Investigating Differences in Gender Identity, Empathy and Personality Between Vegetarians and Non-Vegetarians.

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Submission of Thesis and Dissertation

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Abstract

Research aims : Given the current rise of vegetarianism in Western society (Statistics. , 2020). The current research aimed to further understand psychological differences between vegetarians and non-vegetarians, including personality, empathy and gender identity. Method: Participants were recruited through social media using opportunistic snowball sampling (N=223, 65 males, 155 females, 2 other), and completed an online survey containing demographic information, Interpersonal Reactivity Sexism Inventory, The Big Five Short Questionnaire, The Bem Sex Inventory. Results: T-Test results found no overall differences in personality, empathy or gender identity scores, however, posthoc analysis yielded interesting findings. In the female category, vegetarians scored higher in empathy than non-vegetarians. Male vegetarians scored higher in femininity and androgyny. ANOVA results found no mediating effect of masculinity on empathy levels across males. Discussion: Hegemonic masculinity may not be as prevalent in today's society. Experience with oppression may be an additional mediating factor in predicting animal activism. Differences in empathy are more complex than previously thought, introducing cognitive dissonance as a potential mediating factor. Vegans may have more psychological motivations and differences than vegetarians which may have affected the results of the study. Implications: the present study discussed the need for personal awareness that unintentional gender stereotype in daily activities, the need for gender-specific methods for programmes aiming to reduce public consumption of meat. Finally, the suggestion was made to public and school educational policies on reinforcing and providing information on the risks of a diet heavy in red and processed meats, and teaching developing teenagers how to cook and eat a healthy diet.

Introduction

Vegetarianism is defined as a lifestyle dietary practice of abstaining from meat products (Ruby, 2012; Worsley & Skrzypiec, 1998). Abstinence of meat can be seen as a spectrum, from consciously avoiding meat occasionally in the least strict sense to the most strict practices being veganism, which is the abstinence of all animal-origin products (Salehi, Díaz, & Redondo, 2020) and in the most extreme cases, fruitarians which is the consumption of only fruits (Povey, Wellens, & Conner, 2001). The increased growth of psychologist interest toward meat abstinence is due to its increasing popularity in western society (Dietz, Frisch, Kalof, Stern, & Guagnano, 1995; Ingoglia, Lo Coco, & Albiero, 2016; Twigg, 1979). Particularly over the last six years, in 2019 the google searches of vegan practices increased sevenfold from 2014 and demands of meat-free products has increased by 987% from 2016 to 2017 (Vegan Society Statistics, 2020) and a further 35% between 2017 and 2019 (U.S. Plant-Baed Market Overview- New SPINS retail sales data., 2020). Two of the most common reasons for becoming vegetarian distinguishes vegetarianism into two types; 1) ethical vegetarians: primarily abstain from eating meat to align with their morals of animal welfare and/or the environment, and 2) Health vegetarians: individuals who abstain from meat due to the health benefits (Hoffman, Stallings, Bessinger, & Brooks, 2013; Jabs, Devine, & Sobal, 1998).

Research has found that vegetarians view their dietary choice as more of a personal statement or a symbol for their ethical beliefs on animal welfare, environmental issues, philosophical and religious beliefs, as opposed to merely a preference of food choice (Dwyer, 1991; Hamilton, 2006; Salehi, Díaz, & Redondo, 2020). The process of becoming vegetarian is commonly begun by abstaining from meat that most resembles human flesh first, specifically red meat due to the presence of blood, then followed by abstaining from white meat, and finally fish (Twigg,1983; Elias, 1978). At this point, a vegetarian's behaviours

align with their meat abstinence beliefs (Jabs, Devine, & Sobal, 1998). However, Beardsworth & Keil (1991) also found that individuals can begin a vegetarian diet abruptly. Their qualitative analysis found reasons for this method of transition was due to a specific conversation on meat consumption which created an association of meat with distress (Beardsworth & Keil, 1991). With the prevalence of vegetarianism increasing worldwide, psychologists are increasingly interested in factors that may influence or be related to this lifestyle choice (Rosenfeld & Burrow, 2017; De Houwer & De Bruycker, 2007). Variables that have been investigated in the literature that relate to vegetarianism include age, gender, cognition and personality.

Factors Related to Vegetarianism

Age and Gender. Unsurprisingly, considering the increasing trend in recent years, meat avoidance has been reported to be most prevalent among people between the ages 18-29 (3%) and 30-49 (4%) and 3% over the age of 65, according to US statistics in 2018 (Slabakova, 2020). These statistics have changed from 1986 where meat avoidance was most prevalent in only young people (Freeland–Graves, Greninger, & Young, 1986). One factor that has remained consistent over time is that females are more likely to practice meat abstinence such as vegetarianism and veganism than males (Twigg,1983; Fessler, Arguello, Mekdara & Macias, 2003).

In addition to the function of food consumption being to survive, food choice has a strong association with social and gender identity (Rosenfeld, 2019). One of these factors suggested by Adams (1990) and more recently by Preylo & Arikawa (2008) is the role of masculinity and femininity and its influence on the concern for animal welfare and meat consumption. Studies suggest that there is a link between feminism and vegetarianism, which may explain its prevalence amongst women (Rothgerber, 2013; Adams, 1990; Adams, 1994; Twine, 2010). Rothgerber (2013) researched the reasons for gender differences amongst

vegetarians and found females are more likely to experience disgust and negative attitudes towards meat consumption than males. Additionally, Gossard and York (2003) found femaleness as the single strongest predictor of vegetarianism in a large-scale American study, along with other studies (Beardsworth & Keil, 1991; Worsley & Skrzypiec, 1998; Beardsworth & Bryman,1999). Meat consumption has historically been strongly associated with traditional masculinity, known as hegemonic masculinity (Sumpter, 2015) and dominance, particularly red meat consumption (Twigg, 1983; Ruby & Heine, 2011). Studies found men are more likely to endorse social hierarchies and characterize men who eat more meat as more masculine and desirable (Rothberger, 2013). Men who do not eat meat have been characterized in society as less 'masculine' (Ruby, & Heine, 2011). Furthermore, Rothberger (2013) goes as far as to suggest has a major influence on why men are less likely to follow a meatless diet. Sumpter (2015) identifies aspects of masculinity and its link to meat-eating; the study suggests the historical dominance of the patriarchy gave meat its current association with strength, authority and emotional detachment from the suffering of animals. Furthermore, females are found to have more empathic brain-related regions than males when exposed to human and animal suffering (Filippi, et al., 2010; Hegelson,1994). Evidently, there is a gender difference in the consumption of meat products (Beardsworth & Keil, 1991; Worsley & Skrzypiec, 1998; Beardsworth & Bryman,1999), particularly evidence pertaining to associations between meat-eating and masculinity. Evaluating the discrepancies between genders and their meat consumption, provides a greater understanding of the influence societal gender roles have on daily lifestyle choices. Another existent variable in the literature concerning predictive factors of meat inclusive diets are cognitive processes, particularly within the 'meat paradox' phenomenon.

Cognition. Researchers have suggested the cognitive processes involved in the justification of meat consumption are: denial of suffering, responsibility, and/or moral status (Loughnan, Haslam, & Bastian, 2010; Chatzidakis, Hibbert, & Smith, 2007), dissociation (Benningstad & Kunst, 2019; Kunst & Hohle, 2016), and cognitive dissonance (Loughnan, Haslam, & Bastian, 2010; Ruby, 2012). Cognitive dissonance has been argued to be a paramount cognition for meat-eaters (Loughnan, Haslam, & Bastian, 2010), which accounts for the 'meat paradox' phenomenon; the cognitive mechanism that alleviates feelings of discomfort in individuals who like meat but do not want to kill animals. The 'meat- paradox' theory was investigated recently by Dowsett and colleagues (2018) and found that the sample who were exposed to the origin of meat (i.e. slaughterhouses) and found that when participants were exposed to their moral inconsistencies of meat consumptions, it triggered a greater attachment to meat and more defensive reactions. This supports the theory that humans are more likely to eat meat when they can dissociate from their origin and vice versa. Similarly, the separation of animal source in supermarkets through pre-slicing/packaging may assist in supporting the theory of cognitive dissonance and its link to meat consumption (Singer, 1995).

Further findings by Dowsett and colleagues (2018) suggested that females were more negatively affected by exposure to meat origins, and showed greater concern for animal welfare than males, although both groups pertained their views on eating meat. One limitation of such studies is that those who have very strong views on eating meat may have avoided participating (Dowsett et al., 2018). Future studies should mask the true purpose of the study to avoid response biases. Overall, the literature shows that cognitive dissonance can help to reduce the guilt one might feel when eating meat. That said, those with higher levels of empathy may experience more powerful feelings of discomfort and guilt. Furthermore,

higher levels of empathy are a constituent personality difference between vegetarians and non-vegetarians, according to the literature (Rothgerber, 2013; Preylo & Arikawa, 2008).

Personality. The expanding concern for animal welfare and changes in dietary choices, as a product of the continuously growing social movement, has been found to correlate with other individual factors such as socio-political views and personality type (Furnham, McManus, & Scott, 2003; Furnham & Pinder, 1990; Sasahara, 2019). Research by Monteiro, Pfeiler, Patterson, & Milburn (2017) and Dhont & Hodson (2014) suggest vegetarians are correlated with lower levels of conservatism, are left-wing leaning, and are less religious in contrast to meat-eaters, which may indicate that the choice of eating meat goes beyond basic diet preferences and symbolises political/religious beliefs. Furthermore, Pfeiler & Egloff (2018) study found after controlling for socio-demographic variables, vegetarians were associated with more political interest, openness and conscientiousness and negatively associated with conservatism. This suggests that choosing to eat or abstain from meat goes beyond basic food preference, and is associated with more personal characteristics and beliefs. However, studies on associated personality traits between vegetarians and non-vegetarians are inconclusive. Vegetarianism has been measured using the Big Five Personality traits inventory (Pfeiler & Egloff, 2018). One study found the vegetarians scored higher in depression and neuroticism compared to omnivores (Forestell & Nezlek, 2018). However, contrastingly Keller & Siegrist (2015) found neuroticism to not be associated with diet and found agreeableness and conscientiousness to be negatively associated with meat-eating diets.

Researchers Rothgerber (2013) and Preylo & Arikawa (2008) suggest vegetarians are strongly associated with higher levels of empathy, especially between non-vegetarian and vegetarian men. They associate this empathy level to be affected by levels of masculinity being higher in non-vegetarian men (Rothgerber, 2013; Preylo & Arikawa, 2008). The word

'empathy' is often interchanged with words such as compassion, kindness, altruism, and prosocial behaviour, due to the close relationship between the definitions of the words. They all have a common ground which is the ability for perspective-taking that allows the individual to imagine and emotionally react to others situation in an understanding manner, which increases the likelihood of helping others, being kinder to others, and engaging in prosocial behaviours (Falconer, et al., 2019). Therefore, given that vegetarians have higher levels of empathy, they are more likely to emotionally connect with animal suffering and relate that suffering to their own experience and conclusively abstain from eating meat.

Empathy, nevertheless, doesn't always extend towards humans. An example is the extreme law 'Laws of Compassion' proposed by the Japanese Vegetarian Buddhist, Tsyunayoshi which protects animals, especially dogs, but executes humans who harm animals (Bodart-Bailey, 2007; Preylo & Arikawa; 2008). Preylo & Arikawa (2008) compared empathy and attitudes towards pets between vegetarians and non-vegetarians, and only found differences between men, which as discussed was argued to be a cause of the strong influence of masculinity stereotypes (Preylo & Arikawa; 2008). Another study found moral vegetarians tend to judge non-vegetarians as more aggressive or less desirable (Rozin, Markwith & Stoess, 1997). Despite contrary research, the majority of the research supports the opposite, that empathy towards animals does translate towards humans. Furthermore, animal cruelty is commonly linked with psychopathic, violent, aggressive, and anti-social behaviours (Dadds, Whiting, & Hawes, 2006; McPhedran, 2009; Taylor & Signal, 2005), and vegetarians are found to be more concerned with human and animal welfare than non-vegetarians (De Backer & Hudders, 2015). In the evaluation of the current research, the evidence of which personality traits are more associated with vegetarians versus non-vegetarians is still inconclusive. Adding more evidence towards this topic through further research will provide more clarity as to how certain personality traits influence our food choices, particularly in

agreeableness, general empathy, openness, and extraversion as they are the most argued differences between vegetarians and non-vegetarians. Overall, understanding how factors such as gender roles and personality affect dietary choice will provide greater understanding of how food choices go beyond simple preference of taste, and how food is symbolic to personal beliefs and identity.

Given the current rise in vegetarianism practices, understanding societal influences and personality factors offer insight into the individual difference apparent in food identity and buying patterns (Sasahara, 2019; Vegan Society Statistics, 2020). Due to inconclusive results on personality factors associated with meat-eating versus meat abstinence, and the apparent influence of gender roles as we are currently progressing towards a gender-equal society where gender norms are being deconstructed through feminist work, these are the two factors that will be of focus in this study. The current study examines whether factors such as sex, agreeableness, empathy, openness and extraversion are significant predictors of choosing a vegetarian diet. To acknowledge the suggestion of Preylo & Arikawa (2008), for further research, the impact of masculinity and femininity on vegetarianism will also be examined. Acknowledging the limited resource measurement tools for masculinity and femininity, Reiger, Lisenmeier, Gygax & Bailey (2008) developed the Childhood Gender NonConformity Scale (CGN). This scale has been positively associated with sociosexuality and distinguishing between male and female-type cognitions. However, The BEM Sex Inventory (Bem, 1974) also measures androgyny and gender roles and has been suggested to be a more appropriate scale to measure and compare masculinity and femininity with empathy, therefore this scale will be used (Karniol, Gabay, Ochion & Harari, 1998). A study conducted by Karniol, Gabay, Ochion & Harari (1998) used the BEM scale and found androgyny and femininity scored equally and higher in empathy than those scoring high in masculinity, and suggest that empathy is a feminine trait.

Another aim of the current study is to extend suggested research by Preylo & Arikawa (2008) as mentioned, however, the current study also aims to add more current findings on the effects of gender roles on vegetarianism, as most research has been conducted over 10 years ago (Beardsworth & Keil, 1991; Worsley & Skrzypiec, 1998; Beardsworth & Bryman,1999). Acknowledging the current change in gender stereotypes (Jewkes, et al., 2015; Lopez-Zafra & Garcia-Retamero, 2012) deconstructing ideologies of the patriarchy, it would be beneficial for scientific literature to have more current findings on the impact of gender roles and vegetarianism. Previous research has suggested that masculinity is associated with lower levels of empathy (Miele, Tingley, Kimball, & Broida, 1993; Sumpter, 2015) and those higher in masculinity are less likely to consume a meatless diet (Rothgerber, 2013; Preylo & Arikawa, 2008). The study hopes to provide current data on whether levels of hegemonic masculinity mediates empathy levels between vegetarians and non-vegetarians. Investigating this will provide a more comprehensive and in-depth understanding of the impact of the current gender roles on the consumption of a meatless diet.

The final aim of this study is to examine differences in empathy levels between vegetarians and non-vegetarians, following speculation of Preylo & Arikawa (2008) and Bodart-Bailey (2007) suggestion that empathy towards animals may not always extend towards humans. A general empathy questionnaire (B-IRI; Ingoglia, Sonia, Lo Coco, Alida, & Albiero, Paolo, 2016) will measure general empathy levels to investigate if vegetarians score differently to non-vegetarians.

Based on the current literature, the hypotheses for the study are as follows: Hypothesis 1: Personality scores (Agreeableness, Openness, Extraversion, and Conscientiousness) will differ between vegetarians and non-vegetarians. Hypothesis 2: There will be a difference in scores of empathy between vegetarians and non-vegetarians. Hypothesis 3:There will be a difference in masculinity scores between vegetarians and non-

vegetarians. Hypothesis 4: Vegetarians and nonvegetarians will score differently in levels of empathy, after controlling for gender identity scores (masculinity/femininity/androgyny scores).

Methodology

Participants

Participants were recruited through an opportunistic snowball sampling technique. A brief description and link to the survey were advertised through the following social media sites: Facebook and Instagram. Participants were invited to share the link on their social media pages via story and post reshares directing them to the survey link. No incentives were used in recruiting participants. G*Power: Statistical Power Analysis (version 3.1.9.7) (Faul, Erdfelder, Lang, & Buchner, 2007, 2009) was used to determine the sample size for statistically powerful analysis. As a result, there was a 95% chance that the *R*-squared value would significantly differ from zero with a sample size of 210, reducing the likelihood of a Type I error.

The initial sample consisted of 225 participants. 3 participants were excluded from the study. One participant reporting being under the age of 18 and one participant did not report their age, therefore it was not ethically allowed to retain their survey answers. Two participants did not answer correctly and produced extreme outliers (i.e answered the lowest score for each question), therefore were not eligible for the study. The final sample consisted of 222 participants (65 males, 155 females, 2 other), averaging 23.12 years old, ranging from 18 to 41 with an undergraduate/postgraduate level of education (*n*= 85). Nationality was not collected, however was presumably predominantly Irish, as the main audience on the researchers social media were Irish.

Measures

Demographics. Participants were asked to indicate the following demographic questions : gender (female/male/other) age, political leaning (left-wing/right-wing/doesn't follow politics), are they spiritual/religious (yes/no), employment status (student/full-time employed / both student and employed/other) whether they were vegetarian (yes/no), and reason for being vegetarian (moral reasons/health reasons/ both/ n/a).

Interpersonal Reactivity Index--Brief Form. The Interpersonal Reactivity Sexism Inventory (B-IRI; Ingoglia, Lo Coco, & Albiero, 2016) was used to measure participants empathy levels. The 16-item questionnaire was derived from the original 42-item questionnaire by (IRI- Davis, 1983). Users answered 16 items consisting of 4 items measuring 4 subscales; Fantasy, Perspective Taking, Empathetic Concern and Personal Distress. The answers computed one total empathy score (Ingoglia, Lo Coco, & Albiero, 2016) (See Appendix B). Participants were asked to rank each question on a Likert-Scale - *"Tick the box that most describes you on a scale from 1 (doesn't describe me at all) to 5 (describes me very well)".* An example of a statement/question of the Fantasy scale was: *I really get involved with the feelings of the characters in a novel;* for Perspective Taking was: "*When I'm upset at someone, I usually try to "put myself in his shoes" for a while."*; for Empathetic Concern: "*I often have tender, concerned feelings for people less fortunate than me.":* and for Personal Distress was: "*When I see someone who badly needs help in an emergency, I go to pieces."* Higher scores indicated higher levels of empathy, lower scores indicated lower levels of empathy. Scores ranged from 16 (minimum) to 80 (maximum). Researchers, Ingoglia and colleagues, stated the B-IRI contained internal consistency with the following Cronbach's alpha: .79 for Fantasy, .68 for Empathic Concern, .68 for Perspective Taking and .72 for Personal Distress (Ingoglia, Lo Coco, & Albiero, 2016). Additionally, the

B-IRI showed construct validity across gender and age (B-IRI; Ingoglia, Sonia, Lo Coco, Alida, & Albiero, Paolo, 2016).

The Big Five Personality Trait Short Questionnaire. The Big Five Short Questionnaire (BFPTSQ; Morizot, 2014) was given to participants as a shortened version of the original Big Five Inventory (BFI; John, Donahue, & Kentle, 1991). It was used to determine levels of four personality traits: Agreeableness, Openness, Extraversion and Conscientiousness. Participants answered a 40 item questionnaire which included 10 items of each of the 4 personality traits (see Appendix C). Respondents answered to a 5-point Likert scale for each question. This section was presented to them with the instruction as follows: "*Respond to each statement 'I see myself as someone who...' from totally disagree = 0, disagree a little = 1, neutral opinion = 2, agree a little = 3, totally agree = 4".* Items 3, 7, 9, 13, 19, 22, 24, 28, 31, 32, 38, 41, 44, 48, 49 needed to be reverse scored (See Appendix C). An example of a question/statement relating to Agreeableness was: "*Is considerate and kind to almost everyone".* An example for Openness was: "*Is curious about many different things."*; for Extraversion was*: "Shows self-confidence, is able to assert himself/herself."*; and for Conscientiousness was: "Does things efficiently, works well and quickly." High scores indicated higher levels of a personality trait and low scores indicate lower levels of a personality trait. Scores ranged from 0 (minimum) to 50 (maximum). Total answers computed 5 separate scores for each personality trait. The BFPTSQ had a Cronbach's alpha internal consistency that ranges from .712 (Openness) - .808 (Emotional Stability) and according to the research, it met adequate convergent, content, and criterion validity (Morizot, 2014).

Bem Sex Inventory. The Bem Sex Inventory (Bem, 1974) was given to participants to measure three categories of gender identity: masculinity, femininity and androgyny. Participants answered 60 items which contained 17 items for each gender identity category,

on a Likert scale from 1*(never or almost never true)* to 7*(almost always true)* (See Appendix D). This section was presented to them with the instruction as follows: "*This section will require you to answer to each statement on how much it relates to you, from 1 (never or almost never true) to 7 (almost always true).”*(See Appendix D). An example of a statement/question for masculinity was: *“Acts as a leader”;* for Femininity was: *“Does not use harsh language”;* and for Androgyny was *“Conventional”.* Three continuous scores were obtained from the questionnaire: one for femininity, one for masculinity and one for androgyny. Scores ranged from 17 (minimum) to 119 (maximum), for each category. Higher scores for each category indicated higher levels of the traditional gender identity characteristics (e.g higher masculinity scores indicate higher levels of traditional masculinity). Lower scores indicated lower levels of gender identity in that category. Lower/higher scores in one category did not indicate lower/higher levels of the other gender identity category, as they were three separate scores, therefore, were evaluated individually. According to the research, BEM showed high internal reliability for all gender roles (Masculinity a=.86; Femininity a=.80; Social Desirability a - .70-.75). The researchers also measured the validity by using a correlational analysis in both Stanford and Foothill (Stanford male r = . 11, female r= — .14; Foothill male r = -.02, female r=—.07). The researchers concluded by these results that Bem (1974) was a valid assessment of sex roles (Bem, 1974).

Design

The present study used a quantitative approach with a cross-sectional design. To measure all four hypotheses, a between-participants design was used. For the four hypotheses, the independent variable studied had two levels: vegetarian vs non-vegetarian. The dependent variables for the hypothesis were as follows; Hypothesis 1: personality traits (Agreeableness, Conscientiousness, Openness and Extraversion); for Hypothesis 2: empathy;

Hypothesis 3: Masculinity (derived from the BEM scores); and Hypothesis 4: empathy with gender identity scores (masculinity, femininity, androgyny) as a covariate.

Procedure

The participants were advertised to participate in an online survey through social media websites Instagram and Facebook. The advertisement contained a link that directed individuals to an online google document forum with the survey. Before the survey, individuals were provided with a brief description of the study; stating that the research was investigating demographic and personality factors that predict dietary choices; and a consent form explaining their rights to withdraw at any timepoint and reinforcing the anonymous nature of this study (See Appendix E for full details). They were informed of their right to remove their data, and if they wished to do so, they should exit before complete submissions of the survey as submitted answers were untraceable. They were reminded that they were permitted to take as many breaks as necessary for any length of time as long they kept the browser window open. They were also be asked to take their time answering questions and to answer honestly. The participants were informed that clicking the 'next' button gave their full consent to participate in the study (See Appendix E for full details).

After the participant agreed and clicked next, they were presented with a demographic questionnaire asking their age, gender (male/female/other), the reason for being vegetarian (moral/health/NA), religious participation (yes/no), political leaning status (liberal/conservative), and if they are vegetarian (yes/no). The next section introduced them to the first section of the study: the B-IRI that measured empathy (Davis,1983) (See section: Materials Used and Appendix B). After completing that section of the survey, participants were introduced to the Big Five Short Questionnaire (Morizot, 2014) that measured personality (See section: Materials used and Appendix C). After completion of that section, they were introduced to the final section of the survey: the Bem Sex Inventory (Bem, 1974)

that measured gender identity (See section: Materials used and Appendix D). After completion of the survey, they were provided with a debriefing form thanking them for their participation in the study which included full information on the nature of the study and contacts if they wished to ask further questions (See Appendix F for full details).

This research study was approved by the National College of Ireland's Ethics Committee and is in line with The Psychological Society of Ireland Code of Professional Ethics (2010) and the NCI Ethical Guidelines and Procedures for Research involving Human Participants.

Results

Descriptive Statistics

The current data consisted of 222 participants (n=222). The sample consisted of 155 females (n=155, 69.8%), 65 males (n=65, 29.3%), and 2 other (n=2, 0.9%) 161 identified as non-vegetarian (*n*=161, 72.5%), 61 identified as vegetarian(*n*= 61,27.5%). 143 participants identified as non-religious (*n*=73, 32.9%),79 identified as religious (*n*=79, 35.6%). Sample was predominantly liberal (n= 138, 62.2%), student and employed (*n*=85, 38.3%) and vegetarian for both moral and health reasons (*n*=33, 14.9%) (See Table 1 for full details). The mean age of the current sample was 23.12 years old, ranging from 18 to 41 years old (95% CI= 22,67,23.57).

Table 1

Descriptive Statistics for Gender, Political Party, Reason for being Vegetarian And Employment Status (Categorical Variables)

Variable	Frequency	Valid %
Gender		
Male	65	29.3
Female	155	69.8
Other	2	0.9
Political Party		
I don't follow politics	73	32.9
Liberal	138	62.2
Conservative	11	5.0
Reason for Being Vegetarian		
Moral	27	12.2
Health	2	0.9
Both	33	14.9
Employment Status		
Student and Employed	85	38.3
Full-time Employed	74	33.3
Student	63	28.4

Inferential Statistics

Research Question One: Differences in Personality. Do personality scores (Agreeableness, Openness, Extraversion, and Conscientiousness) differ between vegetarians and non-vegetarians? Preliminary analyses were carried out to ensure no violation of assumptions of normality, this was achieved through analysing graphs and through analysing the results from the Shapiro-Wilke test. Extraversion, Openness and Empathy violated assumptions of normality (Shapiro-Wilke, $p>.05$), therefore a non-parametric alternative (Mann-Whitney U) to the independent samples t-test was performed. Agreeableness and Conscientiousness scores did not violate assumptions of normality, as assessed by Shapiro-Wilk's test ($p > .05$) and graphs, therefore, a parametric independent samples t-test was conducted.

A Mann-Whitney U test was run to determine if there were differences scores of Openness and Extraversion between vegetarians and non-vegetarians. Openness scores were not statistically significantly different between vegetarians (Mdn = 33, n=61) and non-vegetarians (Mdn = 33, n= 161), U = 5654, z = 0.12, p = .081. Additionally, Extraversion scores were not statistically significantly different between vegetarians (Mdn=33, n = 61) and non-vegetarians (Mdn = 31, n = 161), U = 5355.500, z= 0.07, p=.272.

An Independent Samples T-test was run to determine if there were differences in scores of Agreeableness and Conscientiousness between vegetarians and non-vegetarians. Scores indicate no significant differences in Agreeableness (p=.690) or Conscientiousness (p=.933), equal variances assumed (See Table 3). Therefore Hypothesis 1: Personality scores (Agreeableness, Openness, Extraversion, and Conscientiousness) will differ between vegetarians and non-vegetarians, is not supported.

Table 2

Mann-Whitney U test for group differences between Vegetarians and Non-Vegetarians for Openness, Conscientiousness and Empathy scores

	Vegetarian		Non-Vegetarian					
	Mdn	n	Mdn	n	U	*z*	*p*	*Cohens d*
Openness	33	61	33	161	5654	1.74	.081	.12
Extraversion	33	61	31	161	5355.5	1.04	.272	.07
Empathy	63	61	57	161	6378	3.85	<.001	.25
Empathy (Gender)								
Male	55	11	54.5	54	348	.89	.372	.11
Female	63.5	50	59	105	3410.5	3.01	.003**	.24

***p*<.01*

Table 3

T-test scores for group differences between Vegetarians and Non-Vegetarians for Agreeableness, Conscientiousness, BEM scores and also Empathy and BEM Scores as a Specific Gender Level (Male/Female)

	Vegetarian			Non-Vegetarian							
	M	SD	*n*	M	SD	*n*	*t*	*df*	*p*	95%CI	Cohens *d*
Agreeableness	31.15	6.05	61	31.50	5.86	161	.40	220	.690	-1.40, 2.11	.06
Conscientiousness	27.79	6.50	61	27.71	6.19	161	-.084	220	.933	-1.94, 1.78	.01
Masculinity	79.98	14.67	61	79.48	13.64	161	-.24	220	.812	-4.63,3.63	.04
Femininity	84.51	10.18	61	82.88	12.19	161	-.93	220	.353	-5.09,1.83	.16
Androgyny	79.72	7.62	61	79.10	9.43	161	-.46	220	.645	-3.28,2.04	.07
Masculinity											
Male	91.36	12.67	11	84.52	11.26	54	-1.8	63	.077	-14.44, .75	.057
Female	77.48	13.98	50	77.50	12.93	105	.01	153	.991	-4.48,4.53	.00
Femininity											
Male	85	10.08	11	78.20	9.75	54	-2.10	63	.040**	-13.28, -.31	.69
Female	84.4	10.30	50	85.94	10.83	105	.84	153	.401	-2.08. 5.16	-.15
Androgyny											
Male	86.18	6.15	11	78.07	7.93	54	-3.2	63	.002***	-13.18, -3.04	1.15
Female	78.3	7.21	50	80.25	8.11	105	1.45	153	.150	-.71,4.61	.25

***p*<.05, ****p*<.001

Research Question 2: Differences in Empathy. To address Research Question 2: There will be a difference in scores of empathy between vegetarians and non-vegetarians; an independent samples t-test was conducted. Preliminary analysis was carried out to ensure no violation of assumptions of normality, this was achieved through analysing graphs and through analysing the results from the Shapiro-Wilke test. Empathy violated assumptions of normality (Shapiro-Wilks, $p>.05$), therefore a non-parametric alternative (Mann-Whitney U) independent samples t-test was performed. Results from the Mann-Whitney U test indicated that vegetarians (M*d*=63, *n*= 61) scored significantly higher than non-vegetarians (M*d* =57, *n*=161) in empathy scores. U = 6378, z = 3.85, $p<.001$, however these differences were small (Cohen's d =.25). Overall, results support Hypothesis 2.

Post-hoc analysis was performed to determine whether differences in Empathy were mediated by gender. The 'Other' category was not included in this analysis due to a lack of data (n=2).There was no statistically significant differences between male vegetarians (M*d*=55, *n*=11) and non-vegetarians (M*d*= 54.5, *n*=54), U= 348, *z* =.89, *p*=.372. Conversely, female vegetarians (M*d*=64, *n*=49) scored significantly higher in Empathy than non-vegetarians (M*d*=59, *n*=105), U = 3343.5*, z* = 2.99, *p*=.003, however this effect was small (Cohen's d =.24). Overall, results show that differences in Empathy appear between female vegetarians and non-vegetarians and gender identity scores only difference between male vegetarians and non-vegetarians, where male vegetarians scored significantly higher than non-vegetarians in Androgyny and Femininity.

Research Question 3: Differences in Gender Identity Scores. To address Research Question 3: Is there a difference in masculinity scores between vegetarians and non-vegetarians; standard independent samples t-test was conducted. Femininity and androgyny were included as a supplementary analysis. Preliminary analysis was carried out to ensure no violation of assumptions of normality, this was achieved through analysing graphs and

through analysing the results from the Shapiro-Wilke test. Masculinity, Femininity and Androgyny did not violate assumptions of normality (Shapiro-Wilke, $p>.05$), therefore a parametric independent samples t-test was performed. T-test results indicated no significant differences in masculinity ($p=.812$), femininity ($p=.353$) or androgyny ($p=.645$) between vegetarians and non-vegetarians, equal variances assumed (See Table 3 for full details). Therefore Hypothesis 3; There will be a difference in masculinity scores between vegetarians and non-vegetarians; was rejected.

Furthermore, in anticipation of attempting to further explain differences in Empathy across vegetarians and non-vegetarians, a follow on independent samples t-test was run separately for males and females. The 'Other' gender category did not have a large enough sample to investigate the differences (n=2), therefore was excluded from further investigation. Results found male vegetarians (M= 86.18, SD = 6.15) scored significantly higher in androgyny than non-vegetarians (M= 78.07, SD = 7.93), $t(63)=-3.20$, $p=.002$), two-tailed. The magnitude of the differences in the means (mean difference= 8.11 , CI: -13.18 to -3.04) was very large (Cohen's d = 1.15) Results also found male vegetarians (M= 85, SD = 10.08) scored significantly higher in femininity scores then non vegetarians (M= 78.20, SD = 9.75), $t(63)= -2.10$, $p=.04$), two-tailed. The magnitude of the differences in the means (mean difference = -6.8, 95% CI: -13.28 to -.31) was large (Cohen's d =.69).

Research Question 4: Does Masculinity mediate Empathy levels. Finally, to address Hypothesis 4: will vegetarians and nonvegetarians score differently in levels of empathy, after controlling for gender role scores (masculinity/femininity scores); a one-way ANCOVA was conducted. As empathy differences were found only in females (as seen in the results above), differences in empathy levels were only investigated between female vegetarians and non-vegetarians category. Preliminary analysis was also performed to check the assumptions of a one-way ANCOVA. Empathy violated assumptions of normality,

however visual inspection of the graphs indicated that data were linear and homogenous (See Appendix B) and due to robustness to non-normality (Laerd Statistics, 2017), the decision was made to proceed to perform a parametric test for the variable 'Empathy'.

There was no significant interaction effect in masculinity scores explaining only .1% of the variance (p=.719, Partial Eta-Squared = .001), femininity scores explaining only 1.8% of the variance (p=.138, Partial Eta-Squared =.018), and androgyny explaining only .2% of the variance (p=.622, Partial Eta-Squared= .002). Results conclude that Hypothesis 4; Vegetarians and nonvegetarians will score differently in levels of empathy, after controlling for gender role scores (masculinity/femininity scores); was rejected.

Overall, results indicate that there are no significant differences in masculinity between vegetarians and non-vegetarians. However, from the first inspection of the data there appeared to be no differences in any category of gender identity between vegetarians and non-vegetarians, but upon further inspection, it was found male vegetarians are more feminine and androgynous than non-vegetarian males. Overall results also indicate that vegetarians have higher empathy and levels but only between females. These differences were not controlled by gender identity (masculinity, femininity, androgyny).

Discussion

Vegetarianism is a symbolic representation of a persons' ethical beliefs on environmental issues, animal welfare, philosophical and/or religious beliefs (Dwyer, 1991; Hamilton, 2006; Salehi, Díaz, & Redondo, 2020). Given the current rise of vegetarianism in Western society (Statistics. , 2020), researchers have grown an interest in developing theories for which why a person would choose a vegetarian lifestyle, and how that person differs from someone who consumes meat products (Dietz, Frisch, Kalof, Stern, & Guagnano, 1995; Ingoglia, Lo Coco, & Albiero, 2016; Twigg, 1979). The current research aimed to further

understand psychological individual differences between vegetarians and non-vegetarians. The research measured personality traits, empathy and gender identity scores.

Overall, results showed: There were no differences in personality traits, therefore H1 was rejected; Differences in empathy only appeared between female vegetarians and non-vegetarians, therefore H2 was only partially supported; There were no differences in masculinity between vegetarians and non-vegetarians, therefore H3 was not supported; Empathy scores did not differ when accounting for gender identity, therefore H4 was not supported. However, further analysis discovered interesting new findings: male vegetarians scored no different in empathy or masculinity, however, scored higher in femininity and androgyny scores than non-vegetarian males, contrary to Rothgerber (2013) and Preylo & Arikawa, (2008). Findings could be interpreted in two ways, relative to Jewkes, et al. (2015) Lopez-Zafra & Garcia-Retamero (2012) statement - society as a whole is becoming more gender fluid. Results may conflict with this theory as femininity was found higher in vegetarian males than non-vegetarian males, a common stereotype of vegetarians (Browarnik, 2012; Rosenfeld, 2019) indicating hegemonic feminine stereotypes still exist 47 years later. Alternatively, the results may support the researchers, for two reasons: 1) hiding true responses due to gender identity threat, or, 2) feminine and androgynous traits may be included in the modern description of a 'new' masculine identity.

Gender Identity and Vegetarianism.

(1) Threat to Masculine Identity. An explanation for the first suggestion is as follows; the lack of differences found in masculinity between vegetarian and non-vegetarian males may be due to the societal pressure of gender identity within a dietary practice, subjecting vegetarian men to the threat of their masculine identity (Rothgerber, 2013; Rosenfeld, 2019). Men have been reinforced and even pressured by society into eating a meat-based diet, continuously associating meat with men and hierarchical dominance (Ruby

& Heine,2011; Rosenfeld, 2019). As eating a healthful and plant-based diet has been commonly frowned upon amongst males and seen as demasculising (Browarnik, 2012; Thomas, 2016), perhaps males who decide to consume a vegetarian diet feel subjected to the threat of their masculine identity (Rothgerber, 2013). Consequently, male vegetarians may have exaggerated their scores on items associated with masculine traits. It may be interesting for further studies to measure implicit associations of vegetarian and non-vegetarian foods with gender identity by using an Implicit Associations Test (IAT; Greenwald, McGhee, & Schwartz, 1998) or an Implicit Relational Associations Test which measures implicit associations in language through relational framing (IRAP; Barnes-Holmes, Barnes-Holmes, Power & Stewart, 2006) to understand hidden stereotypes which may not be explicitly reported. Implicit tasks have been successfully used in previous studies to measure implicit gender stereotypes (Zitelny, Shalom, & Bar-Anan, 2017; Fleming, Foody, & Murphy, 2020; Drake, Primeaux, & Thomas, 2018). A study by Barnes-Holmes and colleagues (2010) successfully used this measure to investigate implicit attitudes towards vegetables and meat between vegetarians and non-vegetarians. Researchers found vegetarians to have a stronger pro-vegetable bias than meat-eaters. It would be interesting for future studies to measure implicit gender identity biases of omnivore/herbivore diets between vegetarians and non-vegetarians.

(2) New Masculinity. Another interesting finding also suggests vegetarian males are more androgynous and feminine, both with large effect sizes. The current sample had a disproportionate ratio of vegetarian males to non-vegetarian males and did not account for sexuality, which may have been a mediating factor in the results. Non-cis/heterosexual males may feel less likely to conform to the societal norm of eating meat as they are already unavoidably a minority and go against the status quo (Browarnik, 2012; Chin, Fisak Jr, & Sims, 2002). Non-cis/non-heterosexual males, along with the rest of the LGTBQ+

community have historically faced years of oppression and dehumanisation as a minority group, and have had a difficult fight for their freedom of rights. Therefore, like women, both are more inclined to be activists of fighting oppression, which may lead to a higher chance of this population fighting the oppression of animals through vegetarianism (Curtis & Comer, 2006; Warren, 2000). However, although it is a logical explanation, this can not be concluded as there is not enough evidence yet in the literature to prove that non-cis/heterosexual males are more likely to follow a vegetarian diet. Furthermore, a suggestion for future studies would be to measure the impact that sexuality and experience with oppression have on an individuals activism for animal welfare.

Another reason for the lack of differences in masculinity is the fact that the Bem Sex Inventory was created 47 years ago, and is possibly an outdated measure. Sobal (2005) suggests that the hegemonic cis-gendered stereotype of masculinity is too much of a stereotypical and rigid description for today's more flexible description of a masculine male in society. The results of the present study may have not accurately measured masculinity in 2021, and then supports Sobals (2005) suggestion that the new term of masculinity is more flexible, as a result including more feminine and androgynous traits, as shown in the results. This also supports the statement that society is evolving into a more gender-fluid society (Jewkes, et al., 2015; Lopez-Zafra & Garcia-Retamero, 2012). Recently, De Backer and colleagues (2020) surveyed male meat-eaters about their self-identification with new masculinity, their attachment to meat and attitudes towards vegetarianism. The New Masculinity Inventory (NMI; Kaplan, Rosenmann, & Shuhendler, 2017), measured how attached or detached an individual is to hegemonic masculinity, with higher scores indicating leaning away from hegemonic masculinity and similarly contrariwise. Their study still found that the closer a male identifies with hegemonic masculinity, the less inclined they were to eat meat and the more negatively they attributed vegetarians, and conversely for males who

scored higher. Furthermore, there is still clear recent evidence that a traditional hegemonic masculine gender identity exists and negatively impacts the decision to follow a meatless diet. However, the current study only measured hegemonic masculinity, it may just be a possibility BEM scores are outdated and do not represent how the general population of males portray their masculinity anymore. A possibility for future studies would be to replicate the present study but consider including the New Masculinity Inventory as a modern assessment for masculinity between male vegetarians and non-vegetarians.

Empathy Differences between Vegetarians and Non-Vegetarians

Additionally, no empathy differences were found between non-/vegetarian males. This contradicts previous findings by Preylo & Arikawa (2008) and Rothgerber (2013). The current sample was predominantly female, with less than 30% classifying as male and less than 1% classifying as other. As non-heterosexual/non-cis gendered males are a minority in the general population and society, it is most probably that they accounted for a small percentage of the male category in the present study. Small sample numbers may have affected the outcome of the results; if there were larger, more sufficient numbers of non-heterosexual/non-cis gendered males included in the study, the test may have yielded different, possibly significant results. Therefore for further studies, as previously suggested, should investigate whether belonging to a minority group in terms of gender or sexuality moderates empathy levels between vegetarian and non-vegetarian males.

Interestingly, empathy differences were only found amongst women, however, these effect sizes were very small. A reason for these findings could be that females generally score higher in empathy than males (Toussaint & Webb, 2005; Filippi, et al., 2010; Hegelson, 1994). Due to the large proportion of the sample being female (almost 80%), it could be that the statistics were more likely to pick up differences because of the sufficient sample size of women. To properly determine gender differences, there should be more males included in

the sample, as the present study possibly obtained a false negative result. As males were generally difficult to reach out to than females to participate in the study, future research should consider advertising with incentives more towards male participants, to obtain a homogenous proportion of males to females. A previous study by Preylo & Arikawa (2008) measured empathy differences and pet attitudes between males and females vegetarians and found that male vegetarians did score higher in empathy than non-vegetarian males, however, there were no differences in the female category. This study used the full version of the Interpersonal Reactivity Inventory (IRI-Davis,1983), which has recently been found in 2016 with a multitude of problems in terms of poor reliability and readability for some items, therefore may have effected results of previous studies. As stated by Ingoglia, Lo Coco and Albiero (2016), the B-IRI is an updated, more coherent and reliable version of the original IRI and should continue to be used for future studies. Rather than concluding that differences in empathy only differ amongst vegetarians and non-vegetarian females, it may either be (1) a sampling error, (2) the B-IRI obtaining more accurate results than the original IRI in previous studies or (3) an overall gender difference in empathy.

Although it has been previously theorised that empathy towards animals is generally associated with overall empathy and that anger and abuse towards animals is a predictor for psychopathic, violent, aggressive, and anti-social behaviours (Dadds, Whiting, & Hawes, 2006; McPhedran, 2009; Taylor & Signal, 2005), the research seems to failed to account for cognitive dissonance involved when consuming meat. Many meat consumers are against the cruelty of animals and do not see themselves as abusers of animals (Kunst & Hohle, 2016; Dowsett, Semmler, Bray, Ankeny, & Chur-Hansen, 2018; Espinosa & Stoop, 2019). Commonly, meat consumers prefer to buy prepackaged meats, to avoid the association between meat and the purposeful death of an animal (Kunst & Hohle, 2016). As discussed previously by Loughnan, Haslam, & Bastian (2010) and additionally by other researchers,

this is a cognitive dissonance mechanism that protects the consumer against the psychological disturbance of the reality of meat consumption, through detachment, rationalisation and morally justification of their meat consumption, called the 'meat paradox' (Kunst & Hohle, 2016; Dowsett, Semmler, Bray, Ankeny, & Chur-Hansen, 2018; Espinosa & Stoop, 2019). Piazza and colleagues (2015) also describe the common rationalisation for their meat consumption as the 4N's – "Necessary, Natural, Normal, Nice."

The findings from the second hypothesis are relatable to Dowsett, Semmler, Bray, Ankeny, & Chur-Hansen's (2018) study; researchers found no large detachment between those exposed to the meat with its source compared to those shown a picture of a cow, however, females were most likely to have a negative affect. The researchers conversely found that when participants were exposed to their moral inconsistencies of meat consumptions, it triggered a greater attachment to meat and more defensive reactions (Dowsett, Semmler, Bray, Ankeny, & Chur-Hansen, 2018). Therefore, it may not be that non-vegetarians are less empathetic, but possibly have stronger cognitive dissonance mechanisms, enabling them to disconnect, rationalise and morally justify their meat consumption.

Dietary Identity/Food Politics.

It is consistent across literature that food is a central part of ones social identity (Rosenfeld, 2019; Dwyer, 1991; Hamilton, 2006; Salehi, Díaz, & Redondo, 2020), therefore it is surprising that there was a lack of differences found between vegetarians and non-vegetarians in the current study. A reason for this may be that the study did not include vegans as a subcategory of vegetarianism for the following reason; Veganism requires much more adjustment to society than vegetarians as they additionally must abstain from consuming eggs, dairy, honey and in some cases using any product containing animal sources (Academy of Nutrition and Dietetics, 2016). Other studies have additionally found that vegans report higher levels of disgust towards meat products than vegetarians, score

differently in Openness personality scores, score higher levels of empathy and higher levels of negative attitudes towards meat-eaters or using animals for research/pets (Preylo & Arikawa, 2008; Kessler, et al., 2016). Vegans also report their diet being more central to their identity than vegetarians, more likely to refrain from identifying with vegetarians, date an omnivore or eat at a table where meat is present, which is not as common amongst vegetarians (Rosenfeld,2019; Newport, 2012).

A recent study in Germany last year by Kirsten, Seib-Pfeifer, Lüth, & Rosenfeld (2020) compared dietarian identity and empathy across omnivores, vegetarians and vegans and found vegans produced the most extreme compared to the other two categories. Acknowledging the difficult adjustments vegans must make to live in a predominantly omnivorous society, there must be a stronger intrinsic motivation and empathetic concern for vegans to follow this lifestyle than vegetarians, as comparatively, vegetarians live a much less restrictive lifestyle. It is highly possible that psychological differences majorly lie between vegans and omnivores and not as much between vegetarians, which previous research failed to account for, including the present study. Taking into consideration these new findings, future studies should measure individual differences between omnivores and other types of subcategories of herbivores, specifically veganism. This would be beneficial to the literature as it would help researchers further understand where and how do different meatless diets differ from each other and omnivores, from a psychological perspective.

Strengths and Limitations

Strengths. The study provides a modern insight into the impact of gender identity and dietary consumption, it also introduces multiple factors to consider for further studies in this area of research. By discovering vegetarian males score higher in femininity and androgyny, it highlights how some gender stereotypes 47 years ago persist in 2021 relative to dietary practices. It highlights a new idea of how the stereotype of ‘masculinity’ may have evolved

and diverted from societal norms, including feminine and androgynous traits (Dowsett, Semmler, Bray, Ankeny, & Chur-Hansen, 2018). The study also introduced cognitive dissonance to be addressed in future studies as a potential mediating factor for empathy differences in vegetarians and non-vegetarians. The current study also introduces the possibility that sexuality and experience with oppression could also potentially influence participation in animal activism. Finally, the sample population were predominantly social media users, which relates to 83.36% of the general population. (Dean, 2021). Using a sample population that accurately represents the general population is important to obtain generalisable results, which was obtained in the present study.

Limitations. One limitation to the study is was the disproportionate ratio of females to males and non-vegetarians to vegetarians, this was a limitation as it may have affected test sensitivity. Larger sample sizes make tests more sensitive to picking up differences and therefore the sample of males may not have been large enough to detect any sample sizes, running the risk of a Type II error. Obtaining a sample that has equality of variance is important to ensure the pooled data represents the aimed population. Having no homogeneity of variance, which was the case in the current sample, runs the risk of a Type II error, which may have explained for lack of differences between the groups. As previous research has highlighted differences were found between vegetarians and non-vegetarians in empathy, personality and gender identity scores, perhaps a more balanced sample may have yielded different, potentially significant, results than the present study.

Another limitation found post-study was that the study should have differentiated vegans from vegetarians. This is because vegans have been found to differ from vegetarians in dietary identity, motivations, personality and empathy, as discussed. Therefore, categorising different meatless when measuring psychological differences between an omnivorous diet may have and may have provided a better interpretation for the results.

Future studies may want to separate vegans from vegetarians, and how they differ from people who follow omnivorous diets, to better understand where these differences lie.

A final limitation of the study was that the self-reported nature of the study may be exposed to the risk of biases. Although the study attempted to protect the full nature of the study by introducing the study as measuring differences in personality and dietary choice, there were some flaws. Some of the items measuring gender identity scores were obvious e.g. 'masculine', 'feminine' and 'androgynous'. Partially exposing the purpose of the study was inevitable and may have caused participants to respond in a biased manner. Future studies may want to include implicit measures such as the IAT or the IRAP (Barnes-Holmes, Barnes-Holmes, Power, & Stewart, 2006), along with explicit measures to protect against biased responses, as discussed.

Implications

As no hypothesis was fully supported, there is no clear indication or guide on what type of person predicts living a vegetarian lifestyle, which would have helped develop individualised meat reduction programmes. However, upon finding gender-specific results, it highlights the impact of gender stereotypes on personal food choice and societal norms. Furthermore, the personal implications for this study provide opportunities for persons reading this to evaluate the impact of gender stereotypes on their lifestyle choices, such as dietary preference in this case. It gives people, particularly men, the opportunity to think about their motivations for meat consumption, particularly relative to their masculine identity. This heightened awareness could challenge their own prior learned masculinity expectations around food and consequently consume a more healthful diet containing fewer meat products.

Acknowledging potential overall gender differences in empathy. Policies aimed at promoting meatless diets to the public should consider different gender motivations.

According to studies discussed, females are generally more emotionally responsive and empathetic than males. Furthermore, most programmes aimed at converting omnivores to a meatless diet use tactics targeting emotional responsiveness such as pictures of dead animals, animals stripped away from families, cute pictures of animals usually used for meat, and lastly exposing the reality of meat production. This tactic may only be successfully targeting women as they are more emotionally responsive to empathy (Bloise & Johnson, 2007; Christov-Moore, et al., 2014), however, it does not seem as if males are driven by the same cognitive processes. However, it is not clear what these gender-specific motivational factors are amongst males, and therefore should be investigated to create an overall meat-reduction programme, targeting both men and women successfully.

Although meat is a nutritional source of protein and vitamins, research has found a diet heavy in meat products, particularly processed and red meat, raises the risk of cancer, obesity and cardiac issues. A 2015 meta-analysis accumulated many epidemiological studies and found that high consumption of these products increases the risk of colorectal cancer by 20-30%, the third most common cancer affecting men and second most commonly affecting women (Aykan, 2015). This implication is particularly relevant to Ireland as it is a country in which production and exports heavily rely on the agriculture business, particularly beef. The average Irish person consumes 19kg of beef per person per annum (NÍ CHONCHÚIR, 2020). Beef is dense in saturated fats and puts individuals living in Ireland at risk of cancer, type II diabetes, coronary heart disease and obesity (Wang & Beydoun, 2009; Rouhani, Salehi-Abargouei, Surkan, & Azadbakht, 2014; Micha, Michas, & Mozaffarian, 2012). The public should be made more aware of the dangers of a diet high in red and processed meat, particularly considering the high numbers of non-vegetarians relative to vegetarians in the present study. Given this information, protective measures through dietary practice could be obtained through public education. Negative health effects of eating a diet heavy in processed

and red meat should have a distinct section in the information of public health guidelines, particularly the FSAI (Food Safety Authority of Ireland) healthy eating guideline booklet, which does not include a separate section in their Advice and Guideline section.

Early interventions are important to create lifelong healthy habits, therefore, developing teenagers should be taught the risks of consuming meat and healthy eating. This could be through implementing mandatory home economics classes in secondary schools. In the home economics class, the syllabus should focus on educating and reinforcing young teenagers to cook healthy meals. Additionally, risks of highly processed and red meat consumption should be taught to students, in addition to introducing plant based options through cooking classes with easy and accessible plant-based dishes.

Conclusion

Overall, the present study found no overall differences between vegetarians and non-vegetarians in empathy, personality or masculinity. It is evident from the present study that dietary identity is much more complex than previously thought. The present study found there were differences found on a gender-specific level. Male vegetarians scored higher in femininity and androgyny than male non-vegetarians. Female vegetarians scored higher in empathy than female non-vegetarians. The study raised the question of gender differences in dietary choices, and question the prevalence of hegemonic masculinity still pertains in 2021. Sexuality and oppression were introduced as a potential mediating factor for participating in animal activism. Additionally, cognitive dissonance mechanisms were introduced as a potential mediating factor in empathy differences between vegetarians and non-vegetarians. Implications of the research allows people to create awareness of their implicit biases towards vegetarianism, particularly amongst men and their attachment to their masculine identity. As men have been suggested to be less emotionally responsive, programmes aiming to reduce meat consumption should investigate the different gender-specific motivations to create

successful future programmes. Due to the health risks of eating a diet heavy in meat products, public health guidelines should also be reinforcing the public to consume less meat in their diets, particularly beef in Ireland. Education in secondary schools should also make Home Economic classes mandatory to teach developing teenagers to cook clean, nutritious and unprocessed foods in a quick and accessible manner as an early intervention and protective measure for potential health issues in adulthood.

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Appendix A

Statistical G*Power

[1] -- Saturday, February 27, 2021 -- 15:02:45

t-tests - Means: Difference between two independent means (two groups)

Analysis:	A priori: Compute the required sample size		
Input:	Tail(s)	=	Two
	Effect size d	=	0.5
	α err prob	=	0.05
	Power (1-β err prob)	=	0.95
	Allocation ratio N2/N1	=	1
Output:	Noncentrality parameter δ	=	3.6228442
	Critical t	=	1.9714347
	Df	=	208
	Sample size group 1	=	105
	Sample size group 2	=	105
	Total sample size	=	210
	Actual power	=	0.9501287

Appendix B

Interpersonal Reactivity Index--Brief Form

Instrument type: Inventory/ Questionnaire

Test Format: The 16-item measure utilized a 5-point Likert-type scale ranging from 1 (does not describe me at all) to 5 (describes me very well).

Interpersonal Reactivity Index--Brief Form

B–IRI

Items

---

1. I often have tender, concerned feelings for people less fortunate than me.
2. I really get involved with the feelings of the characters in a novel.
3. In emergency situations, I feel apprehensive and ill-at-ease.
4. I try to look at everybody's side of a disagreement before I make a decision.
5. When I see someone being taken advantage of, I feel kind of protective toward them.
6. I sometimes try to understand my friends better by imagining how things look from their perspective.
7. After seeing a play or movie, I have felt as though I were one of the characters.
8. Being in a tense emotional situation scares me.
9. When I see someone being treated unfairly, I feel very much pity for them.
10. I would describe myself as a pretty soft-hearted person.)
11. When I watch a good movie, I can very easily put myself in the place of a leading character.

12. I tend to lose control during emergencies.
13. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.
14. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.
15. When I see someone who badly needs help in an emergency, I go to pieces.
16. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

Appendix C

Big Five Personality Short Questionnaire

BFPTSQ

Items		
		I see myself as someone who . . .
		Openness
1		Is original, often has new ideas.
6		Is curious about many different things.
11		Is ingenious, reflects a lot.
16		Has a lot of imagination.
21		Is inventive, creative.
26		Likes artistic or aesthetic experiences.
31	R	Is not really interested in different cultures, their customs and values.
36		Likes to reflect, tries to understand complex things.
41	R	Has few artistic interests.
46		Is sophisticated when it comes to art, music or literature.
		Extraversion
2		Likes to talk, expresses his/her opinion.
7	R	Is reserved or shy, has difficulty approaching others.
12		Is full of energy, likes to always be active.
17		Is a leader, capable of convincing others.
22	R	Is rather quiet, does not talk a lot.
27		Shows self-confidence, is able to assert himself/herself.
32	R	Is timid, shy.
37		Is extraverted, sociable.

42 Likes exciting activities, which provide thrills. **47**

Has a tendency to laugh and have fun easily.

Agreeableness

3	R	Has a tendency to criticize others.
8		Is helpful and generous with others.
13	R	Provokes quarrels or arguments with others.
18		Is lenient, forgives easily.
23		Generally trusts others.
28	R	Can be distant and cold towards others.

Predictors of Vegetarianism

33		Is considerate and kind to almost everyone.
38	R	Can sometimes be rude or mean towards others.
43		Likes to cooperate with others.
48	R	Can deceive and manipulate people to get what he/she want.

Conscientiousness

4		Works conscientiously, does the things he/she has to do well.
9	R	Can be a little careless and negligent.
14		Is a reliable student/worker, who can be counted on.
19	R	R Has a tendency to be disorganized, messy.
24	R	R Has a tendency to be lazy.
29		Perseveres until the task at hand is completed.
34		Does things efficiently, works well and quickly.
39		Plans things that need to be done and follows through the plans.
44	R	Is easily distracted, has difficulty remaining attentive.
49	R	Can do things impulsively without thinking about the consequences.

Note . R = reversed-score item. Boldface item numbers represent newly added items.

Instrument Type:

Questionnaire

Test Format:

The Big Five Personality Trait Short Questionnaire has 50 items, 10 for each trait. Respondents use a 5-point Likert-type response format (totally disagree = 0, disagree a little = 1, neutral opinion = 2, agree a little = 3, totally agree = 4). The following introduction sentence is presented at the top of each page: “I see myself as someone who.”.

Appendix D

Bem Sex Role Inventory

Bem Sex Role Inventory

Instrument Type:

Questionnaire

Test Format: Rating scale from 1 (never or almost never true) to 7 (almost always true).

Bem Sex Role Inventory

Items

ITEMS ON THE MASCULINITY, FEMININITY, AND SOCIAL DESIRABILITY SCALES OF THE BSRI

Masculine Items	Feminine Items	Neutral items
49. Acts as a leader	11. Affectionate	51. Adaptable
46. Aggressive	5. Cheerful	36. Conceited
58. Ambitious	50. Childlike	9. Conscientious
22. Analytical	32. Compassionate	60. Conventional
13. Assertive	53. Does not use harsh language	45. Friendly
10. Athletic	35. Eager to soothe hurt feelings	15. Happy
55. Competitive	20. Feminine	3. Helpful
4. Defends own beliefs	14. Flatterable	48. Inefficient
37. Dominant	59. Gentle	24. Jealous
19. Forceful	47. Gullible	39. Likable
25. Has leadership abilities	56. Loves children	6. Moody
7. Independent	17. Loyal	21. Reliable
52. Individualistic	26. Sensitive to the needs of others	30. Secretive
31. Makes decisions easily	8. Shy	33. Sincere
40. Masculine	38. Soft spoken	42. Solemn

1. Self-reliant	23. Sympathetic	57. Tactful
34. Self-sufficient	44. Tender	12. Theatrical

Appendix E

Project Summary/Consent Form

Invitation

My name is Elizabeth Villazon Figueredo, I am a third-year undergraduate student at the National College of Ireland. My supervisor is Michelle Kelly and my project has been approved by the Psychology Research Ethics Committee. You are invited to participate in a research study that will form the basis for an undergraduate thesis. It is a research study on personality and demographic factors different diets. Please read the following information before deciding whether or not to participate.

What will happen

In this study, you will be asked to answer brief questions on demographics and personality factors. This will be done by filling in a survey containing 126 questions, which you will have to answer on a scale on whether a statement relates to you or not. The survey will be split into three sections with each section explaining how to answer correctly at the beginning of each section.

You are allowed to take as many breaks as you like as long as the window browser is kept open.

It is asked that you answer all questions honestly and with care.

Time Commitment

The study typically takes no more than 25 minutes to answer all the questions, since all of the answers are on a scale and no detailed answers are included in this survey. However, if you decide to take more breaks the questionnaire will take longer. It is recommended and asked that you take time with your answers and take as many breaks as you wish, just remember to keep the window browser open.

Participants Rights

You may decide to stop being a part of the research study at any time without explanation. You have a right to ask that any data you have supplied to that point be withdrawn/destroyed before the complete submission of the survey. After the survey is fully submitted the data is completely untraceable and anonymous. You will have the right to refuse to answer or respond to any question that is asked of you with no penalties. You have the right to have your questions and procedures answered (unless answering these questions would interfere with the study's outcome). If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins on x18449054@student.ncirl.ie.

Benefits and Risks.

The benefits are you will help a third-year undergraduate complete her basis for her thesis, this topic is of great interest to the researcher and hopes to come out with some interesting and valuable information. There are no known risks for you in this study, other than the physical discomfort of completing a longer than usual questionnaire, however, it is allowed to take as many breaks as you like as long as you keep your browser window open and if you wish to exit the study at any time, you can exit with no penalties and your data will be destroyed.

Confidentiality/Anonymity

The data we collect does not contain any personal information about you except your age, your gender (male/female/other), and whether or not you are a vegetarian. Once your data is submitted, it is transformed and stored as numbers so all of your data is safe, untraceable, and anonymous.

For Further Information

(Me) Elizabeth Villazon Figueredo or my supervisor Michelle Kelly will be glad to answer your questions about this study at any time. You may contact her at Michelle.Kelly@ncirl.ie or myself at x18449054@ncirl.ie*.

If you want to find out about the final results of the study, you should email me so I can keep you informed when the research study is complete, marked, and released to share the results with you.

Thank you so much in advance and hope you enjoy partaking in this study!

- Elizabeth Villazon Figueredo

Consent Form PROJECT SUMMARY

This study aims to investigate personality and demographic similarities and differences in dietary practices. It will be an online survey composed of 126 questions which you will answer on a scale whether statements relate to you. You can take breaks at any time (as long as your browser window is open) or exit if you no longer wish to partake in this study with no penalty.

By clicking next on this page, you are agreeing that: (1) you have read and understood the Participant Information Sheet, (2) questions about your participation in this study have been answered satisfactorily, (3) you are aware of the potential risks (if any), (4) by clicking next you are giving your full consent to partake in this study and (5) you are taking part in this research study voluntarily (without coercion).

**Participants wishing to preserve some degree of anonymity may use their initials (from the*

British Psychological Society Guidelines for Minimal Standards of Ethical Approval in Psychological Research)

Appendix F

Debriefing form

Debrief Form

First of all, I want to congratulate and thank you dearly for taking part in my research for my undergraduate degree, it means a lot to have your participation in my study.

Research has found that women tend to have more empathy than men, which may be a factor of why there are generally more female vegetarians than males, and eating meat has been found in research to link to masculinity and dominance. My research was centred around investigating differences between vegetarians and non-vegetarians such as gender roles, personality traits and empathy levels. I aimed to measure differences in empathy between vegetarians and non-vegetarians and also personality traits that predict vegetarianism such as agreeableness, conscientiousness, extraversion and openness to experience. I also wanted to see if having a more masculine or more feminine persona had an impact on empathy levels, to see if that links to whether one decides to be vegetarian or eat meat.

We did not tell you the full aim of the study in order to protect from any biased influences due to the stereotype attached with vegetarianism and meat-eaters. Because of this, we can get fully honest answers which will contribute towards science and hopefully answer some answers of why people decide to live a vegetarian lifestyle.

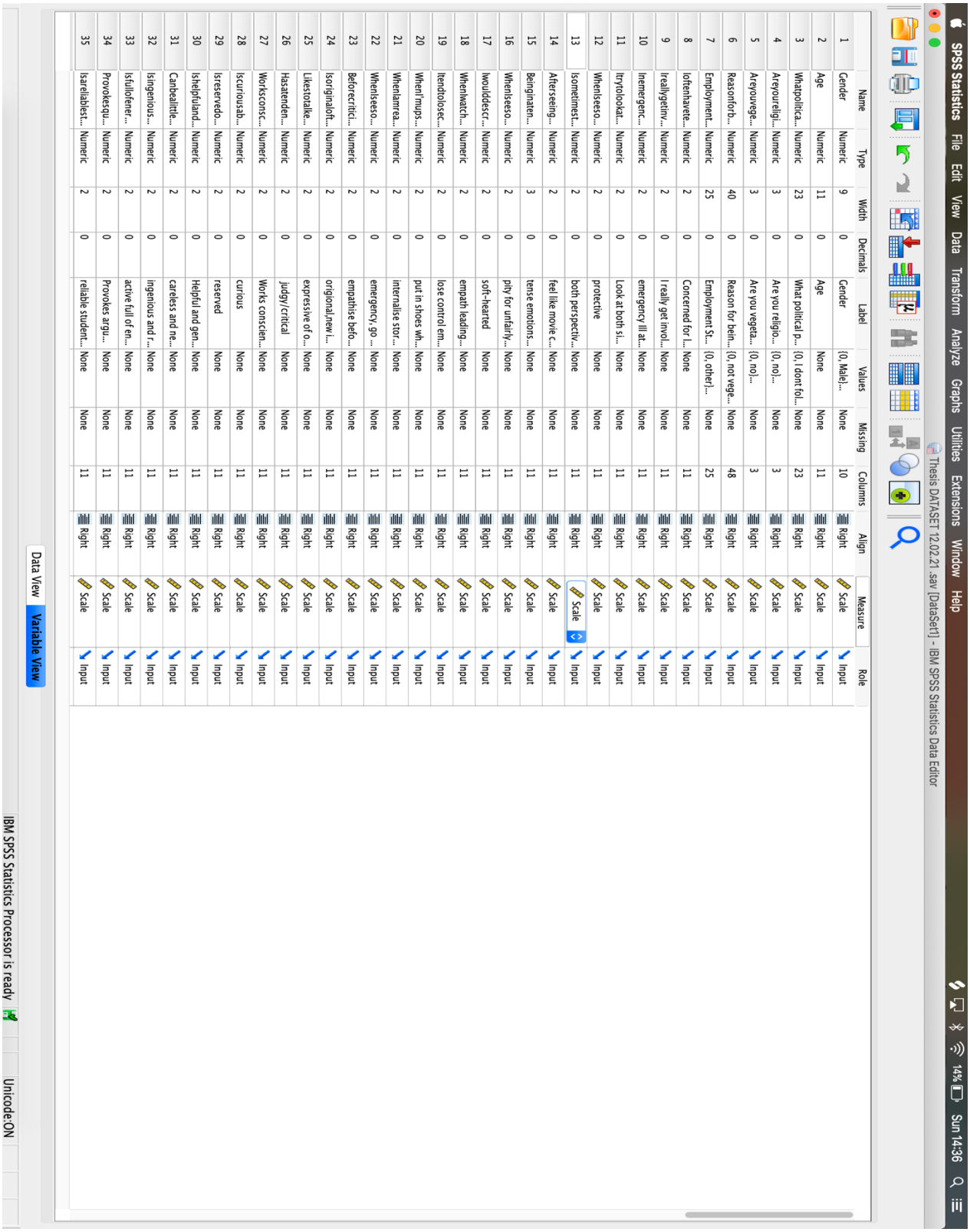
If you have any more questions, please do not hesitate to contact me or my supervisor, Michelle Kelly (email; Michelle.Kelly@ncirl.ie). My name is Elizabeth Villazon and my email is x18449054@student.ncirl.ie. Because other individuals may be participating in this

study I ask you to please not discuss the details of this study with your friends who potentially may be involved in the study.

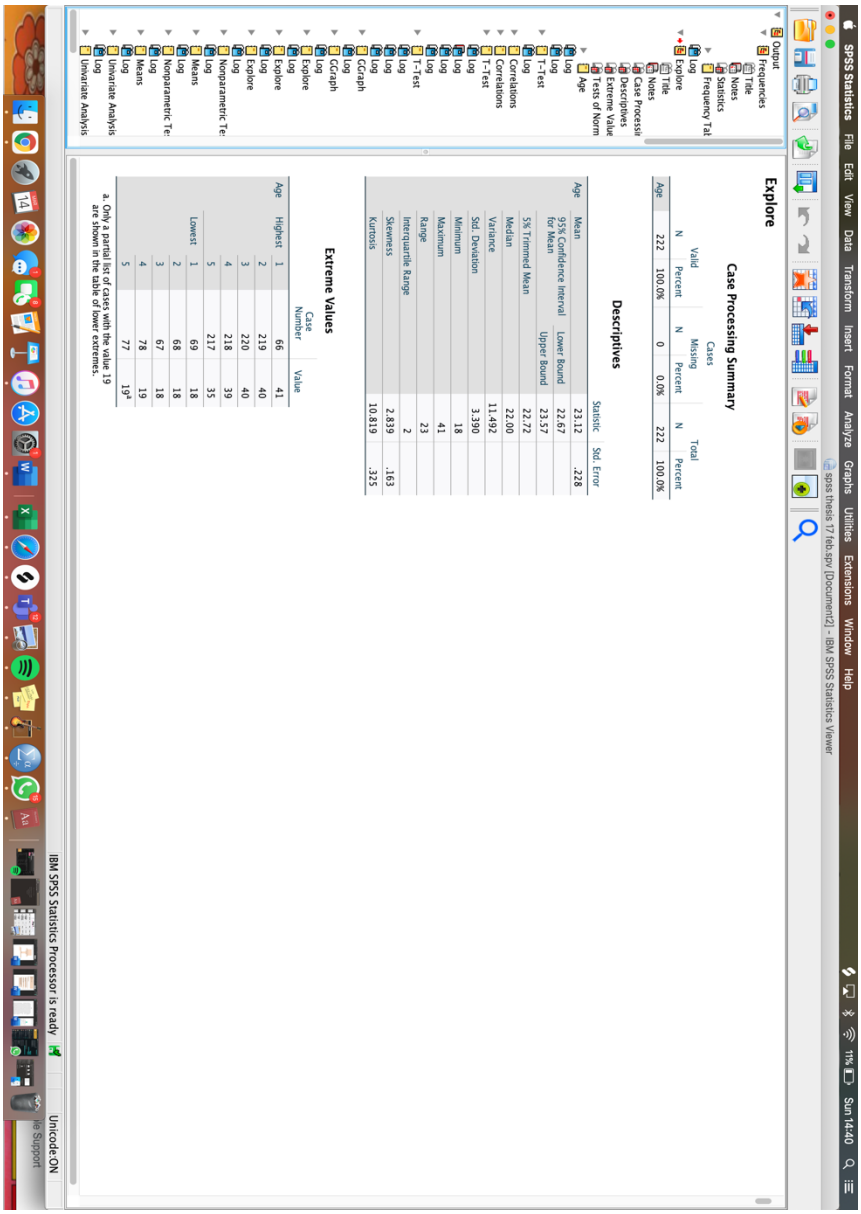
Appendix E

Screenshots of SPSS output and Data file

(1) Data



(2) Output


Explore
Case Processing Summary
Cases
Valid
Missing
Total
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Percent
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Percent
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Percent
Age
222
100.0%
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Descriptives
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Std. Error
Age
Mean
23.12
.228
95% Confidence Interval for Mean
Lower Bound
22.67
Upper Bound
23.57
5% Trimmed Mean
22.72
Median
22.00
Variance
11.492
Std. Deviation
3.390
Minimum
18
Maximum
41
Range
23
Interquartile Range
2
Skewness
2.839
.163
Kurtosis
10.819
.325
Extreme Values
Case Number
Value
Age
Highest
1
66
41
2
219
40
3
220
40
4
218
39
5
217
35
Lowest
1
69
18
2
68
18
3
67
18
4
78
19
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19a
a. Only a partial list of cases with the value 19 are shown in the table of lower extremes.
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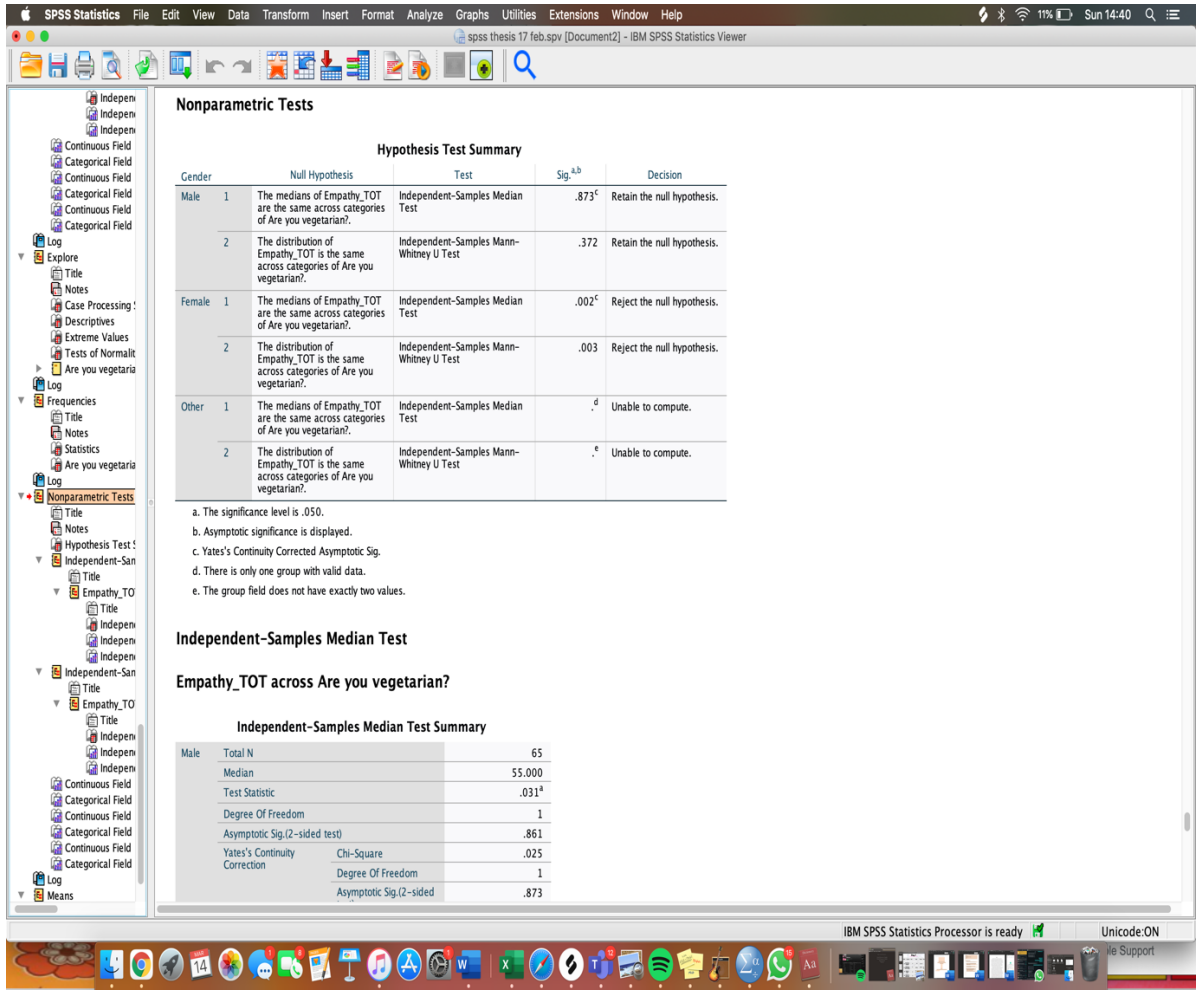
SPSS Statistics File Edit View Data Transform Insert Format Analyze Graphs Utilities Extensions Window Help
spss thesis 17 feb.spv [Document2] - IBM SPSS Statistics Viewer
Nonparametric Tests
Hypothesis Test Summary
Gender | | Null Hypothesis | Test | Sig.[a,b] | Decision
Male | 1 | The medians of Empathy_TOT are the same across categories of Are you vegetarian?. | Independent-Samples Median Test | .873[c] | Retain the null hypothesis.
Male | 2 | The distribution of Empathy_TOT is the same across categories of Are you vegetarian?. | Independent-Samples Mann-Whitney U Test | .372 | Retain the null hypothesis.
Female | 1 | The medians of Empathy_TOT are the same across categories of Are you vegetarian?. | Independent-Samples Median Test | .002[c] | Reject the null hypothesis.
Female | 2 | The distribution of Empathy_TOT is the same across categories of Are you vegetarian?. | Independent-Samples Mann-Whitney U Test | .003 | Reject the null hypothesis.
Other | 1 | The medians of Empathy_TOT are the same across categories of Are you vegetarian?. | Independent-Samples Median Test | .[d] | Unable to compute.
Other | 2 | The distribution of Empathy_TOT is the same across categories of Are you vegetarian?. | Independent-Samples Mann-Whitney U Test | .[e] | Unable to compute.
a. The significance level is .050.
b. Asymptotic significance is displayed.
c. Yates's Continuity Corrected Asymptotic Sig.
d. There is only one group with valid data.
e. The group field does not have exactly two values.
Independent-Samples Median Test
Empathy_TOT across Are you vegetarian?
Independent-Samples Median Test Summary
Male | Total N | 65
Median | 55.000
Test Statistic | .031[a]
Degree Of Freedom | 1
Asymptotic Sig.(2-sided test) | .861
Yates's Continuity Correction | Chi-Square | .025
Degree Of Freedom | 1
Asymptotic Sig.(2-sided | .873
IBM SPSS Statistics Processor is ready
Unicode:ON