------------------|-----------|
| Cases | Valid                 | 168 99.4  |
|       | Excluded <sup>a</sup> | 1 .6      |
| Total |                       | 169 100.0 |

a. Listwise deletion based on all variables in the procedure.

##### Reliability Statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .437             | .449   | 3          |

### Inter-Item Correlation Matrix

|  | What is the extent to which you: Liked the clip that you watched | What is the extent to which you: Liked the people who appeared in the clip | What is the extent to which you: Liked the message of the clip |
|--|--|--|--|
| What is the extent to which you: Liked the clip that you watched           | 1.000  | .337   | .291   |
| What is the extent to which you: Liked the people who appeared in the clip | .337   | 1.000  | .014   |
| What is the extent to which you: Liked the message of the clip             | .291   | .014   | 1.000  |

### Summary Item Statistics

|                         | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|-------------------------|------|---------|---------|-------|-------------------|----------|------------|
| Inter-Item Correlations | .214 | .014    | .337    | .322  | 23.464            | .024     | 3          |

### Item-Total Statistics

|  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|--|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| What is the extent to which you: Liked the clip that you watched           | 16.82                      | 12.235                         | .418                             | .195                         | .025                             |
| What is the extent to which you: Liked the people who appeared in the clip | 16.95                      | 20.333                         | .204                             | .121                         | .447                             |
| What is the extent to which you: Liked the message of the clip             | 16.17                      | 12.922                         | .217                             | .092                         | .476                             |

### Scale Statistics

| Mean  | Variance | Std. Deviation | N of Items |
|-------|----------|----------------|------------|
| 24.97 | 26.628   | 5.160          | 3          |

## Frequencies

| enjoyment_scale |           |         |               |                    |       |
|-----------------|-----------|---------|---------------|--------------------|-------|
|                 | Frequency | Percent | Valid Percent | Cumulative Percent |       |
| Valid           | 3.33      | 1       | .6            | .6                 | .6    |
|                 | 4.00      | 2       | 1.2           | 1.2                | 1.8   |
|                 | 4.67      | 2       | 1.2           | 1.2                | 3.0   |
|                 | 5.00      | 4       | 2.4           | 2.4                | 5.4   |
|                 | 5.33      | 4       | 2.4           | 2.4                | 7.7   |
|                 | 5.67      | 3       | 1.8           | 1.8                | 9.5   |
|                 | 6.00      | 3       | 1.8           | 1.8                | 11.3  |
|                 | 6.33      | 3       | 1.8           | 1.8                | 13.1  |
|                 | 6.67      | 4       | 2.4           | 2.4                | 15.5  |
|                 | 7.00      | 6       | 3.6           | 3.6                | 19.0  |
|                 | 7.33      | 8       | 4.7           | 4.8                | 23.8  |
|                 | 7.67      | 9       | 5.3           | 5.4                | 29.2  |
|                 | 8.00      | 19      | 11.2          | 11.3               | 40.5  |
|                 | 8.33      | 22      | 13.0          | 13.1               | 53.6  |
|                 | 8.67      | 11      | 6.5           | 6.5                | 60.1  |
|                 | 9.00      | 15      | 8.9           | 8.9                | 69.0  |
|                 | 9.33      | 12      | 7.1           | 7.1                | 76.2  |
|                 | 9.67      | 13      | 7.7           | 7.7                | 83.9  |
|                 | 10.00     | 23      | 13.6          | 13.7               | 97.6  |
|                 | 10.33     | 1       | .6            | .6                 | 98.2  |
|                 | 11.33     | 1       | .6            | .6                 | 98.8  |
|                 | 12.67     | 1       | .6            | .6                 | 99.4  |
|                 | 18.33     | 1       | .6            | .6                 | 100.0 |
|                 | Total     | 168     | 99.4          | 100.0              |       |
| Missing         | System    | 1       | .6            |                    |       |
| Total           |           | 169     | 100.0         |                    |       |

## Frequencies

### Statistics

| enjoyment_scale |         |         |
|-----------------|---------|---------|
| N               | Valid   | 168     |
|                 | Missing | 1       |
| Mean            |         | 8.3234  |
| Std. Deviation  |         | 1.72007 |

## Frequencies

### Statistics

What is the extent to which you: Liked the clip that you watched

|                |         |       |
|----------------|---------|-------|
| N              | Valid   | 168   |
|                | Missing | 1     |
| Mean           |         | 8.15  |
| Std. Deviation |         | 2.604 |

### What is the extent to which you: Liked the clip that you watched

|         |        | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|--------|-----------|---------|---------------|--------------------|
| Valid   | 2      | 1         | .6      | .6            | .6                 |
|         | 3      | 5         | 3.0     | 3.0           | 3.6                |
|         | 4      | 1         | .6      | .6            | 4.2                |
|         | 5      | 10        | 5.9     | 6.0           | 10.1               |
|         | 6      | 19        | 11.2    | 11.3          | 21.4               |
|         | 7      | 20        | 11.8    | 11.9          | 33.3               |
|         | 8      | 35        | 20.7    | 20.8          | 54.2               |
|         | 9      | 35        | 20.7    | 20.8          | 75.0               |
|         | 10     | 40        | 23.7    | 23.8          | 98.8               |
|         | 25     | 2         | 1.2     | 1.2           | 100.0              |
| Missing | System | 1         | .6      |               |                    |
|         | Total  | 168       | 99.4    | 100.0         |                    |

## Frequencies

### Statistics

What is the extent to which you: Liked the message of the clip

|                |         |       |
|----------------|---------|-------|
| N              | Valid   | 168   |
|                | Missing | 1     |
| Mean           |         | 8.80  |
| Std. Deviation |         | 3.002 |

### What is the extent to which you: Liked the message of the clip

|         |        | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|--------|-----------|---------|---------------|--------------------|
| Valid   | 3      | 2         | 1.2     | 1.2           | 1.2                |
|         | 4      | 2         | 1.2     | 1.2           | 2.4                |
|         | 5      | 10        | 5.9     | 6.0           | 8.3                |
|         | 6      | 6         | 3.6     | 3.6           | 11.9               |
|         | 7      | 16        | 9.5     | 9.5           | 21.4               |
|         | 8      | 37        | 21.9    | 22.0          | 43.5               |
|         | 9      | 40        | 23.7    | 23.8          | 67.3               |
|         | 10     | 51        | 30.2    | 30.4          | 97.6               |
|         | 25     | 4         | 2.4     | 2.4           | 100.0              |
|         | Total  | 168       | 99.4    | 100.0         |                    |
| Missing | System | 1         | .6      |               |                    |
|         | Total  | 169       | 100.0   |               |                    |

## Frequencies

### Statistics

What is the extent to which you: Liked the people who appeared in the clip

|                |         |       |
|----------------|---------|-------|
| N              | Valid   | 168   |
|                | Missing | 1     |
| Mean           |         | 8.02  |
| Std. Deviation |         | 1.753 |

### What is the extent to which you: Liked the people who appeared in the clip

|         | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-----------|---------|---------------|--------------------|
| Valid   | 2         | 1       | .6            | .6                 |
|         | 3         | 3       | 1.8           | 1.8                |
|         | 4         | 4       | 2.4           | 2.4                |
|         | 5         | 7       | 4.1           | 4.8                |
|         | 6         | 15      | 8.9           | 17.9               |
|         | 7         | 25      | 14.8          | 32.7               |
|         | 8         | 34      | 20.1          | 53.0               |
|         | 9         | 42      | 24.9          | 78.0               |
|         | 10        | 37      | 21.9          | 100.0              |
|         | Total     | 168     | 99.4          | 100.0              |
| Missing | System    | 1       | .6            |                    |
| Total   |           | 169     | 100.0         |                    |

### T-Test

#### Group Statistics

|  | What is your gender? | N   | Mean | Std. Deviation | Std. Error Mean |
|--|----------------------|-----|------|----------------|-----------------|
| What is the extent to which you: Liked the clip that you watched           | 0                    | 68  | 7.97 | 2.780          | .337            |
|  | 1                    | 100 | 8.28 | 2.483          | .248            |
| What is the extent to which you: Liked the people who appeared in the clip | 0                    | 68  | 7.68 | 1.988          | .241            |
|  | 1                    | 100 | 8.25 | 1.540          | .154            |
| What is the extent to which you: Liked the message of the clip             | 0                    | 68  | 9.24 | 4.282          | .519            |
|  | 1                    | 100 | 8.50 | 1.605          | .160            |

#### Independent Samples Test

|  | Levene's Test for Equality of Variances |       |      | t-test for Equality of Means |                 |                 |                       | 95% Confidence Interval of the Difference |       |
|--|---|-------|------|------------------------------|-----------------|-----------------|-----------------------|---|-------|
|  | F                                       | Sig.  | t    | df                           | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower                                     |       |
|  |   |       |      |                              |                 |                 |                       | Upper                                     |       |
| What is the extent to which you: Liked the clip that you watched           | Equal variances assumed                 | .024  | .878 | 166                          | .451            | -.309           | .410                  | -.118                                     | .500  |
|  |   |       |      |                              |                 |                 |                       |   |       |
| What is the extent to which you: Liked the people who appeared in the clip | Equal variances assumed                 |       |      |                              |                 |                 |                       |   |       |
|  |   |       |      |                              |                 |                 |                       |   |       |
| What is the extent to which you: Liked the message of the clip             | Equal variances assumed                 | 6.602 | .011 | -2.103                       | 166             | .037            | -.574                 | .273                                      | -.112 |
|  |   |       |      |                              |                 |                 |                       |   | -.035 |
|  | Equal variances not assumed             |       |      |                              |                 |                 |                       |   |       |
|  |   |       |      |                              |                 |                 |                       |   |       |
|  | Equal variances assumed                 | 5.630 | .019 | 1.565                        | 166             | .119            | .735                  | .470                                      | -.192 |
|  |   |       |      |                              |                 |                 |                       |   | 1.663 |
|  | Equal variances not assumed             |       |      |                              |                 |                 |                       |   |       |
|  |   |       |      |                              |                 |                 |                       |   |       |

## Attitude shift.

### Frequencies

#### Statistics

shift\_recoded

|                |         |         |
|----------------|---------|---------|
| N              | Valid   | 169     |
|                | Missing | 0       |
| Mean           |         | 5.4734  |
| Std. Deviation |         | 1.30048 |

#### shift\_recoded

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1.00      | 2       | 1.2           | 1.2                |
|       | 2.00      | 6       | 3.6           | 4.7                |
|       | 3.00      | 7       | 4.1           | 8.9                |
|       | 4.00      | 11      | 6.5           | 15.4               |
|       | 5.00      | 45      | 26.6          | 42.0               |
|       | 6.00      | 65      | 38.5          | 80.5               |
|       | 7.00      | 33      | 19.5          | 100.0              |
|       | Total     | 169     | 100.0         | 100.0              |

### 3. RESULTS: H1-H4

#### T-Test

#### Group Statistics

|               | What is your gender? | N   | Mean   | Std. Deviation | Std. Error Mean |
|---------------|----------------------|-----|--------|----------------|-----------------|
| natural_scale | 0                    | 69  | 4.5145 | 1.25285        | .15083          |
|               | 1                    | 100 | 4.9200 | 1.19758        | .11976          |

#### Independent Samples Test

| natural_scale | Levene's Test for Equality of Variances |       |      | t-test for Equality of Means |                 |                 |                       |        | 95% Confidence Interval of the Difference |         |
|---------------|---|-------|------|------------------------------|-----------------|-----------------|-----------------------|--------|---|---------|
|               | F                                       | Sig.  | t    | df                           | Sig. (2-tailed) | Mean Difference | Std. Error Difference |        |   |         |
|               |   |       |      |                              |                 |                 | Lower                 | Upper  |   |         |
| natural_scale | Equal variances assumed                 | 1.391 | .240 | -2.123                       | 167             | .035            | -.40551               | .19099 | -.78258                                   | -.02844 |
|               | Equal variances not assumed             |       |      | -2.106                       | 142.002         | .037            | -.40551               | .19259 | -.78622                                   | -.02480 |

#### T-Test

#### Group Statistics

|                 | What is your gender? | N   | Mean   | Std. Deviation | Std. Error Mean |
|-----------------|----------------------|-----|--------|----------------|-----------------|
| necessary_scale | 0                    | 69  | 4.3297 | 1.53183        | .18441          |
|                 | 1                    | 100 | 4.5875 | 1.60073        | .16007          |

#### Independent Samples Test

| necessary_scale | Levene's Test for Equality of Variances |      |      | t-test for Equality of Means |                 |                 |                       |        | 95% Confidence Interval of the Difference |        |
|-----------------|---|------|------|------------------------------|-----------------|-----------------|-----------------------|--------|---|--------|
|                 | F                                       | Sig. | t    | df                           | Sig. (2-tailed) | Mean Difference | Std. Error Difference |        |   |        |
|                 |   |      |      |                              |                 |                 | Lower                 | Upper  |   |        |
| necessary_scale | Equal variances assumed                 | .028 | .868 | -1.047                       | 167             | .297            | -.25779               | .24618 | -.74382                                   | .22824 |
|                 | Equal variances not assumed             |      |      | -1.056                       | 150.421         | .293            | -.25779               | .24419 | -.74028                                   | .22470 |

## T-Test

| Group Statistics         |   |      |                              |                |                 |   |                       |        |                |
|--------------------------|---|------|------------------------------|----------------|-----------------|---|-----------------------|--------|----------------|
|                          | What is your gender?                    | N    | Mean                         | Std. Deviation | Std. Error Mean |   |                       |        |                |
| normal_scale             | 0                                       | 69   | 4.1993                       | 1.19864        | .14430          |   |                       |        |                |
|                          | 1                                       | 100  | 4.5775                       | 1.29378        | .12938          |   |                       |        |                |
| Independent Samples Test |   |      |                              |                |                 |   |                       |        |                |
|                          | Levene's Test for Equality of Variances |      | t-test for Equality of Means |                |                 | 95% Confidence Interval of the Difference |                       |        |                |
|                          | F                                       | Sig. | t                            | df             | Sig. (2-tailed) | Mean Difference                           | Std. Error Difference | Lower  | Upper          |
| normal_scale             | Equal variances assumed                 | .156 | .693                         | -1.924         | 167             | .056                                      | -.37822               | .19655 | -.76627 .00982 |
|                          | Equal variances not assumed             |      |                              | -1.952         | 153.249         | .053                                      | -.37822               | .19381 | -.76110 .00465 |

## T-Test

| Group Statistics         |   |      |                              |                |                 |   |                       |        |                |
|--------------------------|---|------|------------------------------|----------------|-----------------|---|-----------------------|--------|----------------|
|                          | What is your gender?                    | N    | Mean                         | Std. Deviation | Std. Error Mean |   |                       |        |                |
| nice_scale               | 0                                       | 68   | 4.8125                       | 1.23941        | .15030          |   |                       |        |                |
|                          | 1                                       | 100  | 5.1550                       | 1.24457        | .12446          |   |                       |        |                |
| Independent Samples Test |   |      |                              |                |                 |   |                       |        |                |
|                          | Levene's Test for Equality of Variances |      | t-test for Equality of Means |                |                 | 95% Confidence Interval of the Difference |                       |        |                |
|                          | F                                       | Sig. | t                            | df             | Sig. (2-tailed) | Mean Difference                           | Std. Error Difference | Lower  | Upper          |
| nice_scale               | Equal variances assumed                 | .063 | .802                         | -1.754         | 166             | .081                                      | -.34250               | .19530 | -.72809 .04309 |
|                          | Equal variances not assumed             |      |                              | -1.755         | 144.426         | .081                                      | -.34250               | .19514 | -.72820 .04320 |

## H5, H5a, H6, H6a

### Frequencies

| Statistics     |           | Frequencies |               |                    |       |
|----------------|-----------|-------------|---------------|--------------------|-------|
| masc_recoded   |           | fem_recoded |               |                    |       |
| N              |           | 169         |               |                    |       |
| Valid          |           | 0           |               |                    |       |
| Mean           |           | 4.2722      |               |                    |       |
| Std. Deviation |           | 1.80522     |               |                    |       |
| masc_recoded   |           |             |               |                    |       |
|                | Frequency | Percent     | Valid Percent | Cumulative Percent |       |
| Valid          | 1.00      | 13          | 7.7           | 7.7                | 7.7   |
|                | 2.00      | 27          | 16.0          | 16.0               | 23.7  |
|                | 3.00      | 19          | 11.2          | 11.2               | 34.9  |
|                | 4.00      | 19          | 11.2          | 11.2               | 46.2  |
|                | 5.00      | 36          | 21.3          | 21.3               | 67.5  |
|                | 6.00      | 43          | 25.4          | 25.4               | 92.9  |
|                | 7.00      | 12          | 7.1           | 7.1                | 100.0 |
|                | Total     | 169         | 100.0         | 100.0              |       |
| fem_recoded    |           |             |               |                    |       |
|                | Frequency | Percent     | Valid Percent | Cumulative Percent |       |
| Valid          | 1.00      | 19          | 11.2          | 11.2               | 11.2  |
|                | 2.00      | 29          | 17.2          | 17.2               | 28.4  |
|                | 3.00      | 15          | 8.9           | 8.9                | 37.3  |
|                | 4.00      | 22          | 13.0          | 13.0               | 50.3  |
|                | 5.00      | 31          | 18.3          | 18.3               | 68.6  |
|                | 6.00      | 39          | 23.1          | 23.1               | 91.7  |
|                | 7.00      | 14          | 8.3           | 8.3                | 100.0 |
|                | Total     | 169         | 100.0         | 100.0              |       |

## T-Test

### One-Sample Statistics

|              | N   | Mean   | Std. Deviation | Std. Error Mean |
|--------------|-----|--------|----------------|-----------------|
| masc_recoded | 169 | 4.2722 | 1.80522        | .13886          |

### One-Sample Test

|              | t     | df  | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference |        |
|--------------|-------|-----|-----------------|-----------------|---|--------|
|              |       |     |                 |                 | Lower                                     | Upper  |
| masc_recoded | 9.161 | 168 | .000            | 1.27219         | .9980                                     | 1.5463 |

## T-Test

### One-Sample Statistics

|             | N   | Mean   | Std. Deviation | Std. Error Mean |
|-------------|-----|--------|----------------|-----------------|
| fem_recoded | 169 | 4.1243 | 1.90924        | .14686          |

### One-Sample Test

|             | t     | df  | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference |        |
|-------------|-------|-----|-----------------|-----------------|---|--------|
|             |       |     |                 |                 | Lower                                     | Upper  |
| fem_recoded | 7.655 | 168 | .000            | 1.12426         | .8343                                     | 1.4142 |

## T-Test

### Group Statistics

|              | What is your gender? | N   | Mean   | Std. Deviation | Std. Error Mean |
|--------------|----------------------|-----|--------|----------------|-----------------|
| masc_recoded | 0                    | 69  | 4.1884 | 1.73439        | .20880          |
|              | 1                    | 100 | 4.3300 | 1.85894        | .18589          |
| fem_recoded  | 0                    | 69  | 4.3768 | 1.86375        | .22437          |
|              | 1                    | 100 | 3.9500 | 1.92996        | .19300          |

### Independent Samples Test

|              | Levene's Test for Equality of Variances |       |      |       | t-test for Equality of Means |                 |                       |        | 95% Confidence Interval of the Difference |         |
|--------------|---|-------|------|-------|------------------------------|-----------------|-----------------------|--------|---|---------|
|              | F                                       | Sig.  | t    | df    | Sig. (2-tailed)              | Mean Difference | Std. Error Difference | Lower  | Upper                                     |         |
|              |   |       |      |       |                              |                 |                       |        |   |         |
| masc_recoded | Equal variances assumed                 | 1.469 | .227 | -.500 | 167                          | .618            | -.14159               | .28315 | -.70061                                   | .41742  |
|              | Equal variances not assumed             |       |      | -.506 | 152.649                      | .613            | -.14159               | .27956 | -.69389                                   | .41071  |
| fem_recoded  | Equal variances assumed                 | .201  | .654 | 1.433 | 167                          | .154            | .42681                | .29787 | -.16126                                   | 1.01488 |
|              | Equal variances not assumed             |       |      | 1.442 | 149.599                      | .151            | .42681                | .29595 | -.15798                                   | 1.01160 |

## H7, H8 and H9

### T-Test

| Group Statistics         |   |      |                              |                |                 |   |                       |        |         |        |
|--------------------------|---|------|------------------------------|----------------|-----------------|---|-----------------------|--------|---------|--------|
|                          | What is your gender?                    | N    | Mean                         | Std. Deviation | Std. Error Mean |   |                       |        |         |        |
| attitude_scale           | 0                                       | 69   | 5.1739                       | 1.34171        | .16152          |   |                       |        |         |        |
|                          | 1                                       | 100  | 4.8800                       | 1.37091        | .13709          |   |                       |        |         |        |
| Independent Samples Test |   |      |                              |                |                 |   |                       |        |         |        |
|                          | Levene's Test for Equality of Variances |      | t-test for Equality of Means |                |                 | 95% Confidence Interval of the Difference |                       |        |         |        |
|                          | F                                       | Sig. | t                            | df             | Sig. (2-tailed) | Mean Difference                           | Std. Error Difference | Lower  | Upper   |        |
| attitude_scale           | Equal variances assumed                 | .695 | .406                         | 1.382          | 167             | .169                                      | .29391                | .21270 | -.12602 | .71384 |
|                          | Equal variances not assumed             |      |                              | 1.387          | 148.371         | .167                                      | .29391                | .21186 | -.12474 | .71256 |

### Crosstabs

| Case Processing Summary   |       |         |         |         |       |         |
|---|-------|---------|---------|---------|-------|---------|
|   | Valid |         | Missing |         | Total |         |
|   | N     | Percent | N       | Percent | N     | Percent |
| On average, how often do you eat meat throughout the week? * What is your gender? | 169   | 100.0%  | 0       | 0.0%    | 169   | 100.0%  |

### On average, how often do you eat meat throughout the week? \* What is your gender? Crosstabulation

|  |   | What is your gender?          |        |        |        |
|--|---|-------------------------------|--------|--------|--------|
|  |   | 0                             | 1      | Total  |        |
| On average, how often do you eat meat throughout the week? | 1 | Count                         | 9      | 18     | 27     |
|  | 1 | % within What is your gender? | 13.0%  | 18.0%  | 16.0%  |
|  | 2 | Count                         | 23     | 19     | 42     |
|  | 2 | % within What is your gender? | 33.3%  | 19.0%  | 24.9%  |
|  | 3 | Count                         | 16     | 23     | 39     |
|  | 3 | % within What is your gender? | 23.2%  | 23.0%  | 23.1%  |
|  | 4 | Count                         | 10     | 10     | 20     |
|  | 4 | % within What is your gender? | 14.5%  | 10.0%  | 11.8%  |
|  | 5 | Count                         | 4      | 18     | 22     |
|  | 5 | % within What is your gender? | 5.8%   | 18.0%  | 13.0%  |
|  | 6 | Count                         | 5      | 10     | 15     |
|  | 6 | % within What is your gender? | 7.2%   | 10.0%  | 8.9%   |
|  | 7 | Count                         | 2      | 2      | 4      |
|  | 7 | % within What is your gender? | 2.9%   | 2.0%   | 2.4%   |
| Total  |   | Count                         | 69     | 100    | 169    |
|  |   | % within What is your gender? | 100.0% | 100.0% | 100.0% |

### Chi-Square Tests

|                              | Value              | df | Asymptotic Significance (2-sided) |
|------------------------------|--------------------|----|-----------------------------------|
| Pearson Chi-Square           | 9.858 <sup>a</sup> | 6  | .131                              |
| Likelihood Ratio             | 10.320             | 6  | .112                              |
| Linear-by-Linear Association | 1.276              | 1  | .259                              |
| N of Valid Cases             | 169                |    |                                   |

a. 2 cells (14.3%) have expected count less than 5. The minimum expected count is 1.63.

### Frequencies

#### Statistics

shift\_recoded

|                |         |         |
|----------------|---------|---------|
| N              | Valid   | 169     |
|                | Missing | 0       |
| Mean           |         | 5.4734  |
| Std. Deviation |         | 1.30048 |

#### shift\_recoded

|       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | 1.00      | 2       | 1.2           | 1.2                |
|       | 2.00      | 6       | 3.6           | 4.7                |
|       | 3.00      | 7       | 4.1           | 8.9                |
|       | 4.00      | 11      | 6.5           | 15.4               |
|       | 5.00      | 45      | 26.6          | 42.0               |
|       | 6.00      | 65      | 38.5          | 80.5               |
|       | 7.00      | 33      | 19.5          | 100.0              |
|       | Total     | 169     | 100.0         | 100.0              |

### T-Test

#### Group Statistics

|               | What is your gender? | N   | Mean   | Std. Deviation | Std. Error Mean |
|---------------|----------------------|-----|--------|----------------|-----------------|
| shift_recoded | 0                    | 69  | 5.5362 | 1.34580        | .16201          |
|               | 1                    | 100 | 5.4300 | 1.27331        | .12733          |

#### Independent Samples Test

|  | shift_recoded               | Levene's Test for Equality of Variances |      |      | t-test for Equality of Means |                 |                 |                       |         | 95% Confidence Interval of the Difference |  |
|--|-----------------------------|---|------|------|------------------------------|-----------------|-----------------|-----------------------|---------|---|--|
|  |                             | F                                       | Sig. | t    | df                           | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower   | Upper                                     |  |
|  |                             |   |      |      |                              |                 |                 |                       |         |   |  |
|  | Equal variances assumed     | .000                                    | .994 | .521 | 167                          | .603            | .10623          | .20397                | -.29646 | .50892                                    |  |
|  | Equal variances not assumed |   |      | .516 | 140.998                      | .607            | .10623          | .20606                | -.30114 | .51360                                    |  |

## H10-H13

### Regression

#### Variables Entered/Removed<sup>a</sup>

| Model | Variables Entered                        | Variables Removed | Method |
|-------|--|-------------------|--------|
| 1     | group, What is your gender? <sup>b</sup> | .                 | Enter  |

a. Dependent Variable: natural\_scale

b. All requested variables entered.

#### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .251 <sup>a</sup> | .063     | .051              | 1.20090                    |

a. Predictors: (Constant), group, What is your gender?

#### ANOVA<sup>a</sup>

| Model | Sum of Squares |          | df  | Mean Square | F     | Sig.              |
|-------|----------------|----------|-----|-------------|-------|-------------------|
|       | Regression     | Residual |     |             |       |                   |
| 1     | 16.036         | 239.398  | 2   | 8.018       | 5.560 | .005 <sup>b</sup> |
|       |                |          | 166 | 1.442       |       |                   |
|       |                | Total    | 168 |             |       |                   |

a. Dependent Variable: natural\_scale

b. Predictors: (Constant), group, What is your gender?

#### Coefficients<sup>a</sup>

| Model | Unstandardized Coefficients |            | Beta | t      | Sig.   |
|-------|-----------------------------|------------|------|--------|--------|
|       | B                           | Std. Error |      |        |        |
| 1     | (Constant)                  | 4.727      | .167 | 28.310 | .000   |
|       | What is your gender?        | .458       | .189 | .183   | 2.422  |
|       | group                       | -.473      | .186 | -.192  | -2.542 |

a. Dependent Variable: natural\_scale

### Regression

#### Variables Entered/Removed<sup>a</sup>

| Model | Variables Entered                        | Variables Removed | Method |
|-------|--|-------------------|--------|
| 1     | group, What is your gender? <sup>b</sup> | .                 | Enter  |

a. Dependent Variable: necessary\_scale

b. All requested variables entered.

#### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .171 <sup>a</sup> | .029     | .018              | 1.55959                    |

a. Predictors: (Constant), group, What is your gender?

#### ANOVA<sup>a</sup>

| Model | Sum of Squares |          | df  | Mean Square | F     | Sig.              |
|-------|----------------|----------|-----|-------------|-------|-------------------|
|       | Regression     | Residual |     |             |       |                   |
| 1     | 12.179         | 403.767  | 2   | 6.090       | 2.504 | .085 <sup>b</sup> |
|       |                | Total    | 166 | 2.432       |       |                   |
|       |                |          | 168 |             |       |                   |

a. Dependent Variable: necessary\_scale

b. Predictors: (Constant), group, What is your gender?

### Coefficients<sup>a</sup>

| Model | Unstandardized Coefficients |            | Standardized Coefficients<br>Beta | t      | Sig. |
|-------|-----------------------------|------------|-----------------------------------|--------|------|
|       | B                           | Std. Error |                                   |        |      |
| 1     | (Constant)                  | 4.544      | .217                              | 20.954 | .000 |
|       | What is your gender?        | .311       | .246                              | .097   | .208 |
|       | group                       | -.476      | .241                              | -.152  | .050 |

a. Dependent Variable: necessary\_scale

## Regression

### Variables Entered/Removed<sup>a</sup>

| Model | Variables Entered                        | Variables Removed | Method |
|-------|--|-------------------|--------|
| 1     | group, What is your gender? <sup>b</sup> | .                 | Enter  |

a. Dependent Variable: normal\_scale

b. All requested variables entered.

### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .186 <sup>a</sup> | .035     | .023              | 1.25138                    |

a. Predictors: (Constant), group, What is your gender?

### ANOVA<sup>a</sup>

| Model |            | Sum of Squares | df  | Mean Square | F     | Sig.              |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1     | Regression | 9.303          | 2   | 4.651       | 2.970 | .054 <sup>b</sup> |
|       | Residual   | 259.947        | 166 | 1.566       |       |                   |
|       | Total      | 269.250        | 168 |             |       |                   |

a. Dependent Variable: normal\_scale

b. Predictors: (Constant), group, What is your gender?

### Coefficients<sup>a</sup>

| Model | Unstandardized Coefficients |            | Standardized Coefficients<br>Beta | t      | Sig. |
|-------|-----------------------------|------------|-----------------------------------|--------|------|
|       | B                           | Std. Error |                                   |        |      |
| 1     | (Constant)                  | 4.329      | .174                              | 24.879 | .000 |
|       | What is your gender?        | .410       | .197                              | .160   | .039 |
|       | group                       | -.288      | .194                              | -.114  | .139 |

a. Dependent Variable: normal\_scale

## Regression

### Variables Entered/Removed<sup>a</sup>

| Model | Variables Entered                        | Variables Removed | Method |
|-------|--|-------------------|--------|
| 1     | group, What is your gender? <sup>b</sup> | .                 | Enter  |

a. Dependent Variable: nice\_scale

b. All requested variables entered.

### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .198 <sup>a</sup> | .039     | .028              | 1.23287                    |

a. Predictors: (Constant), group, What is your gender?

### ANOVA<sup>a</sup>

| Model |            | Sum of Squares | df  | Mean Square | F     | Sig.              |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1     | Regression | 10.222         | 2   | 5.111       | 3.363 | .037 <sup>b</sup> |
|       | Residual   | 250.795        | 165 | 1.520       |       |                   |
|       | Total      | 261.017        | 167 |             |       |                   |

a. Dependent Variable: nice\_scale

b. Predictors: (Constant), group, What is your gender?

### Coefficients<sup>a</sup>

| Model | Unstandardized Coefficients |            | Beta | t      | Sig. |
|-------|-----------------------------|------------|------|--------|------|
|       | B                           | Std. Error |      |        |      |
| 1     | (Constant)                  | 4.973      | .172 | 28.955 | .000 |
|       | What is your gender?        | .386       | .195 | .152   | .050 |
|       | group                       | -.364      | .192 | -.146  | .059 |

a. Dependent Variable: nice\_scale

## H14 and H15

### Regression

### Variables Entered/Removed<sup>a</sup>

| Model | Variables Entered                        | Variables Removed | Method |
|-------|--|-------------------|--------|
| 1     | group, What is your gender? <sup>b</sup> | .                 | Enter  |

a. Dependent Variable: attitude\_scale

b. All requested variables entered.

### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .124 <sup>a</sup> | .015     | .003              | 1.36046                    |

a. Predictors: (Constant), group, What is your gender?

### ANOVA<sup>a</sup>

| Model |            | Sum of Squares | df  | Mean Square | F     | Sig.              |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1     | Regression | 4.760          | 2   | 2.380       | 1.286 | .279 <sup>b</sup> |
|       | Residual   | 307.240        | 166 | 1.851       |       |                   |
|       | Total      | 312.000        | 168 |             |       |                   |

a. Dependent Variable: attitude\_scale

b. Predictors: (Constant), group, What is your gender?

**Coefficients<sup>a</sup>**

| Model |                      | Unstandardized Coefficients |            | Standardized Coefficients |        |      |
|-------|----------------------|-----------------------------|------------|---------------------------|--------|------|
|       |                      | B                           | Std. Error | Beta                      | t      | Sig. |
| 1     | (Constant)           | 5.251                       | .189       |                           | 27.761 | .000 |
|       | What is your gender? | -.275                       | .214       | -.099                     | -1.283 | .201 |
|       | group                | -.172                       | .211       | -.063                     | -.816  | .416 |

a. Dependent Variable: attitude\_scale

**Regression****Variables Entered/Removed<sup>a</sup>**

| Model | Variables Entered                        | Variables Removed | Method |
|-------|--|-------------------|--------|
| 1     | group, What is your gender? <sup>b</sup> | .                 | Enter  |

a. Dependent Variable: shift\_recoded

b. All requested variables entered.

**Model Summary**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .081 <sup>a</sup> | .007     | -.005             | 1.30395                    |

a. Predictors: (Constant), group, What is your gender?

**ANOVA<sup>a</sup>**

| Model |            | Sum of Squares | df  | Mean Square | F    | Sig.              |
|-------|------------|----------------|-----|-------------|------|-------------------|
| 1     | Regression | 1.883          | 2   | .942        | .554 | .576 <sup>b</sup> |
|       | Residual   | 282.247        | 166 | 1.700       |      |                   |
|       | Total      | 284.130        | 168 |             |      |                   |

a. Dependent Variable: shift\_recoded

b. Predictors: (Constant), group, What is your gender?

**Coefficients<sup>a</sup>**

| Model |                      | Unstandardized Coefficients |            | Standardized Coefficients |        |      |
|-------|----------------------|-----------------------------|------------|---------------------------|--------|------|
|       |                      | B                           | Std. Error | Beta                      | t      | Sig. |
| 1     | (Constant)           | 5.619                       | .181       |                           | 30.994 | .000 |
|       | What is your gender? | -.086                       | .205       | -.033                     | -.418  | .677 |
|       | group                | -.185                       | .202       | -.071                     | -.915  | .362 |

a. Dependent Variable: shift\_recoded