Transforming practice chains through ideological objects

Venkatraman, Rohan; Hernández Ruiz, María Paula; Lawrence, Anita S.; Lei, Jing; Nagpal, Anish

DOI:
10.1016/j.appet.2023.106765

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (Harvard):
Venkatraman, R, Hernández Ruiz, MP, Lawrence, AS, Lei, J & Nagpal, A 2023, 'Transforming practice chains through ideological objects: How plant-based meats impact consumers' everyday food practices', *Appetite*, vol. 188, 106765. https://doi.org/10.1016/j.appet.2023.106765

Appetite 188 (2023) 106765

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Transforming practice chains through ideological objects: How plant-based meats impact consumers' everyday food practices

Rohan Venkatraman [a,*], María Paula Hernández Ruiz [b], Anita S. Lawrence [c], Jing Lei [d], Anish Nagpal [d]

[a] Department of Marketing, Birmingham Business School, University of Birmingham, Australia
[b] University of Melbourne, Australia
[c] School of Agriculture, Food and Ecosystem Sciences, Faculty of Science, University of Melbourne, Australia
[d] Department of Management and Marketing, Faculty of Business and Economics, University of Melbourne, Australia

ARTICLE INFO

Keywords:
Plant based meats
Social practice theory
Ideological objects
Practice chains

ABSTRACT

This research investigates the impact of the introduction of plant-based meats (PBMs) on consumers' food practices. Based on the results of 21 in-depth interviews with consumers who use PBMs, this research uses practice theory to explore how the adoption of PBMs affects linked food practices and the meanings associated with these practices. We find that consumers adopt PBMs due to either a desire for meaning coherence or for practicality. Subsequently there are social and embodied ripple consequences associated with this adoption, with consumers revising their social food practices, reconfiguring their understandings of health, and re-orienting their relationship to their body. Our findings extend the research on practice theory by examining how the adoption of a new category of ideological objects shapes other linked consumption practices. Practically, our findings provide important insights for dietary, marketing and health practitioners to understand the overall impact of PBM adoption on consumers' dietary patterns and practices, and their perception about health and body.

1. Introduction

Between 2019 and 2022, reports by the Intergovernmental Panel on Climate Change (IPCC) and group of organisations led by the World Resources Institute (WRI) identified unsustainable levels of meat consumption as a key determinant of global climate change (Boehm et al., 2022; Schiermeier, 2019; Shukla et al., 2019). This conversation, part of a larger discourse around the economic and environmental consequences of animal agriculture (Eckl et al., 2021), has led to a new market formation around plant-based meats (White et al., 2022).

Plant-based meats, or PBMs, are products designed to mimic the appearance, texture, taste and smell of meat using primarily vegetal ingredients (Safdar et al., 2022). Despite being a relatively recent addition to the culinary conversation, the popularity and impact of PBM products is a growing cultural phenomenon. Reports by Deloitte highlight PBM as a trend that is shaping the food industry (Matthijssen, 2020), driven largely by a mixture of consumers who are shifting entirely away from meat-based products and embracing veganism, as well as consumers searching for ways to simply eat less meat (Curtain & Grafenauer, 2019; Neuhofer & Lusk, 2022). Indeed, in Australia alone, PBMs are estimated to have a market potential of $3 billion by 2030 (Lawrence & King, 2019)—a trend that multiple brands and retailers have taken notice of. In 2019, three key supermarket chains in Australia (Woolworths, Coles and IGA) carried over 100 distinct PBM products, and sold approximately $150 million AUD worth of products, highlighting the embeddedness of this product category in the mind of consumers (Curtain & Grafenauer, 2019).

To many consumers, PBM products are also linked to public and marketplace discourses of health and "green" behaviour. Broad (2020) specifically highlights how PBM products are often discursively constructed by the marketplace as part of a healthier, vegetable-forward diet, in direct opposition to the "public health maladies" of meat consumption (Broad, 2020, p. 920). Given that PBMs feel and taste like meat-based products, they offer an attractive path forward for consumers wanting to make changes in their dietary patterns (Dagevos & Reinders, 2018; de Boer et al., 2017; Safdar et al., 2022; White et al.,

* Corresponding author.
E-mail addresses: r.venkatraman@bham.ac.uk (R. Venkatraman), maria.hernandezruiz@unimelb.edu.au (M.P. Hernández Ruiz), anita.lawrence@unimelb.edu.au (A.S. Lawrence), leij@unimelb.edu.au (J. Lei), anagpal@unimelb.edu.au (A. Nagpal).

https://doi.org/10.1016/j.appet.2023.106765
Received 14 March 2023; Received in revised form 31 May 2023; Accepted 27 June 2023
Available online 27 June 2023

2022).

Previous behavioural research on PBMs has mainly focused on perceptions and consumption behaviours directly related to PBMs. For example, research shows that the adoption of PBM is often driven by marketplace meanings as explored above (Broad, 2020; Kemper & White, 2021). Much less is known about how these marketplace meanings that drive the adoption of PBMs shape the overall pattern of consumers' food practice. This is an important gap in the literature as the impact of PBM adoption may go far beyond the intended consumption of this type of product itself. For example, PBM products have been marketed as a healthy alternative to meat products and consumers generally believe so (Gómez-Luciano et al., 2019), but how the adoption a healthy alternative in one part of a diet affect how a consumer constructs the other parts of their diet is a lingering question. Also, despite the perception that PBMs are healthy, research shows that PBM is not nutritionally equivalent to animal-based products (Bianchi et al., 2022; Crimarco et al., 2020; Graça et al., 2019; Harnack et al., 2021; Lawrence et al., 2023; Tso & Forde, 2021; Vatanparast et al., 2020; World Health Organization, 2021). Are consumers aware of this fact and if so, how do they try to make up for the "missing" nutrients in their diet? Additionally, for consumers who live with family members, current research begins to but does not adequately query how the adoption of PBM affects the diet of these family members (Fuentes & Fuentes, 2022). Finally, little is known about how the adoption of PBMs can shape other aspects of a consumer's life beyond domestic food consumption. For example, does the adoption of PBMs affect how consumers perceive their own health? Given the rapid adoption of PBM products, there is an increased need to explore how the introduction of PBM affects consumers' everyday food consumption and practices (e.g., changes in how food is prepared) over time in a variety of household settings (e.g., family settings with and without dependent children). Additionally, as domestic food consumption changes, we ask whether there are broader changes in social food practices (e.g., eating with family and friends) and shifts in embodied meanings (e.g., altered relationships to their bodies, family, and health) that might accompany the introduction and use of these PBM products. Our study seeks to answer these questions by addressing a key gap in our understanding of food practices. Specifically, we seek to unpack the impact of introducing objects laden with meanings—which we term ideological objects (e.g., PBMs) —on domestic and social food practices and embodied meanings that are important to consumers. Answering these questions offers insights into the overall impact of PBM adoption on consumers who alter their diets to include these products and provide useful implications on how health practitioners and marketers can design effective messaging related to PBM adoption.

Social practice theory is one way to explore how consumers introduce and utilise PBMs and to examine the ways in which consumers' food practices are altered once PBMs are adopted (Reckwitz, 2002; Shove et al., 2012; Warde, 2005). Social practice theory explores practices as comprising of objects, doings, and meanings (Magaudda, 2011). It is particularly useful for understanding the introduction of new products that are laden with meanings that may alter, forge, or disrupt consumers' everyday food practices, as well as alter related practices, such as eating out. For example, using social practice theory, White et al. (2022) examined how the adoption of PBM products affect PBM-related food practices (e.g., acquisition, preparation, and consumption) that are embedded in a broad network of at-home food-related practices (e.g., PBM storage, and food safety). We extend this line of research by examining the impact of PBM adoption beyond behaviours directly related to this type of product itself. We show that the impact of PBM adoption starts with new practices around this product (e.g., learning to cook PBMs) and a reworking of closely related practices (e.g., eating together as a family). Over time these new practices then lead to reconfigurations of other practices (e.g., eating at restaurants, working out) and more profound ripple consequences (e.g., altered relationships to their bodies, family, and health).

The subsequent sections of this paper are structured as follows. First, we introduce social practice theory, highlighting how the theoretical framework allows for a nuanced exploration of shifting food practices. Then, we explain the methods used in this study, detailing our sampling technique, as well as the analytic procedures. We then explore our findings and offer a theoretical model to explain shifting practice chains and the social and embodied consequences that emerge from the introduction of PBMs as ideological objects. Finally, we conclude with theoretical and practical implications as well as directions for future research.

2. Conceptual review - practice theory

Practice theory is a broad term for a range of theoretical approaches. However, each individual strand of practice theory is commonly orientated towards unpacking the ways in which individual behaviours intersect with daily life (Magaudda, 2011; Reckwitz, 2002). Reckwitz (2002) usefully defines a practice as a 'block' or 'pattern' which can be filled out by a multitude of single and unique actions' (Reckwitz, 2002, p. 250). These 'blocks', or repeated patterns of activities, are comprised of a number of interrelated components that are tied together by "shared understanding, procedures, and engagements" (White et al., 2022, p. 2 after Warde, 2005). For example, a cooking practice can be understood as a combination of interrelated components—ingredients, equipment—tied together through shared understandings and procedures—recipes, existing knowledge of cooking, and past experiences.

A common framework used to explore practices is the tripartite model created by Magaudda (2011). A practice can be understood as the interaction between objects, doings, and meanings (Magaudda, 2011), a triad alternatively conceptualized as materials, competences, and meanings (Arsel & Bean, 2013; Shove et al., 2012). In this paper, we use Magaudda's (2011) terminology, as it allows for a relatively clear distinction between the three practice elements. For example, a cooking practice can be understood as a combination of interrelated objects—ingredients, equipment—tied together through shared meanings and doings—recipes, existing knowledge of cooking, and past experiences. We now briefly explain each element.

2.1. Practice elements

2.1.1. Objects

Objects, or materials, refer to the physical dimensions of a practice (Magaudda, 2011; Shove et al., 2012). The term object often refers to tangible and physical elements—"objects, technologies, and material culture"—that are embedded into practices (Magaudda, 2011, p. 20). These are often durable, and are central to the enactment of a practice, in that the absence of objects often renders a practice non-enactable. For example, as noted by White et al. (2022), in the practice of cooking PBM, objects would include a range of tools, such as cooking equipment, but also the actual consumables themselves—the PBM products. Indeed, as Schatzki notes, practices are "intrinsically connected to and interwoven with objects" (Schatzki, 2002, p. 106). Therefore, there is a need to identify the materials and objects of consumers' food practices in order to examine how these practices might transform as new objects—such as PBMs—are introduced.

2.1.2. Doings

Closely related to the objects within practices are the doings. Doings, or competences, are the knowledge of action and how to do things—comprising of background knowledge, practical understandings of action, and ways of engaging with the world (Magaudda, 2011; Warde, 2005). The concept of 'doing' is central to a practice as it accounts for how individuals enact or perform a practice. 'Doing' highlights the role of human agency and skill in animating the objects and using them (Schatzki, 1997; Warde, 2005). The 'doing' component also delineates whether a practice has been performed well, highlighting that there is an embedding of knowledge into a practice through repetition

(Shove et al., 2012; Warde, 2005). By examining the doings—how consumers use, cook, and integrate PBMs into their food practices— any changes in them (and thus practices) over time can be traced, as along with the changes in other linked practices, such as food storage, eating out and other dietary practices.

2.1.3. Meanings

The final element of a practice, the 'meanings', are the social and cultural representations embedded into a practice (Magaudda, 2011). Shove et al. (2012, p. 24) view meanings as the "social and symbolic significance of participation," and highlight how practices, through their objects and doings, are ways in which individual actors connect their behaviours to social and cultural meanings (Schatzki, 2002; Shove et al., 2012). Meanings, which may be mediated by social and/or marketplace values, are linked to practices over time and as consumers engage in specific practices, they elect to reaffirm and reinforce those meanings as linked to the practice. For example, in the case of PBMs, the use of PBMs may be linked to narratives—or meanings—of sustainability (Broad, 2020), which consumers then reinforce as they enact the practices in their homes (de Boer et al., 2017; White et al., 2022).

2.2. The embedding of meaning into ideological objects

Within a practice, the three elements are tightly coupled, and the interrelationships between them are strengthened over time (Shove et al., 2012). Importantly repeated linkages between practice elements can lead to specific objects becoming associated with and charged with meanings (Magaudda, 2011). These meanings may be dictated by the marketplace, where repeated associations between specific meanings and products through marketplace practices such as advertising and fashion systems (McCracken, 1986) may lead consumers to often seek out objects that reflect meanings they wish to bring into their lives. For example, through historical associations between masculinity and the practice of driving, many brands use masculine meanings to sell their cars—drawing on those shared historical associations and embedding the object (the car) with those meanings (masculinity) (Balkmar & Mellström, 2018; Lumsden, 2010; Shove et al., 2012). Consumers may (often incorrectly) link PBMs with meanings of health, a meaning they derive from the marketplace marketing of PBMs (Broad, 2020; de Boer et al., 2017; White et al., 2022); or might link PBMs with discourses of green behaviour and animal ethics—meanings placed onto the object by repeated marketplace associations (Broad, 2020; McCracken, 1986).

We conceptualise these objects as ideological objects, which we define as *tightly coupled object-meaning dyads that emerge through repeated linkages*. Ideological objects represent a unique category of objects, wherein the objects are suffused with meanings through repeated associations in and through the marketplace. The embedding of meanings into objects by the marketplace—often meanings that emerge from deeply political or ethical ideological frames—can have consequences for consumers who choose to bring those objects into their daily practices (Huff et al., 2021). For example, Huff et al. (2021) have explored how objects are suffused with meanings through repeated links by marketplace actors. They highlight the example of guns being ideologically embedded with meanings of freedom by marketplace actors such as lobbying groups like the NRA. When consumers adopt these ideological objects, they are not only bringing the object into the practice, but might bring in new, often contesting, meanings that are embedded into existing practices (Fuentes & Fuentes, 2022). Importantly, this can also shape not just the specific practices, but adjacent linked practices as well. Many practices share elements (Shove et al., 2012; Warde, 2005), and many practices are linked into what we term 'practice chains,' and an alteration to one practice might have consequences for other closely linked practices. For example, in Magaudda's (2011) study on the dematerialisation of music, he showed how changes to the object central to the practice of listening to music—the move from vinyl to the iPod—shaped how music was consumed by consumers and the meanings they attached to it.

In the context of our research, little is known about the impacts that introducing an ideological object—into a practice can have on practice chains beyond the central practice—a theoretical gap we seek to address in this research. For example, a change to the object central to the practice of cooking and eating food—a move from meat to PBM—might shape how food is consumed, when it is consumed, with whom it is consumed, and more importantly the meanings attached to not only food, but also associated practices which we referred to as the ripple consequences of PBM adoption.

Drawing on the context of consumers' adoption of PBMs, and by drawing on research that theorises PBMs as objects that are ideologically charged by the marketplace (Broad, 2020; Kemper & White, 2021; White et al., 2022), the aim of this research study is to explore the social and embodied consequences of ideological objects on linked practices. Specifically, in this research we explore three related research questions:

1. What are the drivers that underpin consumers' adoption of PBMs?
2. How do PBMs—as ideological objects—shape and alter everyday food practices (e.g., changing how food is prepared) over time in a variety of household settings (e.g., family settings with and without dependent children)?
3. How do these transformations foster broader changes in social food practices (e.g., food practices such as eating out) and shifts in embodied meanings (e.g., altered relationships to their bodies, family, and health) that might accompany the introduction and use of these PBM products?

3. Methods

We adopted a qualitative approach for this study. Qualitative methods are powerful tools to generate insight into phenomena that are not easily captured or understood through quantitative means, such as the socio-cultural underpinnings of behaviours and experiences (Denzin & Lincoln, 2012). We adopted an interpretivist approach—a philosophical approach that examines lived experiences and moves beyond surface responses (Goulding, 2005)—to explore how plant-based meats (PBM) impacted consumers' everyday food practices. We approached the analysis using a hermeneutic-inductive approach—moving between theory and data iteratively till our findings stabilised (Thompson, 1997).

3.1. Sample and data collection

The primary corpus of data was collected through semi-structured, in-depth interviews with consumers of PBMs. We sought to understand why and how consumers use PBMs. As such, we purposively sampled across a range of characteristics, including age, location (urban v/s rural), gender, and family nature (no children, children under 18, children over 18) (Palinkas et al., 2015). Our goal was to interview a sample that represented the Australian population of PBM consumers—a market that is skewed towards younger and more urban consumers (White et al., 2022). Most informants were recruited either through social media, leveraging the mailing list of vegan and vegetarian food networks, and through personal networks. This combination allowed us to strategically choose consumers who were able to contribute to our purposive sample. Of fifty-five potential informants who we were in contact with, our final sample consisted of 21 interviews (Table 1 contains the demographic details of our sample).

We conducted online and in-person in-depth interviews with each consumer, with each interview lasting between 30 min and 2 h. We began the interview with grand-tour questions to understand each participant's backgrounds. We then investigated their use of PBM, focusing on when and why they began using PBMs, their current practices, and how using PBM has impacted related practices, such as eating out, using other food products, and their use of nutritional supplements. We also interrogated about the specific brands the participants used or have

Table 1
Informant demographics.

Pseudonym	Age	Gender	Location	Primary Diet	Family Status
Scott	18–25	Male	Urban	Omnivore	No children
Quentin	26–34	Male	Urban	Omnivore	No children
Addison	26–34	Female	Urban	Omnivore	1 child under 18
Kelly	35–50	Female	Urban	Omnivore	No children
Azalea	65+	Female	Urban	Omnivore	Children over 18 and granddaughter under 18
Simon	18–25	Male	Urban	Omnivore	No children
Catrina	26–34	Female	Urban	Omnivore	No children
Adam	35–50	Male	Rural	Omnivore	No children
Kim	26–34	Female	Urban	Omnivore (transitioning from vegetarianism)	No children
Leanne	26–34	Female	Rural	Omnivore (transitioning from vegetarianism)	2 children under 18
Carmen	26–34	Female	Urban	Pescatarian	No children
Molly	18–25	Female	Rural	Vegan	No children
Alicia	18–25	Female	Urban	Vegan	No children
Dolly	26–34	Female	Urban	Vegan	1 child under 18
Abigail	26–34	Female	Urban	Vegan	No children
Bryan	26–34	Male	Rural	Vegan	2 children under 18
Kiera	35–50	Female	Urban	Vegan	2 children under 18
Lydia	35–50	Female	Rural	Vegan	3 children under 18 and pregnant
Amanda	35–50	Female	Rural	Vegan	3 children over 18
Tabitha	50–65	Female	Rural	Vegan	3 children over 18
Faith	26–34	Female	Urban	Vegetarian	Pregnant

used. For that purpose, online interviews acted as a platform where people would access different online shops to show the interviewer the different brands they like, the ones they have tried and the brands they wish to try in the future. We conducted interviews until data saturation was achieved—that is, no further substantive narratives emerged from subsequent interviews (Palinkas et al., 2015; Thompson, 1997).

We supplemented the interview data through a non-participatory observation in two online vegan food communities on Facebook. This online approach allowed us to see how the broader vegan community outside our interviewees used PBMs. This also allowed us to contextualise our findings into wider subcultural discourses, enriching our understanding of the context and the behaviours embedded within them (Kozinets, 2002, 2019). These data are not presented in this manuscript but did provide useful background context. This study was approved by the Office of Research Ethics and Integrity at the University of Melbourne, reference number: 2022-24282-28896-4.

3.2. Coding and analysis

We analysed the corpus of data using a layered hermeneutic approach (Thompson, 1997). First, we performed a close reading of each individual interview transcript and open coded each interview to capture the nuances and variety within the experiences of each interviewee. We then conducted a thematic analysis across interviews, looking at emergent data-driven narratives that arose across informants. Codes from each interview were sorted and aligned into themes, which led to an initial theoretical model. We then moved between the theoretical model, the tenets of practice theory, and the data to refine our interpretation as more data were collected. This iterative movement between data, emergent theory, and existing literature allowed our data to lead our theorising and also refine our theoretical positioning. As the themes and findings stabilised, we were able to also account for nuances such as shifting relationships to food and meanings embedded within each consumers' experiences and incorporate them into the final model.

4. Findings

Using practice theory as a conceptual lens, we theorised a process by which ideologically-charged objects—such as PBMs—can impact and transform adjacent practices. As Fig. 1 below shows, as consumers introduce PBMs into their homes, they first develop new practices around the product. These new practices involve learning to cook and adapt the PBMs, which often require a reworking of closely related practices (such as eating together as a family). Over time, these new practices stabilise, and can consequently reconfigure other practices (such as practices of eating at restaurants, or practices of working out) that are linked. To this end, we find that consumers' practice chains also undergo more profound ripple consequences, such as altered relationships to their bodies, family, and health.

4.1. Initial adoption of plant-based meats – the introduction of the ideological objects

Our interviews revealed that the adoption of plant-based meats into the homes of our informants was tied to a combination of two teleological orientations—meaning coherence and practicality. We now explore how each of these meanings contributes to the embedding of PBMs into households. We tease them apart for analytical purposes, however many of our informants indicated that more than one meaning drove their early adoption of PBMs.

For many consumers, aligning their behaviours to specific meanings was a key driver in the adoption of PBMs. Specifically, for many consumers, PBMs were a way of better aligning with meanings linked to either existing or a newly adopted vegan outlook. Veganism, as a framework that aligns ideals of animal welfare, sustainability, and a more inclusive culture (Martinelli & Berkmanienė, 2018; Sneijder & Te Molder, 2009) often drove consumers to either reduce or abandon their consumption of animal products, and PBMs—as ideological objects linked with meanings of veganism in and by the marketplace—offered a means of developing practices with meaning coherence, as two of our informants explain:

> "We went fully vegan, oh, I think it was February 2019 or January 2019, something like that. But certainly the year before that I had been increasingly eating plant-based. So I had sort of started experimenting with different plant-based meats and things like that the year before. But yeah, that was, and then, especially because we both were eating that way, it was kind of like, oh, now we need to find, now it's kind of serious. We need to find some foods that we can eat." (Amanda)

> "Plant-based is […] more ecological, more environmentally friendly." (Addison)

For both Amanda and Addison, their ideological drives pushed them to consider an alternative lifestyle—for Amanda, veganism was linked with meanings of health, and Addison (who is an omnivore), linked the adoption of PBMs to green behaviours and sustainability. PBMs, therefore, were objects that were enmeshed with the meanings that were tied to broader ideologies (Huff et al., 2021), and were increasingly being seen as a direct replacement for meats, as Alicia explains:

> "I turned vegan in 2018. So that seemed like a good option for me to still have, I guess sort of like something that […] not tasted like meat. The texture was like meat, but not actually eating animals."

Alicia connects her consumption of PBMs to her burgeoning

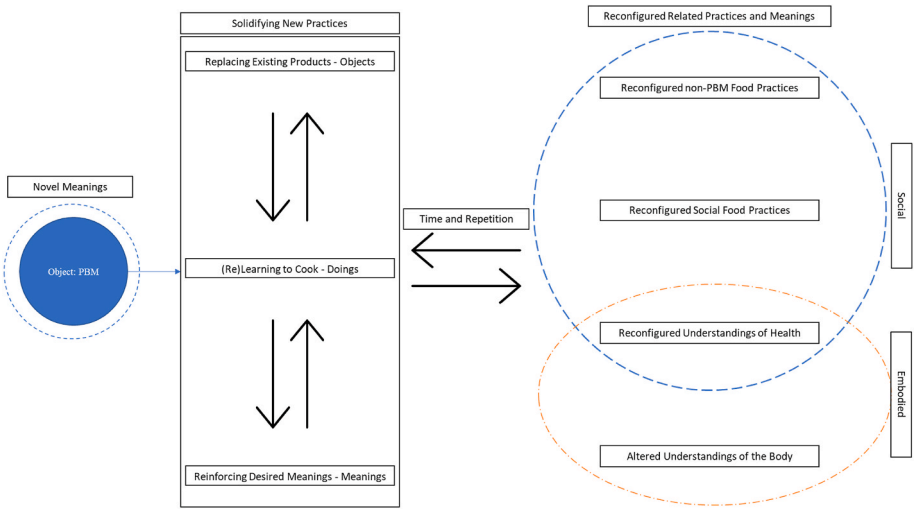

Fig. 1. Transforming practice chains.

veganism, and thus highlights how PBM products allow her to align her new values with her continued desire for hedonic consumption.

For other consumers, meaning coherence was less important, and the introduction of PBMs was part of a practical shift. For example, many consumers altered their at-home food practices when a close family member, often a parent, partner, or child, adopted a vegan or vegetarian lifestyle. For example, Lydia and Bryan explain:

> "And then my ex actually went vegan after me as well. Because I was like, "I'm going vegan." And then I did the cooking and he's like, "Well that's not so bad." And then we talked about philosophy and got out some philosophy textbooks. And then yeah, he went vegan too. It was very ethical for all of us … He went vegan like a month after me …" (Lydia)

> "So, no, she [my wife] mostly eats the same as me, [she] prefers the plant meat mostly to regular meat. I strictly don't eat meat, but yeah, she's a bit more flexible. So, pretend [she] still have a little bit of salami here and there or a chicken thing here and there, but not like a full-on meal or a steak or a big chicken fill or anything like that usually. So she mostly lives on no meat … I guess to a degree, some of my habits have become an inconvenience to it. So yeah, it's sort of been adapted to that obviously she's been accommodating to me anyway. I'm the one who decided to change things. So I just try to get her to come around into my way of thinking is the tricky part, but yeah, everyone's their own person." (Bryan)

For both Bryan and Lydia, they acknowledge how changes to their lives and practices resulted in the adoption of these products by other consumers within the household more as a matter of practicality. However, in both cases, there is an acknowledgement of the nature of PBMs as an ideological object, with Lydia even explicitly stating that her previous partner went vegan in part due to the philosophical underpinnings that accompanied her own move to veganism.

4.2. *Using plant-based meats – solidifying new practices*

Whether consumers adopted PBMs for meaning coherence or practical reasons, the next stage for all consumers involved developing new practices around these new objects. A practice theoretical perspective frames practices as the alignment of objects, doings and meanings (Magaudda, 2011)—a tripartite model that we will use to examine the new practices that emerge and solidify as PBMs are introduced into households.

4.2.1. *Objects and doings – replacing existing products and (Re)Learning to cook*

As consumers introduce new objects into existing networks of linked practices—such as the food practices within a household—an important step in establishing and solidifying these practices is identifying where and how the new objects fit into these networks. For our consumers, one way to integrate PBMs into their food practices was by identifying which objects (products) could be replaced by PBMs.

For many of our informants, PBMs were often contextualised into larger at-home food practices as a replacement for animal proteins, or as an alternative source of proteins. For example, Carmen described using two brands of plant-based sausages as replacements in *completos*, a Chilean dish. By anchoring the novelty of PBM products in existing dishes, consumers are able to slowly develop an understanding of the properties of the objects. This then allows consumers to experiment, replacing a broader range of products with the new PBMs. For example, as Abigail moved from an omnivorous to a vegan diet, she described how she used a particular brand of plant-based minced meat (V2) to replace multiple meat across multiple dishes:

> "I would say like the spaghetti bolognese and using the … or lasagne or something for the sauce and make it using the V2 mince. It is so, it replicates normal meat so well …. But they're all so different, all the textures and also the way you cook them. If you fry them in a certain way, they're going to taste a certain way and then if you throw them into a stir-fry, they might taste different, so. That's what I find anyway."

For Abigail, becoming more familiar with the V2 mince—learning the properties of the object and learning how to cook with it—allowed her to cook a broader range of dishes, and thus facilitated an easier alignment between her practices and her desired vegan meanings. This confidence then allowed Abigail to branch out to other PBM products, including mock duck and Quorn mince, allowing her to balance her newly adopted veganism and her hedonic enjoyment for the flavour and texture of meats.

Many consumers sought a one-to-one replacement strategy, mainly those who had just began a vegan or vegetarian diet, replacing vegetables or meat proteins with store-bought PBMs in existing recipes and practices (see Web Appendix A for substituted products and brands). However, interestingly, some consumers took it a step further and even began creating their own PBM products at home using more readily available products. This was often linked to a lack of availability, suggesting that there is a close link between the repeated use of PBMs and access to the marketplace. For example, Tabitha describes her practice:

> "Probably this year, I've probably had two commercially made plant-based meats. I make a few of my own in the way of lentil burgers or mushroom, mince out of mushrooms and walnuts. We had spaghetti bolognese the other night and that had a really nice tomato sauce base with lentils and onions, carrots, mushroom. It was really delicious"

Some consumers like Adam, who lives in relatively regional Australia and does not have frequent access to PBMs and yet enjoys the convenience and variety they offer, develop new doings such as creating PBM products at home. Adam further describes the difficulties in obtaining his preferred PBM products:

> "The crumbed, Sunfed chicken is probably our go to. Mainly because you it's, you can't get it as easy at the two main supermarkets in this area abouts where we are. They've got fairly limited stuff, compared to what they do in Melbourne."

For Adam, who is an omnivore but is actively transitioning away from eating meat due to a renewed interest in animal rights, the lack of accessibility of PBM products hinders how his new practices stabilise. When he is able to access his preferred products, he is able to use them in a number of recipes, including chicken parmigiana and kebabs. However, he has developed new doings around supplementing alternative PBM products using vegetables he grows in his garden. He acknowledges that his partner did not previously eat PBMs, but as his use of PBMs in his cooking becomes more stable and new practices form around these objects and doings, she is beginning to eat and value them as well.

4.2.2. *Meanings – reinforcing desired meanings*

Adam's story above highlights the strong interrelationship between the three practice components and begins to examine how practices can help stabilise desired meanings as well as unlock and solidify novel meanings. For Adam, learning how to and then using and making PBMs—an alignment of objects and doings—solidified his move away from eating meats. For his partner, Adam's practices unlocked new meanings, including deepening their connection as well as allowing her to form her own relationships to PBMs. Our data show that the introduction of PBMs facilitate the unlocking and reinforcing of meanings, which in turn solidify the new practices that form around these objects.

The first meaning that aids in the solidification of practices around PBM is the meaning of family. As discussed in our earlier findings, many consumers were instrumental in having their family members or partners adopt PBMs, and in some cases even change their diets. There is a strong link between practices of food and the meanings of family (MacKendrick & Pristavec, 2019). Our data shows that the importance families placed on food, which are often linked to meanings of being a family, can in turn help stabilise the new practices (e.g., PBM adoption). For example, Molly describes how her mother altered her dietary practices twice:

> "Well, she used to be a vegetarian when she was younger. And then when she met my dad, I reckon when they were like 16, he introduced her to steaks. So, then she started eating meat again, and then it wasn't till me. Then she stopped (because Molly turned vegetarian, then vegan). So yeah."

In her interview, Molly acknowledges that her father is a voracious meat eater who disapproves of her diets. But Molly's mother is more supportive, and draws meanings of family into food practices, and so is able to shift her practices to support Molly's veganism. Molly goes on to describe how her mother's return to vegetarianism brought them closer as they were able to "start eating similar things", and PBM-based food practices help stabilise their improved relationship. It is worth noting that Molly is aware of her father's reluctant acceptance—she recognises that he doesn't enjoy that her mum has "to cook separate meals". The support Molly's mother provides in cooking vegan food for her (including PBM dishes) and the reluctant acceptance of her dad towards Molly's new diet solidifies the relationship with each of her parents.

Molly's narrative of a child influencing a parent's food practices is a common one, but we also found that parents (especially mothers) often used food practices as a form of care. Here, PBMs were often ideologically invested with notions of health, and parents were able to bring ideas of health and care into the new practices formed around PBMs, as Kiera explains:

> "And I went vegan first, three years ago, and they [my family] followed along shortly after. And from there I've learned a lot more, done lots of research, joined lots of groups like the one that I found out about this study and, you know, because going vegan and then having my children be vegan as well, I wanted to make sure that I was covering everything they needed and I essentially had to learn how to cook again. Like, it was really big change for all of us."

For Kiera, her new food practices were informed greatly by meanings of family, health and care, and PBMs became integral to how she viewed caring for her family. Kiera's shift to veganism was tied to ideologies of animal welfare, and the shift to veganism and the adoption of PBMs allowed her to bring those ideologies into her family in a way that also reinforced the meanings her family placed onto food practices.

4.3. *Reconfiguring linked practices and meanings*

As domestic food practices around PBMs become relatively stable, and as meanings that consumers embed into PBMs and PBM-related practices solidify, we begin to see broader shifts. Practices are often linked, with many practices sharing common objects, doings, or meanings—resulting in a constellation or complex of linked practices (Shove et al., 2012). As such, when new objects, doings and meanings are introduced in the form of a newly solidified practice, we also see ripples of impact on other related practices (Shove et al., 2012). In our findings, we see these ripples of impact affecting linked practice chains and meanings at two levels—the social (practices that are centred around other people) and the embodied (practices that are more tied to the individual and their body). Once again, as with many practices, the social and the embodied are co-constitutive—we separate them for analytical purposes.

4.3.1. *Social – reconfigured non-PBM-based food practices*

The most immediate consequence of the formation and solidification of PBM-based practices is the impact it has on other food practices. Given that many food practices often share the same doings, such as storage, preparation, cooking (which contains a multitude of doings), the introduction of a new series of practices that shares these elements will shape how the food practices that do not directly involve PBM are enacted within households. For example, consider this quote from Lydia:

> [Before she turned vegan, she'd eat] "like two meals a day [containing meat], at least. Yeah, yeah, yeah. Like lunch and dinner. And then on the weekends, breakfast, we'd do like an English breakfast with sausages and bacon and stuff. So yeah, every meal except breakfast usually, but then on the weekends. Yeah. Regularly."

Lydia, who is vegan and is also responsible for her family's food—she has three children aged 18 months, 3 years and 7 years and is expecting her fourth—describes how her turning vegan has altered her food practices. She notes, in the quote above, that her family ate meat regularly—twice a day, and even three times on the weekends when they prepared an English breakfast. However, post her shift to veganism and her adoption of PBMs, this is no longer how their meals are prepared as her children and partner also consume a vegan diet, diminishing the presence of meat and dairy from established practices. She experimented with a number of PBM products to replace meat—noting her children like fake meat burgers, but don't like fake chicken as an example of how she tested multiple objects as part of the newly stabilised practices—and has replaced the meat products she used to use.

4.3.2. Social – reconfigured social food practices

Lydia's example is a simple case of how substitutions—a key part of the practices being solidified and learned as discussed above—alter other practices, in her case by reducing and then eliminating meat-based meals over time. In turn, we then see broader effects on non-PBM food practices beyond just substitution, and these are most commonly seen in food practices that have a social dimension. For example, let us consider these two quotes from the same informant, Molly:

> "Probably most days [we eat PBM]. Most days, because my dad and my brother are meat eaters. So then we just have our meat as well, to match what they're having. So probably yeah, most dinners, I'd probably have it. Last time they had a roast, so we had a vegan roast. It's the Vegie Delights veggie roast thing. I forgot what it's called, but yeah, that. And then yesterday I had the chicken schnitzel.
>
> They're all pretty good [her friends]. So they normally buy that stuff for me. So then I can also eat, or if we go out, we find places I can eat out … So I don't really have anyone that it's hard for me to eat things around. They all cater to what I can eat."

Molly shares two stories here, both of which show the social consequences of her new practices. First, she acknowledges how her new practices shape her familial food practices. Rather than stop eating together, Molly's family, and specially her mother, has co-created a new social food practice—admittedly one that is still solidifying—around both meat and PBM products. However, we see this also extend to her social eating practices with her friends—as her veganism solidifies through her home life, they alter their food practices to accommodate hers. Lydia goes a step further, and even buys specific PBM products for her seven-year-old son and his friends who do not eat vegetables: "That's when we'll get nuggets. Because if I know friends will come over, I'll get the Quorn nuggets then because all kids like those."

4.3.3. Embodied meanings – reconfigured understandings of health and health practices

An interesting consequence of embedding an ideological object, like PBMs, into body-centric practices, like food, is that there are ripple effects that span the social and embodied. The body is the interface between the self and the world (Bassetti, 2014; Belk, 1988), and as such is porous (Appau et al., 2020), and we see that manifested in two ways in our data. The first, which we explore now, is through reconfigured understandings of health and reconfigured health practices.

As discussed previously, consumers often adopted PBMs due to a desire for meaning coherence or practicality. Meanings of health can be intimately linked to both these underlying motivations to adopt PBMs—as best expressed by Tabitha, who explains why and how her family became vegan:

> "My husband has MS [multiple sclerosis]. He's tried going on several different diets to help manage it, and he was vegan for a while. My daughter's vegan, and so am I. And the reason I went vegan originally was because she was vegan and it was just more convenient than cooking two different meals. And then I found when I went out, I found it very hard if I ate something with meat, very hard to digest. So I just did a bit of research as well and now I'm more so vegan for ethical reasons, rather than anything else, because for the animals, I care a lot for them."

In Tabitha's narrative, teleologies of meaning coherence, practicality and health are intermingled and inform how and why she began a vegan diet—an intermingling we saw often in our data. Interestingly, however, as consumers stabilised PBM practices, we saw more a renewed attention to health. For example, Faith explains:

> "I felt with more energy when I wasn't eating meat and that my stomach would digest faster. When I had meat, my stomach will usually feel heavy for hours and I could go the day with one meal or two meals because it was always so heavy. Because with beef especially, I will have very bad stomach aches and I will feel bad and I'll have to lay down. That has never happened to me with any protein that comes from soy. My stomach's also better. It's less cramping to what I was used to."

As Faith explains, her moving to a more vegetarian diet—one filled with soy proteins as PBMs—changed how she felt about her health. She felt lighter and less bloated. This theme of lightness was echoed frequently, including by Carmen, Quentin and Azalea.

Beyond just a renewed awareness of lightness, there was also an awareness that there were nutritional discrepancies that came with PBMs, a narrative best explained by these two quotes:

> "When I get to know plant-based meat, at that time I'm quite concerned. I'm trying to find more of the like more organic or less processed one as possible. But it turns out that both of them are like quite processed, but okay, I just get used to it." (Simon)
>
> "I think it's more to do with the nutrients that you get. So I wouldn't separate them into the 50 … Sorry. It's very complicated. I wouldn't separate it into 50/50 category by weight or by size, for example, I just, you have protein. You have to have your carbohydrates or your vegetables. I mean, you always have to have your vegetables and then whatever you have on the side is, whatever." (Kim)

Simon and Kim highlight two sides of a finding that many consumers were aware of—that PBMs are highly processed and may have nutritional consequences. For some consumers, like Simon, this meant searching for less processed versions—an alteration to shopping practices. For others, like Kim, this meant a renewed focus on health and diet. This renewed focus often came with a reconfiguring of health-centric practices, especially with the vast majority of informants (all but two) having taken dietary supplements (see Web Appendix B for specifics around supplement use), as Kim further explains:

> "I think I just knew that I was a bit tired, a bit low mood at some point. And I was like, I know that B vitamins do work for it. I probably should start taking B12. I think everyone's deficient in B12 anyway. So I started taking that. I guess I've just read it somewhere that a lot of people are deficient, regardless them eating meat or not. Of course, vegans are more susceptible because they don't get it naturally. But even those eating meat, not always have enough."

Kim's quote highlights a relationship between specific social meanings, food practices and health practices, and she describes how she started taking more supplements as her ideologies became more entrenched in her every day. This experience was shared by Dolly (amongst others), who explicitly named a specific PBM product in shaping her partner's decisions to take a vitamin B12 supplement:

> "He was saying that the main source or the main reason why we eat meat is because of the B12. So he's like, "Okay, well we don't really have anything apart from the fake meat that we found after the burger patties …" So he's like, oh, we need B12 for, I don't know, he explained all these things. So he's like, oh, I better take a supplement just in case to make sure that I'm not going to be low because that could affect my energy levels as well."

It is worth noting that the decision to craft or adapt health practices as a result of PBM use and the resultant shifts in meaning was not solely the purview of our vegan informants. For example, Kelly, an omnivore who incorporates PBMs into her diet, talks about an increased need for protein, and that she used to take a protein supplement as she "was training, doing Army training at the time." It is also worth noting that some informants were using supplements before they started using PBM products, but that these considerations were more tied to specific health concerns, such as in the case of Azalea, who took Vitamin D supplements because of concerns around weak bones.

4.3.4. Embodied meanings – altered understandings of the body

The second way in which we see the body implicated and altered through the adoption of an ideological object is through the ways in which consumers experience altered understandings and relationships to the body. Deeply linked to the discourses and practices of health discussed above, consumers often described feeling and experiencing their body differently.

For some of our informants, that was often described in terms of lightness, which we briefly discussed above. Many consumers expressed a physical lightness, or as Scott explains it: "I don't feel as heavy." But, in combination to physical lightness, we also saw consumers express a psychological and emotional lightness, a change mediated by their body, as Quentin explains:

> "Psychologically speaking, yes, I feel healthier because I think I had some vegetables for the vitamins, obviously the plant fibre. Also for my brain, for my body, I would just feel like more energetic just to work, to study, to move around, but unless I am comparing, if I'm just eating too much meat, I will just feel sleepy and awful. I think my stomach will just take too much burden from digesting the animal-based products. I think psychologically healthier, yes."

Quentin attributes his renewed energy and psychological lightness to feeling stronger in his body, a direct result of the use PBMs as meat alternatives. Carmen extends this further in her moving quote:

> "I feel like I like to keep trying different options … And that's it. I feel better, physically better. I feel that inside my body I'm healthier. Even if … I don't know, I'm not losing weight or I don't look skinnier. I feel that something inside my stomach, something inside my body, it's healthier."

For Carmen, as with Quentin, there is a notable change in how she views her body, and as a result there is a strong readjustment of how she views herself as healthier.

However, not all consumers experience positive readjustments to their bodies, and some even acknowledge that PBMs might have negatively altered their embodied capacities. For example, Catrina explains her experience:

> "But I do find, when I eat them [chickpeas, lentils and grains], I perform better in the gym when I'm boxing, opposed to eating plant-based meats. And maybe it's just because, with boxing, you do need quite a bit of protein. But yeah, I don't know. I was just thinking, in the last week, when I ate chickpeas and I was like, "Oh, I actually did better in the gym.""

Catrina, who is an omnivore who is slowly transitioning away from meat and becoming more plant-based for a combination of practicality and seeking more meaning coherence with her desire to be environmentally friendly, initially felt better as she consumed more PBM products. However, as this quote above highlights, she finds that the processed nature of PBMs means she is not getting as much protein, thus altering her body in noticeable ways—her boxing practice is affected by her dietary choices.

5. Discussion

In this research, we asked three research questions related to PBM as an example of an ideological object: 1) What are the drivers that underpin consumers' adoption of PBMs? 2) How do PBMs—as ideological objects—shape and alter everyday food practices? 3) How do these changes foster changes in related social food practices and embodied meanings? Through a qualitative study of the adoption and use of PBMs as objects charged by the marketplace with specific ideological meanings, we identified a framework to explain how the adoption of PBMs affects food practices, which in turn shapes linked practices in a practice chain. Our findings highlight that consumers' adoption of PBM is driven by desires for meaning coherence or practicality. We then show that as PBM practices shape domestic food practices over time, there are broader social and embodied changes. Our framework shows how the adoption of PBMs affects social food practices such the choice of venue for social gatherings involving food. Finally, our framework provides important insights into the impact of PBM and the resultant change in linked practices on consumers' perceptions of health and their bodies. We now consider the theoretical and practical implications of our research.

5.1. Theoretical contributions

Theoretically, this research contributes to the growing corpus of work on the use and uptake of PBMs in two important ways. First, we contribute to work on the consumption practices of consumers by highlighting how PBMs, as examples of ideological objects, can cause ripple effects in chains of linked practices. We then also contribute to work that theorises the adoption of new categories of products by highlighting the relative novelty of PBMs in the marketplace.

In their work on the dynamics of social practices, Shove et al. (2012) begin to describe how connections are formed between practices. They posit that practice chains are formed when practices share elements—such as common objects, doings, or meanings—and those shared elements are critical to the enactment of the linked practices. However, the authors' focus on linkages between practices does not fully account for the impact of new practice elements that disrupt existing links. That is, their meso-level focus on linked practices within chains does not account for how changes to elements within individual practices, such as the introduction of ideological objects, can disrupt linkages. We address this gap by examining how the introduction of an ideological object—PBM—iteratively disrupts and then forges new connections between practices, reconfiguring them at the social and embodied level (Hui, Schatzki & Shove, 2017). We demonstrate this in how we unpack work on PBM practices below.

In this domain, we extend the earlier work on PBM practices by White et al. (2022). In their study, White et al. (2022) explored how the introduction of PBMs began to have ripple effects on linked practices, such as cooking, through substitution—a finding echoed in our data around the development of new competences. However, their findings are limited to the immediate food practices that surround PBMs. Our findings extend their work by highlighting the ripple effects—social and embodied—of the introduction of PBMs into household food practices. Specifically, we extend their early theorisation on the stabilisation of new meanings. Through our conceptualisation of ideological objects as tight couplings between specific object-meaning dyads, we show that the meanings that consumers associate with PBMs as market-mediated ideological objects do not stop once the object is integrated into household food practices. Specifically, echoing and extending work by Murcott (2019), we show that these meanings that are tied to the ideological objects can also shape meanings and doings in linked practices that do not directly engage with the ideological object—as shown in the shifts in embodied and social meanings in our theoretical model. For example, meanings of veganism that drive consumers to adopting PBMs can manifest in non-PBM related practices such as eating out or family practices around meals. Our theorisation thus adds nuance to work on linked practices and practice chains (Hui, Schatzki & Shove, 2017; Shove et al., 2012) by examining how novel meanings embedded into objects destabilise and reassemble linked practices.

Fuentes and Fuentes (2022) suggest a certain level of mutability would emerge as consumers move towards more plant-based consumption practices. We extend this research by showing the varying levels at which this mutability might occur as consumers seek meaning coherence and alter consumption practices. Specifically, we demonstrate how interrelated embodied and social changes emerge from changes in a core practice in a practice chain. We also extend their findings by highlighting the facilitative role of the marketplace in solidifying consumption landscapes. By showing how the marketplace

invests specific objects with meanings over time—what we term ideological objects—we demonstrate the consequences of that market-level practice on multiple linked practices within a chain. What we also begin to see, of interest, is that these consequences do not stop at the practice that ostensibly should be shaped by the meanings of the PBM, but migrate beyond the core practice. For example, some of our informants sought practicality through their adoption of PBMs—a market-mediated meaning—but found that the adoption of the ideological objects shaped broader and more profound meanings, such as those tied to their body.

We also contribute to work that theorises the adoption of PBMs as new categories of products. PBMs, especially modern 2nd generation PBMs that are broadly available such as products by Beyond Meat and Impossible Foods, are a relatively recent introduction into the global food scene (He et al., 2020). Given that these products have quickly been infused with meanings of health and wellness by the marketplace (Broad, 2020), it is reasonable that the uptake and adoption of PBMs is often linked to discourses of health and tied to veganism and sustainability (Broad, 2020; Jahn et al., 2021; White et al., 2022)—a finding also echoed in our data. However, the existing consensus is that PBMs are not nutritionally equivalent to animal-source meat (He et al., 2020; World Health Organization, 2021). However, we extend this scholarship by examining how consumers' interaction with this new category of products shapes embodied and social meanings. Through this, we draw parallels with work around the material cultures of food (De Solier, 2013), by highlighting how a broad group of food becomes an 'edible' carrier of social meanings, and thus brings those meanings into the body (Murcott, 2019). As such, there are calls for research (Jahn et al., 2021) to understand how consumers' adoption of PBMs shapes understandings of health, specifically around the use of supplements. We show that many interviewees who adopt PBMs feel the need to complement their altered understandings of health with the use of dietary supplements, such as vitamin B12. Importantly, the use of dietary supplements is not only resulted from the adoption of PBMs, but also from the changes in people's attention to and perception health and the body.

5.2. Practical implications

The results of this study suggest that the health implications of switching from animal-source meat to PBM are far wider than just differences in the nutritional compositional between products. When PBM is consumed by one family member, it takes extra time preparing two versions of meat-containing dishes and is often only a matter of time before other family/household members also reduce/exclude their intake of animal-source meat. Overall, it appears that a common view is that PBM are convenient replacements for animal-source meat and any differences in nutrient content can be easily compensated for by use of dietary supplements – mainly vitamin B12, vitamin D3 and multivitamins. However, in Australia, these supplements are unlikely to fully compensate for the nutrients provided by animal-source meat, particularly in relation to omega-3 long chain fatty acids, selenium and zinc (Lawrence et al., 2023), as current generation PBMs do not adequately reproduce these nutritional benefits (Romão et al., 2023).

Our findings also offer implications for practice around the marketing and branding of PBM products. As previously discussed, PBMs are often marketed to consumers using metaphors of health and wellness (Broad, 2020) as well as meanings of sustainability (Curtain & Grafenauer, 2019; Singh et al., 2021). Brands will often rely on these symbolic benefits as key brand propositions, and consumers will often seek out these products to integrate their desired meanings into their lives (McCracken, 1986; Papista & Krystallis, 2013). However, our research showed a novel category of meaning—practicality—as a critical meaning that structures consumers' adoption of PBMs.

This finding has interesting implications for the branding of PBMs because it disrupts traditional assumptions that consumers come to these products for deeper meanings. Some consumers turn to PBMs out of convenience, either because PBMs allow them easy ways to transform their lifestyles or because of changes in the food practices of other people in their social orbit. Brands might consider how targeting these consumers opens up a new potential customer base—for example, college students who buy into discourses of health but do not have the time to learn new practices of cooking might be inclined to switch to ready-made PBM meals out of practical considerations.

Relatedly, our findings offer a more concrete direction that marketers could take in their messaging. Some consumers may hesitate to take up PBM because of their concerns about how their family members may react to or cope with a different food practice at home, a concern shared across a number of food cultures (Asher & Cherry, 2015). We found that PBM adoption, as a new practice introduced to a family, can in fact reshape meanings of family—by either strengthening ties or causing tensions—which in turn solidifies the practice of adopting PBM. Our finding around this recursive shaping process helps lessen such concerns for both consumers and for marketers. Marketers might then design marketing communication messages drawing on the connections between family and food for the promotion of PBM adoption.

Our findings around the transformation of practice chains also have implications for practice. Specifically, we find that the adoption of ideological objects and the injection of novel meanings into linked practices can disrupt and reassemble multiple practices. This suggests that there are opportunities to drive the consumption of PBMs by focusing on altering practices that are linked to them. For example, in their study on barriers to adoption of PBMs, Jahn et al. (2021) identify barriers around social norms—such as the consumption of meat during holidays such as Christmas—as a key factor hindering the adoption of PBMs. Brands might consider how targeting these social meanings—by, for example, promoting a PBM product that can directly replace a Thanksgiving turkey—can lead to more prolonged consumption of PBMs as these meanings stabilise.

Finally, our findings show a nuanced relationship between PBM adoption and consumers' relationships to their body and health—a connection that provides marketers with new ways to communicate and attract consumers to PBM products. For example, our findings show that PBM adoption changes how people view their body. They become more aware of their energy levels (e.g., feeling more energy) and body sensations (e.g., feeling lighter). It is interesting for future research to understand whether these positive feelings and sensations are due the actual physical impact of PBM product consumption or a halo effect on people's perceptions or feelings about their body.

Our findings also suggest that PBM adoption increases people's attention to health. For example, consumers who adopt PBM products may pay extra attention to how a PBM product is made and notice its ultra-processed nature. They may also become more aware of the nutritional differences between PBMs and animal-source meat products. This suggests that there is potential for food companies and manufacturers to further develop PBM products to lessen these concerns, as such changes could have significant impacts on consumers' willingness to adopt and use PBMs.

5.3. Limitations and directions for future research

This research has three key limitations that should be considered in the interpretations of the findings. However, these limitations also offer avenues for future research and deeper engagement with the context. First, our study has a relatively small scale—both in terms of sample size and geographic location. Furthermore, Australia—as a relatively Western context—has unique understandings around ideologies of health, veganism and diet that might differ from other regions. Future research may seek to broaden the scope of the study and examine how ideological objects alter practices in non-Western contexts. Second, this research adopted a qualitative approach to studying complex behavioural changes around dietary practices. While a useful methodology, we acknowledge the exploratory nature of this study. Future research might

adopt a more quantitative approach to model practice changes and the nutritional and health implications associated with this, especially around the adoption and uptake of tangible products—such as PBM products and brands, over time (short-term and longer-term) and in different age and socio-economic groups. Finally, this research specifically focuses on PBMs as a novel food category and as an example of an ideological object. In this vein, further research could also analyse how other non-food objects, like social media interest groups about PBM products can change practices around food and alimentary ideologies.

6. Conclusion

This paper explored how PBMs—as ideological objects—shaped and altered everyday food practices, as well as the changes to linked social and embodied practices and meanings. Underpinned by the tenets of social practice theory, we found consumers first turn to PBMs driven by three overlapping meanings of practicality and meaning coherence. As those meanings were solidified through everyday food practices, there were ripple effects that emerged. These ripple effects caused shifts in linked practices—practice chains—including social food practices, social and embodied understandings of health, and an altered relationship to the body. The findings of this research theoretically extend our understandings of the impact of adopting ideological objects (PBMs) as a new category of products in consumption, and offer practical implications for the segmentation, targeting and branding of PBM products.

Author contribution statement

Each of the authors listed have contributed to the manuscript. The first author analysed the data, conducted the literature review, and wrote up the findings and theoretical model. The second author conducted the data collection process and contributed to the review of the manuscript and the process of data categorisation and analysis. The third, fourth and fifth authors conceptualized the study, obtained the funding, formed the research team, reviewed the literature, helped frame and write interview questions and the discussion section, offered critical commentary on the development of the findings, and helped with writing and polishing of the overall manuscript.

Statement on ethics

The authors acknowledge that this research was conducted after being approved by an Ethics Committee at the University of Melbourne. This study was approved by the Office of Research Ethics and Integrity at the University of Melbourne, reference number: 2022-24282-28896-4. This has also been appropriately noted in the manuscript.

Funding

This work was supported by the Future Food Hallmark Research Initiative at the University of Melbourne.

Declaration of competing interest

This work was supported by the Future Food Hallmark Research Initiative at the University of Melbourne. The authors acknowledge no conflicts of interest.

Data availability

The authors do not have permission to share data.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.appet.2023.106765.

References

Appau, S., Ozanne, J. L., & Klein, J. G. (2020). Understanding difficult consumer transitions: The in/dividual consumer in permanent liminality. *Journal of Consumer Research*. https://doi.org/10.1093/jcr/ucaa010

Arsel, Z., & Bean, J. (2013). Taste regimes and market-mediated practice. *Journal of Consumer Research, 39*(5), 899–917.

Asher, K., & Cherry, E. (2015). Home is where the food is: Barriers to vegetarianism and veganism in the domestic sphere. *Journal for Critical Animal Studies, 13*(1), 66–91.

Balkmar, D., & Mellström, U. (2018). Masculinity and autonomous vehicles: A degendered or resegregated future system of automobility? *Transfers, 8*(1), 44–63.

Bassetti, C. (2014). The knowing body-in-action in performing arts: Embodiment, experiential transformation, and intersubjectivity. In T. Zembylas (Ed.), *Artistic practices: Social interactions and cultural dynamics* (pp. 101–121). Routledge.

Belk, R. W. (1988). Possessions and the extended self. *Journal of Consumer Research, 15*(2), 139. https://doi.org/10.1086/209154

Bianchi, F., Stewart, C., Astbury, N. M., Cook, B., Aveyard, P., & Jebb, S. A. (2022). Replacing meat with alternative plant-based products (RE-MAP): A randomized controlled trial of a multicomponent behavioral intervention to reduce meat consumption. *The American Journal of Clinical Nutrition, 115*(5), 1357–1366. https://doi.org/10.1093/ajcn/nqab414

Boehm, S., Jeffery, L., Levin, K., Hecke, J., Schumer, C., Fyson, C., Majid, A., & Jaeger, J. (2022). *State of climate action 2022*. https://doi.org/10.46830/wrirpt.22.00028

de Boer, J., Schösler, H., & Aiking, H. (2017). Towards a reduced meat diet: Mindset and motivation of young vegetarians, low, medium and high meat-eaters. *Appetite, 113*, 387–397. https://doi.org/10.1016/j.appet.2017.03.007

Broad, G. M. (2020). Making meat, better: The metaphors of plant-based and cell-based meat innovation. *Environmental Communication, 14*(7), 919–932.

Crimarco, A., Springfield, S., Petlura, C., Streaty, T., Cunanan, K., Lee, J., Fielding-Singh, P., Carter, M. M., Topf, M. A., Wastyk, H. C., Sonnenburg, E. D., Sonnenburg, J. L., & Gardner, C. D. (2020). A randomized crossover trial on the effect of plant-based compared with animal-based meat on trimethylamine-N-oxide and cardiovascular disease risk factors in generally healthy adults: Study with Appetizing Plantfood—meat Eating Alternative Trial (SWAP-MEAT). *The American Journal of Clinical Nutrition, 112*(5), 1188–1199. https://doi.org/10.1093/ajcn/nqaa203

Curtain, F., & Grafenauer, S. (2019). Plant-based meat substitutes in the flexitarian age: An audit of products on supermarket shelves. *Nutrients, 11*(Issue 11). https://doi.org/10.3390/nu11112603

Dagevos, H., & Reinders, M. J. (2018). Flexitarianism and social marketing: Reflections on eating meat in moderation. In D. Bogueva, D. Marinova, & T. Raphaely (Eds.), *Handbook of research on social marketing and its influence on animal origin food product consumption* (pp. 105–120). IGI Global.

De Solier, I. (2013). *Food and the self: Consumption, production and material culture*. Bloomsbury Publishing.

Denzin, N., & Lincoln, Y. (2012). The qualitative inquiry reader. In *The qualitative inquiry reader*. Sage. https://doi.org/10.4135/9781412986267.

Eckl, M. R., Biesbroek, S., van't Veer, P., & Geleijnse, J. M. (2021). Replacement of meat with non-meat protein sources: A review of the drivers and inhibitors in developed countries. *Nutrients, 13*(Issue 10). https://doi.org/10.3390/nu13103602

Fuentes, M., & Fuentes, C. (2022). Reconfiguring food materialities: Plant-based food consumption practices in antagonistic landscapes. *Food, Culture and Society, 23*(3), 520–539.

Gómez-Luciano, C. A., de Aguiar, L. K., Vriesekoop, F., & Urbano, B. (2019). Consumers' willingness to purchase three alternatives to meat proteins in the United Kingdom, Spain, Brazil and the Dominican Republic. *Food Quality and Preference, 78*, Article 103732. https://doi.org/10.1016/j.foodqual.2019.103732

Goulding, C. (2005). Grounded theory, ethnography and phenomenology: A comparative analysis of three qualitative strategies for marketing research. *European Journal of Marketing, 39*(3/4), 294–308.

Graça, J., Godinho, C. A., & Truninger, M. (2019). Reducing meat consumption and following plant-based diets: Current evidence and future directions to inform integrated transitions. *Trends in Food Science & Technology, 91*, 380–390.

Harnack, L., Mork, S., Valluri, S., Weber, C., Schmitz, K., Stevenson, J., & Pettit, J. (2021). Nutrient composition of a selection of plant-based ground beef alternative products available in the United States. *Journal of the Academy of Nutrition and Dietetics, 121*(12), 2401–2408.e12. https://doi.org/10.1016/j.jand.2021.05.002

He, J., Evans, N. M., Liu, H., & Shao, S. (2020). A review of research on plant-based meat alternatives: Driving forces, history, manufacturing, and consumer attitudes. *Comprehensive Reviews in Food Science and Food Safety, 19*(5), 2639–2656.

Huff, A. D., Humphreys, A., & Wilner, S. J. S. (2021). The politicization of objects: Meaning and materiality in the US cannabis market. *Journal of Consumer Research, 48*(1), 22–50.

Hui, A., Schatzki, T. R., & Shove, E. (Eds.). (2017). *The nexus of practices: Connections, constellations, practitioners*. Routledge.

Jahn, S., Furchheim, P., & Strässner, A.-M. (2021). Plant-based meat alternatives: Motivational adoption barriers and solutions. *Sustainability, 13*(23), Article 13271.

Kemper, J. A., & White, S. K. (2021). Young adults' experiences with flexitarianism: The 4Cs. *Appetite, 160*, Article 105073. https://doi.org/10.1016/j.appet.2020.105073

Kozinets, R. V. (2002). The field behind the screen: Using netnography for marketing research in online communities. *Journal of Marketing Research, 39*(1), 61–72.

Kozinets, R. V. (2019). *Netnography: The essential guide to qualitative social media research*. Sage.

Lawrence, A. S., Huang, H., Johnson, B. J., & Wycherley, T. P. (2023). Impact of a switch to plant-based foods that visually and functionally mimic animal-source meat and

dairy milk for the Australian population—a dietary modelling study. *Nutrients, 15*(8), 1825. https://doi.org/10.3390/nu15081825

Lawrence, S., & King, T. (2019). *Meat the alternative: 2019 state of the industry*. Retrieved from https://www.foodfrontier.org/wp-content/uploads/dlm_uploads/2021/03/Meat-the-Alternative-update.pdf#gf_2.

Lumsden, K. (2010). Gendered performances in a male-dominated subculture:'Girl Racers', car modification and the quest for masculinity. *Sociological Research Online, 15*(3), 75–85.

MacKendrick, N., & Pristavec, T. (2019). Between careful and crazy: The emotion work of feeding the family in an industrialized food system. *Food, Culture and Society, 22*(4), 446–463.

Magaudda, P. (2011). When materiality 'bites back': Digital music consumption practices in the age of dematerialization. *Journal of Consumer Culture, 11*(1), 15–36.

Martinelli, D., & Berkmanienė, A. (2018). The politics and the demographics of veganism: Notes for a critical analysis. *International Journal for the Semiotics of Law-Revue Internationale de Sémiotique Juridique, 31*(3), 501–530.

Matthijssen, V. (2020). *The future of food*. https://www2.deloitte.com/content/dam/Deloitte/au/Documents/consumer-industrial-products/deloitte-au-cip-future-of-food-key-trends-170320.pdf.

McCracken, G. (1986). Culture and consumption: A theoretical account of the structure and movement of the cultural meaning of consumer goods. *Journal of Consumer Research, 13*(1), 71–84. https://doi.org/10.1086/209048

Murcott, A. (2019). *Introducing the sociology of food and eating*. Bloomsbury Publishing.

Neuhofer, Z. T., & Lusk, J. L. (2022). Most plant-based meat alternative buyers also buy meat: An analysis of household demographics, habit formation, and buying behavior among meat alternative buyers. *Scientific Reports, 12*(1), Article 13062. https://doi.org/10.1038/s41598-022-16996-5

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533–544.

Papista, E., & Krystallis, A. (2013). Investigating the types of value and cost of green brands: Proposition of a conceptual framework. *Journal of Business Ethics, 115*(1), 75–92.

Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory, 5*(2), 243–263.

Romão, B., Botelho, R. B., Torres, M. L., Maynard, D. D., de Holanda, M. E., Borges, V. R., Raposo, A., & Zandonadi, R. P. (2023). Nutritional profile of commercialized plant-based meat: An integrative review with a systematic approach. *Foods, 12*(3). https://doi.org/10.3390/foods12030448

Safdar, B., Zhou, H., Li, H., Cao, J., Zhang, T., Ying, Z., & Liu, X. (2022). Prospects for plant-based meat: Current standing, consumer perceptions, and shifting trends. *Foods, 11*(23). https://doi.org/10.3390/foods11233770

Schatzki, T. R. (1997). Practices and actions a wittgensteinian critique of bourdieu and giddens. *Philosophy of the Social Sciences, 27*(3), 283–308.

Schatzki, T. R. (2002). Social science in society. *Inquiry, 45*(1), 119–138.

Schiermeier, Q. (2019). Eat less meat: UN climate-change panel tackles diets. *Nature, 572*, 291–292.

Shove, E., Pantzar, M., & Watson, M. (2012). *The dynamics of social practice: Everyday life and how it changes*. Sage.

Shukla, P. R., Skea, J., Slade, R., van Diemen, R., Haughey, E., Malley, J., Pathak, M., & Pereira, J. P. (2019). Technical summary. In , *Climate change and land: IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystemsIntergovernmental Panel on climate change*. Cambridge University Press. https://doi.org/10.1017/9781009157988.002.

Singh, M., Trivedi, N., Enamala, M. K., Kuppam, C., Parikh, P., Nikolova, M. P., & Chavali, M. (2021). Plant-based meat analogue (PBMA) as a sustainable food: A concise review. *European Food Research and Technology, 247*(10), 2499–2526.

Sneijder, P., & Te Molder, H. (2009). Normalizing ideological food choice and eating practices. Identity work in online discussions on veganism. *Appetite, 52*(3), 621–630.

Thompson, C. J. (1997). Interpreting consumers: A hermeneutical framework for deriving marketing insights from the texts of consumers' consumption stories. *Journal of Marketing Research*, 438–455.

Tso, R., & Forde, C. G. (2021). Unintended consequences: Nutritional impact and potential pitfalls of switching from animal- to plant-based foods. *Nutrients, 13*(8). https://doi.org/10.3390/nu13082527

Vatanparast, H., Islam, N., Shafiee, M., & Ramdath, D. D. (2020). Increasing plant-based meat alternatives and decreasing red and processed meat in the diet differentially affect the diet quality and nutrient intakes of Canadians. *Nutrients, 12*(7). https://doi.org/10.3390/nu12072034

Warde, A. (2005). Consumption and theories of practice. *Journal of Consumer Culture, 5*(2), 131–153.

White, S. K., Ballantine, P. W., & Ozanne, L. K. (2022). Consumer adoption of plant-based meat substitutes: A network of social practices. *Appetite, 175*, Article 106037. https://doi.org/10.1016/j.appet.2022.106037

World Health Organization. (2021). *Plant-based diets and their impact on health, sustainability and the environment: A review of the evidence*.