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We Can't Keep Meating Like This: Attitudes towards Vegetarian and Vegan Diets in the United Kingdom

Christopher J. Bryant 

Department of Psychology, University of Bath, Claverton Down, Bath BA2 7AY, UK; C.J.Bryant@bath.ac.uk

Received: 25 October 2019; Accepted: 26 November 2019; Published: 2 December 2019



Abstract: Animal agriculture is implicated as a major cause of greenhouse gas emissions, animal suffering and public health problems. This survey asked 1000 UK meat-eaters about their beliefs about vegetarian and vegan diets, and their intended consumption of meat and animal products one month in the future. One in six intended to reduce their meat consumption in the next month, and 14% intended to reduce their consumption of animal products. The majority agreed that vegetarian and vegan diets are ethical, good for the environment and healthy. The majority also agreed that both vegetarianism and veganism were socially acceptable. However, there were three consistent negative beliefs about vegetarian and vegan diets: that they are difficult, that they are not enjoyable and that they are expensive. Moreover, perceptions of vegan diets were significantly more negative than perceptions of vegetarian diets on most aspects. Significant differences in perceptions of each diet were observed between genders and by age. It is argued that most meat-eaters agree with the ethical and environmental arguments in favour of vegetarianism/veganism but do not follow these diets because of practical reasons relating to taste, price and convenience. New alternatives to animal products are discussed as a possible way to address these practical barriers. Finally, the case is made for more research on developing high-quality, low-cost and widely available animal product alternatives.

Keywords: vegetarian; vegan; attitudes; consumer behaviour; meat reduction

1. Background

1.1. The Case against Animal Products

Global animal agriculture is a substantial contributor to environmental degradation, human health problems and animal suffering. First, animal agriculture exacerbates a number of serious environmental issues. According to recent comprehensive environmental analyses, rearing animals for food is a major cause of eutrophication, acidification, freshwater withdrawal, deforestation and climate change [1,2]. It is estimated that 14.5% of anthropic greenhouse gas emissions are associated with animal agriculture [3]. Additionally, due to the demand put on land for rearing animals or growing their feed, animal agriculture is responsible for up to 91% of deforestation in the Amazon [4]. The implications of these emissions and land use for climate change are dire. The inefficiency of converting plant calories to animal calories means that animal rearing is resource-intensive, and this contributes to global food insecurity [5,6]. This is especially concerning given that demand for animal products is forecast to increase dramatically as the global population grows and becomes more affluent [7].

In addition to environmental concerns, many have ethical objections to using animals for food [8]. In particular, a drive for economic efficiency has led to increasingly inhumane conditions for farmed animals over the last number of decades [9]. It is estimated that globally, over 90% of farmed animals live their lives on factory farms [10] where they are kept in cages, routinely mutilated without painkillers, and painfully slaughtered [11]. This represents billions of animals every year [10]. If we take this

suffering seriously, the sheer scale and intensity surely means that today's animal agriculture represents one of the largest moral failings of our time.

There are also concerns around the effect of excessive animal product consumption on human health, though the evidence here is less clear due to the difficulty of studying the health effects of different diets [2]. Nonetheless, there are several epidemiological studies which show a correlation between animal product consumption and various health problems, including cardiovascular disease, type 2 diabetes, cancer and overall mortality [12–16]. This has led to the view that a substantial reduction in animal product consumption is necessary for a global shift towards healthier diets [2].

There are good arguments for individuals to move towards vegetarianism or veganism for ethical, environmental and health reasons. Indeed, some data suggest that an increasing number of consumers in the UK are doing precisely that.

1.2. Vegetarianism and Veganism in the UK

There are several surveys estimating the number of vegans, vegetarians, pescatarians and flexitarians in the UK in the last decade (see Table 1). With the exception of one outlier here [17], representative surveys generally estimate the number of vegans at around 1–2% of the adult population, vegetarians around 2–7% and pescatarians 3–9%. The estimates for those who are flexitarian and/or have some desire to reduce their meat consumption vary more because those are less well-defined categories, and different surveys use different questions.

Table 1. Survey results indicating levels of vegetarianism and veganism in the UK.

Survey	Sample	Vegan	Vegetarian	Pescatarian	Flexitarian	Willing/Intending to Reduce Meat Consumption
[18]	'More than 2000' UK residents	2%	6%	4%	-	25%
[19]	9933 adults (age 15+)	1.1%	2.3%	-	-	-
[20]	1715 UK adults (age 18+)	-	7%	-	-	34%
[21]	2023 UK adults (age 18+)	1%	6%	9%	-	20%
[22]	2000 UK adults	1.3%	6.9%	4.1%	-	10%
[23]	UK, further information not given	1%	3%	3%	14%	29%
[17]	UK, information not given	7%	14%	-	31%	-
[24]	2241 adults (aged 16+) in England, Wales and Northern Ireland	1%	3%	-	-	-
[25]	3118 adults (aged 16+) in England, Wales and Northern Ireland	<1%	3%	-	-	-
[26]	3453 adults (aged 16+) across the UK	-	2%	-	3%	-
[27]	3231 adults (aged 16+) across the UK	-	2%	-	3%	-
[28]	3163 adults (aged 16+) across the UK	-	3%	-	4%	-

Whilst surveys rarely put the number of vegetarians and vegans in the UK above 10%, many recent surveys have found that a substantial number intend to, or are willing to, reduce their meat consumption. Existing research provides some insight on the reasons why people feel compelled to give up eating meat, and the barriers they face in doing so [29].

1.3. Motivations and Constraints

Recent research has identified the major motivations and constraints around vegetarian and vegan diets [30]. The main motivations to move towards a vegetarian or vegan diet are animal welfare, the environment and personal health, whilst the major barriers are sensory enjoyment of animal

products, convenience and financial cost [30]. Mullee et al. [31] found that, when asked about possible reasons for eating a more vegetarian diet, the most popular option chosen by omnivores and semivegetarians was their health. The environment and animal welfare were chosen by fewer participants, and for omnivores, these reasons ranked below 'to discover new tastes', 'to reduce weight', and 'no reason'. This finding has been replicated elsewhere [32,33] and implies that, for those not currently reducing their meat consumption, potential personal benefits are more important than environmental or ethical benefits. More specifically, consumers often recognise health benefits such as decreased saturated fat intake, increased fruit and vegetable intake and disease prevention [32,34]. On the other hand, some worry about not getting enough protein or iron from a vegetarian diet [35].

Interestingly, this prioritisation of health motives appears to be reversed for vegetarians and vegans. According to a survey published by Humane League Labs [36], whilst health and nutrition reasons for reducing animal product consumption are the most commonly cited by omnivores and semivegetarians, animal welfare is the most common reason given by vegetarians and vegans. This is logical, because improving one's health or reducing one's environmental impact can be achieved by consuming incrementally fewer animal products; viewing animal products as the product of animal suffering and exploitation, however, is more conducive to eschewing them altogether.

In a systematic review of consumer perceptions of sustainable protein consumption, Hartmann and Siegrist [37] found that it is common for consumers to underestimate the ecological impact of meat consumption. This has been observed in many different studies [33,38–40] and may imply a lack of knowledge about the environmental impact of meat consumption. Alternatively, this could reflect that consumers are generally unwilling to reduce their meat consumption [40] and are subsequently motivated to minimise their perceptions of the negative consequences of their choices [41].

Indeed, such motivated reasoning appears to be evident with respect to animal welfare issues. Most people eat meat but disapprove of harming animals, a conflict that has been dubbed 'the meat paradox' [42]. Rothgerber [43] identified a number of ways in which dissonance around harming animals arises in meat-eaters, and a number of strategies which are used to reduce this dissonance. Dissonance-reducing strategies include denial of animal mind, denial of animals' ability to feel pain and dissociating meat from its animal origin [43]. This motivated reasoning results in a number of odd conclusions, such as lower mental capacity being ascribed to food animals compared to nonfood animals and increased denial of animal mind when one anticipates immediate meat consumption [44].

One can understand the motivation to continue eating animal products; the literature has identified several considerable constraints to adopting a vegetarian or vegan diet. Studies have consistently found that the strongest of these is simply enjoyment of eating meat [34,45,46]. This was by far the number one reason for not being vegetarian in a recent UK survey [47] and was the biggest constraint for online survey respondents who indicated that they do not want to go vegetarian or vegan [36]. Despite the many potential benefits, the taste of meat and animal products is enough of a barrier to prevent dietary change for most people.

The second most important barrier is convenience, with many consumers saying vegetarian dishes are difficult to prepare and that there is a lack of options when eating out [33,38,48]. Humane League Labs [36] found that a lack of options when eating out was the most common factor that people said made it difficult to eat meat-free meals, whilst Schenk, Rössel and Scholz [30] have argued that the additional time, knowledge and effort required to buy and prepare vegetarian or vegan food is especially a barrier to those newly transitioning diets.

Finally, for some, there is a financial barrier [49], although there is considerably less consensus on this in the literature [30]. A UK survey found that the high cost of meat substitutes was a barrier for 58% of consumers, though this survey conducted by VoucherCodesPro [47] may have been inclined to focus on financial considerations. Another study found that a vegetarian diet is actually cheaper than one containing meat, but that a vegan diet is most expensive of all [22]. This may be due to the relatively high cost of plant-based milks and other specialist products.

The present study investigates UK meat-eaters' views of various aspects of vegetarianism and veganism. Whilst the common motivators and constraints to vegetarian and vegan diets are well documented, there is a paucity of open data assessing how meat-eaters evaluate the relevant aspects of each of these diets. This study seeks to address this gap by providing quantitative evaluations of the relevant aspects of vegetarian and vegan diets. Additionally, there is currently no quantitative comparison of these factors with respect to vegetarianism versus veganism. Therefore, this study compares ratings of common motivators and barriers between vegetarian and vegan diets. Finally, little is known about how these evaluations of vegetarian and vegan diets vary amongst different demographic groups. Therefore, this study examines the overall mean ratings of each of these factors and investigates how these views vary between different demographics.

2. Methods

2.1. Participants

Meat-eaters living in the UK aged 18 and over were recruited ($n = 1000$). Participants were recruited through the online research platform, Prolific, and each participant was paid £0.45 for a 5 min survey. Recruiting participants through this type of online platform has its limitations, including the possibility of recruiting an unrepresentative sample, and asking questions in a contrived setting which may not be ecologically valid [50]. Nonetheless, this sampling technique does offer low cost and fast recruitment of specifiable samples, and the use of Prolific as a recruitment tool in academic research is therefore increasingly common and generally considered acceptable [51–53]. Although recruitment was for meat-eaters only, there was a small number of vegetarians in the original dataset ($n = 25$); these participants were removed, and their responses were replaced with more meat-eaters. The final sample was 49.8% male and 49.8% female (0.3% did not disclose gender, 0.1% 'other'), and the mean age was 34.02 ($SD = 11.67$).

2.2. Procedure

This study received ethical approval from the University of Bath's Department of Psychology Ethics Committee (PREC 18-219). The full anonymised dataset is available via OSF (see Supplementary Materials).

First, participants read some brief information about the study and gave their consent to take part. They were then given definitions of vegetarianism and veganism and asked to give their opinions about 11 different aspects of vegetarian and vegan diets using 7-point bipolar scales. The order of these scales and the order in which participants were asked about vegetarianism and veganism were randomised to control for order effects. Next, participants answered questions about their intended consumption of meat and their intended consumption of animal products 'one month from today'. On 6-point scales, participants could indicate that they would eliminate, greatly reduce, slightly reduce, maintain about the same, slightly increase or greatly increase their consumption of both meat, and animal products generally. Similar scales have been used in previous research [54,55].

It is worth noting that this measure is conservative. Compared to asking about intentions to reduce consumption in general, defining a specific action and a specific, short time period is likely to make participants reflect critically about their own likely behaviour. Additionally, as participants answered this question, they saw the phrase 'Thank you for being honest!' which was intended to mitigate the social desirability effect (i.e., over-reporting of intentions to reduce animal product consumption).

Finally, participants gave demographic information, including their age, gender, political orientation, education and income. They also indicated whether they ate 'at least occasionally' beef, lamb, pork, chicken, fish, eggs and dairy. Participants were then debriefed and compensated.

2.3. Data Analysis

Data were analysed using SPSS version 25. First, the dataset was cleaned to verify that participants met the inclusion criteria of being aged 18 or over and being a meat-eater. All respondents were aged

18 or over, but 25 indicated that they did not eat meat. These participants were removed from the study and replaced with new respondents.

Shapiro–Wilk tests indicated that the ratings of the different aspects of vegetarianism and veganism were non-normally distributed, and therefore, nonparametric statistical tests were used.

The Wilcoxon signed rank test was used to compare ratings of different aspects of vegetarianism against veganism. This is a nonparametric test used to compare related groups, similar to a paired *t*-test.

The Mann–Whitney U test was used to compare responses between genders; this is a nonparametric test used to compare two independent groups, similar to an independent *t*-test.

Finally, Spearman’s rank order correlation was used to investigate correlations of the outcome measures with age, political views, education level and income level. This is a nonparametric measure of correlation used to indicate the strength of a relationship between two variables, similar to Pearson’s correlation coefficient.

The significance level of $p = 0.05$ was chosen for all tests. However, since some of these involved testing multiple variables, results which are significant at a level of $p = 0.002$ (Bonferroni-corrected) are also highlighted.

3. Results

3.1. Overall Attitudes to Vegetarianism and Veganism

The purpose of these analyses is to assess what meat-eaters in the UK think about various aspects of vegetarian and vegan diets overall.

Figure 1 shows the mean scores for each aspect of vegetarianism and veganism. Each aspect was rated on a 1–7 scale, where 1 represents the most negative view of this aspect, 7 represents the most positive view, and 4 is the midpoint. Displaying the data in this way allows us to see which aspects are, on average, rated positively, negatively or neutrally.

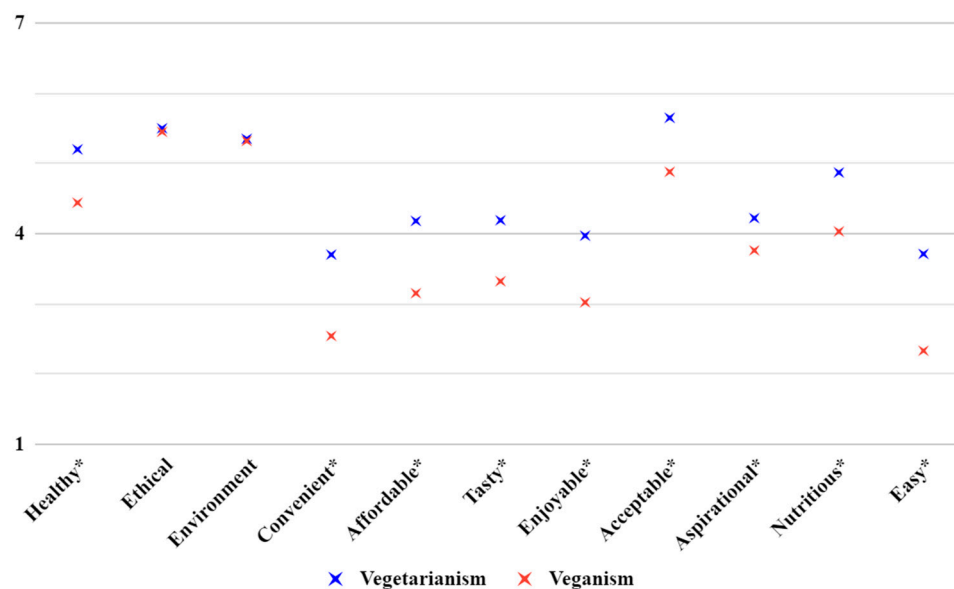


Figure 1. Mean ratings of each aspect of vegetarianism and veganism. * indicates a significant difference between the ratings for vegetarianism and veganism.

Figures 2 and 3 show the proportion of respondents who gave positive (5–7 on the scale), negative (1–3 on the scale) or neutral (4 on the scale) ratings for each aspect of vegetarianism and veganism.

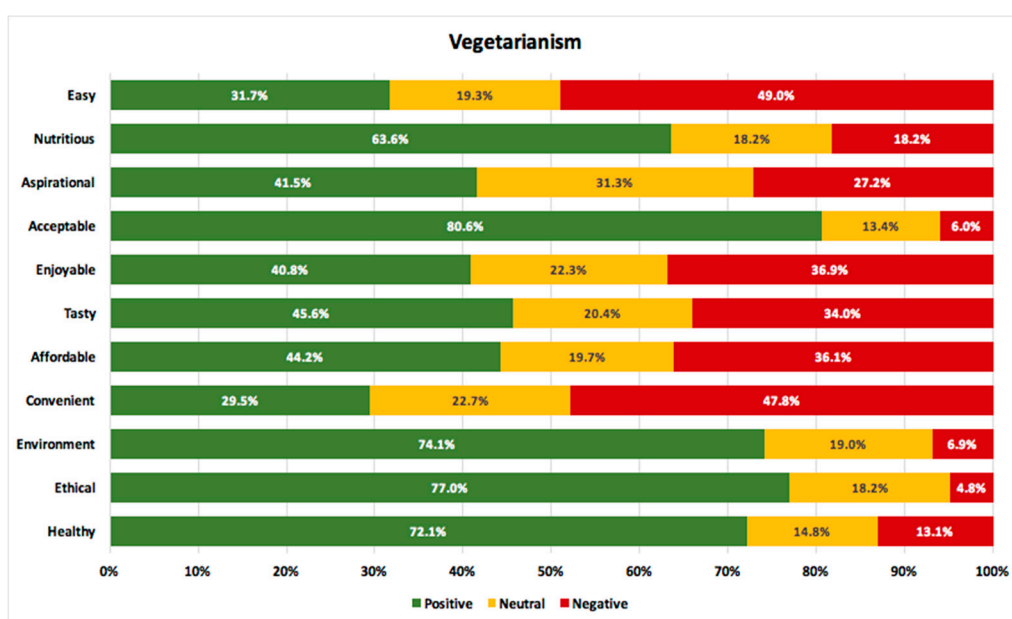


Figure 2. The proportion of respondents with positive, negative or neutral views about aspects of vegetarianism.

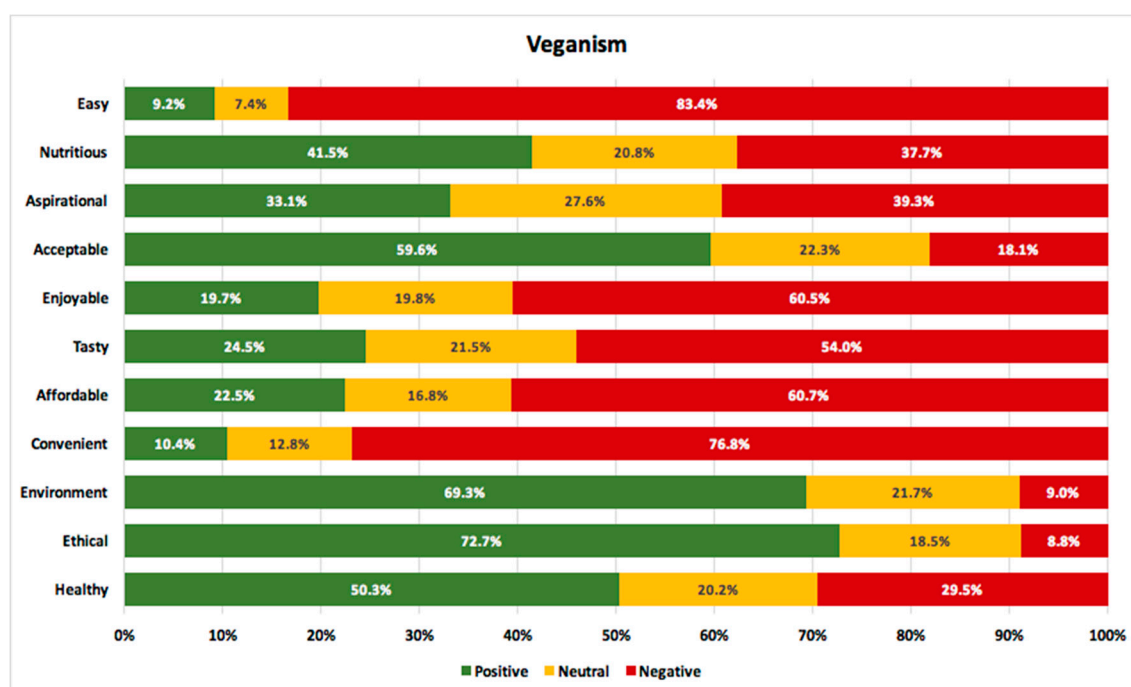


Figure 3. The proportion of respondents with positive, negative or neutral views about aspects of veganism.

As shown in Figure 1, the factors which are usually considered motivations for going vegetarian or vegan are, indeed, rated positively on average. On measures of health, nutrition, environmental impact and ethics, meat-eaters rated vegetarian and vegan diets positively on average. In addition, Figures 2 and 3 demonstrate that a majority of meat-eaters had positive views of these aspects of vegetarianism and veganism. That is to say, most meat-eaters agree that vegetarian and vegan diets are ethical, healthy and good for the environment. A notable exception is the nutrition of vegan diets, which just 41.5% rated positively and 37.7% rated negatively.

Conversely, the factors which are usually considered constraints to adopting a vegetarian or vegan diet are, on average, rated as neutral or negative and are particularly negative with regard to veganism (see Figure 1). Ease, convenience, taste, enjoyableness and affordability of veganism were all rated negatively, on average. The average ratings for vegetarianism were more neutral, though ease and convenience were still rated negatively. As shown in Figures 2 and 3, the majority of meat-eaters had negative views of these aspects of veganism, and most had negative or neutral views of these aspects of vegetarianism.

In terms of the aspects relating to the social perspectives of each diet, the data overall suggest that meat-eaters on average think that vegetarianism and veganism are socially acceptable, but most stop short of calling them aspirational. As shown in Figures 2 and 3, the majority have positive views of the social acceptability of both vegetarianism and veganism. However, the majority have negative or neutral views of these diets in terms of considering them aspirational. As with other factors, views of veganism are more negative than views of vegetarianism.

3.2. Intentions to Reduce Consumption of Meat and Animal Products

Table 2 shows how respondents rated their intended change in consumption of meat and animal products. This was a more conservative measure of intended change in consumption than has been used in previous research, in that it specifies a timeframe of one month within which respondents said they intended to change their consumption.

Table 2. Intended consumption of meat and animal products within one month.

Response	Meat	Animal Products
Eliminate (1)	0.1%	0.2%
Greatly decrease (2)	3.5%	2.4%
Slightly decrease (3)	13.0%	11.3%
Maintain the same (4)	81.0%	84.3%
Slightly increase (5)	1.9%	1.5%
Greatly increase (6)	0.5%	0.3%
Mean (SD)	3.83 (0.537)	3.85 (0.483)

As shown in Table 2, the majority of respondents said that their consumption of meat and animal products would be about the same in one month. However, a sizeable minority said they would slightly decrease their consumption of meat and animal products. Further, 3.5% said they would greatly decrease their consumption of meat, whilst 2.4% said they would greatly decrease their consumption of animal products. Just 0.1% and 0.2% said they would completely eliminate their consumption of meat and animal products, respectively. Some said they would slightly increase their consumption of meat and animal products, whilst a small number said they would greatly increase their consumption of meat and animal products.

3.3. Comparison of Attitudes to Vegetarianism and Veganism

In order to test whether these differences in perceptions of vegetarianism and veganism were statistically significant, Wilcoxon signed rank tests were conducted on the ratings for each aspect of vegetarianism and veganism. The mean ratings, standard deviations and the results of the Wilcoxon signed rank tests are shown in Table 3.

As shown in Table 3 (and Figure 1), vegan diets are viewed significantly more negatively than vegetarian diets on almost every aspect. The only aspects in which there are no significant differences in opinions of the two diets are in how ethical they are and how good for the environment they are.

In other words, meat-eaters on average perceive no additional benefits in terms of animals and the environment of a vegan diet compared to a vegetarian diet, whereas they do see a vegan diet as worse in other ways. This may be because respondents consider a vegan diet to be further from their own diet and therefore rate it less favourably to reduce dissonance.

Table 3. Mean ratings for aspects of vegetarianism and veganism with Wilcoxon signed rank tests.

Aspect	Vegetarianism Mean (SD)	Veganism Mean (SD)	Wilcoxon signed Rank Tests
Healthy	5.20 (1.44)	4.44 (1.73)	* $Z = -15.249$, $p < 0.001$
Ethical	5.50 (1.28)	5.45 (1.51)	$Z = -1.618$, $p = 0.106$
Environment	5.35 (1.29)	5.32 (1.50)	$Z = -0.836$, $p = 0.403$
Convenient	3.70 (1.52)	2.54 (1.44)	$Z = -19.610$ $p < 0.001$
Affordable	4.18 (1.70)	3.15 (1.76)	$Z = -17.175$, $p < 0.001$
Tasty	4.19 (1.71)	3.32 (1.66)	$Z = -16.838$, $p < 0.001$
Enjoyable	3.97 (1.68)	3.02 (1.65)	$Z = -18.026$, $p < 0.001$
Acceptable	5.65 (1.33)	4.88 (1.54)	$Z = -16.095$, $p < 0.001$
Aspirational	4.22 (1.56)	3.76 (1.74)	$Z = -9.609$, $p < 0.001$
Nutritious	4.87 (1.50)	4.03 (1.74)	$Z = -15.944$, $p < 0.001$
Easy	3.71 (1.59)	2.33 (1.40)	$Z = -20.569$, $p < 0.001$

* indicates the difference between vegetarianism and veganism was significant at $p = 0.05$.

3.4. Comparison of Different Demographic Groups

It is also informative to consider how perceptions of different aspects of vegetarianism and veganism might vary between different demographics.

First, Mann–Whitney U tests were used to compare the ratings of each aspect of vegetarianism and veganism between men ($n = 498$) and women ($n = 498$). The variables for which men differed significantly from women are displayed in Table 4. Since this analysis involved multiple comparisons (for 22 different variables), listed here are all differences which are significant at $p = 0.05$, and additionally indicated with a * those which are significant at $p = 0.002$ (this is based on a Bonferroni correction of $p = 0.05 \div 22 = 0.002$).

As shown in Table 4, women tended to have more positive views of vegetarianism and veganism compared to men. This is in line with previous research which has indicated that men tend to consume more meat and are less likely to be vegetarian or vegan compared to women [56,57]. Notable exceptions here were that men rated veganism as easier and more affordable compared to women.

Secondly, Spearman correlation analyses were used to examine which ratings were significantly correlated with age, political views, levels of education and income. The variables which were significantly correlated with these factors are shown in Table 5. Positive r values indicate that this aspect of vegetarianism or veganism was viewed more positively by older respondents, more right-wing

respondents, respondents with higher levels of education and respondents with higher levels of income; negative r values indicate the opposite. Again, since this analysis involved multiple comparisons (for 22 different variables), differences listed here are significant at $p = 0.05$, and additionally indicated with a * those which are significant at $p = 0.002$ (this is based on a Bonferroni correction of $p = 0.05 \div 22 = 0.002$). Cells are empty for correlations which were not significant at $p = 0.05$.

Table 4. Perceptions of vegetarianism and veganism with significant gender differences.

Diet	Aspect	Male Rating (Mean, SD)	Female Rating (Mean, SD)	Mann-Whitney U Test
Vegetarianism	Convenient	3.58 (1.535)	3.82 (1.496)	$U = 11,158,5$ $p = 0.005$
	Tasty	4.00 (1.649)	4.38 (1.745)	* $U = 10,739,4$ $p < 0.001$
	Enjoyable	3.75 (1.612)	4.19 (1.728)	* $U = 10,490,7$ $p < 0.001$
	Nutritious	4.77 (1.458)	4.97 (1.533)	$U = 11,302,7$ $p = 0.014$
Veganism	Affordable	3.29 (1.756)	3.01 (1.755)	$U = 11,208,1$ $p = 0.008$
	Tasty	3.21 (1.656)	3.43 (1.661)	$U = 11,430,4$ $p = 0.030$
	Easy	2.42 (1.459)	2.23 (1.339)	$U = 11,533,5$ $p = 0.047$

* indicates that the difference was significant at the level of $p = 0.002$, deduced using a Bonferroni correction.

Table 5. Perceptions of vegetarianism and veganism significantly correlated with age, political views, education and income.

Diet	Aspect	Spearman's Rank-Order Correlation			
		Age	Political Views	Education	Income
Vegetarianism	Healthy	-	* $r = -0.131$, $p < 0.001$	-	-
	Ethical	-	* $r = -0.188$, $p < 0.001$	-	-
	Environment	-	* $r = -0.131$, $p < 0.001$	-	-
	Convenient	$r = 0.073$, $p = 0.022$	$r = -0.099$, $p = 0.004$	-	-
	Affordable	-	$r = -0.103$, $p = 0.003$	$r = 0.080$, $p = 0.011$	-
	Tasty	-	$r = -0.086$, $p = 0.012$	-	-
	Enjoyable	$r = 0.063$, $p = 0.048$	$r = -0.085$, $p = 0.013$	-	-
	Acceptable	-	* $r = -0.168$, $p < 0.001$	-	-
	Aspirational	-	* $r = -0.156$, $p < 0.001$	$r = 0.066$, $p = 0.037$	-
	Nutritious	-	* $r = -0.168$, $p < 0.001$	-	-
	Easy	$r = 0.084$, $p = 0.008$	$r = -0.069$, $p = 0.044$	-	-

Table 5. Cont.

Diet	Aspect	Spearman's Rank-Order Correlation			
		Age	Political Views	Education	Income
Veganism	Projected change in meat consumption	-	$r = -0.099$, $p = 0.003$	$r = 0.067$, $p = 0.034$	-
	Healthy	$*r = -0.121$, $p < 0.001$	$*r = -0.128$, $p < 0.001$	-	-
	Ethical	$r = -0.073$, $p = 0.022$	$*r = -0.206$, $p < 0.001$	$*r = 0.105$, $p = 0.001$	-
	Environment	-	$*r = -0.197$, $p < 0.001$	-	-
	Convenient	-	$*r = -0.067$, $p = 0.049$	-	-
	Affordable	$*r = 0.128$, $p < 0.001$	-	-	-
	Tasty	-	$r = -0.076$, $p = 0.026$	-	$r = -0.069$, $p = 0.038$
	Enjoyable	-	$*r = -0.103$, $p = 0.002$	-	-
	Acceptable	-	$*r = -0.139$, $p < 0.001$	-	-
	Aspirational	$r = -0.086$, $p = 0.006$	$*r = -0.144$, $p < 0.001$	$r = 0.069$, $p = 0.029$	-
	Nutritious	-	$*r = -0.164$, $p < 0.001$	-	-
	Easy	$r = 0.071$, $p = 0.024$	-	-	-
Projected change in animal product consumption		-	-	$r = 0.075$, $p = 0.018$	-

* indicates that the difference was significant at the level of $p = 0.002$, deduced using a Bonferroni correction.

As shown in Table 5, older people tended to view some aspects of vegetarianism and veganism more positively than younger people. Higher age correlated with increased ratings of ease for both diets, as well as increased ratings of convenience and enjoyableness for vegetarianism. However, older participants tended to rate veganism as less healthy, less ethical, and less aspirational than younger participants.

Political views were the demographic factor most strongly correlated with opinions of vegetarianism and veganism. Every aspect of each diet was viewed more positively by more left-wing people with the exception of ease and affordability of veganism. Left-wing people were also significantly more likely to say they would reduce their meat consumption.

Education was positively correlated with various opinions of vegetarianism and veganism; in particular, those with higher levels of education viewed vegetarianism as more affordable and viewed veganism as more ethical. Higher education was also correlated with viewing both vegetarianism and veganism as more aspirational, and with increased likelihood to say they would reduce their consumption of meat and animal products.

Income level had few correlations with opinions of vegetarianism and veganism. The only significant aspect associated with income was that higher-income respondents viewed veganism as less tasty.

Whilst these attitudinal measures showed some significant differences based on gender and age, intentions to change consumption of animal products showed no significant differences on this basis.

4. Discussion

4.1. More Positive Attitudes towards Vegetarianism than Veganism

The analyses demonstrated that veganism is rated as significantly less positive than vegetarianism on every aspect except for ethics and the environment, where no significant difference was observed. This reflects findings from elsewhere, which have highlighted a perception of veganism as over-the-top and excessively restrictive [58–60]. It may be that vegan diets are considered further from meat-eaters' own, and more difficult to follow, and therefore, meat-eaters are more inclined to use the dissonance-reducing strategies identified by Rothgerber [43] as a way to justify their current diet. This could lead them to rate veganism as worse than vegetarianism in terms of practical aspects and rate veganism as no better than vegetarianism in terms of the ethical and environmental aspects.

Animal advocates might therefore consider promoting vegetarianism rather than veganism, because the former likely seems like a more achievable goal to meat-eaters. Whilst a tacit endorsement of consuming eggs and dairy will seem unsavoury to many advocates, a vegetarian diet may be a necessary stepping stone for many meat-eaters [61]. Indeed, Humane League Labs [36] find some evidence that omnivores are more likely to transition to vegetarianism, pescatarianism and meat reduction than outright veganism. This analysis seems to suggest that many who eventually become vegan have followed a meat reduction path through flexitarianism and vegetarianism first. Endorsing and encouraging any type of meat reduction is likely to be helpful in this context, whereas purist 'vegan or nothing' messages are unlikely to be effective [62].

4.2. Agreement in Principle, Disagreement in Practice

Overall, the data here support Schenk, Rössel and Scholz's [30] typology of motivations and constraints regarding vegetarian and vegan diets. Health, environmental and ethical aspects are generally rated positively, whilst price, taste and convenience are generally rated negatively. Furthermore, vegetarian and vegan diets are considered socially acceptable, but most stop short of calling them aspirational.

Strikingly, there appears to be strong awareness of, and agreement with the ethical and environmental arguments for vegetarianism and veganism. A large majority of UK meat-eaters said that vegetarian and vegan diets are good for the environment and are ethical.

In terms of the environmental aspect, this finding appears to be in contrast with previous research, which has found that the majority of consumers are not aware of the negative environmental impact of animal products [37]. This may mean that the public has become more aware of this during that time, which seems plausible after a number of high-profile media stories on the link between meat and climate change [63,64]. However, it may also be a result of framing the question as vegetarianism/veganism being good for the environment, as opposed to meat and animal products being bad for the environment. The latter would appear to invite more disagreement, as meat-eaters' own behaviour is directly implicated.

Additionally, most respondents rated vegetarianism as healthy (72.1%) and nutritious (63.6%), indicating that the majority of UK meat-eaters do not have serious health concerns about giving up meat. Whilst previous research has highlighted concerns around specific nutritional deficiencies [35], the current data indicate that most meat-eaters do not consider a vegetarian diet to be lacking in nutrition in any significant way. A slight majority also agreed that veganism is healthy (50.3%), with just 29.5% saying it is unhealthy. There was lower agreement that veganism is nutritious, however: Just 41.5% agreed with this, whilst 37.7% said it is not nutritious. It appears that respondents were more sceptical about the healthiness of a vegan diet overall.

Moreover, 80.6% said vegetarianism is socially acceptable, while just 6.0% said it is not socially acceptable. It appears that few people actively disagree with vegetarianism or find vegetarians to be a social annoyance. Indeed, 41.5% said that vegetarianism is aspirational. Most respondents said veganism is acceptable (59.6%), though a minority said it is aspirational (33.1%). Indeed, more

respondents said veganism is not aspirational (39.3%) suggesting that there is more of a stigma towards veganism in general.

With regard to the finding that most people think vegetarianism and veganism are ethical, this is less surprising. Indeed, this appears to be in line with findings that a substantial portion of the public agrees that animal farming and slaughterhouses should be banned [65]. However, there is likely some framing effect here, also: Whilst 72.7% of respondents in this study rated veganism as ethical and 32.3% rated it at the top end of the 'ethical' scale, Sentience Institute [65] found that 96% of Americans agreed that eating animals is a personal choice, and nobody has the right to tell them not to [65].

These data provide another example of the meat paradox [42], which is now a well-documented phenomenon amongst meat-eaters. Many meat-eaters recognise, on some level, that their behaviour causes animal suffering, and this is a moral problem. The maintenance of this behaviour is more likely justified on practical grounds than ideological grounds, which again is demonstrated here: Though people rated vegetarian and vegan diets positively in terms of health, ethics, and the environment, they rated them negatively in terms of taste, price and convenience.

Unfortunately, price, taste and convenience are repeatedly highlighted as major predictors of food choice in practice [66–72]. This suggests that vegetarian and vegan diets, which are rated poorly on these aspects here and in previous research [29,30], are inevitably unappealing to most people. However, these barriers are not intractable and may be able to be addressed by technological advances which improve the quality, affordability and availability of animal product alternatives [73].

4.3. Addressing Objections through Animal Product Alternatives

Animal advocates often highlight the ethical and environmental arguments for vegetarianism and veganism, and indeed, much research has been conducted comparing the relative persuasiveness of these and other rational arguments [55,62,74]. However, these findings indicate that the majority of meat-eaters do not need persuading of these arguments. The data suggest that many meat-eaters recognise the benefits of avoiding animal products but find vegetarianism/veganism to be too inconvenient, expensive or simply not enjoyable. These objections are practical rather than ideological and may be able to be addressed through practical solutions rather than ideological persuasion.

Hoek et al. [73] have argued that replacement of meat consumption is likely to be best achieved not by reiterating reasoned arguments for reducing meat consumption, but by significantly improving the sensory quality of meat substitutes. Based on these data, and Schenk, Rössel and Scholz's [30] typology of motivations and constraints, such alternatives need not just high sensory quality, but low cost and wide availability to address all of the main barriers to vegetarian and vegan eating. Developing good quality, low cost and familiar replacements for animal products is likely to be the best route to replacing animal product alternatives.

First, taste and enjoyability must be addressed. Plant-based meat analogues are becoming increasingly realistic, and some consumers now find it difficult to distinguish them from conventional meat [75]. Plant-based dairy alternatives have been popular for some time and have been implicated in a 7.5% year-on-year fall in dairy sales in the USA [76]. Emulating the sensory properties of animal products using plant-based ingredients is one possible way to overcome the taste barriers to vegetarianism and veganism, though many existing alternatives fail to satisfy meat-eaters [73].

Another approach to overcoming the taste and enjoyability barrier is by creating identical animal products using cellular agriculture [77]. In particular, scientists in academia and industry are working to further the development of cultured meat, which can be grown from animal cells rather than by rearing animals [78]. Cultured meat production does not need to harm animals and potentially has a lower environmental footprint than conventional meat [79]. Therefore, producing meat in this way could allow consumers to continue enjoying the taste and texture of animal meat whilst circumventing many of the ethical and environmental concerns around meat production. However, widespread consumer acceptance of these products is far from certain [80].

Second, vegetarian and vegan diets must be easier and more convenient to follow. Again, there is reason to be optimistic here. Several high-profile mainstream food outlets have added vegan options to their menus recently, seemingly driven by a rise in demand [81,82]. One analysis by Foodable Labs [83] found that 51% of chefs in the USA added vegan options to their menu in 2018, an increase of 31% from the previous year. Vegan options at chain restaurants and supermarkets are increasingly common, improving easy and convenient access to vegan options. Moreover, meat analogues sold in supermarkets provide a direct replacement for meat in dishes, meaning that consumers can cut out meat whilst keeping the same recipes they are used to. As research has demonstrated, familiarity and ease of cooking are important factors in willingness to substitute meat [84].

Third, affordability of alternatives must improve. Indeed, one analysis found that a vegetarian diet tended to be cheaper than one including meat, but a vegan diet was most expensive of all [22]. This is likely because some animal product alternatives (including plant-based milks and plant-based meat analogues) tend to be more expensive than conventional animal products. This may be a result of their status as relatively niche, and therefore low supply. As consumer interest in these products grows, we may see their price fall in the coming years. Indeed, one analysis has argued that the price of plant-based meat analogues is likely to fall due to supply catching up with demand, higher quality ingredients being produced at larger scale, the development of infrastructure, economies of scale brought in by established food businesses investing in the space and a shift in focus from research and product development to scaling up production [85].

4.4. Limitations

There are some limitations to this study which must be considered. Firstly, research using self-reported attitude and intention measures is perennially prone to social desirability bias, particularly around moralised issues [86]. In order to counter this, a very specific intention measure was used: Participants said how they thought their consumption would change ‘one month from today’, a specific quantifiable target. Participants also saw the message ‘Thank you for being honest!’ in an attempt to prevent people overestimating their intended changes. Nevertheless, Humane League Labs [87] have recommended against relying on self-reported intentions measures like these in future.

Secondly, the sample was younger than the general UK population, and therefore, these results may not be generalizable to older portions of the population. The median age in the sample was 30, compared to the median age in the UK of 40.2 [88]. This may be linked with more positive evaluations of vegetarian and vegan diets than one would expect amongst the general population, since evidence suggests that younger people are more likely to embrace these diets [36,89].

4.5. Future Research

The present research focused on evaluations of specific aspects of vegetarianism and veganism and found that the major negative views of these diets related to their price, taste and convenience. Indeed, many meat-eaters recognise the arguments for vegetarianism and veganism but do not change their diet because of practical, rather than ideological, reasons. The most promising avenue of future research for reducing the consumption of animal products, therefore, is the development and marketing of products designed to address these deficiencies. Bringing products to market which can replace animal products and are familiar, enjoyable, affordable and widely available is likely to be an excellent strategy for reducing consumption of animal products in the long term.

Supplementary Materials: The full dataset for this study is available at <https://osf.io/rkdaz/>.

Funding: This research was partially funded by the Economic and Social Research Council as part of a PhD grant [Grant number: ES/J50015X/1]. This research was also partially funded by Viva!, a vegan charity [<http://www.viva.org.uk>]. The APC was funded by the University of Bath.

Conflicts of Interest: The author is vegan and carried out this work while working at the vegan charity, Viva! [<http://www.viva.org.uk>], who also partially funded the work. The funder had no role in the design of the study, the collection, analysis or interpretation of data, or the writing of the manuscript.

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