



The cheese paradox: How do vegetarians justify consuming non-meat animal products?

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ABSTRACT

Researchers interested in animal ethics have proposed the 'meat paradox' - psychological discomfort arising from people's affinity for animals and conflicting desire to consume their flesh. Yet what can be said about the psychology of consuming an animal's non-meat products, in an age where most beings in these industries are harmed, and ultimately killed? Non-meat animal products (NMAPs) such as eggs and dairy entail the same, and perhaps even worse ethical issues as meat yet receive disproportionately less critical attention. Therefore, unlike meat, very little is known about the psychology of egg and dairy consumption. This study looks at vegetarians to address this gap, because they are more likely to show empathetic concern for animals than meat-eaters, yet actively choose to include these products in their diet, a conflict ripe for exploration. Interview data were analysed via thematic analysis, finding that vegetarians perceive robust ethical issues with NMAPs but give various justifications pertaining to personal benefits and social norms. Cognitive dissonance was evident and participants used various strategies to resolve it. This paper expands research on food psychology and animal ethics and may also be used to inform NMAP reduction strategies, an important pursuit in the quest for a more sustainable and compassionate world.

1. Introduction

One of the most common interactions between humans and other animals happens on the dinner plate. Most people in the world eat meat, and more than 80 billion land animals are slaughtered for food each year (Ritchie & Roser, 2019), a number which exceeds two trillion when fish and other sea life are considered (Brown & Dorey, 2019). Yet many people feel morally conflicted about their own meat-eating behaviour. Loughnan et al. (2010) thus proposed the 'meat paradox' - psychological discomfort arising from people's affinity for animals and conflicting desire to consume their flesh.

The meat paradox is a type of cognitive dissonance, which suggests that when people perceive an inconsistency in their beliefs or behaviours, they experience an unpleasant feeling (dissonance) which they are motivated to reduce (Festinger, 1957). Strategies to reduce dissonance are widely believed to take one of three routes: changing values, changing behaviour, or obscuring the behaviour-value contradiction (Festinger, 1957; Gradidge et al., 2021). A recent structured literature review of the meat paradox by Gradidge et al. (2021) suggests the last strategy - also known as disengagement - is most used among

meat-eaters, since they usually report caring about animals yet still eat meat (thereby not changing values or behaviour). Measures which obscure the behaviour-value contradiction include, for example, appeal to 'humane' farming methods (Piazza et al., 2015) and blaming others for meat consumption (Graça et al., 2016). Overall, disengagement strategies help to perpetuate meat consumption despite environmental harm and widespread aversion to animal suffering. Therefore, tackling the meat paradox is key to rebuilding a more harmonious relationship between humanity, the natural environment, and the animal kingdom. Fortunately, burgeoning literature exploring this phenomenon recently (e.g., Buttler & Walther, 2022; Camilleri et al., 2020; Gradidge et al., 2021; Hestermann et al., 2020; Khara et al., 2021) indicates increased attention to animal ethics in academia, and meat-reducing advertising campaigns targeting the paradox from popular food brands such as Bird's Eye (Plant Based Treaty, 2023) and Quorn (Quorn, 2022), show how theory is being put into practice. Despite this, one key aspect may have been overlooked: what can be said about the psychology of consuming an animal's *non-meat* products, in an age where most beings bred for these industries are harmed, and ultimately killed?

Non-meat animal products (NMAPs) encompass every edible product

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derived from an animal which is not a body part, including products like honey, which is made by bees and used as a sweetener, and shellac, which is secreted by the female lac bug and used to coat fruit and candy. However, this study focuses on the two most ubiquitous NMAPs: eggs (from chickens) and dairy (from cows). Since eggs and dairy are naturally occurring and do not *technically* necessitate the death of an animal, they are often marketed and understood as harmless by-products. Yet this perception is far from accurate. At the most basic level, genetic selection means factory farmed hens lay up to 30 times more eggs than they naturally would, which often results in weakened bones as calcium reserves are diverted to egg production (Rufener et al., 2019). A study of 67 non-caged egg-laying hen flocks in the UK revealed that anywhere from 30% to 95% of chickens in a single flock suffered keel bone fractures (Department for Environment Food and Rural Affairs, 2008), which often go untreated and are understood to be painful (Riber et al., 2018). Similarly, modern dairy cows are bred to produce up to 20 times the amount of milk they would naturally (World Animal Protection, 2022) which - coupled with recurring pregnancy - has been associated with increasing incidence of health problems and premature death (Olteneacu & Algers, 2005). Furthermore, the routine separation of new-born dairy calves from their mothers can cause psychological distress (Solano et al., 2007). Since only female animals are useful to the egg and dairy industries, male chicks are usually killed upon hatching (Krautwald-Junghanns et al., 2018) and male calves are commonly shot dead or sold to the veal industry to become meat (Renaud & Pardon, 2022). Likewise, when females in these industries become 'spent', i.e., no longer able to produce the quantities expected of them, they are often slaughtered and rendered into low-grade meat and pet food products, which maximises profits for the farmer (Orzechowski, 2016). In terms of environmental impact, one glass of cow's milk produces almost three times more greenhouse gas emissions and uses nine times more land than any plant-based alternative like oat, soy, or almond (Poore & Nemecek, 2018). Harm is implicated in every stage of the production of modern dairy and egg products, and although the public are likely unaware of the full extent of exploitation, data shows an increasing awareness of such production practices (Brümmer et al., 2018; de Haas et al., 2021). Yet unlike meat, the psychological processes involved in NMAP consumption are insufficiently explored.

Vegetarian perspectives may be particularly effective in addressing this gap, as they are more likely to show empathetic concern for animals than meat-eaters (Lund et al., 2016), yet actively choose to include NMAPs in their diet, providing fertile ground for exploring possible cognitive dissonance. In addition, Bradbury et al. (2017) found that vegetarians obtain more of their daily calories from cheese, eggs, and yoghurt than any other dietary group, and eat almost double the amount of cheese than meat-eaters. Despite this, very little is known about vegetarians' attitudes towards these products. This may be because most studies exploring vegetarian motivations (e.g., de Boer et al., 2017; Forschende et al., 2016; Fox & Ward, 2008; Hopwood et al., 2020; Schenk et al., 2018) focus entirely on the exclusion of meat, rather than the inclusion of NMAPs. Barr and Chapman (2002) analysed perceptions of meat, eggs, and dairy among vegetarian, former vegetarian, and meat-eating women, resulting in some interesting insights, such as: "availability of free-range [...] and organic poultry (and eggs) alleviated some women's concerns about animal treatment" and "other women believed that dairy products are the best calcium source [...] so sought to balance their concerns about these products with their beliefs about their importance" (p. 359). However, results were generalised across dietary groups and the authors did not go into detail beyond the above statements, leaving much to be expanded upon. This prompts three key research questions, which we investigate via thematic analysis of interviews with 12 vegetarians: to what extent do vegetarians view eggs and dairy as an ethical issue? What reasons do vegetarians give for including NMAPs in their diet? Is cognitive dissonance implicated when vegetarians must justify their consumption of NMAPs, and if so, how do they overcome it?

2. Method

This study was approved by the University of Stirling General University Ethics Panel in line with British Psychological Society guidelines, and all participants gave informed consent before taking part.

2.1. Reflexivity statement

Given the interpretive nature of this paper and the contentious nature of debate around food choices and animal ethics, both authors would like to state their positions as ethical vegans. This means - in our personal lives and otherwise - we seek to exclude all forms of exploitation of and cruelty to animals for food, clothing, or any other purpose, as far as is possible and practicable (The Vegan Society, n.d.). While we recognise our veganism as an analytical strength, helping us to highlight and deconstruct the ideological hegemony of systemic animal exploitation, every effort has been taken to remain open, self-aware, and self-critical, including seeking feedback from non-vegan peers. Both authors are historical meat-eaters and empathise with the potential difficulties and challenges of animal product-reduction. In addition, we also recognise that animal liberation will not be achieved from inside any echo chamber; it would be entirely counterproductive to be prejudiced in our analysis. Lastly, we would like to note that the language society typically uses to talk about animals serves to objectify and ambiguate their struggle, i.e., using 'meat' and 'dairy' to refer to someone's flesh or their breast milk. Despite our objection to this terminology, we use it throughout this article for readability and easy comprehension. This does not convey complicity in the structures which we condemn.

2.2. Philosophical framework

As Giraud (2013) argues, many ontological and epistemological positions may be problematic for opposers of animal oppression as they involve the recentring of the human as the knowing subject, and by contrast, the animal as the object. However, a critical realist framework can highlight the "epistemologically disruptive potential of veganism" (Giraud, 2013, p. 73). Critical realism rejects the highly anthropocentric relativist position that reality is a fully social construct and a product of human minds, and the positivist position that genuine knowledge is objective and empirically verifiable (Mitchell, 2007). Instead, critical realism embodies parts of each to recognise that a mind-independent reality exists, while crucially acknowledging the role of the social world on people's conception of that reality. While acknowledging this perspective and the potential it has within ethical vegan investigation, we are driven to look beneath the surface of the status quo, often revealing its ideological nature. For example, the normality of consuming animal products and the systemic violence it entails may not be *just the way things are* - as we have come to believe - but intentionally driven by capitalistic excess and corroborated by "rational moderates" (Joy, 2010, p. 98) who cite the health and economic benefits of consuming animal products. To this end we have adopted a social constructionist perspective (Stibbe, 2001) and conducted these analyses at a latent level acknowledging the human-centred layer of meaning we have imposed upon our data which excludes animals but does allow us to produce reflexive analyses which enable us to access the ideological beliefs our participants articulated while remaining aware of our own subjective bias.

2.3. Guiding theories

Although some argue the importance of eating animals for human evolution has been overstated (Amen-Ra, 2006; Barr et al., 2022), there is no denying that consuming animals is a huge part of our collective history and that we are biological omnivores, meaning we are able to consume food from both plant and animal origins. However, the authors

write from within the industrialised Western world, and it is of course a very different matter to make inferences about the psychological underpinnings of someone's choice to eat animal products if they do not have access to a supermarket, for example. In that way, we fully acknowledge that being able to choose what to eat – and more saliently, what not to eat – is a position of privilege. Therefore, our analysis is focused on the psychological underpinnings of modern Western diets, in which the entrenchment of consumerism/capitalism and the hyper-abundance of choice means the consumption of animal products has now taken on ideological implications.

The invisible ideology conditioning us to eat certain animals was aptly named 'carnism' by Joy (2010). Carnism relies on certain myths being internalised by the public, chiefly that eating animals is normal, natural, and necessary – otherwise known as “the Three Ns of justification” (Joy, 2010, p. 96). Piazza et al. (2015) revised this list to include a fourth 'N', that eating animals is nice – tasty, fulfilling, satisfying. The 'Four Ns' help to alleviate guilt about eating animals by providing socially verified reasons for doing so. Carnism has become deeply ingrained into social structures, dictating social norms and shaping collective identity. According to social identity theory (Tajfel, 1978), individuals derive a sense of identity and security from being a member of an in-group with positively distinct characteristics from out-groups (Rosenfeld et al., 2020), and thus people are highly motivated to eat animals in line with the values of a carnist society. However, social structures may *cause* but do not *determine* an individual's actions (Alderson, 2016). Ultimately, individuals can reproduce *or* transform these social structures through their actions, and in this way, social structures and individual agency must be considered together in research. Importantly though, our exploration does not seek to determine the cause of our participants' behaviour, but to investigate their own explicit rationale for including NMAPs in their diet.

2.4. Participants and recruitment

The inclusion criteria for the study were simply that participants had identified as a vegetarian for more than six months and ate some NMAPs. This time frame was aimed at selecting participants who were relatively fixed in their vegetarianism, instead of recent or short-term vegetarians with more transient beliefs. The length of time as a vegetarian spanned from six months to 25 years, with an average of 7.6 years. 'Vegetarian' was not pre-defined but instead self-defined by participants in the interview to ensure our interpretations were strongly rooted in the data and to mitigate any preconceptions about what it means to be vegetarian.

A snowball sampling technique was used. Snowballing is an informal referral process between acquaintances, whereby participants connect other interested parties to the research (Quinney et al., 2016). This method is highly effective for studying potentially sensitive or provocative topics because “security features are built into the method” (Lee, 1993, p. 67). In other words, the interviewees can vouch for the character of the researcher, promoting the trust and ease necessary for traversing sensitive topics in this study, such as animal suffering. Therefore, interviewees were initially recruited from our personal network, who then passed on other willing and eligible interviewees. One potential problem with this method is it may lead to a homogenous sample. However, the findings of this study do not claim to be representative of the wider vegetarian population, but authentic to the experiences of this group. For this reason, demographics were not a strong focus. Nevertheless, our sample did result in a 50% split of men and women and included participants from various cultural and ethnic backgrounds, though they were mostly European. All interviewees were in their 20s and college or university educated.

2.5. Data collection

Nine interviews occurred in person and three interviews occurred

online. Interviews lasted from 21 to 62 min, with an average length of 44 min. Approximately 69,000 words of data were generated from interviews, which were audio-recorded and transcribed manually. Participant information was anonymised, and each person assigned a random pseudonym. One-to-one interviews were the chosen method of data collection because they can provide rich, in-depth data and because participants are more likely to divulge shortcomings and express vulnerability without the social pressure of a focus group setting (Parker & Titter, 2006). A semi-structured interview format was used, whereby the primary researcher DD used a question list to guide the general direction of the interview but allowed the participant to deviate and explore their train of thought. Each interview was transcribed before conducting the next commenced. The authors reflected carefully on each, making notes about potential codes. It became apparent that there was a consensus amongst participants and thus data saturation was observed to have occurred following the twelfth interview. The full interview schedule is available via the Appendix.

2.6. Data analysis

Complementary to the rich interview data gathered, reflexive thematic analysis is an effective tool for organising complex data into detailed yet digestible units (Braun & Clarke, 2006). The foundations of this method are the generation of initial codes which speak to the data and subsequent overarching themes which capture the essence of these codes. Reflexive thematic analysis highlights the researcher's active role in knowledge production and complements the current research aims in its attempt to explain a set of experiences/thoughts/behaviours, and to search for patterns and shared meanings (Kiger & Varpio, 2020). We used a hybrid of deductive and inductive approaches to developing codes and themes (Fereday & Muir-Cochrane, 2006), its value being that our analysis benefited from being contextualised by theory but remained sensitive to nuance in the data. We began by familiarising ourselves with the data corpus, aided by manual transcription of each interview audio file and proofreading the transcripts. We then advanced through each transcript again, marking initial codes onto significant moments in the text. Initial coding was predominantly theory driven, meaning annotations were guided by the research aims and with previous relevant literature in mind (carnism, cognitive dissonance theory, social identity theory). Then, after data were organised into broad deductive categories, investigative inductive analyses took place to ensure codes were still strongly rooted in the data. This involved the creation of a few new codes and the expansion and refinement of earlier ones. At this stage, we could discern meaningful connections between codes, and so began the process of arranging them into themes. Themes were negotiated by both researchers to reach agreement. While moving from deductive to inductive coding is an unusual approach, it was informed by our close familiarity of previous literature (e.g., Piazza et al., 2015), the knowledge of which we were aware would impact upon inductive coding. We avoided this bias by initially separating the data using the Four Ns: nice, natural, normal, and necessary and then proceeding with the inductive coding process.

3. Analysis

Consistent with previous literature showing diverse motives for vegetarianism (Beardsworth & Keil, 1992; de Boer et al., 2017; Hopwood et al., 2020), participants expressed different understandings of the term 'vegetarian', with some simply categorising it as the avoidance of meat and others expressing deeper philosophical ties to non-violence. Half cited environmental concerns as their main driver, with ethical motivations being adopted later in their journey or viewed as an extra benefit. Four people were primarily ethically motivated and two communicated very strong familial and cultural ties to vegetarianism. Nevertheless, all participants expressed ethical concerns about animals in the egg and dairy industries. This constitutes the first theme,

Acknowledging harm, which highlights participants' main concerns and the negative feelings which follow. The second theme is *Personal benefits* which identifies the core personal reasons cited for consuming NMAPs, including a perceived cheese addiction. Next, the theme of *Social norms* delineates the social factors which influence participants' decisions, including subthemes of cultural norms and stigma. The final theme, *Neutralising dissonance*, explores possible cognitive dissonance and the ways in which participants appeared to overcome negative arousal associated with their consumption of NMAPs, including a discussion of the paradox of participants feeling ethically worse about consuming milk than cheese.

3.1. Acknowledging harm

Interviewees' knowledge of ethical issues covered a vast landscape of topics, from antibiotic use to mutilation and thwarting of natural animal behaviour. Many referenced the artificial insemination of dairy cows, with some explicitly highlighting its non-consensual nature:

"Well, I mean, I know that cows have to be like raped in order to produce milk" (Nellie).

This was related to the unnaturalness and painfulness of recurring pregnancy on dairy cattle:

"I think that we force-breed them so that obviously they're constantly lactating and then [...] Well, that in itself can be a bit painful" (Ronan).

With egg-laying hens, the most predominant concern was their confinement:

"I don't know much about how eggs are made. I just know that yeah, chickens are kept cramped in very tight spaces" (Charlie).

Moreover, the legitimacy of 'free-range' eggs was questioned:

"There's free-range eggs. But as far as I know, there aren't proper requirements for what 'free-range' means. So I don't trust free-range meaning actual healthy living conditions for hens" (Nina).

This sense of scepticism was strengthened by direct reference to dubious marketing tactics and hollow certification schemes:

"It's marketed very strategically, they see cows in fields, they see green, they see buzzwords about things being environmentally friendly or free-range. And there's certain seals of approval, like this is approved by whatever scheme that the government are running to trick people into thinking that this is just a completely okay industry. You're never really taught to question it, so you don't" (Lucas).

Importantly, these extracts signal an awareness of external factors which influence people's behaviour in relation to NMAPs. For some, this manifests as a gnawing suspicion of industry intentions, for others in the explicit recognition of collusion at the government level and their own internalisation of dominant ideology. Participants made references to the power and influence that animal agribusiness has been thought to wield over professional institutions and policymakers, who benefit from the industry's financial backing (Garner, 1998). In effect, participants are identifying weaknesses in the carnist schema, acknowledging – albeit to varying extents – that their participation in the system is stoked by consumerism.

The killing of male offspring was frequently raised with most citing the slaughter of male dairy calves for meat, and the 'uselessness' of male chicks born to egg-laying hens, although one concern was misguided:

"I know that there's production lines where like male chicks are taken out and then that's what's used to produce chicken nuggets" (Nellie).

Although this is not true and likely stems from an internet rumour (moenium66, 2022; Wang, 2009), chickens used for intensive meat

farming are typically only five-to six-weeks old when slaughtered (Colles et al., 2011), and the killing of new-born male chicks is routine practice in the egg industry (Krautwald-Junghanns et al., 2018), so the participants' concerns are not unreasonable. Crucially, what this does convey is the recognition of a link between the meat and NMAP industries, which was compounded by reference to the eventual slaughter of egg- and dairy-producing animals. The extent of this recognition was somewhat surprising, as arguably it contradicts the ethical aspect of being a vegetarian – that being the shunning of products for which an animal has been killed. This contradiction is something that participants also grappled with, often treading the line between knowing and not knowing:

"So, they're in a farm and then once they're not useful anymore, I assume for dairy products, then they send them to a slaughterhouse" (Ash).

Others were more convinced in this regard:

"Like every meat industry, dairy industry, and egg industry, it's the same. You keep them until it's more expensive for you to keep them than to kill them" (Kat).

The ethical technicalities and blurred lines surrounding NMAPs were summed up well by Lucas:

"You don't associate these products with the death of the animal, but ultimately it's all part of the process which is finished with the death of the animal."

Despite the distinction they have made by virtue of being vegetarian, most participants did not view meat as fundamentally different from its NMAP counterparts. In fact, some perceived dairy as being ethically worse than meat:

"I'm starting to see how cruel the dairy farms are with having to separate the mothers from their calves and how that's worse than sometimes just ending a life" (Brooke).

Indeed, cattle welfare experts have rated dairy cows as substantially more likely to experience negative welfare than beef cows (Mandel et al., 2022). Through the landscape of ethical issues outlined by interviewees, the primary research question is addressed, finding that vegetarians perceive robust ethical issues with eggs and dairy products. The presence of guilt and other negative feelings is therefore unsurprising, though the strength of these feelings varied. Some participants indicated mild discomfort and a lenient attitude:

"I do kind of feel bad sometimes [...] I try to do the best I can, sometimes I just find it hard" (Kat).

"I think it's all pretty wrong [...] I feel satisfied with what I've done, but I could do a bit more" (Eric).

Others spoke of more intense internal conflict and feeling like a hypocrite:

"I have this internal conversation with myself telling myself I'm a hypocrite because I can't be not eating meat, but then consuming dairy products" (Ash).

"I'm against animal cruelty and I feel like a hypocrite because I still eat cheese [...] I feel guilt more and more the older I'm getting" (Brooke).

This lays the foundations for exploring how these negative feelings related to NMAP consumption are overcome, but first it is essential to understand the reasons why vegetarians continue to consume these products.

3.2. Personal benefits

If vegetarians feel morally conflicted about consuming NMAPs, what

motivates them to continue doing so? Consistent with literature on meat consumption, we found that justifications for consuming eggs and dairy comprise a wide range of personal and social factors, each distinct enough to merit their own theme. The personal justifications are the subject of this theme, summarised most succinctly by Ronan when he said:

“I feel like I’d rather be a part of the solution than the problem [...] but cheese is addictive, milk is cheap, eggs are tasty, and yoghurt is good for you.”

Indeed, for many, consuming eggs and dairy seemed like a negotiation of their values - a way to feel like they were contributing positively to animal welfare and the environment while still reaping personal benefits associated with these products. One of these benefits was health and nutrition, which was associated largely with eggs. Participants’ justifications for consuming eggs embodied ‘necessary’ justifications (Piazza et al., 2015), often utilising words like ‘protein’, ‘energy’, and ‘nutrients’, and phrased in ways which implied some essential quality:

“Eggs, yeah, when I feel like I want, you know, energy [...] When I want that daily dose of protein” (Charlie).

Dairy products were far less associated with health, with some exceptions. Nellie and Ronan mentioned the beneficial properties of yoghurt on the gut microbiome, and Sam was adamant about the importance of liquid milk for bodily health:

“I take milk and milk products because milk has a lot of nutrients. It’s good for health. It’s even recommended a certain amount of milk as per the body type [...] I remember reading in junior classes that it’s a complete food in a way [...] it keeps you stronger [...] it contains certain nutrients which other products don’t have and it’s also good for your brain and everything.”

The reference to school lessons and recommendations here allude to the pervasiveness of carnism. As Joy (2010) states, when an ideology is entrenched, every major institution in society supports it. Thus, the nutrition taught in schools and written into government guidelines (Hunt et al., 1995) is traditionally carnist in nature – it positions meat, eggs, and dairy as fundamental. This bias could explain why interviewees felt like they did not know how to obtain adequate nutrition from fully plant-based sources. Accordingly, they relied more heavily on eggs and dairy after eschewing meat rather than increasing their consumption of legumes, tofu, plant-based alternatives etc:

“Eggs for protein because before I ate a lot of chicken [...] And then afterwards I felt like a lot of my meals were just mostly carbs or food that didn’t have much protein in it [...] So I substituted with lots of eggs in the morning” (Eric).

“I think my consumption of eggs probably went up just because it was such a convenient and good source of protein. So, it was something that I could swap meat for and as little as I understood about nutrition, I knew that I’d need a protein and that was a good swap that I could do” (Nina).

As signalled by Nina, convenience is a factor which permeates every other justification. The carnist nutrition bias trickles into many facets of society, making it more challenging for people to maintain a plant-based diet inside of their homes and out (Joy, 2010). This is something participants seemed aware of, with every discussion of the convenience of NMAPs being framed by the inconvenience of excluding them. People agreed that there are usually adequate vegetarian options when eating out but found vegan options too limited or repetitive:

“Most of the time it’s just falafel and hummus or hummus and falafel” (Camille).

Getting food ‘on the go’ was also raised, with participants signalling their intention to purchase vegan options but failure to follow through

when none was available in their chosen establishment:

“When I’m out in a shop or something like that, sometimes they won’t have a vegan option and I’ll just be like, uch, I’ll just get a piece¹ and cheese” (Brooke).

“It’s always just convenience where I’m getting food on the go and plant-based isn’t an option and they only have normal cheese. That’s usually if I’m getting lunch on my way to uni and I just can’t figure out another place where I would get plant-based versions” (Nina).

These quotes speak to both ‘normal’ and ‘necessary’ justifications (Piazza et al., 2015), showing how familiarity with dairy products and perceived lack of options coalesce to provide participants with motivations for eating cheese which override their ethical concerns about it. Physical proximity to shops which supply plant milks was a key consideration in some cases:

“For me to get soy milk, I’d have to go to Lidl, which is about ten, fifteen-minute walk away from my flat, which isn’t long. But alternatively, I can go to my newsagents which is a one-minute walk away and get normal milk” (Ronan).

Again, ‘normal’ is prefixed to cow’s milk, signalling its entrenchment in society and the perceived abnormality of plant milks in comparison. In addition to this, the physical preparation of plant-based food was perceived to be more time consuming:

“I think the main thing is the amount of effort that you need to put in, like when I’m working long shifts or lots of days [...] I don’t really want to get up in the morning and make a breakfast that takes ages to cook. Sometimes I just want to have something fast like scrambled eggs before I can go off to work” (Eric).

Convenience is intertwined with one other major factor influencing people’s decisions to choose NMAPs over their plant-based counterparts – taste. This reason was cited often by every participant, substantiating Piazza et al.’s (2015) addition of a ‘nice’ category to the Four Ns of justification. In contrast to the healthfulness of eggs, when asked why they consume cheese, taste was the defining factor for many:

“It’s tasty, I like eating it. I mean, I like eating ice cream or cheese or, you know, anything with cheese in it [...] I just have a taste for it” (Sam).

Some described enjoying the texture and versatility of cheese, and others the uniqueness of its flavour, as Nellie communicated when trying to describe the flavour profile of feta cheese:

“I like the, I don’t know, it’s maybe a bit acidic or vinegary taste of feta very much [...] those briny acidic kind of salty flavours [...] I love those.”

The fact that such flavours are not easily replicated was a pivotal factor. Many stated that they would be willing to switch to vegan cheeses, but found their quality lacking:

“I would like to eat vegan cheese, but it just tastes horrible [...] Some things you just can’t replace” (Ross).

This was compounded by the relative expensiveness of vegan alternatives, but taste was typically the decisive factor. Lucas was especially eager to reduce his NMAP consumption but explained that, even though both vegetarian and vegan sandwiches were readily available in his workplace, he would never choose the vegan one because of its perceived poor taste:

“Even if they’re an option, I wouldn’t go for them because the vegan cheese ones are vile. Like yeah, they’re ethical but they’re vile. I wouldn’t touch them. They just like, I don’t know, they just don’t

¹ Scottish dialect for sandwich.

taste [...] Well, that's it, it's taste and taste is apparently such a big factor in diets. And that's why even though I've made big differences and changes to my diet, that's why I have trouble going all the way."

This quote encapsulates the nature of the 'cheese paradox' experienced by these vegetarians: the tension between wanting to better adhere to their own values, and desiring the instant gratification that cheese provides to the senses. The significance of pleasure on the interviewees' behaviour is analogous with the findings of Bryant (2019), Lea and Worsley (2003), Schenk et al. (2018), and many others, who found taste to be a crucial barrier to cutting meat consumption. Therefore, the enjoyment of cheese may be an even more formidable barrier to the adoption of plant-based diets, because people may be tempted to use it as a flavour enhancer in the absence of meat, as Eric communicated:

"I really liked the taste of meat and then when I cut it out, I wanted something to make meals taste nicer. So, I would add cheese to a lot of meals."

Ross even maintained a plant-based diet for a year before quitting based solely on the taste of halloumi and Nellie was plant-based for over a year before "getting drunk and having cheese on Christmas" after which point, she reverted to vegetarian. Many participants even perceived cheese to be addictive:

"Cheese is well known to be addictive. I'm pretty sure it's supposed to have the same effect on your brain as, oh what was it [...] meth or crack? I don't know. It's extremely addictive" (Ronan).

People's perception of their cheese consumption as an addiction may hinder their attempts to relinquish it, by providing them with a sense of diminished responsibility. Although there is insufficient evidence that cheese is physically addictive, it may promote addiction-like behaviour due to its fatty, processed nature which may engage reward-related neural circuitry more than other foods (Corwin & Grigson, 2009; Schulte et al., 2015). It may, therefore, provide gratification where ethical and environmental goals do not:

"I think what makes it difficult for people to become vegan is that you don't get an immediate reward. You don't see the changes happening because these animals are still in farms, and in terms of environment, you won't get an immediate reward and we will probably not see it if there is a positive change in the climate. We won't be here to see it" (Ash).

This idea of temporality could also be a justification for consuming meat, but participants said they found it easier to "make [their] peace" with flesh which "carries a bigger moral weight" (Ross) than eating an animal's ovulations or secretions. Again, this signals how the consumption of NMAPs acts as a compromise of participants' values: a way to shrink their role in often self-defined, ethically questionable practices while reaping benefits related to nutrition, convenience, and taste.

3.3. Social norms

Like the meat paradox, the cheese paradox is influenced by social norms. Thus, the passion and bewilderment with which participants attempted to make sense of their affinity for cheese reflects the universality of its enjoyment - so inherent and unquestionable, as to become subsumed in social semiotics:

"I feel like cheese is the same as bacon in the way that people who eat meat are like, but what about bacon? Aw I love bacon so much, and they make it into a big thing. Same with cheese. People are like, aw I love cheese, make it like a personality trait. And then if you say you don't like cheese or something, then people are like, what's wrong with you?" (Eric).

In a carnist society, the zealous enjoyment of meat, eggs, and dairy symbolises one's membership in the in-group (Rosenfeld et al., 2020),

and by contrast, one's status as an outsider if they do not conform. Those who reject animal products or at least doubt their desirability are regarded with suspicion or reproached (Joy, 2010). Many participants described the disapproval of their family when they first became vegetarian, Ronan highlighting the sense of irony in this:

"There's a weird contradiction because when you're growing up, your parents will constantly tell you to eat your greens, for a whole host of reasons. But then as soon as you tell your parents and your family in fact you've turned vegetarian and you're pretty much only eating greens, a lot of them go ballistic."

The phrase "pretty much" is important here, because for those who chose to eschew meat, choosing to eat eggs and dairy - even if only sporadically - can lessen the social burden they face as vegetarians. Vegetarianism is radically more socially accepted now than it was in the past (Jallinoja et al., 2020), whereas perceptions of vegan diets remain significantly more negative than perceptions of vegetarian diets (Bryant, 2019). Lack of knowledge about vegan diets is also more widespread as people typically find it easier to conceptualise a diet without meat than one without every other animal product. Nellie said that social interactions were generally more challenging when she used to be completely plant-based, and she was often served very bland meals:

"When I go to people's houses [...] it's like - okay she doesn't eat meat? Oh, she doesn't eat this *either*. Okay, well, I have rice for you."

These quotes corroborate findings that vegans are stigmatised by animal-eaters for disrupting social conventions (Markowski & Roxburgh, 2019). Therefore, the decision to eat eggs and dairy in social situations benefitted interviewees by way of increasing their identification with the animal-eating in-group and potentially preserving social harmony:

"I also do cook a lot with other people and most of my friends currently aren't vegetarian nor vegan [...] So it's just easier to ask people let's not have meat in it, but I'll do cheese" (Nina).

The "hassle of being a vegetarian surrounded by meat-eaters" has been identified as one of the biggest reasons vegetarians cease being vegetarian (Menziez & Sheeshka, 2012, p. 165). It is therefore unsurprising that our participants described feeling like a burden by requiring their meat-eating hosts to cook without meat, which would be amplified considerably if eggs and dairy were also removed from the dinner table:

"I'll ask for no meat, but not no eggs or dairy [...] maybe because I think it's easier doing something that's vegetarian than something that's vegan. That probably would make me feel worse about asking" (Kat).

"I think most people have an understanding of why meat would be such a big no go [...] but I think people wouldn't be as receptive or understanding of why you wouldn't want to eat cheese" (Nina).

This is a strong indicator that participants' vegetarianism acted as a trade-off, in the sense that the inclusion of NMAPs - especially cheese - in social settings acted as a possible conciliatory compromise between the priorities of avid meat-eaters and vegetarians within friend groups.

Sometimes cultural norms were an added incentive to consume NMAPs and assimilate with the animal-eating in-group. One person described consuming parmesan-heavy meals with Italian relatives; another eating Thai omelettes for breakfast when they lived in Thailand; and another enjoying ghee and paneer in India. While some vegetarians make occasional concessions and eat meat to participate in local cultures and avoid giving offence (Menziez & Sheeshka, 2012), our sample generally indicated that eating NMAPs was sufficient to achieve this aim. According to social identity theory (Tajfel, 1978), people are motivated to act in accordance with their identity to affirm their sense of self, but importantly, the self remains reflexive in that "it can take itself as an object and can categorize, classify, or name itself in particular ways

in relation to other social categories or classifications" (Stets & Burke, 2000, p. 224). Thus, many interviewees indicated that they would usually eschew eggs and dairy in the company of vegan friends but include them in the company of non-vegan friends or in certain cultures where NMAPs were particularly important. In this sense, vegetarianism gave people the flexibility to integrate into diverse social situations while remaining somewhat loyal to their moral identities. One key difference between vegans and vegetarians might therefore be the degree to which they are willing to compromise those moral values to enhance social coordination - vegetarians being more willing than vegans. For some though, eating NMAPs was not so much an active choice to increase social harmony but a yielding to diffuse hostile situations:

"There are some people who have stronger opinions against veganism, and I will talk about it [...] but sometimes some people go too far or make comments that maybe on a bad day I would be like, I don't wanna hear this [...] So that's what happened with one of the friends I had dinner with. It was one day I was quite stressed, and he was cooking, and he asked me to get cheese. And then he made a comment like, oh, don't get that shitty vegan cheese or something. And I was like, (sigh), okay. And I just got the other [dairy] one because I was like, I'm in the shops, I don't wanna start a debate here. It's fine" (Ash).

The stigmatisation of vegan alternatives here signals the wider stigmatisation of veganism in society (Bresnahan et al., 2016). While vegetarians also face discrimination, vegans are consistently evaluated the most negatively of all animal product reducers (Bryant, 2019; MacInnis & Hodson, 2015). This is something participants seemed conscious of, keen to avoid being tainted by the assumptions people often make about vegans:

"I think I'll always be hesitant about defining, putting someone into a box [...] because vegetarian isn't as stigmatised as vegan, but like vegans are horrifically abused, just for being put into a box. Like there's different vegans who believe different things, and vegan for different reasons, but they're all put into a box and shunned [...] I don't really want to put myself into that because that comes with these preconceived notions of what it is to be 'that'" (Lucas).

Choosing to include NMAPs in one's diet may therefore alleviate some of the stigma vegetarians might otherwise be subjected to as meat-avoiders.

While MacInnis and Hodson (2015) found that bias against vegans and vegetarians was highest among people with more right-wing political beliefs, Nina noted:

"Even among leftist, uni educated people, I think you'd be more likely to get into an argument defending your beliefs about food than about abortion or the Ukraine war or whatever is topical right now."

Nina said she was opinionated and open to debating other contentious issues, but she generally avoids discussing food ethics because it seemed to inherently cause more offence. This is likely because the rejection of animal products challenges deeply ingrained social norms which transcend political affiliation. What someone chooses to eat may reflect a cultural ideology that has been neither questioned nor challenged (Joy, 2002). Therefore, the presence of a vegetarian - and even more so a vegan - threatens to disrupt the status quo and undermine people's beliefs in their own morality. It is understandable then why vegetarians are predisposed to encountering hostility, leading them to negotiate their moral values by highlighting something they have in common with the animal-eating in-group: the enjoyment of eggs and dairy. This observation is consistent with Salmivaara et al. (2022) who found that adapting one's behaviour to assimilate with the majority group was a pertinent strategy for overcoming eating-related social conflicts. The presence of social justifications for consuming NMAPs were strong, further evincing the 'normal' aspect of the Four Ns of justification model (Piazza et al., 2015). These findings also parallel

Schenk et al. (2018), who suggest that social norms encourage meat consumption by legitimising it as a social practice while discouraging meat reduction through fear of social disapproval (Wolstenholme, 2021). These social factors coalesce with the personal benefits of eating eggs and dairy, addressing another key research question by uncovering the most significant reasons vegetarians give for consuming NMAPs.

3.4. Neutralising dissonance

Affirming the personal and social benefits of consuming eggs and dairy might help to alleviate feelings of guilt and hypocrisy by acting as justifications. However, participants also appeared to engage more directly with conflict resolution strategies to manage NMAP-related discomfort. One example is evident in the discrepancy between people's attitudes to cow's milk and cheese. 10 out of 12 interviewees were strongly averse to drinking cow's milk and had the strongest negative feelings about the ethics of dairy compared to other NMAP practices. Yet, cheese was by far the product which they were most attached to, holding mainly positive perceptions of it. When this inconsistency was highlighted, participants tried to explain it in various ways. Some expressed distaste toward the "aesthetic" of milk:

"It's mostly the aesthetic of milk. Drinking milk doesn't appeal to me. Cheese is different because it's like, I don't know, it's versatile. You eat it. Doesn't taste like milk, doesn't look like milk. I know that milk is in it but in my head doesn't really (shrugs)" (Ross).

This quote signals the presence of dissociation, whereby the further a product is removed from its animal origin, the more willingly people consume it (Benningstad & Kunst, 2020), which was strengthened by reference to the perceived ethical severity of milk compared to cheese:

"To me there's something about cheese that makes me feel a bit less disgusted than with milk. I feel like milk is more of an example of that industry and the sort of brutality that cows face in industrial farms ... I know they come from the same source, but for some reason milk is such a worse example of it to me that like, I wouldn't want to use it anyway, even if I wasn't disgusted by it" (Nina).

It has been suggested that dissonance is most threatening when it relates to violation of one's morals (Kim et al., 2021). Therefore, dissociation is an effective strategy for neutralising dissonance by obscuring the link between one's behaviour and their moral values. One of the reasons dissociation is so effective is that it can function on a nonconscious level (Benningstad & Kunst, 2020). Accordingly, it is not that our participants consciously choose to dissociate, but more likely adopt a protective mechanism to alleviate the discomfort caused by condemning dairy practises while participating in and enjoying the consumption of cheese. Another interesting aspect of the cheese paradox is the implication of disgust, as articulated by Nina in the previous quote. Kunst and Hohle (2016) explored dissociation towards meat in a randomised control trial, finding that feelings of empathy and disgust were powerful mediators. Like meat, disgust towards milk could stem partly from fear of contaminants like bodily fluids (Kunst & Hohle, 2016), and the simple reminder of the living animal with biological functions much like our own. Hence, Camille also articulated her disgust towards milk as tasting more "cow-like":

"I really don't like milk anymore. I find milk quite gross. It just tastes different since I've stopped drinking it [...] it tastes a lot more cow-like."

Interestingly, almost all participants in the study had consumed liquid milk in previous years before stopping. Their aversion to milk could therefore be attributed to the process of dishabituation, whereby a previously habituated response is reactivated due to a change in the context (Mackintosh, 1987). As milk became less familiar to them, its animal resemblance became more pronounced, which in turn negatively affected their appetite (Possidónio et al., 2022). Aversion to milk is also

clearly mediated by empathy for dairy cows. Fluid milk triggers empathy as it looks almost identical to when it was taken from the cow, compared to cheese which has undergone various stages of processing. Thus, we suggest that more leaps in reasoning are made to associate cheese with the same brutality, as Brooke explains:

"I think because when it's in its liquid form [...] you relate it more to what you're consuming. When it's in a block, you're not really thinking, oh, this is cruelty because you're not seeing it right in front of you. So, I think the process it goes to make cheese, for some reason in my head makes it more justifiable [...] when you're seeing it in the milk form, it just seems more wrong."

Dissociation alleviates dissonance by disguising the product's relation to the source of ethical transgression (Benningstad & Kunst, 2020). Industrial processing is how cheese becomes disguised – distorted in taste, colour, texture, and shape. This also explains why many interviewees had no issues consuming milk and even gelatine (boiled animal skin, tendons, and bones) when they were concealed within other products like sweets and cakes.

Several participants' perceptions seemed influenced by first-hand experience of 'humane' farms. For example, Sam said he only agrees with dairy products where "the animal has not been harmed or struggled or caged", but admits that he merely *assumes* his purchases meet these criteria:

"Um, well, I don't do like much to ensure that, but I just consider it that the place has the right regulations and things are done in the proper way. And there are some places where things are very strict and done to the best. I've been to some such places."

Other participants referenced 'family farms' and recalled idyllic memories of egg-picking:

"I've actually went egg picking when I was a kid, on a farm where you just go in and move the chicken and pick up the egg and put it in a little basket. Those weren't getting sold or anything, and they were free range [...] I've not seen what caged hens or anything look like" (Ross).

By reaffirming that they have personally witnessed good practice, interviewees may be engaging confirmation bias, which is the tendency to search for, interpret and recall information consistent with one's pre-existing beliefs (Plous, 1993). This approach was often accompanied by perceived ignorance of ethical issues:

"I guess I haven't done that much research on the effects that dairy farming has on animals. So, I'm not that knowledgeable on the topic" (Charlie).

"I've not really watched a lot of, um, films or like documentaries or really read into the ethics of it, to be honest" (Nellie).

Yet at another point in the interview, the same participants delineated robust ethical issues with eggs and dairy which could suggest that ignorance was professed as a means of protecting against dissonance discomfort when participants were asked to justify their choices. It is, however, possible that participants simply remembered different pieces of information at different points in the interview or responded differently depending on the current tone or line of questioning. This could also be interpreted as participants simply wishing to clarify that they were not an expert on the topics. Nonetheless, some participants did acknowledge their tendency to avoid uncomfortable truths:

"I guess it's, uh, it's just sitting in the back of my mind, because I clearly remember it, but I don't really think about it when I'm eating cheese or eggs [...] I wouldn't say it's completely forgotten, but I would say it's easily, um [...] It's easily put aside" (Charlie).

Another way in which participants grappled with NMAP-related discomfort was to present a utilitarian viewpoint. Utilitarianism uses

the aggregation of costs and benefits to determine the right course of action (Foëx, 2007). Although this is a legitimate approach to resolving moral dilemmas, it may also be effective in neutralising dissonance because it allows individuals to acknowledge implicit harm while simplifying morality to arithmetic:

"I kind of justify it or see that it's not as bad because one chicken lays, I don't know, like a thousand eggs or more [...] So that's like one chicken's life for all the eggs I would eat in a year [...] It's still not ideal but it's not like if I wanted chicken every night for dinner, then that's probably like 100 chickens a year" (Eric).

In this context, utilitarianism may have the effect of trivialising the consequences of NMAPs by comparing them to similar or worse perceived scenarios. However, ethics are not simple, and at some point, we must draw our own ethical boundaries – utilitarianism is an astute method of so doing. In a similar vein, some participants viewed eliminating all animal products as a futile endeavour, which may diminish their motivation to resolve dissonance via behaviour change (eliminating NMAPs from their diet):

"There's only so much that, like, you can kind of sacrifice as an individual" (Eric).

"There's too much money in the industry to actually change anything. There's too much at stake for there to be any change" (Lucas).

Many also highlighted their successes in reducing eggs and dairy since first transitioning to a vegetarian diet, which may negate the harmful consequences of NMAPs by promoting the ethical aspects of consumption (Dowsett et al., 2018). Like the other rationalisations explored in this section, this approach may have the effect of minimising one's personal impact or responsibility by comparing NMAP consumption with alternatives of greater perceived moral concern (Dowsett et al., 2018). Thus, the final research question is addressed, finding that vegetarians likely experience cognitive dissonance related to their consumption of dairy and eggs, but manage and neutralise discomfort in several hypothesised ways, including dissociation, confirmation bias, perceived ignorance of ethical issues, utilitarianism, an appeal to futility, and reinforcement of dietary successes.

4. Conclusion

The first research question was: 'to what extent do vegetarians view eggs and dairy as an ethical issue?'. We found that vegetarians had ethical, environmental, cultural, and familial motivations that led them to reduce their consumption of animal products, and all participants acknowledged that NMAPs implicated ethical issues but found it easier to simply forgo meat. They expressed - to varying degrees - their knowledge of the harm and/or death involved to animals in NMAP production, with a moderate-to-high degree of awareness overall. The second research question was: 'what reasons do vegetarians give for including NMAPs in their diet?'. We found that, for many, consuming eggs and dairy was a negotiation of their values, a way to feel like they were contributing positively to animal welfare and the environment but at minimal personal costs. These costs related to health and nutrition, convenience, and taste. Participants' consumption of eggs and dairy was also a social negotiation, in the sense that the inclusion of these products in social settings acted as a compromise between the priorities of avid meat-eaters and vegetarians within family and friend groups. The personal and social reasons participants gave for consuming NMAPs were largely consistent with Piazza et al.'s (2015) Four Ns of justification model (that eating animals is nice, normal, necessary, and natural), except for the distinct absence of 'natural' justifications. We would argue that vegetarians are less likely to use this argument than meat-eaters because while it may be natural for animals to eat each other's flesh, it is much less so to eat products like cheese, the coagulated secretions of other species. The final research question was: 'is cognitive

dissonance implicated when vegetarians must justify their consumption of NMAPs, and if so, how do they overcome it?'. The presence of cognitive dissonance was strongly supported by the data. This was exemplified through comparing attitudes to milk and cheese. Cheese was by far the animal product which participants were most attached to, despite having the strongest negative feelings about dairy practices. While many reacted to milk with disgust, they avidly consumed cheese, citing its tastiness and perceived addictiveness. Participants expressed various means of managing dissonance discomfort. The milk/cheese distinction indicated dissociation, whereby the further a product was removed from its animal origin, the more willingly people consumed it. This could be one factor driving the trend towards decreased fluid milk consumption and increased cheese consumption recently in Western countries (Wolf et al., 2020). Other ways participants managed conflict included: perceived ignorance of ethical issues; confirmation bias in regards to 'humane' farm practises; utilitarianism which aided participants in drawing their own ethical boundaries; an appeal to futility which may reduce motivation for behaviour change; and a reinforcement of dietary successes which promoted the ethical aspect of consumption.

4.1. Strengths, limitations, and future directions

To the authors' knowledge, this is the first study investigating why vegetarians consume NMAPs and, importantly, their justifications. This study adds a new dimension to literature on the meat paradox by substantiating a possible 'cheese paradox': tension arising from one's enjoyment of non-meat animal products despite knowing the harmful consequences they entail. The 'cheese paradox' also encapsulates the evident phenomenon of feeling more ethical conflict about consuming milk than cheese. We believe this is an important finding because enjoyment of cheese is one of the biggest barriers to a plant-based diet (Veganuary, 2021), so this may provide insight into why it's psychologically more difficult to give up. Furthermore, approximately 10 L of milk are needed to produce just 1 kg of cheese (Lawton, 2019), so it's critical to examine the factors that enable the continued consumption of a product that involves such substantial resource consumption and presents ethical dilemmas. While our reflections on the cheese paradox are hopefully insightful, it is worth noting that more evidence is needed before this can be understood as a widespread phenomenon with any conviction. Our analysis on the psychological dimensions of vegetarians' relationship to NMAPs is intended to be food for thought, per se, and we hope that others may be inspired to explore and expand upon some of the ideas raised in this paper in further studies. The practical value of this research is that can be used to target NMAP-specific reduction efforts, an important and traditionally neglected pursuit in the quest for a sustainable food system and a more compassionate world. For example, one strategy that could be deduced from this research is that cheese must be more overtly linked to the living animal and to fluid milk to tackle cognitive dissonance and trigger empathy for dairy cows. In addition, it may be beneficial to portray cheese in a way which makes it appear less familiar, which tends to have an aversive effect on appetite (Possidónio et al., 2022). Another is that plant-based nutrition should be more widely incorporated into educational institutions. Furthermore, we have uncovered some of the specific personal and social barriers which must be addressed before people feel able or willing to take the 'next step' in adopting a fully plant-based diet.

One potential limitation of the study is that due to the snowball sampling technique, the primary researcher DD was known personally to some participants, as was their status as an ethical vegan. This could have created a demand effect whereby interviewees anticipated certain questions and researched NMAP practices in advance or misreported their attachment to eggs and dairy. To mitigate this, we paid specific attention to pre-interview rapport building and asked interviewees if they could be as honest and introspective as possible as this was necessary to obtain the most value from the research, involving and

investing interviewees in the cocreation of knowledge. Moreover, DD assured participants at the beginning of data collection that they did not condemn anyone's dietary choices on a personal level and explained that the research sprang out of reflection upon their own time as a vegetarian for many years, aiming to create a sense of mutual understanding which would facilitate comfortable and productive conversation. Nonetheless, it is not unlikely that the presence of a vegan researcher influenced the responses of participants. Due to the relatively small sample size of 12 participants, caution should be taken when extending these findings to other vegetarians. Though we felt the sample size was appropriate for both the scope of this study and to achieve the richness of detail we sought, it would be useful to recreate this study with a larger sample size, thus including more perspectives. A further limitation is that the premise of this study and the language used considered only dietary factors of people's involvement with NMAPs. Indeed, we defined NMAPs as "every *edible* product derived from an animal which is not a body part" for the sake of clarity. However, this risks portraying veganism or vegetarianism as a diet when its proponents might more accurately consider them as ethical positions against the exploitation and/or killing of animals, therefore, a more nuanced conversation that considers all our problematic uses of animals is warranted for future studies.

There are additional exciting possible future directions for this research. Loughnan et al. (2010) found that eating meat immediately led to a reduction in empathetic concern for animals. Though the qualitative approach of the current paper was integral to producing its nuanced and illuminating insights, it would be interesting to replicate the Loughnan et al. (2010) study with cheese, providing a quantitative measure of the cheese paradox. Further, attention should be paid to vegans with a history of vegetarianism because they could provide useful insights into how and why individuals eventually decide to relinquish NMAPs, which would supplement reduction strategies. It might also be interesting to interrogate the influence of demographics upon vegetarians' relationship to NMAPs, as the current study's participants were all in their 20s and had benefitted from higher education – another limitation of the snowball sampling technique - which may have led to a narrower frame of reference. Future studies might wish to include a sample of older vegetarians, who may be more resistant to change and more likely to be primarily motivated by personal health rather than ethical reasons (Pribis et al., 2010), which would likely reduce the amount of conflict they felt about consuming NMAPs and therefore require consideration of alternative reduction strategies. Finally, although we posited that cheese is psychologically more dissociated from the animal source than milk, facilitating continued consumption, this was not relevant to the consumption of eggs. This appears anomalous with our discussion on the process of dissociation since eggs are generally completely unprocessed and physically unchanged from their animal origins. However, we believe the method of extraction could have a potential cognitive impact; milk must be extracted from inside the animals' body, whereas eggs are collected from outside of the animals' body and may be conceptualised as being 'provided' rather than 'taken'. Thus, we postulate the process of separation from the animal has already happened, resolving the need for a dissociative process. We welcome the exploration of this idea in future studies.

Author contributions

DD: Conceptualisation, research design, data collection, data analysis, writing – original draft. CJ: Supervision, writing – reviewing and editing. All authors approved the final version of the manuscript.

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Ethics statement

This study was approved by the University of Stirling General University Ethics Panel (ethics application form 7366) in line with British Psychological Society guidelines, and all participants gave informed consent before taking part.

Declaration of competing interest

Devon Docherty reports the following potential conflicts. She was an unpaid intern with Surge Activism, a non-profit for animal rights, during the research reported here. Subsequently, during the peer review process, she was a paid freelance writer with Surge Activism. Surge Activism had no role in the design, conduct, findings or reporting of this research.

Data availability

Data is not openly available as it could potentially compromise participant privacy and participants did not consent to data sharing outside of the research team.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.appet.2023.106976>.

References

- moenium66. (2022). AITA for telling my girlfriend what her chicken nuggets are made of? [Online forum post]. Reddit. https://www.reddit.com/r/AmItheAsshole/comments/ydls57/aita_for_telling_my_girlfriend_what_her_chicken_nuggets_are_made_of/.
- Alderson, P. (2016). The philosophy of critical realism and childhood studies. *Global Studies of Childhood*, 6(2), 199–210. <https://doi.org/10.1177/2043610616647640>
- Amen-Ra, N. (2006). Humans are evolutionarily adapted to caloric restriction resulting from ecologically dictated dietary deprivation imposed during the Plio-Pleistocene period. *Medical Hypotheses*, 66(5), 978–984. <https://doi.org/10.1016/j.mehy.2005.11.013>
- Barr, S. I., & Chapman, G. E. (2002). Perceptions and practices of self-defined current vegetarian, former vegetarian, and nonvegetarian women. *Journal of the American Dietetic Association*, 102(3), 354–360. [https://doi.org/10.1016/S0002-8223\(02\)90083-0](https://doi.org/10.1016/S0002-8223(02)90083-0)
- Barr, W. A., Pobiner, B., Rowan, J., Du, A., & Faith, J. T. (2022). No sustained increase in zooarchaeological evidence for carnivory after the appearance of homo erectus. *Proceedings of the National Academy of Sciences*, 119(5), Article 2115540119. <https://doi.org/10.1073/pnas.2115540119>
- Beardsworth, A., & Keil, T. (1992). The vegetarian option: Varieties, conversions, motives and careers. *The Sociological Review*, 253–293. <https://doi.org/10.1111/j.1467-954X.1992.tb00889.x>
- Benningstad, N. C. G., & Kunst, J. R. (2020). *Dissociating meat from its animal origins: A systematic literature review* (Vol. 147). *Appetite*, Article 104554. <https://doi.org/10.1016/j.appet.2019.104554>
- de Boer, J., Schöslér, H., & Aiking, H. (2017). Towards a reduced meat diet: Mindset and motivation of young vegetarians, low, medium and high meat-eaters. *Appetite*, 113, 387–397. <https://doi.org/10.1016/j.jappet.2017.03.007>
- Bradbury, K. E., Tong, T. Y. N., & Key, T. J. (2017). Dietary intake of high-protein foods and other major foods in meat-eaters, poultry-eaters, fish-eaters, vegetarians, and vegans in UK Biobank. *Nutrients*, 9(12), Article 1317. <https://doi.org/10.3390/NU9121317>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Bresnahan, M., Zhuang, J., & Zhu, X. (2016). Why is the vegan line in the dining hall always the shortest? Understanding vegan stigma. *Stigma and Health*, 1(1), 3–15. <https://doi.org/10.1037/SAH0000011>
- Brown, C., & Dorey, C. (2019). Pain and emotion in fishes - fish welfare implications for fisheries and aquaculture. *Animal Studies Journal*, 8(2), 175–201. <https://doi.org/10.14453/asj.v8i2.12>
- Brümmer, N., Christoph-Schulz, I., & Rovers, A. K. (2018). Consumers' perspective on dual-purpose chickens as alternative to the killing of day-old chicks. *International Journal on Food System Dynamics*, 9(5), 390–398. <https://doi.org/10.18461/ijfsd.v9i5.951>
- Bryant, C. J. (2019). We can't keep meat-eating like this: Attitudes towards vegetarian and vegan diets in the United Kingdom. *Sustainability*, 11(23), Article 6844. <https://doi.org/10.3390/su11236844>
- Buttlar, B., & Walther, E. (2022). Escaping from the meat paradox: How morality and disgust affect meat-related ambivalence. *Appetite*, 168, Article 105721. <https://doi.org/10.1016/j.appet.2021.105721>
- Camilleri, L., Gill, P. R., & Jago, A. (2020). The role of moral disengagement and animal empathy in the meat paradox. *Personality and Individual Differences*, 164, Article 110103. <https://doi.org/10.1016/j.paid.2020.110103>
- Colles, F. M., McCarthy, N. D., Layton, R., & Maiden, M. C. J. (2011). The prevalence of *Campylobacter* amongst a free-range broiler breeder flock was primarily affected by flock age. *PLoS One*, 6(12), Article e22825. <https://doi.org/10.1371/JOURNAL.PONE.0022825>
- Corwin, R. L., & Grigson, P. S. (2009). Symposium overview - food addiction: Fact or fiction? *Journal of Nutrition*, 139(3), 617–619. <https://doi.org/10.3945/jn.108.097691>
- Department for Environment Food and Rural Affairs. (2008). *Detection, causation and potential alleviation of bone damage in laying hens housed in non-cage systems* (AW0234).
- Dowsett, E., Semmler, C., Bray, H., Ankeny, R. A., & Chur-Hansen, A. (2018). Neutralising the meat paradox: Cognitive Dissonance, gender, and eating animals. *Appetite*, 123, 280–288. <https://doi.org/10.1016/j.appet.2018.01.005>
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(1), 80–92. <https://doi.org/10.1177/160940690600500107>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.
- Foëx, B. A. (2007). The ethics of animal experimentation. *Emergency Medicine Journal*, 24(11), 750–751. <https://doi.org/10.1136/EMJ.2007.050146>
- Forschende, K., Kessler, C. S., Holler, S., Joy, S., Dhruva, A., Michalsen, A., Dobos, G., & Cramer, H. (2016). Personality profiles, values and empathy: Differences between lacto-ovo-vegetarians and vegans. *Forsch Komplementmed*, 23, 95–102. <https://doi.org/10.1159/000445369>
- Fox, N., & Ward, K. (2008). Health, ethics and environment: A qualitative study of vegetarian motivations. *Appetite*, 50, 422–429. <https://doi.org/10.1016/j.appet.2007.09.007>
- Garner, R. (1998). The politics of farm animal welfare in Britain. *Political Animals*, 151–175. https://doi.org/10.1007/978-1-349-26438-4_9
- Giraud, E. (2013). Veganism as affirmative biopolitics: Moving towards a posthumanist ethics? *PhaenEx*, 8(2), 47–79. <https://doi.org/10.22329/P.V8I2.4087>
- Graça, J., Calheiros, M. M., & Oliveira, A. (2016). Situating moral disengagement: Motivated reasoning in meat consumption and substitution. *Personality and Individual Differences*, 90, 353–364. <https://doi.org/10.1016/j.paid.2015.11.042>
- Gradidge, S., Zawisza, M., Harvey, A. J., & McDermott, D. T. (2021). A structured literature review of the meat paradox. *Social Psychological Bulletin*, 16(3), 1–26. <https://doi.org/10.32872/spb.5953>
- de Haas, E. N., Oliemans, E., & van Gerwen, M. A. A. M. (2021). The need for an alternative to culling day-old male layer chicks: A survey on awareness, alternatives, and the willingness to pay for alternatives in a selected population of Dutch citizens. *Frontiers in Veterinary Science*, 8. <https://doi.org/10.3389/fvets.2021.662197>
- Hestermann, N., Le Yaouanq, Y., & Treich, N. (2020). An economic model of the meat paradox. *European Economic Review*, 129. <https://doi.org/10.1016/j.eurocorev.2020.103569>
- Hopwood, C. J., Bleidorn, W., Schwaba, T., & Chen, S. (2020). Health, environmental, and animal rights motives for vegetarian eating. *PLoS One*, 15(4), Article e0230609. <https://doi.org/10.1371/JOURNAL.PONE.0230609>
- Hunt, P., Rayner, M., & Gatenby, S. (1995). A national food guide for the UK? Background and development. *Journal of Human Nutrition and Dietetics*, 8(5), 315–322. <https://doi.org/10.1111/j.1365-277X.1995.tb00325.x>
- Jallinoja, P., Vinnari, M., & Niva, M. (2020). Veganism and plant-based eating: Analysis of interplay between discursive strategies and lifestyle political consumerism. In M. Boström, M. Micheletti, & P. Oosterveer (Eds.), *Oxford handbook of political consumerism* (pp. 157–179). Oxford University Press.
- Joy, M. (2002). *Psychic numbing and meat consumption: The psychology of carnism* [doctoral thesis]. Saybrook Graduate School and Research Center. <https://www.proquest.com/docview/305239590?fromopenview=true&pq-origsite=gscholar&parentSessid=sBEyET7xnsu7XovWHQM%2FyWBIS%2Bmh22jwNs7LpnZU4do%3D>
- Joy, M. (2010). *Why we love dogs, eat pigs, and wear cows: An introduction to carnism*. Conari Press.
- Khara, T., Riedy, C., & Ruby, M. B. (2021). A cross cultural meat paradox: A qualitative study of Australia and India. *Appetite*, 164, Article 105227. <https://doi.org/10.1016/J.APPET.2021.105227>
- Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE guide No. 131. *Medical Teacher*, 42(1), 1–9. <https://doi.org/10.1080/0142159X.2020.1755030>
- Kim, W., Ryoo, Y., Yoon, S., & Kim, K. (2021). Ethical dissonance in environmental advertising: Moderating effects of self-benefit versus other-benefit appeals. *International Journal of Advertising*, 40(8), 1320–1342. <https://doi.org/10.1080/02650487.2021.1988218>
- Krautwald-Jungmanns, M. E., Cramer, K., Fischer, B., Förster, A., Galli, R., Kremer, F., Mapesa, E. U., Meissner, S., Preisinger, R., Preusse, G., Schnabel, C., Steiner, G., & Bartels, T. (2018). Current approaches to avoid the culling of day-old male chicks in the layer industry, with special reference to spectroscopic methods. *Poultry Science*, 97(3), 749–757. <https://doi.org/10.3382/PS/PEX389>
- Kunst, J. R., & Hohlle, S. M. (2016). Meat eaters by dissociation: How we present, prepare and talk about meat increases willingness to eat meat by reducing empathy and disgust. *Appetite*, 105, 758–774. <https://doi.org/10.1016/J.APPET.2016.07.009>
- Lawton, G. (2019). Cheese meltdown. *New Scientist*, 241(3217), 30–35. [https://doi.org/10.1016/s0262-4079\(19\)30288-x](https://doi.org/10.1016/s0262-4079(19)30288-x)

- Lea, E., & Worsley, A. (2003). Benefits and barriers to the consumption of a vegetarian diet in Australia. *Public Health Nutrition*, 6(5), 505–511. <https://doi.org/10.1079/PHN2002452>
- Lee, R. M. (1993). *Doing research on sensitive topics*. Sage Publications.
- Loughnan, S., Haslam, N., & Bastian, B. (2010). The role of meat consumption in the denial of moral status and mind to meat animals. *Appetite*, 55(1), 156–159. <https://doi.org/10.1016/j.appet.2010.05.043>
- Lund, T. B., McKeegan, D. E. F., Cribbin, C., & Sandøe, P. (2016). Animal ethics profiling of vegetarians, vegans and meat-eaters. *Anthrozoös*, 29(1), 89–106. <https://doi.org/10.1080/08927936.2015.1083192>
- MacInnis, C. C., & Hodson, G. (2015). It ain't easy eating greens: Evidence of bias toward vegetarians and vegans from both source and target. *Group Processes & Intergroup Relations*, 20(6), 721–744. <https://doi.org/10.1177/1368430215618253>
- Mackintosh, N. J. (1987). Neurobiology, psychology and habituation. *Behaviour Research and Therapy*, 25(2), 81–97. [https://doi.org/10.1016/0005-7967\(87\)90079-9](https://doi.org/10.1016/0005-7967(87)90079-9)
- Mandel, R., Bracke, M. B. M., Nicol, C. J., Webster, J. A., & Gyga, L. (2022). Dairy vs beef production – expert views on welfare of cattle in common food production systems. *Animal*, 16(9), 100622. <https://doi.org/10.1016/j.animal.2022.100622>
- Markowski, K. L., & Roxburgh, S. (2019). “if I became a vegan, my family and friends would hate me”: anticipating vegan stigma as a barrier to plant-based diets. *Appetite*, 135, 1–9. <https://doi.org/10.1016/j.appet.2018.12.040>
- Menzies, K., & Sheeshka, J. (2012). The process of exiting vegetarianism: An exploratory study. *Canadian Journal of Dietetic Practice and Research*, 73(4), 163–168. <https://doi.org/10.3148/73.4.2012.163>
- Mitchell, L. R. (2007). *Discourse and the oppression of nonhuman animals: A critical realist account*. Rhodes University [Doctoral thesis <https://core.ac.uk/download/pdf/145043033.pdf>].
- Oltenu, P. A., & Algers, B. (2005). Selection for increased production and the welfare of dairy cows: Are new breeding goals needed? *Ambio*, 34(4–5), 311–315. <https://doi.org/10.1579/0044-7447-34.4.311>
- Orzechowski, K. (2016). March 22). *Evaluating mass slaughter techniques: “whole-house killings” of hens*. *Faunalytics*. <https://faunalytics.org/evaluating-mass-slaughter-techniques-whole-house-killings-hens/>.
- Parker, A., & Titterton, J. (2006). Focus group method and methodology: Current practice and recent debate. *International Journal of Research and Method in Education*, 29(1), 23–27. <https://doi.org/10.1080/01406720500537304>
- Piazza, J., Ruby, M. B., Loughnan, S., Luong, M., & Kulik, J. (2015). Rationalizing meat consumption: The 4Ns. *Appetite*, 91, 114–128. <https://doi.org/10.1016/j.appet.2015.04.011>
- Plant Based Treaty (@plantbasedtreaty). (2023). @GreenCuisineOfficial challenges climate ignorance associated with eating animals in their incredible ad in which a daughter calls out her dad [Video]. Instagram https://www.instagram.com/reel/Co3mFvmNx6N/?utm_source=ig_web_copy_link
- Plous, S. (1993). *The psychology of judgment and decision making*. McGraw-Hill.
- Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. *Science*, 360, 987–992. <https://doi.org/10.1126/SCIENCE.AAQ0216>
- Possidônio, C., Piazza, J., Graça, J., & Prada, M. (2022). An appetite for meat? Disentangling the influence of animal resemblance and familiarity. *Appetite*, 170, Article 105875. <https://doi.org/10.1016/j.appet.2021.105875>
- Pribis, P., Pencak, R. C., & Grajales, T. (2010). Beliefs and attitudes toward vegetarian lifestyle across generations. *Nutrients*, 2(5), 523–531. <https://doi.org/10.3390/nu2050523>
- Quinney, L., Dwyer, T., & Chapman, Y. (2016). Who, where, and how of interviewing peers: Implications for a phenomenological study. *Sage Open*, 6(3), 1–10. <https://doi.org/10.1177/2158244016659688>
- Quorn. (2022). So tasty, why choose the alternative? [Video]. YouTube <https://youtu.be/JlZTgp-hJhY>.
- Renaud, D., & Pardon, B. (2022). Preparing male dairy calves for the veal and dairy beef industry. *Veterinary Clinics: Food Animal Practice*, 38(1), 77–92. <https://doi.org/10.1016/J.CVFA.2021.11.006>
- Riber, A. B., Casey-Trott, T. M., & Herskin, M. S. (2018). The influence of keel bone damage on welfare of laying hens. *Frontiers in Veterinary Science*, 5(FEB), 6. <https://doi.org/10.3389/fvets.2018.00006>
- Ritchie, H., & Roser, M. (2019). *Meat and dairy production. Our world in data*. <https://ourworldindata.org/meat-production#number-of-animals-slaughtered>.
- Rosenfeld, D. L., Rothgerber, H., & Tomiyama, A. J. (2020). Mostly vegetarian, but flexible about it: Investigating how meat-reducers express social identity around their diets. *Social Psychological and Personality Science*, 11(3), 406–415. <https://doi.org/10.1177/1948550619869619>
- Rufener, C., Baur, S., Stratmann, A., & Toscano, M. J. (2019). Keel bone fractures affect egg laying performance but not egg quality in laying hens housed in a commercial aviary system. *Poultry Science*, 98(4), 1589–1600. <https://doi.org/10.3382/ps/pey544>
- Salmivaara, L., Niva, M., Silfver, M., & Vainio, A. (2022). How vegans and vegetarians negotiate eating-related social norm conflicts in their social networks. *Appetite*, 175, Article 106081. <https://doi.org/10.1016/J.APPET.2022.106081>
- Schenk, P., Rösse, J., & Scholz, M. (2018). Motivations and constraints of meat avoidance. *Sustainability*, 10(11), Article 3858. <https://doi.org/10.3390/SU10113858>
- Schulte, E. M., Avena, N. M., & Gearhardt, A. N. (2015). Which foods may be addictive? The roles of processing, fat content, and glycemic load. *PLoS One*, 10(2), Article e0117959. <https://doi.org/10.1371/journal.pone.0117959>
- Solano, J., Orihuela, A., Galina, C. S., & Aguirre, V. (2007). A note on behavioral responses to brief cow-calf separation and reunion in cattle (*Bos indicus*). *Journal of Veterinary Behavior*, 2(1), 10–14. <https://doi.org/10.1016/J.JVEB.2006.12.002>
- Stets, J. E., & Burke, P. J. (2000). Identity theory and social identity theory. *Quarterly*, 63(3), 224–237. <https://doi.org/10.2307/2695870>
- Stibbe, A. (2001). Language, power and the social construction of animals. *Society and Animals*, 9(2), 145–161. <https://doi.org/10.1163/156853001753639251>
- Tajfel, H. (1978). *Differentiation between social groups: Studies in the social psychology of intergroup relations*. Academic Press.
- The Vegan Society. (n.d.). Definition of veganism. Retrieved March 23, 2023 <https://www.vegansociety.com/go-vegan/definition-veganism>.
- Veganuary. (2021). *The official veganuary 2021 participant survey*. <https://veganuary.com/wp-content/uploads/2021/03/Veganuary-2021-Survey-Results-ALL-2.pdf>.
- Wang, B. (2009). Huffington post tries to make a big deal out of baby chickens becoming chicken nuggets. Next Big Future <https://www.nextbigfuture.com/2009/10/huffington-post-makes-big-deal-out-of.html>.
- Wolf, C. A., Malone, T., & McFadden, B. R. (2020). Beverage milk consumption patterns in the United States: Who is substituting from dairy to plant-based beverages? *Journal of Dairy Science*, 103(12), 11209–11217. <https://doi.org/10.3168/jds.2020-1874>
- World Animal Protection. (2022). November 29). *Cows are not milk machines. help give dairy cows a life worth living*. <https://www.worldanimalprotection.org.uk/get-involve/d/cows-in-factory-farming>.