Nudging, formulating new products, and the lifecourse: a qualitative assessment of the viability of three methods for reducing Scottish meat consumption for health, ethical, and environmental reasons

Authors:

David McBey\textsuperscript{a}\textsuperscript{*}

David Watts\textsuperscript{b}

Alexandra Johnstone\textsuperscript{b}

Authors' affiliation

\textsuperscript{a}Institute of Biological and Environmental Sciences
University of Aberdeen
Scotland, UK

\textsuperscript{b}Rowett Institute for Nutrition and Health
University of Aberdeen
Scotland, UK

\textsuperscript{*}Correspondence to: David McBey, Institute of Biological and Environmental Sciences, School of Biological Sciences, University of Aberdeen, 23 St Machar Drive, Room G43, Aberdeen, AB24 3UU; d.mcbey@abdn.ac.uk; +44 (0)1224 273810
Abstract

Most governmental initiatives designed to improve dietary and planetary health have adopted a light-touch informing approach. However, it may be necessary to consider more direct measures that go beyond simply informing the public if the current high levels of meat consumption in Scotland are to be addressed. This paper considers three possible avenues through which more sustainable meat consumption patterns may be promoted: ‘nudging’, the formulation of new meat-alternative products, and targeting those in particular stages of the lifecourse. Through focus groups held in various locations in Scotland, the perceived viability of these measures was explored. While each measure shows some promise for reducing Scottish meat intake, the complex nature of food choice means that more qualitative research into meat consumption in Scotland is required.

Keywords: meat reduction; sustainable consumption; consumer choice; nudging; plant-based; lifecourse

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Introduction

High levels of meat consumption, particularly of red and processed meats, have negative
impacts on human health and the environment (Aston, Smith and Powles 2012; Micha,
Wallace, & Mozaffarian 2010; Steinfeld et al. 2006; Foresight 2011). Both problems could be
partially mitigated by encouraging the intake of more plant-based foods (Friel et al. 2014;
Garnett et al. 2015). The health case for dietary reform is particularly strong in Scotland as
diet-related diseases are a major cause of morbidity and mortality (Scarborough et al. 2011;
Food Standards Scotland 2015). There is however, a dearth of research specifically
examining meat consumption reduction in Scotland, but research into sustainable food
consumption suggests that dietary change is unlikely to be brought about through the use of
information campaigns alone (Campbell-Arval, Arval, and Kalof 2014).

A recent meta-analysis of studies reviewing consumer acceptance of replacing meat with
alternative protein sources report that knowledge of the environmental impact of meat was
limited. It is therefore unclear whether supplying this type of information to the general public
leads to greater willingness to reduce consumption (Hartman and Siegrist 2017). Public
knowledge of the welfare of slaughtered animals is also low; it may be that, for many, the
disassociation of eating meat from the slaughtering of animals allows them to consume meat
without concern for the animals (Kunst and Hohle 2016). Further, information campaigns,
which have traditionally formed the bedrock of governmental attempts to alter eating
behaviours, also have limited impact (Winkler 2013; Guthrie et al. 2015).

It has been suggested that one of the reasons that previous healthy eating campaigns (e.g.
food pyramid in the UK) were limited in their ability to change behaviour is that they do not
present their message in a manner which is easily relatable to people’s lived experience (Sunstein 2014). It may be that tailored approaches are more effective, if also more costly (Guthrie et al. 2015). This also requires more knowledge about attitudes and beliefs of consumers.

There are numerous ways of moving beyond simply informing consumers of the benefits of eating a diet with less meat and more plant-based foods. This paper examines the possibility of encouraging such a change among Scottish consumers through three commonly cited intervention strategies: nudging, formulating new plant-based products, and lifecourse transition interventions.

Nudges are interventions that “alter people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives” (Thaler and Sunstein 2008: 8), referring to behaviours and decisions that occur without reflection or deliberate thought. Examples of nudging include simplification and framing of information, and altering the physical layout of places where food is consumed or purchased.

It has been argued that there is a need for new plant-based products. A recent qualitative study on European consumers reports food preferences in older and mixed age participants, based on their perception of foods high in protein (Banovic et al. 2018). They highlight that participants could not differentiate between natural sources of protein and foods with enhanced (increased) protein content, no matter whether foods originated from animal or plant source. Furthermore, older-age participants expressed more scepticism towards foods with increased protein content than mixed-age participants. The reported main obstacles for plant protein and specifically legume protein preference were lack of trust in product, unethical production, bad sensory qualities in terms of product taste, as well as perceived lack of healthiness.

This matches a common sociological approach that seeks to understand variances between those of different ages. It employs the concept of the ‘lifecourse’, which refers to the interplay
between the culturally-defined stages of life that individuals in a society progress through (e.g. 'childhood', 'adolescence', 'adulthood', 'old age') and the historical context in which they do so (e.g. World War II, The ‘BSE Crisis’, Post 9/11, The Great Recession). People who are at a similar stage in life, and who have lived through similar historical experiences, can be expected to have certain traits and beliefs in common, though these will be mediated by other factors such as gender, class, and ethnicity (Macionis and Plummer 2012). It has been argued that events in the lifecourse, such as prior experiences with food, role transitions such as parenthood, and changes to the food system, can influence food choice (Furst et al. 1996; Devine et al. 1998). Thus, rather than food consumption being simply the result of fixed habits, there are times of transition whereby individuals’ tastes and consumption routines are more prone to change, which has implications for attempts to convince people to alter their diets. (Devine et al. 1998). This ‘habit discontinuity hypothesis’ states that due to the habitual nature of consumption, any times wherein these habits are subject to change (i.e. during lifecourse disruptions) will be times when new habits can be formed, and people are more open to new sources of information (Verplanken et al. 2008; Verplanken and Roy 2016). Alongside this, the shifting of social identity or roles associated with transition may also allow for behaviour change (Burningham and Venn 2017).

The paper has three aims. 1. To better understand attitudes towards and practices of meat consumption among particular groups of Scottish consumers. 2. To consider the extent to which key drivers of change (nudging, new products, lifecourse interventions) are applicable to consumers in Scotland. 3. To explore whether going beyond simply informing the general public of the health, environmental, and ethical dimensions of meat consumption may bring about behaviour change.

Methodology
Data were collected through eleven focus groups, which were audio recorded. Immediately prior to the focus group discussions, participants were shown a range of high-protein plant-based products (e.g. hemp butter, buckwheat flour, pea snacks) and took part in two activities that were organised to aid discussion and are data collection techniques in their own right: card sorting and word association. Asking participants to sort cards (e.g. with pictures of different food products) into piles (e.g. in order of perceived ‘tastiness’) at the start of the focus group helped participants to focus on each other rather than the moderator (both during the task and in the subsequent discussion) and also helped to encourage everyone to speak (e.g. by asking if they agreed with the choices made) (Kitzinger 1994). This also helped to give an understanding of the thought processes that individuals go through when evaluating food, and how these can be affected by their social environment. It is argued that word association techniques are a relatively quick and effective method for exploratory research into new concepts (Roininen, Arvola & Lähteenmäki 2006), and were used in this research to understand perceptions around new food products and sustainable food. This method involves using a stimulus (e.g. written description or pictures of products) and asking participants to provide the first thoughts that come into their heads. Using this technique, it is argued that less conscious thoughts or concepts may be accessed (Roininen, Arvola & Lähteenmäki 2006). A topic guide was used to help ensure consistency across all groups. The themes covered were: general thoughts on how much participants thought about the food they ate, their perceptions of meat, their considerations of the ethical/environmental/health consequences of the food they eat, their perception of plant-based alternatives to meat, and their thoughts on dietary change.

Purposive sampling was used: individuals (or groups of people) were selected as they appeared to address the research question and could supply the ‘rich’ or complex qualitative data that our approach required (Draper and Swift 2011). The sample in this study was selected after reviewing the existing literature on consumption of meat and plant-based alternatives, feedback from food industry stakeholders, and the formulation of the research
themes and questions. Research was held at various sites in Scotland, with reference to the
Scottish Government 6-fold urban/rural residence classification (Scottish Government 2014),
as previous research has shown that this may be a factor in meat and meat substitute
consumption (Hoek et al. 2004). Groups were chosen based on the lifecourse approach
outlined below (groups 1, 2, and 3), and were identified as being at points where more
sustainable lifestyles may be considered (Thompson et al. 2011), were underrepresented in
research (group 4), or were hypothesised to be groups to which new products could be
successfully marketed (groups 5 and 6).

Participants were recruited through two main channels. Posters and leaflets advertising the
study were distributed on two university campuses and at several events. Charities which
worked with target groups were also approached, and several participants were recruited
through their networks. None of the participants in the study claimed to currently follow a
non-meat diet.

The first group identified were parents with young children. Parenthood is a ‘role transition’
stage in the lifecourse of most individuals, and it is argued that this is a time when people
may be more open to changes in their diets (Devine et al. 1998), although such change is
unlikely to occur spontaneously (Laroche et al. 2012). However, successful interventions
with this group could have a positive long-term impact through instilling good food habits in
their children (Golan and Crow 2004). Following Bourdieu (1984), likes and dislikes for
certain foods are part of an individual’s habitus. This is formed from a young age as food is
provided by parents (or other caregivers), and as children are taught to judge foods (i.e.
good/bad, healthy/unhealthy). This group therefore may be more willing to change, and any
changes may have a profound impact on their children. The first two years of life may be
particularly important stages during which interventions may be designed to promote good
dietary habits (Skinner et al. 2002; Nicklaus 2016). This group consisted solely of women,
which was not part of the research design but was due to their recruitment through a charity
designed to support families with young children which mainly attracted mothers. This will
likely have had an impact on our results, given the gendered nature of meat discussed later in this section and the constraint on food choice felt by women considered in the discussion section.

The second group comprised retirees. Consumption patterns, and attitudes towards meat and plant-based alternatives, appear to be different for older people, which may also be due to lifecourse variances (Gossard and York 2003; Rimal 2002; De Boer & Aiking 2011). As we age, our nutritional requirements change, with less energy and more protein required (Mcintosh and Kubena 2008), and older people appear to eat less meat (Gossard and York 2003). With recent retirees also going through a ‘role transition’ stage, this group might also be open to increased consumption of plant-based alternatives to meat. However, we were unable to recruit any recent retirees; all participants in this category had retired at least eight years earlier. After completing the 1st focus group with this cohort, we analysed the data and included more questions on long-term dietary choices during the discussion with the second group.

The third group were 1st year undergraduate students living away from home. They were chosen as they are also going through a lifecourse role transition, which for many will involve making food choices and cooking for themselves for the first time. Younger people also may be more open to ethical and environmental messages regarding their food choices, as they are less likely to be sceptical about anthropogenic climate change (Poortinga et al. 2011).

The fourth group contained working class men. This group was chosen because it appears to be underrepresented in previous qualitative studies into food consumption (Lea et al. 2005; Gough and Connor 2006). We decided to focus on men because meat is considered a strong marker of masculine identity (Rotherberger 2013), and it was hypothesised that they will be a group that is less likely to consider reducing their meat intake (Gossard and York 2003; Graça, Oliveira and Calheiros 2015).
The fifth sample group comprised regular gym users. This group was suggested during consultation with industry stakeholders, as it was proposed that people with apparently healthy lifestyles may be particularly open to the health benefits of plant-based alternative protein sources.

The final group were cohabiting couples with no children, sometimes called ‘DINKs’ (Dual Incomes No Kids). This group was recruited on the basis that they tend to have a large disposable income and may be open to trying new foods.

<table>
<thead>
<tr>
<th>Focus Group Type</th>
<th>Scottish Council Area</th>
<th>Scottish Government 6-Fold Classification</th>
<th>No of Participants</th>
<th>Age Range of Participants</th>
<th>Gender of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td>Glasgow</td>
<td>Large Urban Area</td>
<td>11</td>
<td>21-40</td>
<td>11 female</td>
</tr>
<tr>
<td>Parents</td>
<td>Aberdeenshire</td>
<td>Remote Small Town</td>
<td>7</td>
<td>21-40</td>
<td>7 female</td>
</tr>
<tr>
<td>Retirees</td>
<td>Aberdeen City</td>
<td>Large Urban Area</td>
<td>8</td>
<td>71-90</td>
<td>5 female, 3 male</td>
</tr>
<tr>
<td>Retirees</td>
<td>Aberdeenshire</td>
<td>Remote Small Town</td>
<td>4</td>
<td>71-90</td>
<td>4 female</td>
</tr>
<tr>
<td>Students</td>
<td>Aberdeen City</td>
<td>Large Urban Area</td>
<td>6</td>
<td>18-21</td>
<td>2 female, 4 male</td>
</tr>
<tr>
<td>Students</td>
<td>Aberdeen City</td>
<td>Large Urban Area</td>
<td>4</td>
<td>18-30</td>
<td>2 female, 2 male</td>
</tr>
<tr>
<td>Working Class Men</td>
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<td>Accessible Rural</td>
<td>5</td>
<td>21-50</td>
<td>5 male</td>
</tr>
<tr>
<td>Working Class Men</td>
<td>Glasgow City</td>
<td>Large Urban Area</td>
<td>3</td>
<td>41-60</td>
<td>3 male</td>
</tr>
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<tr>
<td>Gym Users</td>
<td>Aberdeen City</td>
<td>Large Urban Area</td>
<td>4</td>
<td>21-40</td>
<td>3 female, 1 male</td>
</tr>
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<td>Gym Users</td>
<td>Aberdeen City</td>
<td>Large Urban Area</td>
<td>4</td>
<td>21-40</td>
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<td>DINKs</td>
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<td>Large Urban Area</td>
<td>4</td>
<td>21-40</td>
<td>2 female, 2 male</td>
</tr>
</tbody>
</table>

*Table 1: Information on each focus group*

Audio recordings were professionally transcribed and uploaded into NVivo 11 for analysis.

We employed thematic analysis, whereby certain reoccurring responses were identified as having relevance to our research aims (Braun & Clarke 2008). First, open coding was used to identify the main themes and concepts of each focus group. These were then compared with previous literature and the data in order to develop more insightful and theoretically sophisticated codes which were then applied to the data (a process known as indexing).

Further coding then took place whereby conceptual links and explanations were developed (Ritchie & Spencer 1994). Coding was both inductive (i.e. codes were constructed as a response to the data) and deductive (i.e. codes were derived from our focus group questions and the data was fitted accordingly). An example of the former is data pertaining to shopping behaviour. This was not one of the topics in our interview schedule but was spontaneously discussed during the focus groups. During analysis patterned responses within these discussions were identified and coded, and these went on to inform our analysis of the potential utility of nudging. In contrast, deductive coding was used for data which we had more explicitly asked our participants questions on, such as attitudes towards meat consumption. Here, we started with a simple code “attitude towards meat consumption”, which was then further inductively coded as “positive” or “negative” which then led to more elaborate codes such as “positive taste” or “positive health”.
Ethical Issues

This research was approved by the Rowett Institute Research Ethics Committee, and fully complies with the Declaration of Helsinki. Informed consent was obtained from all participants; pseudonyms have been used.

Results

At the beginning of each focus group we invited participants to discuss how they define meat, as it is a broad term with differing definitions (see Fiddes 1991). Although there were some disagreements, all groups were in general accordance that “meat” included red, white, and processed animal flesh.

Resistance to calls for change from information campaigns was apparent in all groups when they were asked if informing them of the environmental, health, or ethical impacts of high meat consumption were likely to have any impact on their meat consumption. However, there were differing reasons for disregarding the information on the impact of meat overconsumption on each of these categories.

The health impact was generally ignored as people were sceptical as to the validity of the information, or were confused due to contradictory messages:

Charlie (Working Class Man): They come out with that much stuff you don't know what to believe...I think a lot of the research is sponsored by different companies and a lot of it is influenced by the companies that are providing the money for the research and there's a lot of lobbying going about with different companies to promote their products.
Julia (Gym User): There's almost too much information sometimes, there are conflicting studies done or you don't know exactly what information to believe, how does it rank and that is believable, that maybe not so much.

As reported in an earlier study of Scottish attitudes towards meat consumption (MacDiarmid et al. 2016), knowledge of the link between meat consumption and environmental degradation was limited. The student group seemed most informed on the various problems associated with livestock production. This is probably related to the fact that many of them joined the study after hearing it advertised in a lecture on a course whose syllabus includes environmental change. Most people, however, showed little or no concern for the environmental impact of the food that they consume, and highlighted other areas where greenhouse gas emission reductions could be achieved:

William (DINK): It's food, I don't care what the environmental impact is, it's food. If you want to be good to the environment we can make savings in other areas, not food. It's food. We need it to survive. We don't need petrol, we don't need diesel to survive but we do need food.

There was concern for the welfare of animals, with most groups discussing a preference for free-range eggs. However, to extend this concern to the treatment of slaughtered animals was constrained by two factors. First, there was an apparent belief that welfare standards, particularly of British products, were already satisfactory. Second, people equated higher welfare products with more expense, and thus they would not buy them:

Colin (Retiree): I think generally British farming has set high standards and you know yourselves when you are on the continent, the husbandry and the way that British farming is set up, really is at a much higher standard.

Pete (Gym User): Yes, I think what a lot of these things comes down to is the cost, you are going to go for a cheaper option if you can.
Although knowledge of the health, environmental, and ethical implications of high meat consumption is limited, it is not clear that increasing public knowledge of the impact of their dietary choices will be enough to stimulate change (Graça et al. 2014; MacDiarmid et al. 2016). Although it is vital to inform the public of the problems associated with high meat consumption, the limited success of previous campaigns means that more direct measures could be considered. This involves moving up the Nuffield intervention ladder and therefore needs strong justification (Nuffield Council on Bioethics 2007). We discuss three possible measures and the extent to which they may promote lower meat consumption in Scotland: nudging, promoting plant-based meat alternatives, and exploiting lifecourse changes.

**Nudging**

Our study suggests that, for many, meat purchasing and consumption are highly routinized and entail little reflection:

Owen (Working Class Man): I think it's just the (imprint) of just normally buying meat or getting bought meat as a routine. If you are in a routine it's harder to (…) change it I think.

Yvonne (New Parent): Yes, I suppose being younger, your mum and dad making your meals and stuff is always some sort of meat on your plate. If I'd been growing up just having pulses or whatever then obviously that's what you'd probably just continue doing.

Gemma (Student): I think it's almost like everyone, a lot of people think that meat is the staple of the diet, it's not really a meal unless there's meat on the plate.

Given this, there may be an opportunity for nudges to be developed that steer people away from meat overconsumption. We consider two categories of nudge tools: simplification and framing of information, and changes to the physical environment.

**Simplification and framing of information**
As outlined above, knowledge of the environmental impact of meat was low. However, many participants did appear to take an interest in environmental food labelling, with provenance labelling being the most widely used example:

Heather (Gym User): When I buy fruit and vegetables I do sometimes look at the label to see where they’ve come from and think, ‘Oh my God, this has come all the way from Morocco!’ I’ve got Dutch tomatoes, why can’t I get British tomatoes but that’s as far as my thought process goes.

Nadia (DINK): I always go for a local label.

Colin (Retiree): I think we all read labels much more than we did, I think everybody does, certainly in our circle of friends, read what they are buying

However, with reference to simplification, it appeared that while the nutritional information traffic light system was clear and appreciated, other information was considered too abstract or difficult to understand:

William (DINK): That’s the thing, nobody knows… For example, strawberries, there could be strawberries in the summer right next to each other, Scottish strawberries and strawberries from Spain but actually the Spanish strawberries environmentally might actually be better because the Scottish strawberries, they might be applying heat into their tunnels, they might be using lots more chemicals, they might be doing this, that and another thing… And so you have no real means of being able to tell what is more environmentally friendly than another. Unless it specifically says on the label, and there’s very, very few things that say on the label specifically ‘this is…’

Harry (Gym User): That’s the thing – things are labelled 30% less something and it's like ’30% less compared to what? We’ve got no basis for comparison there and you just get the feeling it’s the same thing with 30% written on the packet.
How the information is framed may be a key factor in the success of environmental labelling. One key reference point appears to be that food is less environmentally damaging than transport. This suggests that if environmental labelling could show the cost relative to, for example, a car journey, then people may start to appreciate the environmental impact of the food they eat:

Researcher: What would examples of those [environmental concerns] be?

Heather (Gym User): Air travel, road travel, fossil fuels and all that kind of thing.

Nothing to do with food.

Daniel (Student): People also say that it doesn't really matter, we have CO2 production which produces incredible amounts of CO2, we have cars, cities, aeroplanes, factories, we burn coal to heat, what is having a few cows around is not going to make the problem go away.

Changes to the physical environment

For our participants, the most significant factor appears to be the centrality of meat in supermarkets. Shopping was often planned around the prominent ‘meat aisle’, which appears to suggest that meat is the default option when shopping:

Harry (Gym User): In the supermarket…does everyone start with a meat…they go to the meat section first and then decide what they are having from the meat section?

Julia (Gym User): Yes I do

In contrast, many of our groups commented on the fact that meat-alternatives were not stocked in supermarkets, and when they were, they were often situated in aisles that they rarely visited:

John (Student): And also the availability because they [meat alternatives] are not stocked in every supermarket. I think if it's next to what you are buying in a supermarket and it's a similar price you could look at it as a serious option.
Pauline (Retiree): I must admit in the supermarket I just wouldn't consider…I just never
think of going to a shelf where I would get those [meat alternatives], it never crosses
my mind. But having seen them I would be quite happy to give them a try.

Formulating new products

Apostolidis and McLeay (2016) identified six potential consumer segments, and suggested
that a targeted approach could help convince certain consumers to eat more meat
substitutes. We report that regular gym users might be one such segment. They all had an
interest in health and nutrition and many were interested in new forms of protein. However,
they were sceptical as to their value in comparison to animal-based protein sources:

Pete (Gym User): I was under the impression you get different forms of protein and it
reacts in your body differently. For me your eggs, your tuna, your chicken, that's – for a
muscle building thing I think I'd go for that and I couldn't imagine getting the same
gains from vegetable proteins. Although you probably do, I've heard people are
vegetarians who are in much better shape and they survive.

Raymond (Gym User): I think it's just easier to get a lot of protein from a meat based
meal than a plant based meal. If there is protein it's mainly anywhere between eight (..)
and twelve grams per hundred grams, whereas with meat it's about twenty-five, thirty.
And a lot more volume to get the same amount of protein.

Heather (Gym User): If I think in terms of macro-nutrients, if we are going back to the
protein thing, I would go for eggs next after meat. It's just easier.

More generally, the lack of clarity as to what certain meat substitute products were made of
was unattractive to some. Several participants stressed that such products were
unappealing due to the fact they were processed rather than 'natural'. This is a similar
finding to Rozin's (2005), who argued that perceived naturalness is a key factor in consumer
acceptance of new products:
Albert (Retiree): This is where the risk is with Quorn, it's factory made.

William (DINK): Meat substitutes, like the sausages or whatever, you are eating it and you are like, 'what is this?' Like Trevor said and you said as well, if it's a vegetable based meal, if it's a vegetarian meal and not an alternative in it, you know what you are eating. But if it's some sausage or burger, what...am I putting in my mouth, what is this? It's meat? What is this made of?

In addition to this, when presented with various alternative protein sources most participants believed that these would be expensive and would not represent value for money. They saw meat as being cheaper, more convenient, and more economical:

Charlie (Working Class Man): I wouldn't be tempted to replace them [meat] with them [meat alternatives] at the moment because of the price and because I wouldn't really know how to use them [meat alternatives].

Pete (Gym User): For me, like everything, it's convenience and cost and trying something new which you might not like, the price of the thing and figuring out what is the best way to cook it as well and what it's going to go with, it's all issues that's going to take up time.

Hartman and Siegrist's (2017) meta-analysis found that the sensory properties of alternative products are key to their acceptance or rejection by consumers. They argue for more research into the perception of the sensory qualities of meat replacements, with a view to emulating the taste and texture of meat. However, several participants in our study seemed to reject foods that tried to mimic meat. This suggests that a more focused approach (i.e. those that target specific consumer segments) is vital:

Heather (Gym User): I find that a bit weird, I've lived on Quorn for my vegetarian years and it's like a synthetic thing, to me in my head it's not real food. It's a substitute but I think why bother having a second class substitute, just have something completely different like a pile of vegetables instead which you can do things with. Like Portobello
mushrooms, really, really meaty, that's more satisfying to me than having a meat replacement that just isn't going to be as good as meat because it's not as tasty.

Trevor (DINK): We don't eat tofu, I don't like the texture of tofu or any of that fake meat. Not a big fan of. If we're going out to restaurants sometimes I'll pick a vegetarian option because it's a bit different.

With regards to the 'meal context' There were certain dishes that were generally seen as being appropriate for incorporating meat alternatives into. Curries, chilli’s and stews were mentioned most frequently in this regard:

Iona (Gym User): Yes, I would agree with all of those examples, all of those meals that you would have some veg in, I would put some veg in anyway – if I was making chilli it would have peppers and mushrooms and different things. So instead of meat I'd put in a aubergine and some black beans and things where I feel the meat doesn't necessarily play a huge part already.

William (DINK): One-pot things are always the easiest things to do like a chilli, have less meat and more kidney beans.

However, while most people were open to the idea of trying new foods, the idea of even partially replacing meat was largely rejected. The reasons given reflected the ‘4Ns’ (natural, normal, necessary, and nice) of meat consumption (Piazza et al. 2015), and suggests that a broad cultural shift would be required in order to convince large sections of the population to replace meat with plant-based products:

Kevin (Working Class Man): Highly unlikely for myself [eating less meat], I wouldn’t change it, I like the taste of meat so I’m not going to – I've tried Quorn and lots of different vegetarian meats but it's not that they don't taste good or anything, I just don’t feel they've got the same full flavour and that... it's never going to be meat.
Christina (Retiree): I love chicken, I like all food. I don't think I'm going to eat less, sorry.

*Lifecourse interventions*

Although we were unsuccessful in recruiting any recent retirees, our discussions with those who had retired offered insights into the impact of the lifecourse on long-term food preferences. They spoke fondly of the foods they had as children, and claimed that they still ate many of them. This suggests that early food experiences can have a lasting impact.

Rhona (Retiree): There's a lot of things coming back that when we were young and then it went oot [out] of fashion but they are coming back again.

Pauline (Retiree): If I'm anywhere near a butcher's shop I get liver and then have a big fry up with sausages and bacon.

The new parents seemed particularly keen on altering their diets and were interested in the benefits that plant-based meals could have over meat. However, they felt they were unlikely to do so as their children and partners would resist such a change:

Vicky (Parent): I would like to do it [eat less meat and more plant-based foods] but I couldn't see my kids...I think they would starve, I don't think they would adapt to it.

Yvonne (Parent): I think [her husband] would be like, 'it's not a meat – where's the meat?'

We had hypothesised that the 1st year undergraduate students may be open to dietary change as many of them may be largely or solely responsible for all food choices for the first time. Furthermore, people may be more responsive to targeted interventions promoting sustainable practices if they have moved house, with the effect lasting for around three months (Verplanken and Roy 2016). However, despite their increased concern for the environmental impact of meat there was little evidence that this led, or was likely to lead, to any concrete changes in behaviour. There was also no mention of “flexitarianism” or “meat-
free Mondays”, which supports the argument that these approaches have yet to find widespread recognition (Morris et al. 2014):

John (Student): it’s [eating meat] something you are brought up with and to change that routine of your life is quite difficult. Because I born and brought up with it but (..) change when I was really young but if I tried to stop eating meat now it would probably be like a million times harder because especially (when you are cooking and you had to cook, you always use meat with it) and sometimes you are not taught about meat alternatives and they are not as fun to cook with as meat.

Ian (Student): I would say that in my mind it doesn't make sense not to have meat

Francesca (Student): For me I guess it’s what mood I’m in. I'm going into the dining hall, the time that I do and it’s like, 'that chicken looks really good, I'm going to eat it.’ It's not a matter of 'I said I'd cut down some (meat), this is the day I should cut down because what if tomorrow there is a bad option of meat and my only option would be to take that but if something was appealing to me I'm going to take it.

Discussion

The three aims of this paper, as outlined in the introduction were: 1. To better understand attitudes towards and practices of meat consumption among particular groups of Scottish consumers. 2. To consider the extent to which key drivers of change (nudging, new products, lifecourse interventions) are applicable to consumers in Scotland. 3. To explore whether going beyond simply informing the general public of the health, environmental, and ethical dimensions of meat consumption may bring about behaviour change. In this section, we take points 1 and 2 in turn, by outlining our participants’ thoughts and practices regarding meat and meat-alternatives before considering the specific intervention strategies that we have identified. Our 3rd aim is addressed implicitly as we consider the first two points.
Given the broad scope of this paper, and the qualitative nature of the research, we have only offered a brief overview of the three methods and their potential impact on each of our consumer segments. Although our conclusions are therefore tentative, they identify areas which may be fruitful for further investigation. Our findings suggest that the measures we considered as possibilities for bringing about reduced meat consumption in Scottish consumers show some potential, but are unlikely on their own to bring about widespread change. Although it is not appropriate to generalise from qualitative research, the broad consensus on certain matters (e.g. attachment to meat consumption) suggests that these attitudes may remain prevalent in the wider Scottish population (Macnaghten and Jacobs 1997). Furthermore, many of our results are consistent with similar research conducted in different countries (see Stoll-Kleemann and Schmidt 2017).

It appears that, for Scottish consumers, meat is generally regarded as the default choice for any meal; it is eaten habitually and with little consideration of alternatives. When alternatives are considered, they are generally compared unfavourably to meat. Thus, the perception of meat as the default or natural option for consumption represents a major barrier. One way that this could potentially be challenged is by increasing visibility and knowledge of meat alternatives. Many participants in this study claimed they had little, if any, knowledge of plant-based meat alternatives. Even people aware of such products’ suitability as food were generally unsure how they should be used. This is consistent with Lea, Crawford & Worsley’s (2006) finding that lack of information on alternatives was a significant barrier to reducing meat consumption.

In addition, measures to help consumers understand the impact of high meat consumption could be considered. Most participants were either ignorant, confused, or sceptical as to the amount of red and processed meat that could be consumed safely and the potential health effects of overconsumption. Concerning the environmental impact of red meat consumption, most participants were largely unaware of, or sceptical towards, any problems. This is consistent with earlier research (Wellesley et al. 2015; Macdiarmid et al. 2016; Hartmann
and Siegrist 2017). Although it emerged that, in accordance with Lea, Crawford & Worsley (2006), arguments regarding the environmental impact of meat are unlikely to be sufficient on their own to change consumption patterns, attempts to change their behaviour will probably need to be supported by unambiguous information explaining why it was necessary.

Similarly, concerns surrounding animal welfare are currently unlikely to be primary drivers of behaviour change (Lea, Crawford & Worsley 2006; Thorslund and Lassen 2017). However, many in this study insisted that they generally or even exclusively consume free-range eggs. This may be due to the prevalence of free-range options in supermarkets, but also suggests there may be opportunities for higher welfare products to succeed even when more expensive. Public knowledge of the welfare of slaughtered animals is low, and an information campaign targeted at specific consumer segments could impact meat purchasing decisions (Vanhonacker and Verbeke 2014).

**Nudging**

However, our findings, and previous literature, suggest that information alone will not be enough to bring about changes in behaviour (Ratner et al. 2008), and if people are to change their consumption patterns it may be necessary to consider more direct approaches. If the public is informed of the environmental consequences of their food choices, then the use of on-pack labelling could again be considered. Systems similar to the nutritional traffic light approach (Sacks et al. 2009), whereby the complexities of the environmental impact of meat products are simplified, could be tested. Alongside the simplicity of the message, how the information is framed is crucial. Given the apparent disconnect between food choices and environmental impact, it may be necessary to compare meat products with better-known sources of environmental pollution (e.g. this burger is equal to x car journeys).

The physical layout of supermarkets, with plant-based alternatives separated and placed in rarely visited aisles, serves to highlight the ‘otherness’ of the products; marking them out as
not for people like them. Research into the effect of ‘protein aisles’, where meat and non-meat products are stocked, could discover the extent to which this apparent barrier actually constrains purchasing behaviour. However, although large food retailers in the UK supply some information on sustainable consumption to customers, their main focus is still on encouraging consumption through offers (Jones, Hillier, and Comfort 2011). The extent to which they would engage in any attempts to reduce meat consumption is unclear.

It is imperative that any research into nudging includes a significant qualitative component.

While much research into sustainable consumption nudging has often relied on choices made in controlled environments (Lehner, Mont, and Heiskanen 2016), the complex and multi-faceted nature of food choice means that what holds true in controlled conditions may not work in everyday life. Despite the claim that nudges work by targeting what Kahneman (2011) termed System 1 (i.e. instinctive) thought, by understanding the system 2 (i.e. reflexive) thinking that also goes into food choice may give a more detailed understanding of why some nudges may or may not work.

This suggests going beyond what Shove (2010) calls the ABC (Attitude, Behaviour, Change) paradigm that has been dominant in attempts to tackle climate change. This approach, which locates the solution to environmental degradation in individual consumer choice, has also been prevalent in attempts to tackle public health problems (Kelly and Barker 2016). This ignores, and thereby tacitly promotes, the economic and cultural context in which many of these decisions are made, which as Webb (2012: 119) comments creates a tension between “treating people as primarily consumers, whose well-being depends on acquisition of an infinite array of products and services” and “messages informing them that ‘normal consumption’ is threatening well-being”. This current paradigm is as much a political decision – defending the so-called sovereignty of the consumer and in turn neoliberalism – as it is a choice based on the best available evidence (Shove 2010). Indeed, the evidence for the efficacy of this approach is limited, especially in regard to pro-environmental behaviours (Webb 2012; Capstick et al. 2014). Therefore, in order for large-scale dietary change to be
achieved the food system as a whole needs to be engaged (Ranganathan et al. 2016), and the concept of the sovereign consumer as agent-of-change needs to be reconsidered (Korczynski & Ott 2004; Johnston 2008). Qualitative research is well placed to contribute in this regard, as it allows the voices of participants to be heard and the contexts in which food consumption decisions are made to be better understood.

Formulating new products

Most participants declared an openness to try new foods. This suggests that, if products that contain alternative proteins are formulated and marketed correctly, then there may be demand for them. First, the products must be made appealing. While there were some who regularly consumed meat alternatives and described them as tasty, and those who had tried them before and found them palatable, many of those who hadn’t viewed them as bland in either taste or texture or otherwise unappealing. In this regard, such products were compared unfavourably to meat.

Second, the products must be considered convenient. Our study suggests a common perception that alternatives are either difficult or time-consuming to prepare in comparison to meat dishes. To this end ready-made products could be developed that contain less meat and more plant-based alternatives.

Third, such products need to be marketed effectively. Although the insistence by many that price was the main driving factor in the food that they eat can be challenged, the perceived high cost of alternatives can still be assumed to be a significant barrier.

One group that seemed particularly interested in alternative proteins was gym users. They were more concerned with, and generally more knowledgeable about, healthy eating than other groups and indicated they would like to learn more about the nutritional benefits of eating plant-based vs meat-based proteins. If alternative protein products could be developed and marketed to highlight any advantages over animal protein sources, there may be a market.
Lifecourse differences

As discussed in the methodology section, three of the groups (Retirees, New Parents, and 1st Year Undergraduate Students) were selected as it was theorised that they could be at a stage in their lives whereby they could possibly be more open to changing their dietary patterns. In this respect, the new mothers seemed the most open to change, with the student group mixed and the retirees less willing. Overall, there was little evidence of any lifecourse influence on openness to dietary change. While, for some, lifecourse transitions may represent periods when the potential for positive dietary change is increased, the complexity of everyday life means that such a change is still unlikely. Thus, we concur with Burningham and Venn (2017: 2) in their assessment that much of the work on the potential of lifecourse transitions as fruitful periods for intervention “fail(s) to consider the lived experience of these periods”. As with nudging, we feel that qualitative research has the potential to add much needed depth to this debate.

While the new mothers were open to change, their ability to effect change tended to be constrained by concern that their partners and children would reject any alteration to the family diet. Other female participants mentioned similar concerns; the difference was that many of the new mothers mentioned actively making a change to their diets, by attending slimming groups, and the associated problems that had arisen as a result. Furthermore, although they expressed concern as to what their children ate, most seemed to take the view that they had to feed them something, and often all they were willing to eat was unhealthy food. It is argued that women appreciate their role as caregiver to the family, and are reluctant to put their own needs above others (DeVault 1991; Cronin et al. 2014). If this is true then it is a potential problem for any large-scale dietary change. As women are largely responsible for food shopping and preparation (Charles and Kerr 1988; Lake et al. 2006), any attempts to nudge customers towards plant-based proteins may have limited applicability unless their partners and children can be convinced to eat them.
However, one facet of lifecourse influences on food that shows promise for large-scale dietary change is the attitudes of the retirees towards foods that they ate as children. Their generally positive attitude towards such food, and insistence that they still ate much of it, suggests that, although not all food habits are fixed, some preferences appear to persist. While many respondents were reluctant to cut their consumption of meat, they claimed that they were willing to eat some of the less fashionable cuts. However, they struggled to find them. Consumption of more of each slaughtered animal may not be any better with regards to health but could have an impact on the environmental footprint of the production of meat for human consumption. It is suggested that such a shift could have support (Tucker 2014), but the health and environmental effects need to be better understood.

More broadly, these enduring food preferences suggest that, if younger children could be targeted for dietary change, then plant-based proteins could become a part of their food repertoire. Education and ‘nudging’ in school dining spaces could play a part in this, as could framing the eating of these foods as playing a key role in helping combat climate change.

One of the reasons that cheaper cuts are part of older people’s diets is that during World War II rationing was presented as assisting the war effort: eating novel meats became a patriotic activity (Wansink 2002). With the caveat that patriotism in a time of war is likely to be a more powerful force than attitudes towards the environment, similar rhetoric regarding climate change may help guide future behaviour if instilled in the young. To this end, research into the impact of the school meal as a site for learning about, and consuming, meat alternatives should be considered (see Torres and Benn 2017).

Conclusion

Our research suggests that there is no one size fits all approach for reducing Scottish meat consumption, but all of the techniques we considered have the scope for some impact. However, these potential approaches often overlap: for example, new mothers may have a
desire to purchase more plant-based foods for their family but will not consider buying them as they do not believe their families will like these products. This means that any attempts to influence behaviour (e.g. by altering the physical layout of supermarkets) may have limited applicability. Given the complexity of food choice decisions there is a need for more research into each lever and its applicability to reducing meat consumption. We suggest that qualitative research may be particularly salient in this regard, as what can appear simple solutions often break down as individuals’ lived experiences with food choice are better understood. Furthermore, without overcoming the biggest barrier – the centrality of meat in Scottish gastronomy – it is difficult to envisage how widespread reduction of meat consumption could occur.

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