

Motivations, barriers, and strategies for meat reduction at different family lifecycle stages

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Abstract

The consumption of animal products, especially meat, contributes heavily to climate change. Despite an increased number of individuals reducing their meat consumption, little research has explored flexitarianism. The objective of this study was to explore the motivations, barriers, and strategies for reduced meat consumption. The qualitative study, utilizing six focus groups in New Zealand, explores the cognitive, affective, and cultural components of meat reduction through the examination of the different stages of the family lifecycle. The research finds significant differences in motivations for meat reduction between young adults, families, and retirees, with health, environmental and cost important factors but to different degrees. However, all continue to eat meat due to cravings, taste and nutrition beliefs. Strategies for substitution are similar for young adults and families but differ from retirees, with the former populations exhibiting greater creativity and exploration, not seeing meat reduction as ‘meat replacement’ but instead as a recreation of the main meal. The barriers to meat reduction are similar across the family lifecycle with a lack of information and cultural, media, and institutional discourse large inhibitors to reduction. Yet, social and cultural factors also encourage individuals to reflect on their meat consumption and social connections (including social media) provide accessible and persuasive messaging for meat reduction. Consequently, public education and social marketing campaigns need to be implemented to provide information and recipes, and such information should be in varied formats to appeal to different consumer segments.

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1. Introduction

Agriculture accounts for approximately 30 percent of global GHG emissions (Bellarby, Foeroid, & Hastings, 2008). At the same time, eating less red and processed meat has been stipulated as dietary requirements for individual health to reduce rates of obesity, heart disease and cancer (Bouvard et al., 2015; Wang & Beydoun, 2009). Consequently, some governments are implementing guidelines and initiatives for sustainable and healthy diets, such as Germany, Switzerland, and China (FAO & The Food Climate Research, 2016; Milman & Leavenworth, 2016). Considering that worldwide only approximately 5% of individuals identify as vegetarian, 3% as vegan, and 3% as pescatarian (Ipsos, 2018), with more individuals identify as meat reducers or flexitarian (approximately 14%–60%) (Ipsos, 2018; Neff et al., 2018), research on the motivations and behaviors of meat reducers are of great importance.

However, consumer research on flexitarianism is lacking in the literature (Rosenfeld, 2018). A flexitarian “is an individual who limits his or her meat intake yet still includes meat in his or her diet” (Rosenfeld, 2018, p. 132). There are positive environmental implications of meat reduction. Research shows demand-side greenhouse gas (GHG) emission mitigation potential of different diets, and while a vegan and vegetarian diet has the highest potential, a flexitarian diet is the third best diet for GHG mitigation potential (over and above a Mediterranean diet) (IPCC, 2019). More recent research even suggests that due to substitution which may occur in a vegetarian diet with dairy products, a low meat diet may be better for GHG mitigation potential than a vegetarian diet (Kim et al., 2019). Yet, the receptibility of a reduced meat diet differs across demographics (i.e., age, sex, country) and psychographics (i.e., knowledge and values) (Rosenfeld, 2018), suggesting individuals view (non)meat consumption differently.

As such, motivations, as well as meat reduction cooking strategies and perceived barriers to a reduced meat diet may differ depending on age, gender and living situation. The family lifecycle, whether one is single, has children, and is younger or older, impacts upon wants, needs and financial abilities (Wilkes, 1995), as well as attitudes and beliefs, particularly around food consumption (Neulinger & Simon, 2011; Pohjolainen, Vinnari, & Jokinen, 2015). For example, women are more conscious about their meat consumption and willing to change consumption patterns (Ghvanidze, Velikova, Dodd, & Oldewage-Theron, 2016), and young adults are more aware of, and view sustainable food more favorably (Rezai, Teng, Mohamed, & Shamsudin, 2012), yet older individuals consume less meat (Pfeiler & Egloff, 2018) and have a more climate friendly diet (Brunner, Kurz, Bryngelsson, & Hedenus, 2018).

This research explores motivations, barriers, and strategies for reduced meat consumption. The qualitative study explores meat reduction through the examination of the different stages of the family lifecycle. Theoretically, the research can add to the literature about flexitarian identity (Rosenfeld, 2018; Rosenfeld, Rothgerber, & Tomiyama, 2019) and the various factors involved in meat reduction, namely, cognitive, affective, and cultural components (Horgan, Scalco, Craig, Whybrow, & Macdiarmid, 2019; Stoll-Kleemann & Schmidt, 2017). Besides, there is a lack of research on the motivations for meat *reduction* but not *elimination*, as many studies of vegetarianism examine only meat elimination (e.g., Forestell, Spaeth, & Kane, 2012; Rosenfeld, 2018; Rothgerber, 2014). A more nuanced understanding of flexitarians’ perceived barriers and motivations can lead to greater uptake of a reduced meat diet. Subsequently, research findings can be used to inform meat reduction campaigns such as Meatless Mondays, considering there is a large role to play for non-governmental organizations (NGOs) (Laestadius, Neff, Barry, & Frattaroli, 2013) and to inform marketing

campaigns for producers of meat substitutes and food providers (i.e., those wishing to appeal to a moderate meat consumer).

1.1. Meat reduction and household composition

While studies have examined veganism and vegetarianism (e.g., Forestell et al., 2012; Rosenfeld, 2018), such diets are still not very common across the world (under 10% worldwide) (Ipsos, 2018). Yet, around 14% (Ipsos, 2018) to 60% (Neff et al., 2018) may identify as flexitarian and more than 50% of individuals who identify as vegan or vegetarian may still eat meat occasionally (Waitrose, 2018). In New Zealand, the latest figures suggest that 34% are reducing their meat consumption or eating no meat (Colmar Brunton, 2019). Yet, there is currently a lack of understanding for the reduction, but not elimination, of meat (Rosenfeld, 2018).

While studies have examined flexitarians in general (Cliceri, Spinelli, Dinnella, Prescott, & Monteleone, 2018; De Backer & Hudders, 2014; Forestell et al., 2012), only a few studies have examined motivations for meat reduction (Apostolidis & McLeay, 2019; De Backer & Hudders, 2014; Zur & Klöckner, 2014). De Backer and Hudders (2014) examined the motivations of health, ethics, environment, religion, and taste, and related this to being either vegetarian, semi-vegetarian, or light semi-vegetarian. Other research found that meat eating habits predicted meat consumption but were negatively related to reduction intentions, while such intentions were influenced by attitudes, moral, and health beliefs (Zur & Klöckner, 2014). Another recent study found that based on their preference of sustainability-related labels, two main motives exist for meat reducers: sustainability and health (Apostolidis & McLeay, 2019). Thus, while flexitarian lifestyles are increasingly more common (Ipsos, 2018), there is limited research conducted on this group of individuals (Rosenfeld, 2018) and their motivations, strategies and perceived barriers towards meat reduction.

Meat consumption, reduction and substitution are influenced by several factors, such as personal, socio-cultural, and the external environment (Horgan et al., 2019; Stoll-Kleemann & Schmidt, 2017). For example, attitudes towards meat, plant-based meals, and meat substitutes differ between demographics such as sex, age, and income (Ghvanidze et al., 2016; Ipsos, 2018; Pfeiler & Egloff, 2018; Vecchio & Annunziata, 2015). Socio-cultural factors such as the cultural meaning of meat, including those related to status, masculinity (Ruby & Heine, 2011) and country (de Boer & Aiking, 2018) influence both meat and reduced meat consumption, as well as external environmental factors as such availability and accessibility of meat substitutes and vegetables, and financial constraints (Rosenfeld, 2018).

Household composition, which usually differs based on the stage of the family lifecycle, is also likely to influence food consumption (Neulinger & Simon, 2011). Individuals and families usually progress through different stages, from a single young adult to partnership and marriage to having children, and finally to retirement and to a single elderly state (Neulinger & Simon, 2011; Wilkes, 1995). These lifecycle stages influence households' consumption, differing in needs, wants and financial constraints (Wilkes, 1995), particularly on expenditures such as food, holidays and luxury items (Neulinger & Simon, 2011; Wilkes, 1995). Recent research demonstrate that family lifecycle impacts meat consumption, as flexitarians are more likely to be 25–34 years old and single, and vegetarians more likely to be single or a couple without children (de Gavelle et al., 2019). A recent study also examined the different attitudes towards government initiatives aimed at meat reduction by sampling different demographic and family lifecycle groups, namely, university students, parents,

retirees, couples with no children, males, and gym attendees (McBey, Watts, & Johnstone, 2019). As such, the present research suggests that motivations, perceived barriers, and strategies for meat reduction may also differ across the family lifecycle due to a combination of age, environmental and social factors.

Furthermore, studies on meat consumption and consumption of meat substitutes have been highly concentrated in Europe (particularly the Netherlands) and the U.S (Hartmann & Siegrist, 2017). However, research suggests that there are cultural differences in individuals' willingness to reduce meat consumption (Hartmann & Siegrist, 2017). In this case, New Zealand provides an interesting context as it has strong historical, cultural, and economic ties to agriculture (MacLeod & Moller, 2006). For example, New Zealand has the 6th highest per capita meat consumption rate in the world (Food and Agriculture Organization of the United Nations, 2013) and dairy is New Zealand's largest goods export sector valued at approximately \$13.6 billion annually (Ballingall & Pambudi, 2017). Subsequently, nearly 50% of GHG emissions are from agricultural production in New Zealand (Ministry for the Environment, 2019). Considering the interesting and unique landscape offered by New Zealand, only four studies have been conducted in New Zealand (Allen, Wilson, Ng, & Dunne, 2000; Lentz, Connelly, Miroso, & Jowett, 2018; Potts & White, 2008; Tucker, 2014). Lentz et al. (2018) examined the motivations for meat consumption and willingness and intentions to reduce meat consumption, which found that expense and health benefits were prevalent for most individuals reducing meat, while Tucker (2014) explored perceptions of various current (i.e., nose to tail) and future meat consumption practices (i.e., in vitro meat). Thus, New Zealand not only makes for an interesting location and case study, especially regarding culture, it is also likely to benefit from meat reduction campaigns.

2. Method

Qualitative research allows for in-depth, exploratory research into phenomena (Malhorta, 2010) to reflect on the cognitive, affective, and cultural components of food choice. In qualitative research, the ability to explore values, beliefs, and attitudes, especially when there is little prior research, is a key strength of its design (Bamball & While, 1994). One form of qualitative research is the focus group, which is ideal for examining the stories, experiences, points of view, beliefs, needs, and concerns of individuals (Kitzinger, 2005). Also, focus groups reveal diverse understandings and allow for the exploration of shared ideas, especially the similarities and differences of understandings (Liamputtong, 2011; Morgan & Spanish, 1984). Previous focus group research in the food domain demonstrates its ability to yield in-depth, reflective insight into food preferences, decisions and behaviors (e.g., Costa, Hayley, & Miller, 2014; Hartman, Wadsworth, Penny, van Assema, & Page, 2013; Markowski & Roxburgh, 2019; Verbeke et al., 2010).

2.1. Participants and recruitment

All participants were trying to reduce their meat consumption and lived in two major New Zealand cities. To enable homogeneity within focus groups and heterogeneity between focus groups, two focus groups were recruited for each of the three household compositions: young adults with no children (18–35 years), parent(s) with children living at home and 60+ year old living in a retirement village (independent living). In total, six focus groups were conducted with 36 participants (32 females, four males). Table 1 displays the focus group composition. Participants were eligible for participation if they and/or their family (as was the case for four mothers and one young adult) were cutting down on meat.

Table 1. Focus group composition

Focus group	Number	Age	Sex
Young adults A	7	18-35	5 females, 2 males
Young adults B	7	18-35	6 females, 1 male
Family A	3	25+	3 females
Family B	7	25+	7 females
Retirees A	6	60+	6 females
Retirees B	6	60+	5 females, 1 male

Participants were recruited through flyers and social media pages on organic, wholefood and vegetarian associations and food companies (i.e., grocery, café) as well as local supermarket community boards. As compensation, participants were offered a \$50 voucher of their choice (supermarket or petrol). The focus groups lasted between 60 min and 90 min.

2.2. Procedure

Participants either met in a local library (2 focus groups), university conference room (2 focus groups) or a meeting room in a retirement village (2 focus groups). The same moderator conducted all focus groups. Seating was arranged in a circular formation around a table to encourage open discussion (Liamputtong, 2011). While information sheets and consent forms were sent before the focus group, participants were given time to read and sign the consent form before the start of the focus group. While the moderator led some parts of the discussion, this was kept to a minimum. Participants were informed of the informal nature of focus groups and to think of it as a discussion between friends, allowing participants to feel comfortable to bounce ideas off each other, even if they felt it might not answer the original question (Morgan & Spanish, 1984). Topics discussed in the focus group revolved around meat reduction motivations, barriers, strategies, and culture. The discussions were audio-recorded with participants' permission and transcribed verbatim. To allow anonymity, participant names were not connected to their responses (Markowski & Roxburgh, 2019). The study protocol was approved by the University Ethics Committee (Ref. 021618).

2.3. Analysis

Thematic analysis was used to analyze the transcripts. NVivo 12 was used as an aid in the analysis as well as the use of hand-drawn mind maps. Both deductive and inductive coding occurred. A priori template of codes was used based on the objectives of the research (i.e., coded as motivations, barriers, and strategies for meat reduction), these were then either kept (i.e., 'meat replacements products', 'culture') or new inductive codes were assigned when a new theme was observed (the majority of codes displayed in Table 2 were inductive, such as

‘meat reduction as journey’ and ‘transparency in the supply chain’) (Fereday & Muir-Cochrane, 2006). An iterative process was then used where themes were modified or created throughout the analytical and reflective process of coding. Both commonalities and differences were examined within the themes to understand how perceptions and behaviors differed in the different family lifecycle stages. The presentation of results is as follows. Firstly, the reasons for the reduction but not the elimination of meat and the desire for transparency in the food supply chain are discussed. Secondly, the strategies used to minimize meat consumption and the holistic journey of meat reduction are described. Lastly, the importance of culture and media discourse in both inhibiting meat reduction and supporting flexitarian diets are discussed. Throughout the results, the differences and similarities between family lifecycle stages are presented. Table 2 displays the main themes and associated codes, and the ordering of the themes is how these are presented in the findings.

Table 2. Themes

1. Motivations for reduced meat
1.1 Health
1.2 Environment
1.3 Cost
1.4 Ethics (methods of slaughtering)
1.5 Social
2. Reasons against meat elimination
2.1 Meat enjoyment
2.2 Nutritional benefits
3. Transparency in the supply chain
4.1. (Less) Food processing
4.1.1 Wholesome
4.1.2 Time/effort
5. “It’s not substitution” (strategies for meat reduction)
5.1 Hiding
5.2 Involvement (mothers)
5.3 Adventure
5.4 Meat replacement
5.5 Elimination
5.6 Knowledge
6. Meat reduction as a continual journey

6.1 Upskill
7. Culture
7.1 Government/institutions
7.2 Social
7.3 Media

3. Results

3.1. Motivations for reduced meat consumption

The focus groups revealed that motivations varied between stages of the family lifecycle, especially in regard to the importance placed on health, cost, and the environment. Young adults either reduced their consumption due to environmental or health concerns. Such environmental concerns were highlighted in social media and popular documentaries, while health concerns were more personal and visible to them, such as acne, which urged them to investigate causes (i.e., dairy). However, the push to reduce meat was also a social pressure through friends, flatmates, and social media.

I think once it starts getting into the conversation, it's really starting to influence your behavior... once it starts infiltrating into, you're having a barbeque, and people start talking about it, it starts to influence you in ways that maybe if you just saw it in an article it wouldn't have. (Young Adults A)

Similarly, families reduced their meat consumption for either child allergies (health, such as eczema) or cost, and to a much lesser extent environmental impact. In the case of health, mothers started to investigate what caused allergies in their children, particularly skin irritations. The investigation opened up their eyes to how food is processed, what ingredients are contained in products and brought a general awareness and concern about food. In most family cases, the mother implemented and advocated for a reduced meat diet and their (male) partners were unenthusiastic (but compliant) participants. This decision making demonstrates that the female (in a heterosexual relationship) is usually the influencer, decision-maker, and purchaser for groceries and especially in meat reduction/consumption. Interestingly, a few participants in the family focus groups (mothers) described themselves as vegetarians or vegans, while the rest of their family remained meat eaters. In this case, they felt they didn't want to make a decision for their children on whether they should be eating meat or not, and they were also worried about the negative health implications of not eating meat as their child was still described as 'growing'.

I think I'm totally fine without it [meat], but I'm not growing, like I'm growing sideways, but I'm not growing, you know. So I think part of me thinks, you know, and I've read a lot of evidence that children don't need it... But yeah I just kinda think ooh I don't want to get to when they're 18 and they're stunted, and I think oh I've done that. (Family A)

Conversely, families who were in a joint journey towards meat reduction thought being vegetarian would be 'ideal' for health reasons but believed that factors in their lives prevented such a dietary shift, such as their own and their family's enjoyment of meat and time/convenience and at times even cost.

For retirees the reason for meat reduction was their lack of appetite and enjoyment of meat. While all participants ate meat throughout their life, when getting older, they now no longer enjoy big meals or had an appetite for meat. Instead, participants regularly mentioned switching from red meat to fish and chicken, and vegetarian meals based around pasta, rice, and potatoes. Reflections around why the craving for meat and their portion sizes may have decreased revolved around the lack of physical activity participated in once retired.

...it's just that I haven't fancied it (Retirees A)

However, the non-elimination of meat by all family lifecycles remained the same, revolving around meat enjoyment and beliefs about nutritional benefits. The main reason for continual meat consumption was due to the taste and enjoyment of meat, associated heavily with cravings for meat. To overcome these cravings and move away from meat, young adults articulated that they made a conscious switch from seeing meat as an everyday product to a 'treat.' Similarly, families and retirees would rather eat red meat out in restaurants as a 'treat' as they tried to reduce the amount of times meat was cooked at home. Moreover, for all family lifecycle stages, the continual consumption of meat was also regularly discussed with the belief that individuals still need nutrients present in meat products, such as iron and protein. Such reflections on nutrition were usually not discussed in regard to any scientific information, instead relying on preconceived notions which were socialized (i.e., upbringing) rather than consulting alternative external information sources.

However, health concerns (when linking back to and discussing reasons for meat reduction especially) were remedied by individuals' education, knowledge, and awareness of the nutrients in food and the recommended daily intake. There was a conscious effort to see food as a key contributor to health, and even as a solution to current health problems. As an example, participants discussed being disappointed with their GPs and their lack of nutrition knowledge. Moreover, participants regularly commented on listening to their bodies and how they felt after switching food products. Participants trusted their bodily reaction to foods as it provides them with evidence of their dietary intake.

You listen to yourself, you just trust your gut, and if you're healthy you're healthy, you can't tick all of the boxes. If you notice something's significantly affecting you, you cut it out. (Young Adults A)

This lack of trust in authorities and greater trust in themselves also appeared in the want for a transparent supply chain. Further, obtaining knowledge about meat production and food in general resulted in a reflection on the lack of transparency in the food system as information may have been hard to find, skepticism about sources and evidence, and as discussed before in terms of mothers, a greater awareness of the processed nature of the food industry.

3.2. Transparency in the supply chain

Overall, the motivation to reduce meat was not an isolated decision. Once knowledge was obtained about the production of meat (and its health and environmental consequences) an increased general awareness of the food system resulted somewhat in a distrust towards the food system and its processes. As such, concern for transparency in the supply chain impacted upon the perception of food processes, meat replacement strategies and cultural perceptions (i.e., institutions, knowledge). Particularly, processed foods were a major concern for most participants, unaware but also untrusting of the processes and ingredients that went

into these products. Thus, a transition of away from meat also involved a transition towards wholefoods. Participants' concerns regarding processed foods were mediated through being conscious of what one was eating, for some participants, this involved checking ingredients, buying wholefoods, and creating their own meals from scratch.

...but I just want to be more cognizant of what I'm putting into my body. And being more conscious of the chemicals, and the additives, and all the things that are in things. Like you pick up a packet and it looks like a science experiment (Young Adult B)

Concerns about processed food were also extended towards meat substitutes. While younger adults were more willing to try meat substitutes and saw a place for it in helping meat eaters' transition, families and retirees were more hesitant to try. Overall, only a few participants had eaten meat substitute products. Participants discussed that being conscious of your meat consumption and food processes required more effort and energy than continuing to eat meat, but participants were willing to learn and take the time and effort to improve their health, reduce their grocery bill and help the environment. In fact, participants preferred being 'conscious' rather than consuming mindlessly, which they observed in the population.

3.3. Strategies to reduce meat consumption

Across the focus groups, there were various strategies implemented to create meat-free meals and maintain a reduced meat diet. Such strategies included variety and variation in dishes, planning meals in advance, and bulking up of meals with more vegetables or legumes. Young adults' and family's substitution of meat were seen as being adventurous and trying new things, emphasizing that they didn't see it as 'replacing' the meat with 'something' else but instead, entirely recreating their meals. Such recreation included dishes from other cultures, use of spices and in general, trying new ways of cooking.

Participant 1: But still, there's so much more you can do with a plain old cauliflower and zucchini rather than just steam it and stuff. That's where spices come in.

Participant 2: Kiwis have no creativity, I think.

Participant 3: Yep, that's me.

(Family B)

Conversely, retirees' diets did not include new recipes or ways of cooking and instead replaced red meat with fish, chicken, pasta, rice, and egg-based meals. As mentioned previously, meat substitute products (i.e., vegetarian burgers, imitation chicken) were not common for participants from any family lifecycle stages, although a few young adults and families used them (but usually not regularly). Participants commented that such products didn't appeal to vegetarians, but they would be beneficial for those who are meat eaters who were trying to reduce their meat consumption. However, everyone discussed the expensive nature of meat substitute products.

Other strategies were specific to families as it involved children, catering to their likes and dislikes. Such strategies included mothers trying to hide the lack of meat from their family members through the 'hiding' of vegetables and other ingredients in traditional meat dishes

(i.e., within a mince dish). Many commented on trying out recipes found online to find ones that their family enjoyed.

I've tried to reduce the portion size of the meat, and I've also been having, like, red kidney beans and black beans and things into other meals with meat to make it so that we're using less meat (Family B)

The enjoyment of their cooked meals was of key importance to mothers. At the same time while trying to meet everybody's needs, they also wanted to make something that was wholesome, nutritious and 'filling' (and keep costs down). To allow an easier transition towards reduced meat and greater enjoyment of the meal, involvement was key. Here, mothers made sure their children were involved in the shopping or creation of the shopping list; they found their children became excited about trying and learning about vegetables and fruit and cooking in general.

Yet, there were limits to the perceived sacrifices for health and environmental gain; this was especially in regard to dairy and egg products. The reduction of meat was seen as being easier than the reduction of dairy and egg because participants thought it was harder to cut it out as they are present in many products (i.e., bakery goods) and cravings for eggs and dairy was common amongst participants.

Participants exhibited some willingness to replace their reduced meat consumption with more conscious/ethical meat choices, such as free-range, home-kill, and organic. However, such observations were discussed in depth by young adults and related to both ethics and health but were not a major concern of 60+ year olds or families. Although retirees discussed trust in food, they discussed this in regard to the butcher and supermarket (had trust in the local butcher which they did not have for the supermarket); neither the families or young adults discussed the use of a butcher. Eating from nose to tail was emphasized by the retirees and young adults, disliking the waste that was in the food system.

The perception of the ease and timeliness of cooking vegetarian meals was an initial inhibitor to most of the participants. However, after cooking vegetarian meals, there was slight disagreement between participants about whether it was easier and quicker to cook with meat than without. Timing and ease referred to both the planning and cooking of meals. When participants believed it took longer to cook a reduced meat meal this was because they believed meat or chicken was much easier and simpler to cook, whereas legumes needed to be planned and cooked in a specified manner. Conversely, others believed vegetarian meals were easier as you can "*just chuck everything in*" (Young Adults A) but that it did sometimes require more fridge space (i.e., for vegetables).

To upskill their cooking, information about receipts were usually found online to enable variation and variety. Retirees liked to use their intuition and expertise more so than young adults and families who relied more on the Internet and social media.

Like I was on Instagram literally for hours scrolling, looking at people's recipes, watching videos and all that sort of stuff. And now I have, like it's a list every vegan or vegetarian needs to have these staples in their pantry and in their freezer. (Young Adults A)

Availability of new vegetarian products and a greater variety of produce and other food products meant participants were exposed to the ability to buy such products, especially those

inspired by other cultural cuisines (i.e., stir fry was frequently mentioned). Exposure included product availability in supermarkets, the multi-cultural nature of New Zealand and social media. Many retirees, as well as mothers, commented that they were not exposed until recently to the variety of products, cooking techniques, and cuisines, suggesting a change in culture and internationalization.

3.4. Meat reduction as a journey

Overall, the transition away from meat was seen by most as a journey, a continual process of learning and one which can always be improved. Families and young adults routinely described their involvement in meat reduction as a gradual change in diet led by varied motives. In the family specifically, mothers felt as if they were taking their family on a journey, encouraging change on behalf of their children and ‘pushing’ their husbands.

For me, I feel like we're still on a journey, well I'm still on a journey about where I'd like to go, and I suppose it's about taking the household with me. And yeah, and so, yeah, it's, I'm partway through. (Family A)

Participants discussed that a gradual change in diet occurred, rather than eliminating meat entirely. Only a few participants saw themselves on a journey towards vegetarianism; the majority did not have an end goal in mind. Participants discussed moving from one meat-free day towards several and finally, towards only a few times a month. For one particular participant (family), they went from free-range to meat minimalist to cutting it down ‘a bit more’, otherwise they believed the transition couldn't be sustainable as now they could find alternatives for meat and new recipes slowly. Another participant also advocated not going ‘cold turkey’ and instead a gradual transition is needed, drawing parallels to increasing exercise and reducing alcohol whereby a gradual transition is more palatable.

In their journey, participants discussed the knowledge they had acquired but also the acknowledgement that they wanted to learn more and in fact, were always learning new things. There was a level of distrust and awareness of misinformation on the Internet and also with some nutrition advice given, especially in relation to the updating of information and contradictory information as well.

It just like takes a bit of googling and also like fact checking, you know like not being lame and clicking on the first link and going hey that seems right. Like actually looking through. (Young Adults A)

All participants stressed the importance of nutrition, food and cooking education, suggesting that their upbringing, and in some instances current schooling, was insufficient to provide the knowledge and skills they needed to transition away from meat meals. Such knowledge revolved around where and how vegetables are grown. This was seen as especially important as educating oneself was seen as taking up much time and effort.

3.5. Importance of culture and media discourse

All participants discussed the importance of the agriculture industry to New Zealanders and the economy. Participants all grew up with “meat and three veg” and discussed their childhood diets as much different from their diets today. The central focus of meat as part of the main meal meant meat had an important place in meals. A clear link was also made to

New Zealand and farming, and in fact, many participants had links to farms, whether through parents or grandparents, which made agriculture and thus, meat a large part of their childhood.

It's the focus of meals like, you know you think about the meat, the proportion of the meat to the rest of it is what people tend to see. And like especially like growing up on farms, like a farm steak's half your plate (laughter), vegetables are just the side that you have to eat coz mum says, like type thing. But really is that the right focus, like we're quite narrow minded, like meat and three veg... (Young adult B)

Yet, despite a belief in the need to reduce their own and society's meat consumption, participants were not impressed by the cost of meat, and many were angry that the 'good' quality meat is sent overseas.

It's absolute crap. You go to Saudi Arabia, you go to the United Arab Emirates, and it's all New Zealand lamb. And it's cheaper than their own meats. And it's like, are you serious? And the same with South Africa. (Family B)

For families, their husbands presented a major barrier towards eating more meat-free meals. The masculinity of meat was also brought up in all focus groups, especially around the typical New Zealand 'bloke' and Barbeque. Their husbands frequently didn't see 'dinner' as a meal without meat.

While all saw a shift occurring in New Zealand with increased plant-based diets and reduced meat consumption, they saw this at odds with industry and government initiatives. Specifically, the Beef + Lamb campaigns which screen on TV empathizing the need to eat meat for protein and iron. This media discourse permeated through all focus group conversations. Participants also discussed other government initiatives such as Plunket, support services for the development, health and wellbeing of children, which continued to advocate for a meat diet both implicitly (i.e., providing suggested recipes for families) and explicitly (such as the case of Beef + Lamb). Comparisons to other countries were also made, with participants believing other countries advocated for a reduced meat diet, but that they didn't see this in New Zealand, with "*state institutions...openly promoting meat*" (Young Adults B).

That's being brought up in New Zealand, though. We've had it hammered into us, that if you don't have dairy, you won't be healthy. Yeah. And the same with beef, like all the beef ads. It's, like, if you don't eat this, you will not be, you need it three times a week, yeah. (Family B)

Further, young adults saw a real divide between New Zealand's heritage with farming and vegetarianism, as while they saw society as shifting away from meat, there was still a perception of division and an 'us vs. them' mentality which was related to the media discourse surrounding farming and the pollution of New Zealand's waterways. Particularly, the farming community seeing meat reducers and vegetarians as "*one of those hippies*" (Young Adults B).

Cultural differences were obvious to participants who saw other cultures, such as India, as being more adventurous and creative with vegetarian dishes. Such cultures were seen as providing 'exciting' vegetarian food and demonstrating that different vegetables can be used as well as beans and pulses. Such reflections drew a parallel to the lack of creativity and

spices used in traditional New Zealand meals which made it both mentally (i.e., envision new dishes) and practically (i.e., using exotic spices) harder to transition to a reduced meat dish, for example, questions raised around where the flavor would come from, as traditionally this was meat.

So I mean I'm quite lucky as an Asian because when I go out with my family I can still, you know we still have these sharing options because we've got tofu for example. You know it's always really dominant in the Asian culture, you know you've got things. But, you know coming also from working a lot with Maori and Pacific communities where none of that is engrained in their culture. It's a lot more difficult for them to even thinking about vegetarianism. (Young Adults A)

4. Discussion and conclusion

The objective of this paper was to understand the motives, barriers, and strategies of meat reduction for different family lifecycle stages. The research finds interesting and significant differences in motivations for meat reduction and consumption between young adults, families, and retirees, as well as barriers and strategies for substitution.

The findings contribute to the literature in several ways. Firstly, the research demonstrates that motivations for meat reduction vary at different family lifecycle stages. While motives for reducing meat were similar in the different lifecycle stages, their emphasis varied. Families were mainly concerned with health and cost, while environmental motives were more readily discussed and attributed to meat reduction amongst the young adults, with health (with an emphasis on external/physical) also an important factor. Conversely, the main reason for meat reduction in the 60+ year old range was health and appetite. In previous research, various perceptions about the healthiness of meat are present. For example, 17.4% of semi-vegetarians believed that meat was unhealthy, compared to 55.3% of vegetarians, but it was the main reason for both groups to eat more vegetarian meals (Mullee et al., 2017). In comparison, knowledge about the environmental impact of meat is relatively low and also differs amongst demographics (Sanchez-Sabate & Sabaté, 2019). For example, 92.1% vegetarians and 52.1% semi-vegetarians believe that meat production is bad for the environment (Mullee et al., 2017). Yet, the environment may be the third most common reason (11%) for semi-vegetarians to eat more vegetarian meals (Mullee et al., 2017) and seems to proceed health and animal ethics (Fox & Ward, 2008). Indeed, research has found the main motives for a vegetarian diet are health and ethics related (De Backer & Hudders, 2014; Fox & Ward, 2008). Yet, meat reducers in the present research did not discuss the ethical nature of slaughtering animals. Instead, the participants discussed animal conditions, as well the use of antibiotics and farming in general. This issue related to the wider concern about transparency rather than ethical elements of farming per se, supporting previous research which suggests that moral concerns about animals are more strongly associated with full vegetarianism (Cliceri et al., 2018; De Backer & Hudders, 2014; Forestell et al., 2012; Rosenfeld, 2018; Rothgerber, 2014). Interestingly, a lack of appetite for meat was only discussed for those aged 60+, elaborating on issues such as a reduction of meal sizes and a lesser craving for meat (usually reflected to be due to inactivity). There is a lack of research on meat consumption motives in the elderly, but one study found that a key reason for not eating meat or reduced amounts (i.e., once a week) was due to the perception that 'small amounts are enough' (Schmid et al., 2017), although the authors didn't distinguish whether this was related to health/nutrition or appetite.

The reasons for meat reduction also compete for reasons *against* elimination. The reasons against total elimination of meat remains the same at the various stages of the family lifecycle revolving around cravings, taste and concerns for nutrition. Meat cravings and taste is also touched upon in the Piazza et al.'s (2015) 4N's (nice, necessary, normal, natural) of meat consumption when considering meat as 'nice'. In the present study meat reducers justify meat consumption as 'nice' and to some extent 'necessary' (nutrition/health but not in terms of animal population control or economic stability) but not as 'normal' or 'natural', as seen in meat eaters (Piazza et al., 2015). In other research, both semi-vegetarians and omnivores mention the most common reason for eating meat was "good taste", followed by "habit" and "this is how I was educated" (Mullee et al., 2017). The present study supports the notion that while health is a reason to reduce meat consumption, it is conversely, also a barrier towards meat elimination (de Boer, Schösler, & Aiking, 2017). Indeed, research demonstrates that concern for health was a key motive for not being a vegetarian in Belgium (De Backer & Hudders, 2014) and Finland (Pohjolainen et al., 2015), as well as a combination of health and taste in the U.S. (Rosenfeld & Tomiyama, 2020). In addition, the focus group participants discussed upbringing as an inhibitor, with a need to upskill or learn how to cook vegetarian meals. This finding links to habit, which other research has also found to be a barrier to vegetarianism (Mullee et al., 2017; Pohjolainen et al., 2015).

Secondly, the focus groups reveal several different meat reduction strategies. Young adults and families were similar in their strategies with greater attention paid to variety, not seeing meat reduction as "meat replacement" but instead emphasized the cooking of new dishes and meals from other cultures. Such reflection of experimentation of vegetarian meals is common amongst studies in the Netherlands (Schösler & de Boer, 2018; Schösler, De Boer, & Boersema, 2012), particularly meat reducers want vegetarian meals "different from the conventional" (de Boer, Schösler, & Aiking, 2014, p. 125). This finding is associated with young adults in particular (de Boer et al., 2017). Conversely, retirees regularly eliminate meat from their meals through replacement of other meat such as chicken and fish, and carbohydrates such as pasta, rice, and potatoes. Families also included meals which feature the ability to reduce the amount of meat within a dish, such as in spaghetti bolognese, lasagna or curries (i.e., ability to 'hide' vegetables). The literature suggests strategies for meat reduction includes promoting smaller portions of meat, smaller portions using meat raised in a more sustainable manner, smaller portions and eating more vegetable protein, and meatless meals with or without meat substitutes (de Boer et al., 2014). The focus groups provide a greater understanding about the strategies employed by different stages in the family lifecycle, including the use of smaller portions of meat most frequently advocated and use by families, eating meat raised in a more sustainable (and ethical) manner by young adults and meatless meals by those aged 60 years +. These findings from the focus groups expand upon the cooking strategies which are employed by meat reducing individuals, furthering insights by de Boer et al. (2014) and aiding organizations such as Meatless Mondays who promote one or more meatless days per week.

Furthermore, this study also sheds light on the meat substitute industry. The findings demonstrate that it was not a common method to use meat substitutes as a way to reduce meat consumption. In fact, participants viewed meat substitutes quite negatively, seeing them as highly processed. Other research has also demonstrated that meat substitutes and processed meat products are perceived similarly, in that they believe these are highly processed (Hoek, van Boekel, Voordouw, & Luning, 2011). Thus, if the meat substitute industry wishes to appeal to individuals, they will have to communicate their natural processes and link these to health benefits.

Lastly, this research demonstrates that culture, history, and economic context have an impact on attitudes, willingness, and ability to reduce meat consumption. The focus groups demonstrate that New Zealand discourse around meat and agriculture impacts heavily on knowledge, perceived social pressure and acceptance of a flexitarian diet. Participants regularly discussed how their diets differed greatly from their own while growing up (“meat and three veg”), a reflection even exhibited by the young adults. Previous research supports the notion of culture on food consumption (Prescott, Young, O’neill, Yau, & Stevens, 2002) and the strong cultural and familial ties to meat consumption in New Zealand (Potts & White, 2008; Tucker, 2014). The focus group participants also believed that New Zealand relied heavily on meat and dairy for its economy, and that as consequence, current meat consumption was heavily endorsed by New Zealand government agencies and institutional/agency bodies. While research has shown cultural elements related to meat consumption such as masculinity (Ruby & Heine, 2011) as well as language, literature, law and history (Swatland, 2010), little previous research has examined how social identity (Rosenfeld et al., 2019), or nationalism specifically (in its entirety, including economy, cultural identity and history), and meat are intertwined. In addition, the reflections offered by the focus group participants also demonstrate a divergence between their perception of the New Zealand government and its values related to meat, and other countries. For example, in contrast to governments in China, Germany, Brazil, and Sweden which are offering sustainable and healthy eating guidelines, and organizations such as the WHO which advocate for a reduced meat diet (FAO & The Food Climate Research, 2016).

Consequently, the focus group findings offer insight into marketing and communication strategies of meat reduction campaigns. The research demonstrates that individuals wanting to change their meat consumption need information to make informed decisions regarding food choices. Thus, there is an important role for NGOs to play in reducing meat consumption in the population (Laestadius et al., 2013), especially in regards to providing information such as recipes, and increasing accessibility and availability of fresh produce and vegetarian alternatives. The findings demonstrate that meat reducers want and need information about nutrition and recipes, especially through social media and schooling. Meat reduction campaigns may wish to focus on offering information and advice for various stages of the meat reduction ‘journey’ as discussed by focus groups participants (i.e., one meatless day, one meat dish a week) and targeted campaigns based on the stage of the family lifecycle. As an example, recipes may advertise novel and exotic dishes which may appeal more to younger individuals and families, while simple, traditional and substitute style dishes featuring pasta, rice or potatoes may be more acceptable to 60+ individuals, especially those which are smaller portions and freezable. Considering motivations for meat reduction differ in the different lifecycle stages, calls to action in meat reduction campaigns should provide targeted messaging to consumer segments (i.e., the importance of the environment to young adults, and health to families and retirees). In addition, targeted messages should also consider cultural-specific norms, traditions, characterizations of meal construction and structural barriers (Kemper & Ballantine, 2017, Kemper & Ballantine, 2020).

In countries with dominant and powerful agriculture industries, NGOs must be cognizant of the culture and media discourse surrounding meat and dairy consumption (Kemper & Ballantine, 2019). Previous research has shown that climate change meaning is not only shaped by individual local cultures and experiences but also the priorities of their social, political, and media environments (Happer & Wellesley, 2019). However, a large potential exists “to develop and reinforce a positive narrative around the benefits of dietary change prior to that message being misappropriated by groups which might seek to limit or negate

the arguments being made” (Happer & Wellesley, 2019, p. 137). Considering some countries are implementing guidelines for sustainable diets, food companies and NGOs can capitalize on such recommendations.

Furthermore, adding to knowledge about where individuals get their nutrition and recipe information (Doub, Small, Levin, LeVangie, & Brick, 2016) the research presented here demonstrates that this varies by the family lifecycle stage. More specifically, information is regularly sourced from social media by young adults and families, while the Internet (namely the use of Google) is used amongst some retirees. Interestingly, no information is sourced from doctors or nutritionists; discussions around this were stimulated by a distrust in competing information and anecdotal evidence wherein doctors and hospitals have a perceived disregard and lack of knowledge of nutrition and food. Previous research has also demonstrated a level of distrust towards the nutrition and medical profession, as new and often contradictory information is released (Nagler, 2014). Understanding where individuals obtain information and education are key not only to target, empower and enable individuals to change diets for those who wish to reduce their meat consumption but also to highlight the importance of such change to the proportion of the population who may not be reducing their meat intake. As such, social media and online platforms are a key means for information, recipes, and nutritional advice, and thus, social marketing campaigns should aim to produce their content on these mediums and platforms.

There are a few limitations of this study which could provide directions for future research. Firstly, focus groups consisted largely of white, female participants which decrease the broader applicability of results. Such a limitation is present in other qualitative (i.e., Costa, Gill, Morda, & Ali, 2019; Markowski & Roxburgh, 2019) and quantitative plant-based diets research (i.e., Haverstock & Forgays, 2012), and in fact, some researchers specifically only recruit women (Barr & Chapman, 2002; Forestell et al., 2012). However, given that most of the shopping in households is still conducted by females in heterosexual relationships (Lake et al., 2006), such perspectives are still valid. Moreover, research on meat limiters also suggest that there may not be large gender differences, which may be due to “overriding shared value of limiting animal products by both men and women” (Haverstock & Forgays, 2012, p. 1035). Nevertheless, future research could explore male perspectives on meat reduction. In addition, the study did not distinguish between different levels of meat reduction, future research could benefit from delineating between low, medium and high meat reducers (De Backer & Hudders, 2014). Building on the findings presented, research would benefit from digging deeper into individual experiences and practices, particularly a more nuanced view and personal reflection of environmental influences, such as social situations which are increasingly shown to be of import (Rosenfeld & Tomiyama, 2019), and emotional connections to meat reduction (i.e., connection to family/past, nationalism). As such, a social practice theory lens may be of benefit to research in the context of meat reduction.

Similarly, as an attribute of most qualitative research, the study had a small sample size. Here, quantitative research can provide a broader and generalizable perspective on meat reducers (i.e., a large-scale survey) which can inform further research into effective meat reduction campaigns. In a similar vein, future research may also wish to investigate different messaging and framing strategies for different households (i.e., young, single, married, families) to encourage meat reduction behavior and intentions (i.e., Bertolotti, Chirchiglia, & Catellani, 2016). Yet, as quantitative studies have dominated the meat reduction and substitution domain, qualitative research is advocated as it may offer more in-depth insight

into meat substitutes and reduction. Furthermore, future research is needed to examine the concept of meat craving in meat reducers, as this has not been examined in-depth in previous research (Leroy & Praet, 2015).

Lastly, the study focuses on New Zealand individuals, and thus generalizability may be limited. Other studies are encouraged in countries such as China which are aiming to reduce their meat consumption by 50% (Milman & Leavenworth, 2016) and are underexplored in the literature. However, focusing on a country outside the traditional Western European perspective provides unique and worthy insight into a country with a rich, long history of agriculture which has lacked attention in the literature (Graham & Abrahamse, 2017; Lentz et al., 2018). Other countries with strong agriculture ties and conversely, ones which do not, would be of interest to understand more about the impact of historical, cultural and economic ties on institutional as well as individual meat consumption and reduction.

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