

# CONSUMER BEHAVIOUR TOWARDS PLANT-BASED DIETS: A SYSTEMATIC REVIEW & CASE STUDY

By Sabarri Kumaravel | Supervised by: Dr. Devashish Pujari | SSM1101Y-Research Paper |  
 With special thanks to Dr. Barbara Murck and Dr. Soo Minh Toh

## INTRODUCTION:

Ever since the industrial revolution in the 1960s, meat and meat-based diets have been exponentially growing. So much so, that a fivefold increase in meat intake from 45kgs to 229 billion kgs has been seen till the late twentieth century (Boer de & Aiking, 2011). This growth is and will continue to put burden on the planet's natural resources for future survival and has already significantly contributed to the transgression of 3 of the 9 planetary boundaries (biodiversity loss, land degradation and nitrogen cycle) (Boer de & Aiking, 2011). Many civilizations have thrived on plant-based diets in the past and with growing awareness of the damage's meat possesses to human and planetary health and well-being, consumers should be reducing their intakes and more plant-based diet orientated consumers should be present. However, it was found that meat still exists as the dominant food culture across many societies and even societies which were more plant-orientated are consuming more meat, due to globalization, cross-cultural influences and rising disposable incomes (Sabate & Soret, 2014). This behavioral-attitude gap within modern consumers towards plant-based and meat-based diets and meat curiosity and attachment, are vital subjects to study, as it allows us to understand what attributes, traits and factors impact consumers purchasing behaviour and decisions towards their diet. Helping use the correct techniques, frameworks and theories by marketers and policy advocates to transition consumers towards a sustainable diet source without resistance and dissonance. This research paper helps with this process.

## RESEARCH OBJECTIVES & QUESTIONS:

The main research objectives of this research paper were to:

1. Understand how consumers, perceive and classify plant-based diets in relation to meat-based diets.
2. To identify the enablers and barriers present for consumers when considering adopting a plant-based diet.
3. To add to the existing literature on consumer behaviour towards plant-based diets for future researchers, policy advocates and marketers.

In order to achieve these objectives, three research questions were formed for this paper as following:

1. What product attributes affect the purchasing behaviour of consumers regarding plant-based products?
2. What consumer traits affect the relationship with plant-based and meat-based diets?
3. Why do consumers hesitate to move away from meat-based diets?

## METHODS:

A mixed approach of a systematic review with online survey was conducted to help fulfill the research objectives and questions.

**Systematic review:** The PRISMA standard was followed for selecting relevant articles for analysis in the research and only English, open-access and peer-reviewed journal articles were included. Out of 219 identified articles through the Google Scholar database (includes Scopus, ScienceDirect, MDPI, Nature, etc.) only **85** were included in final analysis to understand which **product attributes, consumer traits and meat-attachment factors** played a role in helping consumers transition to a plant-based diet, prevent them from moving away from a meat-based diet or confusing them on what to do. The information was stored in an excel file and the product attributes and consumer traits were coded as **enablers, barriers or unclear elements** for each article they appeared in. Information on different consumer clusters, theories, frameworks and techniques to assist in transition were identified and stored in a word document for analysis.

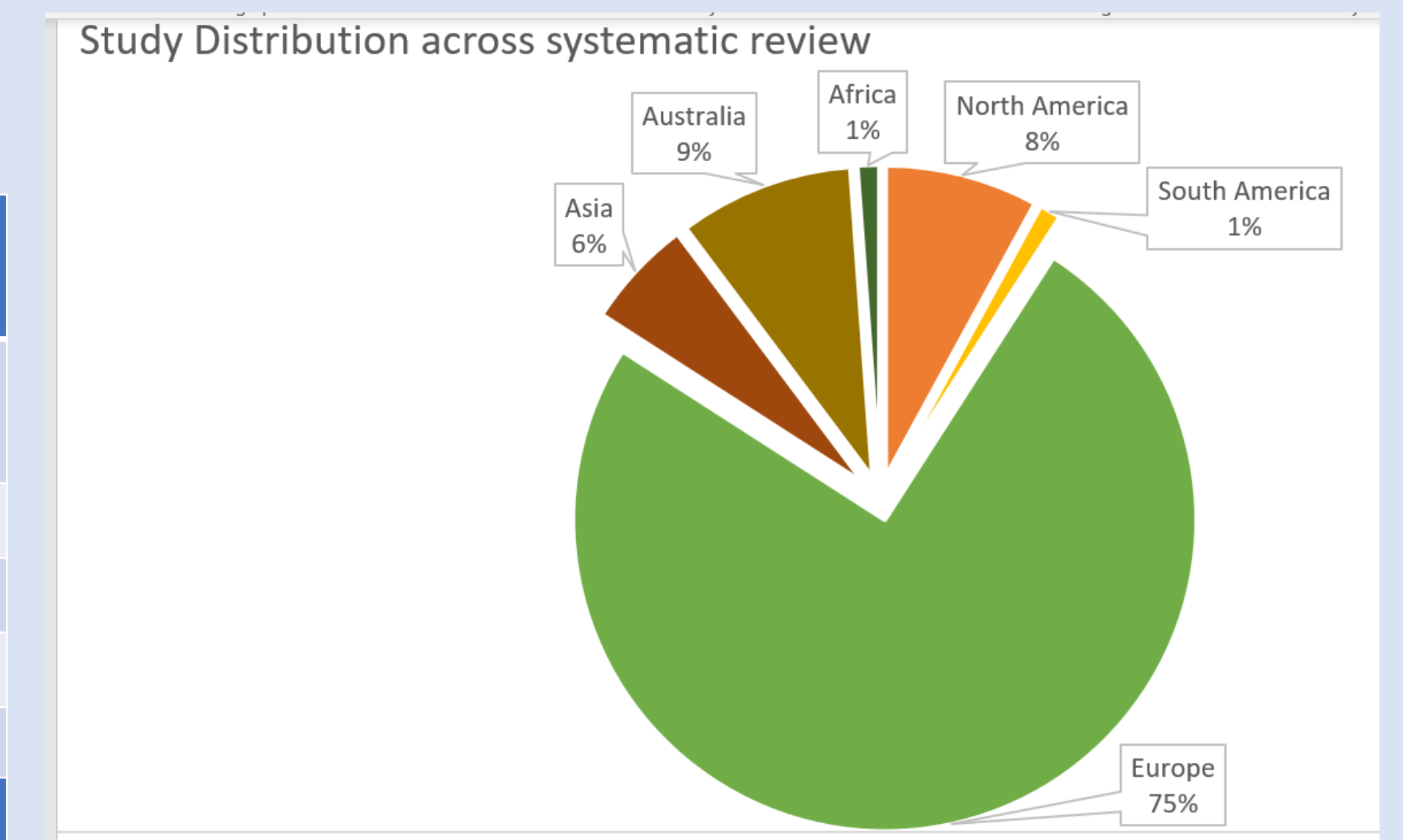
**Online survey:** A google form consisting of 20 questions was constructed for participants from the Amazon Mturk panel and personal contacts to complete. It consisted of 4 modules (consumption identity, consumption behaviour & awareness, purchasing behaviour and socio-demographics) and acted as a supplement to the systematic review findings; by presenting a real-life scenario analysis. The survey was circulated through the Mturk platform and through email and personal messages. A total of **78 participants** responded to the survey and **5 hypotheses were formed** regarding consumer behaviour towards diets.

**Statistical analysis:** A **chi square test for association** was used to check whether there were any **associations** between the two variables of each hypothesis and **descriptive statistics** was used to calculate the overall percentage of responses for each question and the standard deviation and mean of the questions on behaviour, belief, awareness and willingness to pay. Microsoft Excel was used to conduct all these calculations and the qualitative scale was manually coded into a numerical scale for the purpose of this analysis.

## RESULTS :

### Major consumer clusters found through systematic review

Consumer cluster	Number of appearances
Vegans	5
Vegetarians	12
Flexitarians	8
Omnivores	5
<b>Total different consumer clusters found:</b>	<b>56</b>



Product attributes				
Total	Most occurring in systematic review	Most influential in survey	Classification	Number of attributes per classification (*repetitions within type)
22	Sensory properties, Price(cost), Nutrition, Unfamiliarity, Sustainable labels, Availability	Taste, Sustainable labels, Placement at shopping centre, Novelty, Price premium, Unnaturalness	Enabler	12
			Unclear	4
			Barrier	14

Consumer traits				
Total	Most occurring in systematic review	Most influential in survey	Classification	Number of traits per classification (*repetitions within type)
71	Health claims, Environmental claims, Sociability, Cultural identity, Lack of information, Convenience, Nutrition claims, Animal welfare	Weight loss/Health reasons, Family/Partner, Animal welfare, Convenience, Culture/Tradition, Familiarity	Enabler	36
			Unclear	34
			Barrier	33

Meat-attachment factors			
Total	Most occurring in systematic review	Meat-based diet percentage in survey (%)	Positive behaviour towards meat-based diets in survey (%)
45	Meat-paradox, Sensory properties, Nutrition, Negative belief, Centrality, Culture	51	67

Chi-square test for association		
Hypothesis	P-value	Association
Gender Vs. Plant-based diet behaviour	0.95110773	Non-significant
Age Vs. Plant-based diet behaviour	0.87472373	Non-significant
Marital status Vs. Plant-based diet behaviour	0.57885753	Non-significant
Education Vs. Awareness of plant-based diet	0.51513983	Non-significant
Education Vs. Plant-based diet behaviour	0.85491	Non-significant
Education Vs. Willingness to pay premium for plant-based products	0.99986	Non-significant
Plant-based diet behaviour Vs. Belief in plant-based diets	0.06086	Non-significant
Plant-based diet behaviour Vs. Awareness of plant-based campaigns	0.81936469	Non-significant

## REFERENCES:

1. Boer de, J., & Aiking, H. (2011). On the merits of plant-based proteins for global food security: Marrying macro and micro perspectives. *Ecological Economics*, 1259-1265.
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3. Graca, J., Oliveira, A., & Calheiros, M. M. (2015). Meat, beyond the plate. Data-driven hypotheses for understanding consumer willingness to adopt a more plant-based diet. *Appetite*, 80-90.
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## DISCUSSION:

It was found that a multitude of clusters exists among consumers regarding their diets and these provide product marketers and policy advocates an understanding of the unique consumer profiles different consumer clusters possess. This helps to target plant-based products and plant-based diet transition incentives effectively. From the systematic review, it was found that product attributes acted more as **barriers** to a plant-based diet than **enablers**, with sensory properties (taste, texture and smell) and price being the predominantly cited attributes and most influential in the survey. By identifying all these attributes and segmenting them as enablers, barriers or unclear to a plant-based diet, the paper provides researchers further understanding on which help promote and act as resistance to then advice marketers and policy advocates with effective strategies. A better understanding of the interrelations between attributes and between attributes and consumer clusters could be identified. Health and environmental claims were the two most mentioned traits from the review and survey as they either directly impact the consumers or the surrounding they reside in. By providing an idea of the various traits which can influence consumers and their characteristic of being enabler, barrier or unclear, could again help develop strategies towards a plant-based diet based on the traits which were enablers or work on modifying the barrier and unclear traits into enablers. It could also understand the ambiguity of some traits and analyze where and why traits could act as both. Meat –paradox was found as the major reason for consumers to stick to a meat-based diet and this finding allows to incorporate frameworks and theories such as moral disengagement theory and diet, dishes and dish ingredients framework, to reduce this dissonance and resistance to move away from one's own meal (Graca, Oliveira, & Calheiros, 2015); (de Boer & Aiking, 2019).