

Health-Related Attitudes toward Vegetarians and Meat-Eaters

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Abstract

Introduction: *Vegetarianism still gets little attention in scientific papers. Although it is not surprising that attitudes toward vegetarians and meat-eaters differ considerably, certain levels of these differences have been poorly studied.*

Objectives: *This study aimed to explore the implications of vegetarianism and meat-eaters' behaviours on individuals' health-related attitudes, by exploring how deeply these differences run.*

Methods: *An exploratory study was conducted to examine more in-depth the implications of vegetarianism and meat-eaters behaviours on individuals' health-related attitudes (n=180, mean age=33.96). We constructed vignettes to describe the eating habits of omnivores and vegetarians targets. Each vignette varied only in the description of eating behaviors. The participants were randomly assigned to three conditions: vegetarianism (n=60), meat-eater (n=60), and control (n=60). We used a self-report questionnaire to collect health-related attitudes and demographic data.*

Results: *The results of the Chi-square crosstabs analysis revealed that attitudes related to health state, health difficulties and health procedures were significantly associated with vegetarians and meat-eaters. Also, type of diet and gender differences emerged as being significantly related to vegetarians and meat-eaters. The causality of possible health issues and future health prognostics were not significant when comparing vegetarian and meat-eater target participants. Vegetarians tend to be considered healthier than meat-eaters, but still, omnivore participants thought that they have to consult a doctor. According to participants in this study, meat-eaters might encounter more mental health difficulties as opposed to vegetarians and should keep a diet. There were more positive attitudes and beliefs regarding the participants own type of diet. Moreover, when compared to men, women rated omnivores as having better health prognostics.*

Conclusions: *These results might shape prospective eating behaviors. Future experimental and longitudinal studies should be conducted to verify these findings and provide effective eating programs.*

Keywords: *vegetarian diet, omnivores, eating behavior, health*

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I. Introduction

Vegetarianism has become a global concern in the contemporary world. The vegetarian diet is still a recent phenomenon, not very much spread, and even less attention has been dropped to this eating behaviour. The vegetarian diet does not differ from the omnivorous one only by excluding meat from the menu, but it is also unique due to other important factors, such as the high consumption of fruits and vegetables. The diet is characterized by a lower level of saturated fat and cholesterol, due to a high intake of fruits, vegetables and whole grains in the menu (Craig & Mangels, 2009; Craig, 2010; Deriemaeker et al., 2010). It is suggested that a vegetarian diet is a healthy option, given the association with a lower incidence of problems related to cholesterol level, chronic degenerative diseases, hypertension, coronary artery disease, gallstones, type II diabetes, stroke and certain cancers (American Dietetic Association, 2003; Key et al., 2003).

Several studies have found an association between using a vegetarian diet and improving health (e.g. Key, Davey & Appleby, 1999; Lea & Worsley, 2003; Phillips, 2005). In general, vegetarians are considered to be more physically active, and fewer are smokers or alcohol users (Pollard et al., 2001; Baines, Powers & Brown, 2007; Gacek, 2010). Other studies (e.g. Burkert et al., 2014) do indeed notice a lower frequency of unhealthy behaviours among vegetarians, but, on the contrary, an inferior health status (allergies, mental disorders, a higher incidence of cancer), a greater need for health care and a lower quality of life.

A series of studies report an association between vegetarianism and eating disorders (e.g. Bardone-Cone et al., 2012), or between vegetarianism and anxiety, depressive and somatoform complications (e.g. Michalak, Zhang & Jacobi, 2012). Other studies indicate an association of the vegetarian diet with mental disorders (Baines, Powers & Brown, 2007; Farmer et al., 2011), which may affect the neuronal functioning and synapse plasticity. From this point of view, it is suggested that the absence of vitamin B12 in a vegetarian diet may increase the risk of major depressive disorders (Dog, 2010; Michalak, Zhang & Jacobi, 2012). These positions have led to numerous debates on the efficacy of a meat-free lifestyle.

1.1. Attitudes toward vegetarianism

Once viewed in a negative light, vegetarianism is now a blossoming field of exploration (Ruby, 2012). In a recent study by Judge and Wilson (2019), non-vegetarian attitudes toward vegetarians and vegans were generally positive. Attitudes toward vegetarians were

significantly more positive than toward vegans. But non-vegetarian men expressed less favourable attitudes toward both vegetarianism and veganism, compared to non-vegetarian women. Chin, Fisak, & Sims (2002) also indicate that attitudes toward vegetarians are generally positive. However, people with high levels of authoritarianism may have more negative attitudes concerning vegetarians, and women have more positive attitudes toward vegetarians than men. On the other hand, in another study (Minson & Monin, 2012), a large percent of the participants (47%) freely associated at least one negative term related to vegetarians.

However, in a study that analyzed the attitude of respondents towards the followed diets (omnivorous, avoiding the consumption of meat, vegetarian or vegan), it turned out that the respondents had the most positive attitudes and beliefs regarding their own type of diet and showed more negative attitudes and views towards the type of diet that was differing the most from their preferred one (Povey, Wellens & Conner, 2001).

1.2. Attitudes toward meat

Meat is often portrayed as a luxury object, having good taste and promoting good health. Therefore, the decision to abstain from meat is not always an easy one. The delicious taste of meat, along with vegetarian health concerns, might enhance meat consumption (Lea & Worsley, 2001). Indeed, empirical findings showed that the attitudes of omnivores relate to these aspects, irrespective whether vegetarians' attitudes are far more different, linking meat with poor health, along with disgust, killing and cruelty (e.g. Ruby, 2012). However, findings usually specify that vegetarians have more negative views toward meat and positive attitudes towards vegetables (Houwer & Bruycker, 2007). A negative predictor of meat consumption is the number of vegetarian friends (Lea & Worsley, 2001).

The sex differences in vegetarianism are quite substantial, considering the different angles of viewing and interacting with meat. Several studies have shown that there is a predisposition among women to become vegetarians as opposed to men (Smart, 1995; Worsley & Skrzypiec, 1998; Beardsworth & Bryman, 1999; Stahler, 2005, etc.). Compared to men, who mostly consider that by our human nature we are made to eat meat, women are especially tempted to become vegetarian (Lea & Worsley, 2003).

II. Objective

There are differences in eating practices between vegetarians and meat-eaters that hold different

individuals' attitudes toward their health status. Health-attitudes and interpretations are shaping behaviours that might affect health (Glanz & Rudd, 1993).

This study aimed to explore the implications of vegetarianism and meat-eaters behaviours on individuals' health-related attitudes, by exploring how deeply these differences run. It is not surprising that attitudes toward vegetarians and meat-eaters differ considerably, but certain levels of these differences have been poorly studied. We do not have a proper insight on attitudes towards the causes of being a vegetarian or a meat-eater in terms of physical or mental health. Also, we do not know much about how one thinks is best to proceed with these two eating behaviours (with special care or not) and about the changeability of their health status.

III. Methods

3.1. Participants

We have selected a convenience sample of 180 participants (M=30; F=150), with a mean age of 33.96 years. Informed consent was obtained from all the participants. The majority of participants were omnivores (77.8%), and a small amount of them were vegetarians (13.3%) or vegans (8.9%). Most lived in the urban area (88.3%), had a high level of education (83.9%), were Christian orthodox (67.8%), and were in a partnership or married (77.8%).

3.2. Materials

We constructed vignettes to describe the eating habits of omnivores and vegetarians. The target was described as having general positive attributes so that it would not interfere with eating behaviors evaluation in each condition. We described a girl named Flavia as being young, social and a music-lover. Each vignette varied only in the description of eating behaviours (Condition 1/ 2/ 3). The participants were randomly assigned to three conditions: vegetarianism (n=60), meat-eater (n=60), and control (n=60). Every condition included specific information about the target's eating behavior, except for the control condition, where no clear information was given. We manipulated this by including one of the following three descriptions in the middle of each vignette:

Condition 1. Vegetarianism. Flavia is a vegetarian and never eats beef, chicken, pork or fish. It is her personal decision not to eat meat for moral reasons, such as caring for animals, but also to be in better health.

Condition 2. Meat-eater. Flavia eats beef, chicken, pork or fish. In addition to other foods she eats, Flavia always enjoys a piece of meat on the table. She would not see her existence without eating meat.

Condition 3. Control. Sometimes Flavia serves meals with her friends. We do not know what she eats with her friends.

3.3. Procedure

We asked the participants to read the description of the target and answer the questions relating to her health. We administered each participant a vignette including a vegetarian description, a meat-eater description or with no eating behavior description at all, until an equal number of participants had completed each of the conditions. Participants' demographic data were also obtained at the end of the questionnaire.

3.4. Instruments

We used a self-report questionnaire to collect health-related attitudes and demographic data. After reading the assigned vignette, participants had to answer five questions regarding the health of the target. We constructed these items to be relevant in the following areas: health status, possible difficulties, causes of potential health issues, procedures and future prognostics. The health status of the target was evaluated as good or bad. Regarding possible health-related difficulties of the target, participants had to choose between these: physical health area, mental health area, both physical and mental health issues, no pain or they could assume that they do not know. Another question referred to causes of potential health issues, and the answer options were: psychological, medical, physical or other reason they would think of. Considering the causes identified by participants, they had to choose a procedure to prevent the risks: consulting a doctor, a psychiatrist – to evaluate mental health issues, keeping a diet, no treatment or other procedures they would think of. Future prognostics referred to prognostics/ hypotheses towards targets after following a procedure or not. The answer options for this item were: better health status in a couple of weeks, better health status in six months, no modifications at all or other prognostic (option to fill in) or “do not know”.

The demographic data were collected at the end of the questionnaire and referred to age, gender, residence area (rural/ urban), educational level (less/ middle/ high), relationship status (single/ divorced/ widowed/ in a relationship/ married), religion (orthodox/

catholic/ protestant/ other), and eating behavior (omnivore/ vegetarian/ vegan).

3.5. Statistical Analysis

The data for this study were analyzed on the base of Chi-square analysis with crosstabs and frequencies. Chi-square was chosen for the analysis because the distribution of nominal data was not appropriate for multivariate analyses to test for independence among nominal variables. All statistical analyses were performed using SPSS v. 24.

IV. Results

The sample had mild variations when considering key demographics, such as eating behaviours and gender (Table 1). We performed cross-tabulations using the Chi-square statistics to test whether different vignettes (vegetarian, meat-eater or control) influenced health-related attitudes.

Table 1. Eating behaviour and gender across study conditions

	Condition 1	Condition 2	Condition 3
Eating behaviours			
Omnivores (n=140)	48 (34%)	46 (33%)	46 (33%)
Vegetarians (n=24)	8 (33.33%)	6 (25%)	10 (41.66)
Vegans (n=16)	4 (25%)	8 (50%)	4 (25%)
Gender			
Males (n=30)	12 (40%)	8 (26.7%)	10 (33.3%)
Females (n=150)	48 (32%)	52 (34.7%)	50 (33.3%)

Results of the chi-square analysis between the independent variable and the five dependent variables revealed that three of the dependent variables were significantly related to the different eating behaviours ($p < .05$) when each health-related attitude was evaluated alone (Table 2).

Table 2. Chi-square analysis results

Cross tabulated variables by condition	Condition 1 (vegetarian) N=60	Condition 2 (meat-eater) N=60	Condition 3 (control) N=60	Total	df	χ^2	p
Health state:							
- good	52	38	46	136	2	8.90	.012
- bad	8	22	14	44			
Health difficulties:							
- physical health	24	19	15	58	8	21.41	.006
- mental health	1	5	6	12			
- physical and mental	2	11	5	18			
- no difficulties	26	23	21	70			
- do not know	7	2	13	22			
Health procedures:							
- doctor	31	16	21	68	8	26.36	.001
- psychiatrist	2	1	5	8			
- diet	1	16	5	22			
- no treatment	22	25	27	74			
- other approaches	4	2	2	8			

Table 3 shows the distribution of the data regarding the significant relationships between

dependent variables across conditions of the study and eating behaviours. It was revealed that vegetarians consider meat-abstainers as being significantly healthier than meat-eaters ($\chi^2=10.28$, $df=2$, $p < .05$). Vegans were more likely to question omnivores' physical health in case of health issues ($\chi^2=10.06$, $df=4$, $p < .05$). On the other hand, omnivores assumed that vegetarians are more likely to consult a doctor, whereas meat-eaters might have to keep a diet and are less likely to need any special treatment ($\chi^2=28.60$, $df=8$, $p < .01$). Among demographics, only gender emerged as being significantly related to future prognostics about health ($p=.044$, $p < .05$). Thus, when compared to men, women rated omnivores as having better health prognostics.

Table 3. Dependent variables across conditions of the study and eating behaviours

Cross tabulated variables by condition	Condition 1 (vegetarian) N=60	Condition 2 (meat-eater) N=60	Condition 3 (control) N=60	Total	df	χ^2	p
Health state							
<i>vegetarian participants</i>							
- good	8	1	5	14	2	10.28	.006
- bad	0	5	5	10			
Health causality							
<i>vegan participants</i>							
- psychological	2	0	1	3	4	10.06	.039
- physical	0	7	3	10			
- other	2	1	0	3			
Health procedures							
<i>omnivores</i>							
- doctor	27	12	19	58	8	28.60	.000
- psychiatrist	1	1	3	5			
- diet	1	12	2	15			
- no treatment	15	21	21	57			
- other	4	0	1	5			

V. Discussion

In this study, we investigated health-related attitudes toward vegetarians and meat-eaters. Our results show that only health state, health difficulties and health procedures were significantly related to vegetarians and meat-eaters. Vegetarians were considered more likely to be in better health than meat-eaters. This was also previously reported in several studies by findings of an association between using a vegetarian diet and improving health (e.g. Key, Davey & Appleby, 1999; Lea & Worsley, 2003; Phillips, 2005). Other studies (e.g. Burkert et al., 2014) do indeed notice a lower frequency of unhealthy behaviours among vegetarians, but, on the contrary, a poorer health status. These positions have led to numerous debates on the efficacy of a meat-free lifestyle.

The present data suggest physical, along with mental health difficulties in meat-eaters or omnivores. This is in line with the results in which vegetarians are considered to be more physically active, fewer smokers or users of alcohol (Pollard et al., 2001; Baines, Powers & Brown, 2007; Gacek, 2010). However, vegetarians,

unlike omnivores, are usually portrayed as more likely to have mental disorders (Baines, Powers & Brown, 2007; Farmer et al., 2011). If we take into account the definition of meat as being linked with killing and cruelty (e.g. Ruby, 2012), as some vegetarians do, a potential explanation for mental health issues in meat-eaters could be found.

Results of this study also suggested that omnivores consider that vegetarians might have to consult a doctor whereas vegetarians think meat-eaters or omnivores might have to keep a diet. Even if the vegetarian diet is characterized by a lower level of saturated fat and cholesterol, due to a high intake of fruits, vegetables and whole grains in the menu (Craig & Mangels, 2009; Craig, 2010; Deriemaeker et al., 2010), specific deficits, such as the absence of vitamin B12 might need special care (Dog, 2010; Michalak, Zhang & Jacobi, 2012). Also, the decision to abstain from meat is not always an easy one, and the good taste of meat along with vegetarian health concerns might enhance the meat consumption (Lea & Wosley, 2001) and urge the need to keep a diet. The causality of possible health issues and future health prognostics were not significant at the 0.5 level when comparing vegetarian and meat-eaters targets. These findings might be related to participants' different health interpretations that enhance eating behaviours (e.g. Glanz & Rudd, 1993). Even practitioners in the field of nutrition education seem to be skeptical about using theoretical concepts related to healthful food choices into practice (Glanz & Rudd, 1993). This highlights once more the importance of eating attitudes in shaping future health behaviors.

In addition, it was found that vegetarians and vegans consider themselves healthier than omnivores, whereas omnivores are more supportive of their eating practices. This is in line with the study of Povey, Wellens & Conner (2001), which assumed that individuals have the most positive attitudes and beliefs regarding the type of diet they followed and more negative attitudes and beliefs towards the type of diet that was most different from theirs. When choosing a diet, we usually think it is the best option for us and sometimes even minimize the potential risks. Therefore, individuals could find comfort in the type of diet they are following with less consideration for other eating practices.

Concerning the demographics of the respondents, the results of the present study revealed only gender differences related to future prognostics about health. Females rated omnivores as having better

health prognostics, when compared to males. These findings are surprising, given the fact that, unlike males, most females tend to become vegetarians (Smart, 1995; Worsley & Skrzypiec, 1998; Beardsworth & Bryman, 1999; Stahler, 2005, etc.). However, several women might be more cautious with following a vegetarian diet, given the deficits that might occur (Dog, 2010; Michalak, Zhang & Jacobi, 2012). The present data show that, in general, there are no substantial differences between men and women regarding their attitudes toward vegetarians or meat-eaters. This fact might be due to the gender proportions in our sample. Also, our sample comprised of a majority of individuals living in the urban area (88.3%), having a high level of education (83.9%), being Christian orthodox (67.8%), and in a partnership or married (77.8%). Thus, our study did not find these demographics significant for vegetarians or meat-eaters. Additional studies are necessary, as the present data do not qualify for such conclusions.

Several limitations should be considered in this study. First, as this is a cross-sectional study using a convenience sample, we cannot assume causal relationships, and its generalizability is limited. In addition, the use of Chi-square measures is not as powerful as using other parametric data. This fact was minimized in this study by using a larger sample. Moreover, we did not control for gender or eating behaviours variables across the conditions of the study. However, the sample mildly varied when considering these demographics in all conditions of the study.

VI. Conclusions

Vegetarians tend to be considered healthier than meat-eaters, but omnivores thought that they have to consult a doctor. According to the participants in this study, meat-eaters might encounter more mental health difficulties, as opposed to vegetarians, and should keep a diet. Also, there were more positive attitudes and beliefs regarding their own type of diet that participants followed. Moreover, women rated omnivores as having better health prognostics when compared to men. These attitudes might shape future health-related behaviours, as foreshadowed from our study. In this sense, it would be beneficial to improve the knowledge of the general population regarding both vegetarian and meat-eating diets. Future experimental and longitudinal studies should be conducted to verify these findings and provide effective eating programs.

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