

The protein transition and sustainable diets: a case study on the diets of young adults in Utrecht



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Word count: 14428

Date: 29-06-2023



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Abstract

System transitions are needed to create a more sustainable world that provides for future generations. When it comes to dietary choices, a protein transition from animal-based proteins to plant-based proteins in the diets of young adults can facilitate more sustainable diets for the betterment of human health and the environment. To find current patterns and study a smaller subsystem that is under researched to add on to this system change away from the meat and dairy regime towards more plant-based diets: The dietary habits of 25 young adults in Utrecht are studied through interviews, with a focus on the role of social and non-social information, as well as their own values and motivations in determining current diets, in order to find strategies to increase a dietary protein transition and provide insight into more plant-based diets.

Diet labels are not well defined for flexitarians and vegetarians, and vegan diets can be challenging in modern society. Power and achievement values and motives are found to be central to these students' wanting to make a change in the current practices. Environmental degradation mitigation and animal welfare play a bigger role in vegetarian and vegan diets than in flexitarian diets, but they are not unimportant to flexitarians. Health plays a role in every diet, and protein is broadly known to be important for an active lifestyle.

It was found that food environments can still reduce the availability of animal product-based foods and promote plant-based foods better through nudging and price differentiation. Young adults have busy schedules and not a lot of money to spend on food items. Social networks of plant-based eating young adults adapt to more sustainable diets when eating together, which makes them influential in a transition towards plant-based protein diets. Life transitions, in which social situations often change, are windows of change for adapting to more plant-based diets. The opportunity for plant-based diets is increasing through an increase in vegetarian or vegan restaurants and the improvement of meat substitutes. The latter can be further improved by changing intent and making less processed substitutes that are affordable and easily available. Designing more plant-based applications in restaurants, supermarkets or at events. Thereby, a decreasing demand for meat by consumers can shape food environments and social situations towards more sustainable diets that are culturally accepted, healthy, and alleviate climate change.

Acknowledgement

Thank you, interviewees, for your honesty and collaboration. Thank you, supervisor, and second assessor, for your guidance.

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Introduction

The Dutch climate agreement provides information on what is needed to reduce emissions for a better climate. The aim of the Dutch government is to be climate neutral in 2050 (Jongeneel & Gonzalez-Martinez, 2021). Agriculture and livestock play a big role in becoming climate neutral. Reactive nitrogen emissions from livestock and agriculture need to be reduced to achieve a state that reduces climate change and provides a world for future generations (Jongeneel & Gonzalez-Martinez, 2021; Sommer & Hutchings, 1995; Townsend & Howarth., 2010). Agriculture and livestock are a big pollution source, due to ammonia emissions from, amongst other sources, manure, and synthetic fertilizer (Townsend & Howarth., 2010). There is urgency to change unsustainable practices and consume and produce more sustainably for this reason (Townsend & Howarth., 2010; Hoes et al., 2019). The biggest contribution that consumers can make to reduce reactive nitrogen and other pollution from food production, would be to eat less or no meat or only grass-fed meat (Townsend and Howarth., 2010; Hunter & Rööös, 2016; Hallström et al., 2015).

The food trilemma: climate change, food security, and unsustainable land use, portrays the urgency of dietary change (Welch & Southerton., 2019). Next to that, deforestation and water-use in livestock agricultural practices are high compared to plant-based alternatives (Coucke et al., 2022). A more plant-based diet is necessary for a better climate and a world that provides for future generations. A protein transition, in which most animal-based proteins in a diet get substituted by plant-based proteins, can lead to more sustainable diets (Hallström et al., 2015; Hallström et al., 2014; Tziva et al., 2020).

Sustainable diets, according to the Food and Agriculture Organization of the United Nations (FAO), are healthy, have a low environmental impact, are affordable, and are culturally acceptable. What is stressed is that it is not only better for the environment, but also for human health. However, there is a wide range of consumers; not everyone is equally aware, prosperous, or invested in sustainability topics and the consequences of their food choices (de Boer et al., 2007).

Health, as defined by the World Health Organization, is “a state of complete physical, mental, and social well-being and not merely the absence of disease or its infirmity.” Healthy diets, in combination with how eating can have a lower environmental impact, have been studied before. It was found that plant-based diets are correlated with a longer life span (Duchin, 2005). Plant-based diets are high in carbohydrates and low in saturated fatty acids, added sugar, and salt. Moreover, they are high in plant protein from legumes and vegetables. Two of these diets are the Mediterranean plant-based diet and the rice-based Japanese diet. These diets contribute to human health and have a more favorable impact on the environment, than animal product rich diets (Duchin, 2005; McCubbin et al., 2002). Additionally, a plant-based diet has minerals, antioxidants, protective agents, and essential amino acids that can fight adverse health effects, such as a chance of lung cancer, heart disease, or infections from pollution (Kampa & Castanas, 2008).

Considering health and environmental reasons, policy measures are already being taken throughout Europe to promote animal-protein-reducing diets. This is currently done through better pricing of plant-based substitutes, information provisioning, social marketing, and nudging for healthy plant-based alternatives (Welch & Southerton, 2019). These are forms of non-social information that can enable consumers to make better food choices. **Non-social information** entails fundamental perceptions that are unmediated by or derived from other individuals and come to us directly from the world (Morin et al., 2021). **Social information** on the other hand, is anything that a person can acquire from other people, whether it be through direct speech, demonstrations, or by observing behaviors that are not always intended to be noticed (Morin et al., 2021).

Both types of information, non-social information and social information play a role in making a food choice. These two types of information are potential drivers for adopting low- or no-meat diets. A particularly strong form of non-social information that influences decisions on what is eaten is the price (Eyles et al., 2012). Taxes on carbonated drinks and saturated fats, along with subsidies for fruits and vegetables, were predicted to have a positive effect on dietary change (Eyles et al., 2012). Advertisement in food environments and the placement of certain products known as "nudging" can alter food decisions (Coucke et al., 2022). Food environments are complex and differ for all individuals. Which advertisements are seen, where food is purchased, and the availability and accessibility of products, affect their food choices, next to their own values, motives, and social context (Caspi et al., 2012). Improvement in the policy, information provision, and social marketing areas regarding plant-based diets is still needed (Welch & Southerton., 2019). It is therefore important to understand where food choices emerge to enable socio-technical transitions (Welch & Southerton., 2019). Additionally, elements from the physical environment, social environment, and beyond influence what is eaten (Geurts et al., 2017).

Moreover, human diets consist of habits, and habits are influenced by the environment in combination with values and motives; therefore, dietary changes are behavioral changes (de Boer et al., 2007). Intervention and understanding habits are ways to shape new ones or break bad ones (Michie and Atkins, 2015). New habits and lifestyles are frequently created as a result of life transitions and the social information they bring about (van der Berg et al., 2022).

How much is eaten and how it is eaten are determined by social interaction, especially for people who tend to have a high level of affiliation with others (Higgs, 2014; Cruwys et al., 2015). It has been found to be easier to eat less meat when it is accomplished together (Sijtsema et al., 2021).

1.1 Research gap/aim:

Young adults are a particularly relevant group when researching dietary changes, as they will still undergo many life transitions that frequently result in a shift in eating habits (van der Berg et al., 2022). Earlier research on young adults emphasizes the need to know how the diets of Dutch young adults are shaped and whether there is room for improvement towards

sustainable diets (van der Berg et al., 2022). Most previous research was conducted to decrease environmental impacts related to the current consumption of young adults, but this type of literature is not present in abundance (Telleria-Aramburu et al., 2022). Moreover, investigating young adults is a novel approach, as the literature on meat eating and changing diets rarely studies this segment of the population (van den Berg et al., 2022; Faber et al., 2020). Young- adults do grow up to be the future adults that shape the larger system. Their current diets and identities come from motives and values that are shaped by their environments, which can contribute to more sustainable diets.

More specifically, research on non-social and social information that affects meat consumption is necessary to be able to understand their current diets and create or find strategies that are effective in facilitating a decrease in meat consumption for this part of the population and the larger food consumption and production system.

The role that social and non-social information play is important to examine in the current protein transition in relation to young adults. This is investigated by asking the following:

1.2 research questions:

1. *What is the role of social and non-social information in determining dietary outcomes of young adults in Utrecht around the protein transition?*
 - a. *How are current diets of young adults in Utrecht shaped?*
 - b. *What motivations and values do young adults in Utrecht have for their current diet?*
 - c. *What is the role of non-social information in the diets of young adults in Utrecht?*
 - d. *What is the role of social information in the diets of young adults in Utrecht?*
 - e. *What are strategies to decrease meat consumption in the diets of young adults in Utrecht?*

In this research, the focus is on young adults in the age range of 18–26 in the city of Utrecht. They are the studied subsystems in this study. Finding interventions, trends and patterns of the subsystems that create the bigger socio-technical system is valuable for the sustainability of the bigger system (Blok & Reiniers, 2020; Meadows, 2008). The transition that is being researched for the sub-system is a more plant-based diet for a future with more sustainable production and consumption. To answer the research questions and grasp the current patterns and strategies of young adults regarding non-social and social information determining their diets, and how these are created around the protein transition, interviews are carried out. With

a grasp of young adults' patterns and trends through interviews in combination with literature, there will be a deductively and inductively derived addition to intervention theory and strategies for sustainable and more plant-based diets.

1. Theoretical framework

2.1 Social technical system change

Humans and environmental technology together form the social-technological system (STS). Mental models are what form levels of thinking and relationships; they are crucial for understanding why some events and situations occur and others do not. Mental models were thought of by a psychologist, Kenneth Craik (Garrity., 2018). These are small-scale models of the world inside people's minds to explain, anticipate, and reason about the world around them (Suoheimo et al., 2020; Garrity., 2018). The Iceberg model in figure 1 illustrates the different levels of system thinking (Blokland and Reniers., 2020; Monat & Gannon 2015).

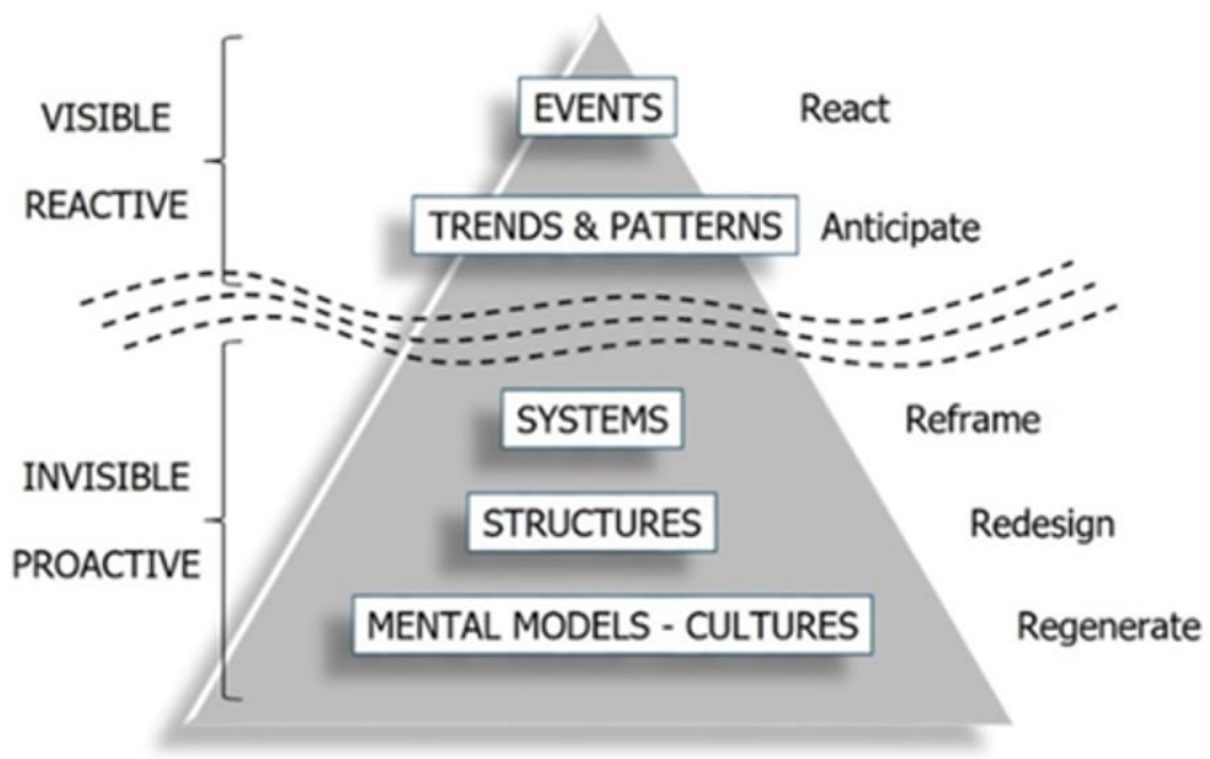


Figure 1 Iceberg model to portray the levels of emerging changing systems each level builds on the previous one, relationships can make emergent trends and patterns and can form events that are impactful in people's lives. Trends and patterns are for example visible in behavior over a longer period such as dietary patterns or habits. Systems and structures are less visible underneath these together with the more psychological part of the iceberg.

Each level of thought has value and offers solutions to problems. However, it is conceivable to interpret these many and ever-deeper levels of thought, at the bottom of the iceberg, as a sign of the growing consciousness and comprehension of socio-technical systems. Creating

socio-technical systems that produce desired outcomes and prevent or remove undesirable events, for example many emissions due to meat production and consumption, is needed to change to more sustainable systems. To improve socio-technical systems and achieve desirable and long-lasting results, mental model regeneration, structural redesign, and system reframing are necessary improvements (Meadows., 2008; Blokland & Reniers, 2020). Smaller subsystems, create the bigger overarching system, and it is therefore important to prevent unwanted events and behaviors in the smaller systems to safeguard the performance of the bigger system, for example having more plant-based diets. Challenging, because mental models and system structures are for the most part invisible. Only trends and patterns are shown by individuals that together can make events: what happens in the bigger system due to individual decisions that are created in combination with social relationships and non-social information in the social technical system.

From a multilevel perspective, there are three levels where influences on system innovations take place—niche (micro level), regime (meso level), and landscape (macro-level) (Hoes et al., 2019). The main food systems are represented at the regime level, which has well-established routines, institutions, players, technology, and infrastructure. Sustainable new alternatives frequently do not fit well within the current status quo and may find it difficult to compete with them and gain acceptance (Hoes et al., 2019). The current landscape consists of a meat and dairy system in the Netherlands. Plant-based alternatives; ancillary plant-based diets are niches that can lead to a change in the current landscape. Bidirectional analysis was performed for plant-based milk by Mylan et al. in 2019. Where the niche and the regime both adapt to the new innovative product that is mainly consumed in a niche and can become part of the regime through adaptation methods or windows of change. Consumers and young adults play a large role in how a niche can transform to become part of the regime or even transition towards a new one.

Social technical system theory is used for intervention and organizational development, often focusing on new technologies and technical advancements within an organization. System thinking is popular in the improvement of engineering systems and organizational development (Monat and Gannon., 2015). It becomes clear that the technological focus can miss the values and motivations of actors therefore, then, young actors too, in these systems, even though these cannot be ignored.

2.2 Values and motives

The actors that build systems are inherently acting from values and motives that are at the fundamental bottom layer of the iceberg in figure 1 (Blokland and Reniers., 2020). Geurts et al. (2017) made an overview of what aspects influence food choices and how diets are shaped in the Netherlands. Endogenous effects on behavior come from within an individual, while exogenous effects on behavior are from incentives outside an individual. It is often a combination of the two that defines the outcome of a behavior or food choice. To concentrate on individual factors, values and motivations are fundamental components of the iceberg, as well as individual elements in food decisions.

De Boer et al. (2007) found that people have promotion and prevention motives towards decisions on what they eat. Although the relationship between values and behavior for this has not yet been thoroughly studied, the mediation function of these values-based incentives is intriguing from a sustainable perspective.

Prevention orientation shows in wanting control, avoiding risk, having a good conscience, and being inclined to reflection. Prevention orientation comes from the ten basic human values distinguished by Schwarz (1992). Not all ten values are important for this research, only seven are found to motivate choices on meat consumption by individuals.

Conformity, security, and tradition are values that induce more prevention motives, while hedonism, power and achievement are values that induce promotion-oriented motives. The prevention motives are more often seen for a reduction in meat intake, eating organic meat or free-range meat. Higher education, universalistic values and living in an urban area are correlated with a lower meat intake as well (De boer et al., 2007). Universalism is seen as appreciation, tolerance, understanding and protection for the welfare of people and nature (Schwarz., 2012).

What is consumed is greatly influenced by habits. Therefore, often behavior change is needed for adapted eating behavior (Michie et al., 2014; Geurts et al., 2017; van den Berg et al., 2022). Promotional and preventive values vary from person to person.

Moreover, lifestyle and routines define what is eaten, which stems from individual factors, next to motivation and the physical environment.

2.3 Current perceptions in the Netherlands and previous research on young adults

Protein rich foods are considered healthy, and meat is the current main source for it, given that meat is at the macro-level in the current multilevel perspective. Meat is perceived as healthy by most of the Dutch population, but the impact that meat has on the globe is not valued enough in that perception. However, flexitarian diets are on the rise, due to globalization effects, new foods were brought to the market, which induced a decrease in meat consumption in the Dutch population (Geurts et al., 2017). Young adults that were previously unfamiliar with the term "plant-based" in Spain, Belgium, the Netherlands, and Denmark view plant-based diets as more enticing than vegetarian or vegan diets (Faber et al., 2020). For flexitarians, the definitions differ per country. For example, in the Netherlands, anyone who goes one day a week without any meat can be called a "flexitarian," while another country would indicate that a flexitarian only eats meat on special occasions or at social gatherings.

To create a more healthy and environmentally responsible eating pattern, research on young adults' preferences for eating plant-based foods with a base of legumes, whole grains, nuts, fruits, and vegetables is encouraged (van den Berg et al., 2022; Faber et al., 2020).

Young adults go through the most life transitions, compared to adults and children. These transitions are windows of change, often habits, including eating habits, are changed by it.

Transitions include switching jobs, moving, and switching functional or relationship status (van den Bergen et al. in 2022).

Price plays an important role when it comes to the consumption of fruit and vegetables, especially for lower-educated young adults and young-adults with middle-income parents. Subsidies are opted for to make young adults with low socioeconomic status eat more fruit and vegetables, as their affordability and consumption would increase (Powel et al., 2009).

Women and students with a low body fat percentage have a lower chance of contributing to greenhouse gas emissions that are related to their diets (Telleria-Aramburu et al., 2022).

Nutritionally superior diets frequently include meat, which has higher greenhouse gas emissions. Nutrition and greenhouse gas emissions from student diets overall are moderate.

To reduce greenhouse gas emissions, a reduction in animal-based foods in student diets and a more Mediterranean diet are recommended (Telleria-Aramburu et al., 2022).

2.4 Food environments and non-social information

The environment has a significant impact on how people experience food and how their diets are formed (Rozin., 2005). In modern times, food is more accessible, calorie dense, and a bigger variety is produced, and people tend to use less energy to obtain food than historically (Rozin., 2005). The current food environments might result in obesity and unsustainable habits. Today's people are not able to understand the long-term risks of their food intake in terms of environmental consequences due to, among other factors, urbanization (Rozin., 2005). An example of a detrimental food environment is a "food desert", which offers calorie-dense unhealthy items in urban regions in absence of fresh products like fruits and vegetables (Caspi et al., 2012).

To understand food environments better, different dimensions are set out by Caspi et al. (2012) known as the 5A's: accessibility, acceptability, affordability, availability, and accommodation. In short, accessibility is the geographic location and or travel time and distance that is needed to get to food produce. Acceptability is the attitude of consumers towards food environments and whether the supply meets their personal standards.

Affordability is the perceived value of a product in relation to its cost. Availability refers to how many places there are, what kind of places to buy food and whether it is healthy or not. Accommodation means how well local food sources accept and adjust to local populations' requirements (Caspi et al., in 2012). When it comes to making nutritional decisions, costs and pricing are reliable sources of non-social information. Policies, advertisements, and what is made available to the public next to the cost of food items are all examples of non-social information that can be found in food environments (Glanz et al., 2005).

2.5 Social information

In previous research, it was discovered that those who are motivated by environmental reasons to reduce their meat intake would not directly act upon it, due to social sanctions, the disappointment of others, or not enough participation in social occasions (Mylan, 2018).

This strongly indicates that non-social information, obtained from food environments, is important, but the role that social influence has on dietary choice cannot be underestimated.

Researchers have examined the role of social relations on dietary choice through modeling experiments, and that resulted in, that forms of non-social information are expected to be less influential than social information (Cruwys et al., 2015; Higgs., 2015). That non-social information plays a role in dietary choices and affects values and motives is undeniable, but how this information is perceived and considered differs in social context and how a person defines themselves to a certain extent (Higgs., 2015). Consuming less meat can partly define social identity and acceptance by certain social groups (Mylan., 2018). Membership in social groups contributes to the development of self-esteem and is therefore important (Hogg et al., 2004).

Social identity comes from being with more than one other person in a social group. Personal identity is how a person differs from a group and are the quirkiest features of a person (Hogg et al., 2004). Identity is related to what is consumed, which makes it interesting for this research. In short, in-group norms and behavior, are part of social identity, and therefore, a group-member can behave like the group while being without the group. People become depersonalized when they are seen as being part of a category or group only and not as their personal selves by other people. Self-stereotyping happens too, where one sees themselves as belonging to a category or group. Comparison and status in groups and among groups lead to distinctive behaviors within a group (Hogg et al., 2004).

In 2020, Rosenfeld et al. discovered an example of how individuals with various diets perceive one another. Vegetarians can be negatively viewed by omnivores, while flexitarians are viewed better by this group, and vice versa, flexitarians perceive omnivores better than vegetarians do. Vegetarians have stronger moral and ethical values, while flexitarians put their diets less central and care more for public opinions (Rosenfeld et al., 2020; Sijtsema et al., 2021)

Next to social identity, social information includes social norms, social modeling, and social support that influence people's eating behaviors. The primary sources of this knowledge are friends, family, and peers (Higgs, 2015).

Moreover, people who have a lot of empathy, but low self-esteem are even more tempted to follow social norms. Affiliation motives can occur to avoid social-disapproval and to get a sense of belonging. The norms of a group are followed when the identity of a person is close to the group norms (Higgs, 2015).

When eating with strangers, the "modeling effect," where people imitate each other in how much and what they eat, may be more pronounced if the stranger is viewed as someone who would be desirable to form a group with. Therefore, this person's behavior is imitated (Cruwys et al., 2015; Higgs, 2015). Self-efficacy is a result of behavior that is in line with others who practice a habit that fits your identity, such as eating with others who practice healthy eating. It has been discovered that rewarding brain activity from conformity is the most important reason why people conform to those around them (Higgs, 2015).

Even though there are some disparities in weight, self-esteem, it is indicated that not many factors, such as age, gender, or background, can prevent people from utilizing one another as models for what and how much they eat. In contrast, the "thin" ideal can have a greater

impact on women than on males, and people are less likely to emulate those who are overly thin or obese (Cruwys et al. in 2015). The previous research provided evidence for social identity construction and perception as well as the substantial influence of social information on eating habits.

The conceptual diagram that follows in figure 2 is created using the theoretical concepts that were previously developed.

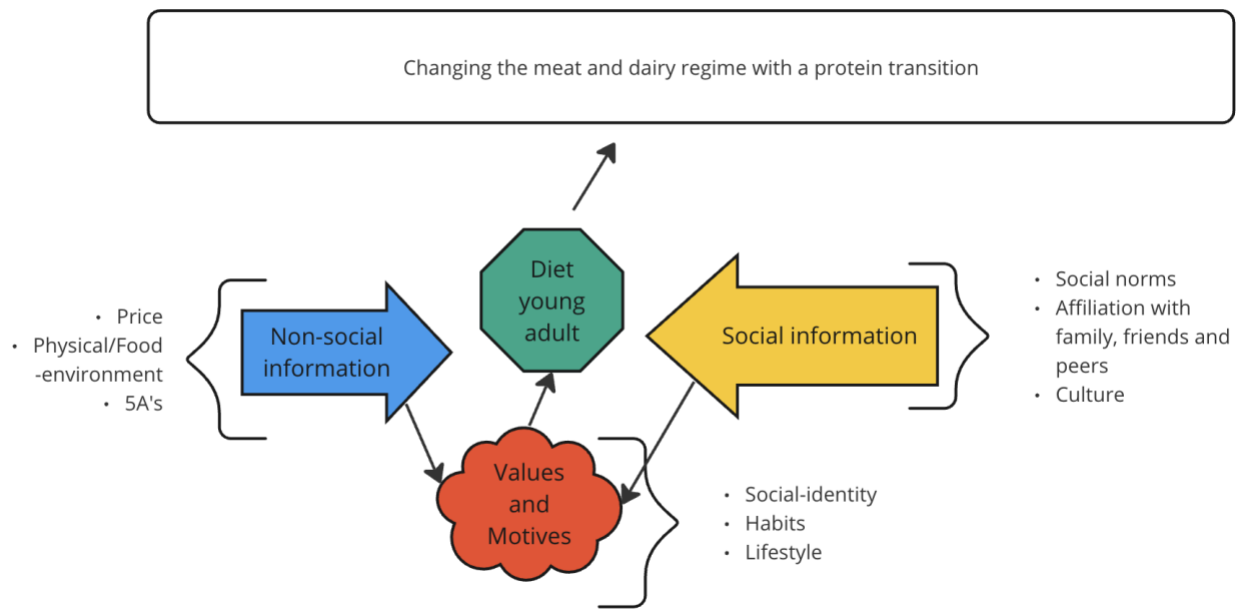


Figure 2 conceptual diagram combining the previously elaborate theoretical streams towards the young adults' diet and the transition towards plant protein in the wider system. It is hypothesized that dietary outcomes among young people are influenced by their internal values and motives and external information coming from social and non-social sources.

Since social information is more significant than non-social information (van den Berg at al., 2022; Cruwys et al., 2015), its arrow is larger. Young adults' unique dietary patterns shape how they behave around food, which in turn influences how organizations behave and, ultimately, how society behaves. Understanding young adults' diets can lead to points of intervention or strategies that facilitate more sustainable diets. Understanding how their values and motives are created from social and non-social information around the protein transition is a valuable addition to the scarce existing knowledge on these topics (van den Berg at al., 2022; De Boer et al., 2007).

2. Methodology

3.1 Research design

For this study, a qualitative research methodology is conducted. Interviews are conducted to find out the role of social and non-social information in young adults' current diets and how their dietary choices relate to the protein transition. These interviews are employed with a mixture of open-ended and closed-ended questions to develop an understanding from the interviewee's perspective (Bryson et al., 2021), to find the answers to the sub-questions a to e.

How current diets are shaped for subquestion a, what motivates them to have their current diet and what they value for subquestion b, to grasp what non-social information students use or are exposed to for sub-question c, closed network questions and social information for subquestion d and dietary change and improvements for subquestion e. They were not guided too much in their answers, in this manner, their regular interactions with food became evident.

For sub question c, more closed questions on social information provided a more accurate picture of the social context in which their food habits are formed. In this way, both a social network with closed questions and the young adult's food environment with more open questions was a good approach.

All questions, and especially sub-question e, require a combination of deductive and inductive research methods. The answers to the research questions are partly deduced from literature, and the answers that were given in the interviews, that were coded and analyzed further were the inductive part of this research approach. During the interviews, probing was a technique that was used to get a better understanding and get more elaborate answers from interviewees, next to the use of a semi-structured interview guide (Bryson et al., 2021).

3.2 Sample

The sample consists of young adults between the ages of 18-26. The research was based in Utrecht to stay within the time frame of this research and has a cohesive group of participants. The sample is therefore a purposive sample, staying within a region and age range to fit this research (Bryman et al., 2018). Snowball sampling was used after contacting young adults who were willing to participate. They forwarded the contact information of other young adults that would have time for an interview, considering an interview would take a small amount of their time as most students/young adults have busy schedules. An age range of 18 years old to 26 years old is chosen, as no parental consent is needed, and this is the typical age range of young adults. A consent form was used to ensure the anonymity and reliability of the research (Appendix 2). Due to an execution time of approximately 5 months, the number of interviews is around 25, as mainly the time needed after conducting the interviews for shaping theory was anticipated. More was less feasible in this time frame, even though more interviews could have improved the saturation of the data.

3.3 Data collection

Figure 2's conceptual diagram served as a guide for the research interview questions, what, according to past research and iteratively improved by young adults, influences young adults' diets.

3.3.1 Interview

The semi- guided interview guide in Appendix 1 focuses on questions that make the interviewee's story central. The focus is on habits, social-identity, history, lifestyle, and perception to change in their diets to find motives, personal identity, the role of the

environment in their diet, to ultimately to find the role of social and non-social information in their diets. Follow-up questions emerged regarding this research topic and were considered when setting up the guide of the interview, that was improved iteratively. The table in Appendix 1 structures the questions based on how they answer the research questions. The questions were made considering the theoretical concepts. This was based on the conceptual framework in figure 2 to elicit how social, non-social and values and motives affected dietary choice.

3.4 Data analysis

The whole analysis shortly per interviewee consisted of that the interview was proposed to the young adult, then this was planned, executed, transcribed, and coded on with NVivo. The first step, in interviewing, was asking about the diet of the interviewee without pre-selecting on their diets. Then to understand the 4 dimensions determining diet lifestyle and habits, motives and values, non-social information, and social information towards strategies for a protein transition.

The conceptual diagram in figure 2 and previous research were included in a coding scheme that was set-up at the beginning of the coding process in Appendix 2. An initial set of codes, in Appendix 2, allowed to ascertain what factors were important in determining diets based on the answers and the conceptual framework in figure 2. After this, concepts that were mentioned more than once, emphasized, or notable to the interviewer were coded on, known as open coding. The codes could be grouped, analyzed, and interpreted. Findings and conclusions are drawn afterwards in combination with literature and axial coding patterns. The information that is gathered is the young adults' food experience and shows the status of their diets, their perceptions towards changing them, or how they used information and how their diets already changed. Their values considering the environment and animal welfare and how this correlates with the protein transition. Analyzing the codes and forming a theory inductively with deductive knowledge from literature created the answers to the main question and sub-questions.

3.5 Validity, reliability, and ethics

The research technique can be easily duplicated. Partly open-coding and putting the interviewee's perspective at the center can ensure unbiased results from the interviewer's perspective. Using cited and reliable literature to shape findings and draw conclusions makes the research more reliable, along with a semi-structured interview that was iteratively improved and well thought out beforehand. This way, more trustworthy replies are provided, and the appropriate data is acquired for this research, following the theory from Bryson et al. in 2021 on how to obtain reliable results. Thereby, qualitative techniques and examining the underlying causes of unsustainability in this segment lead to a larger choice of remedies for the larger food production and consumption system. Data collection was intended to be completed in two to three weeks, because it provided enough time for the analyses and literature review afterwards to create holistic answers to the research questions.

The interviewees were asked to participate on time and scheduling of the interviews was done in collaboration to fit their schedules. To remain ethical and provide trust the quotes used are anonymous, and consent was always given beforehand after the consent form was sent and time was given to read and agree to having the interview.

4. Results

4.1 Current diets of young adults

The average age of this group of young adults turned out to be 24 years old. The number of participants was 25, 13 females and 12 males were interviewed.

Figure 3 shows the diets of the interviewees, see the figure below. This figure is based on self-identification of the interviewees and validated by asking how much meat was eaten per week. Those who ate meat less than or equal to 3 times per week are counted as flexitarians. When this was more, they were counted as omnivore, when there is no meat in their diet, they are vegetarians, and when little or no animal products are eaten it is a vegan. One interviewee ate only fish and next to a vegetarian diet she is counted as a pescatarian. The definition of "flexitarian" distilled from this study ranged from eating meat three times a week to once a month among the flexitarians—12 out of 25 of the people interviewed. 7 out of the 25 interviewees did not eat any meat at all; 2 out of the 25 mostly did not eat any animal products and labeled their diet as vegan. The three omnivores interviewed were on a slimming diet or tried to watch their calorie intake.

The question on how much meat was eaten approximately per week made categorization possible.

“ I think I'm between a vegetarian and a flexitarian, to make it more difficult for you.”

“I don't really want to say I am a flexitarian, I don't want to brag that I care about the environment”

■ Vegan ■ Flexitarian ■ Vegetarian ■ Omnivore ■ Pescetarian

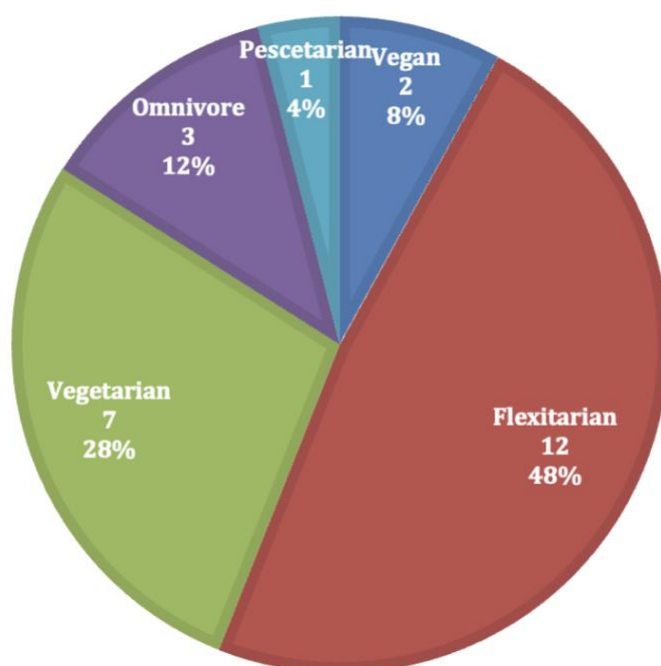


Figure 3 Current diets of interviewees in percentages and numbers by self-identification and validated by the number of meats (in grams) that was consumed per week. Meat consumed three times per week or less is counted as a flexitarian, more is an omnivore, no meat is a vegetarian, only fish a pescetarian, and no animal products is counted as a vegan.

According to literature, young adults prefer plant-based diet labels over vegetarian or vegan ones, even though adequate information on those diets is still missing (in Europe) despite the positive attitude towards them (Faber et al., 2020). Plant-based diets, as ranked in Faber’s survey, are more closely correlated with vegan diets, than flexitarian diets. Limitations and other insight from literature on how to define vegetarians is continued in the discussion section. How these current diets differ becomes clearer due to habits and lifestyle, motives and values, social information, and non-social information.

4.2 Habits and lifestyle

“Well, I think my food intake is also very much related to my lifestyle, and I like the patterns of this lifestyle and the routines.”

Most, 17, of the interviewed young adults mention to have breakfast, lunch, and dinner. Not all of them snack in between, and some have breakfast irregularly due to lifestyles that require more sleep in the morning. Meal preparation is described to eat healthy, but it is not something that interviewees do on a regular basis. Lunch is frequently prepared ahead of time but is sometimes forgotten. Leftovers from dinner the evening before are more commonly consumed for lunch. Breakfast and lunch are more constant in what they consist of than dinner, which has more variation.

Protein plays a big role in these young adults' diets; it is described as healthy and necessary to maintain their lifestyle. In the evening, meat often gets substituted by alternatives, to consume protein when meat is not part of their diet.

Most days of the week, they are eating together with friends, partners, or housemates.

"Now that I'm in student life, I drink a lot, so I have to compensate for it somewhere else."

"If you're with someone that has the same dietary habits, and you cook together, the things that you both like, I would say that is also really nice."

The interviewed vegans do tend to prefer cuisines that don't always include meat, like Asian or Indian dishes. Vegetarian interviewees mentioned these too, due to their abundance of flavor and plant-based ingredients.

Flexitarian young adults do not prefer a type of cuisine and tend to be more flexible in their food choices, both in restaurants and at home.

For young adults that must travel to go to work or university, they would buy food at the train station either to snack on or when a meal was forgotten to be prepared. When in a rush, more food on the go is bought.

4.2.2 The influence of a doctor or medical figure

More than half of the interviewees, 14 out of 25, did not have the influence of a doctor or medical figure when it came to their diets. A former vegetarian became flexitarian as her doctor advised her to incorporate meat back into her diet. Another vegetarian figured he could not donate blood with his current iron levels being too low, which does not stop him from being vegetarian, but he did need to take iron pills and watch his nutrient intake better. Dieticians are not considered to give good advice, while the gym culture is recommended by some of the young adults. Exceptions among the interviewees are two with an intolerance to lactose. One grew out of it later, while the other developed or discovered it later in life.

"I have gluten and lactose intolerance, which is a bit of a nightmare."

4.2.3 Deviations on holidays or vacations

"You can't really maintain the same diets you usually do when you're just at home and have access to all the things you usually eat."

Current diets are not maintained when not in a regular setting. The foods that are consumed when out of balance between study and life, are mostly less healthy. More fatty and sugary foods are consumed next to meat, and fewer home cooked meals are made, and eating in restaurants happens more often when on vacation. Eight students indicate that adventure and local experience play a bigger role than in more familiar places like side jobs, home, or the

university. Another eight young-adults point out eating more meat when on holiday or vacation. Diets are adapted to what is available and socially acceptable at the destination.

“Last summer I went to Portugal and stayed with a friend's grandparents, and then it would be too complicated for them to cook vegetarian, so I decided to eat meat, because I didn't want to be a hassle.”

The availability of vegan and vegetarian foods is perceived as being lower when going on vacation. Values that are important to young adults, namely the environment and animal welfare, are not less important to them, but the options seem to be fewer. This is either due to social settings or accessibility of plant-based options at the destination. Local foods are consumed and what is in the stores or restaurants that are visited.

However, when visiting family or staying longer at a vacation destination, current diets stay in place and consist more of fresh fruits, vegetables, and legumes than during shorter visits, unless it is a celebration like Christmas or another cultural fest.

“I try to, but sometimes it's hard because in other countries they don't. I try to have as many vegetarian options as they have there, and so I try to, but sometimes it's not possible.”

4.2.4 Seasonality

Fruits and vegetables that are out of season are avoided by two young adults, but this is not always conscious. Supermarkets adapt their available fruits and vegetables through the different seasons, for example, mandarins are in abundance when the winter is starting, and tropical fruits are not favored as they would have to be imported, which is less good for the environment. Awareness of what or which fruits and vegetables are seasonal can still be increased for 9 out of 25 students.

“Tangerines and oranges I usually buy more in the winter, that is the only time I can buy them really.”

“Not really, I'd like to eat more seasonal, but than I have no actual idea of what is seasonal couple more salads in summer and a couple more soups in winter I don't know”

Heavier foods are eaten in the winter, whereas in the summer, satiation comes sooner in combination with the warmth of the sun. For the young adults that do eat meat, either flexitarian or regular meat eaters, the dinners in the winter contain more meat, which is due to the colder weather. Habits are found in the sense that certain meals are more commonly eaten in the winter than in the summer, such as stews and soups, while salads, fruits, and more vegetable rich dishes are more commonly eaten in the summer.

4.2.5 Health

Overall, health plays a big role for young adults. Exercise, fruit, and vegetables are said to be healthy. Being vegetarian or vegan, is not indicated, as the reason for being healthy by at least three students, that type of diet has the environment and animal welfare more central than health. Five young adults discussed that, in combination with exercising, protein is important in plant-based eating. Nine out of the young adults mention protein as an important nutritional source. Three students do not think vegetarian diets are healthy and three others mentioned vegetarian diets to be healthier.

At the same time, not eating meat does go along with health reasons, as four young adults who decreased their meat intake did feel better and indicated getting an upset stomach or bowel when eating too much meat or dairy after switching to a plant-based diet. In the literature used, it was found that sustainable diets are health related and that reducing meat would prevent heart disease and obesity, in addition to improving the environment (Duchin, 2015; McCubbin et al., 2002; Kampa & Castanas, 2008). In addition, dietary choices are related to vanity. Five students indicated that health was related to how they appear.

“ I want my beach body to be ready and I do not eat enough protein. I know that, but I am just yeah.. I should eat more beans or... yeah nuts, but then nuts are also very expensive I do eat a lot of tofu, which is some protein.”

In terms of nutrition, eating meat is considered healthy by flexitarians and omnivores and their doctors. Blood donation cannot be done when iron levels are too low. Vegetarian young adults do need to watch their nutrition intake, considering that, protein, zinc, and vitamin B12.

If it were up to me, I would be a vegetarian, um, but I think that meat does play an important nutritional role in a person's diet, which is why I am a flexitarian.

“The only reason I eat meat sometimes is, yeah, for health reasons, otherwise, I wouldn't.”

Protein intake and eating plant-based foods are recognized as things to be careful with, by majority of young adults who do not eat meat. It has more emphasis when starting a plant-based diet, because more meat in a diet would provide animal protein that should be substituted to have enough energy for exercising or movement in general.

Healthy people are described as planners by one young adult, not compulsively making decisions on what they eat. Sickness should be prevented for all the interviewees, and health does play a role in all their diets, shown by the 25 times yes health does play a part. Very processed foods, a lot of sugar, and too much fat is perceived as unhealthy. Food environments that contain a lot of sugary and fatty foods are hard to avoid at times. These “food desserts” were mentioned in the literature by Capsi et al., (2012) and are found in and outside the Netherlands by five interviewed young adults.

Proteins are watched more carefully in active lifestyles and nutrients that were missing due to plant-based diets are sought to be complemented by either good substitutes or a more flexitarian diet.

4.3 Motivations and values

4.3.1 Environment

“From a sustainable point of view, that's where it starts, it's just so bad for the environment.”

Positive impacts from not eating meat are very important. Environmental problems such as too many emissions, the nitrogen problem, water use, and land use, are not providing food security and environmental stability for all people. The earth is too small for the current overall consumption of animal products in the Netherlands and beyond. Politicians and Greta Thunberg are examples of people who publicly shared this, and these were influential on more than two of the interviewees. Background related to sustainable study areas and education on production and the environmental consequences are not forgotten in the formation of environmental values by the interviewees.

Not only animal protein contributes to environmental pressure in their opinion, the transport of plantbased foods from faraway countries and continents can be reduced, as meat production is not the only emission source. Reconnecting with local products is considered, and it is apparent that, for example, avocados and tropical fruits are not local. Certified foods and organic meat or fish are made known as more environmentally conscious options and at a higher price.

“I think if we neglect the environment and focus on only animal welfare, then we would be suffering in the end as well.”

Awareness of the environmental impact of products should be more apparent. When impacts are clearer, it can be easier to contribute to a less meat-intensive diet for others too. Social environments where young adults would talk to other students that are eating more plantbased foods are mentioned as a big support to reduce meat intake to improve the environment. The environment, in comparison to animal welfare, is mentioned by 13 young adults as a stronger motivation for a protein transition than animal welfare when they would have to choose, 4 times animal welfare won and 8 times both were equally important.

4.3.2 Animal welfare

“I think animal welfare is more important to me, because I just think the animals deserve to be raised well, and then I would not have an issue eating meat.”

“Like I mentioned, I place a big emphasis on animal welfare, and I prefer the meat that I eat to at least have some form of certification that ensures animal well-being.”

The food chain in which stronger or carnivore developed animals eat smaller and less fast animals when talking about meat reduction is discussed with five interviewees. It is not bad for humans to eat animals, because humans are naturally omnivores. In history, humans hunted animals, and eating meat became part of our traditions. The volume of the human population and the fact that meat has become a fast food and is consumed daily are problems now. Meat was scarcer, and animals were killed for survival, this is not the case nowadays, and these are seen as reasons to eat less meat.

The increase of meat in one restricting vegetarian diet was a struggle, as animal welfare is important to her, but certified meat or meat from animals, whose lives are known to be less brutally ended, than mass-produced meat is eaten by this young adult as her iron levels become too low otherwise.

The ones that would place environmental reasons as more of a consideration when eating, did mention that animals would benefit from a better environment too. Vegetarian young adults consider going more vegan after the questions on animal welfare, and flexitarians like to decrease their meat consumption more.

The biggest concern is large-scale meat production, which is ethically wrong due to the bad treatment of animals and their terrible lives in small cages.

Vegans are more concerned with animal welfare than the vegetarian and flexitarian young adults in this study. They do not put themselves above the animals, as one of them explained, and they are convinced that killing animals is not necessary for human nutrition. It was explained that animals have emotions, even though smaller animals seem more likely to be eaten by humans, when cows and chickens are compared. Fish are small and have healthy properties, but the young adults that know the documentary SeaSpiracy are less likely to eat fish or are aware of what consequences it can have for the environment to eat fish, when caught unsustainably.

For flexitarians, the production of meat and the quality of the meat matter when meat is consumed in terms of animal welfare. One regular meat eater mentioned that it is not about the ethical side of killing an animal or not, but about the money that comes from selling meat that the humans in the meat industry are after.

“Of course, making sure that the world doesn't go to pieces is priority number one, and then it is also very, very good to not have animals being hurt and killed.”

“For meat, I try to choose an option that has some sort of certification, whether that's on bonus or not on bonus.”

4.3.3 Prevention or promotion motives and values

Nineteen times out of 25 young adults describe their diets with values that resonate with power and achievement, because they do not want to stick to tradition or only try to prevent harm but want to make a change.

There is conformity in adjusting to their close environments, namely parents, other family members, friends, or partners, and appreciating traditional foods. And there is conformity to routines and lifestyles, by having the same breakfast over and over, for example. Security is declared in dishes that were prepared by parents when young adults were younger, or whenever these dishes come back into their lives after moving out, as homemade dishes by themselves. For a minority of the sample, eating what their parents cook is seen as a tradition that can hold a young adult back from reducing their meat intake. More applicable, when they still live with their parents or have dinner together with them when visiting. Only two of the 25 young adults that were interviewed lived with their parents.

Hedonism or indulgence is not necessarily seen as good, as overconsumption contributes to the industrial meat economy, but appreciation of quality foods is. When more effort is made to prepare a meal or eat a dish that tastes good, enjoyment is perceived as better than when indulgence plays a larger role. One young adult did say that taste and pleasure are better compared to when food is not enjoyed, and in general punishment is not preferred over pleasure.

Diets that do not contribute to animal harm have the most preventative motives, according to de Boer et al. (2007). The vegan young adults interviewed found themselves to be influential, and they would describe their diet as an achievement and powerful in influencing others. Considering the effort made in current food environments to maintain a vegan diet, it is

“I think it's a big achievement if you cook something nice and no animal is harmed in the process of getting that meal.”

For flexitarians that were already eating less meat, this was described quite similarly in terms of the means of making a change by eating less meat, compared to other regular meat eaters in their close network. Vegetarians are the most preventative, chosen six times out of 25 in this sample when it comes to the values provided by Schwarz and De Boer et al., as they do not want to harm the environment when eating.

4.3.4 Universalism

The combination of appreciation, tolerance, understanding, and protection for the welfare of people and nature comes together as universalism (Schwarz, 2012). This was found in, 14, 56 percent of answers from young adults when talking about meat consumption and the environment. The ethical part of having a diet and protecting nature has high priority. The fact that there is a link between the environment and animal welfare is 14 times brought up when asked what would have a higher priority and why.

*“That was the main reason for me to stop eating meat, because it obviously has a very negative impact on the environment **and** animal welfare.”*

“I place a lot of emphasis on sustainability and animal welfare, and I think those are the factors that influence my diet the most.”

Despite having a higher level of education, which correlates with more universalistic values (Schwarz, 2012; De Boer et al., 2007), not all diets are found to be flexitarian, vegetarian, or vegan in current society due to other values that can have to do with non-social and social information, which are described more below.

4.4 Non-social information

4.4.1 Food environments, and more specifically the 5A's

Accessibility and affordability play the biggest roles in the grocery choices of young adults. Accessibility is too high when young adults are trying to eat healthier and are tempted by the numerous unhealthy food options in their environments. 25 of the interviewees are students and see price as an important factor in their food shopping, although they would like it to have a smaller role.

Due to limited time and convenience, the supermarket nearby is chosen most frequently, that counts for all 25 in this case study, for doing groceries. Either together with housemates, partners, or friends or alone, that differs.

Environmentally conscious products are bought when the price is lower or equal to a product that does not indicate it does not hurt the environment.

“ Only when the price difference is not that high or not that big, then I choose the better option, but when the difference is big, I choose the cheaper one. ”

“ I will definitely be consuming better animal products, but for now I'm on a student budget, so I just choose the less qualitative ones. ”

Accommodation and affordability of vegetarian options at supermarkets are perceived as low. The needs of a plant-based diet are underrepresented, one partly plant-based young adult who did a vegan challenge stated:

“I think it is absolutely ridiculous that the supermarket at the university has so few options, there is no vegan food available there, and so many things have meat in them.”

Despite the challenge, this young adult did not stay vegan. The fact that it was a challenge to be vegan for a month, similar to dry January or a number of push-ups to get in, describes the rarity of the diet in modern society.

The availability of special products to cook with in supermarkets is found to be low, which is a reason to shop at Asian, Turkish, or other less regular supermarkets. Farmers markets are visited when the opportunity is there and are considered local, but tropical fruits were seen at these markets too, which is contradictory. Six of the students visit a market more often for

their vegetables and find a good place to shop next to the supermarket. One does not find the time or make the effort to go there but would like to go there more often. Acceptability is high for seasonal products and low for plastic wrapped vegetables, if these can be bought without the plastic in another place. Integrity, food waste and the function of packaging is not brought to light.

The food environments throughout the Netherlands are noted to be different and adapted to demand. The offer seems basic; when young adults visit sports events or other gatherings with larger groups of people, the caterers have ham and cheese options in abundance compared to sandwiches with plantbased ingredients. Vegetarian food trucks and restaurants are noticed and described as an improvement compared to how the food environment used to be by more than two vegetarian young adults. The availability of fruits and vegetables increased but could still be better depending on where foods are purchased.

It was made known that some ingredients in foods that are perceived as less expensive than the price is set at, these have a low affordability, which is why plantbased options are perceived as too expensive. A young adult described soy, tofu, and other meat substitutes as less expensive to produce than meat, where a whole animal needs to be grown for a product. Vegetables and legumes have a higher affordability, and eating more plantbased foods can be better for a low budget. Discounts, bonuses, and cheaper supermarkets play a role in making decisions when going for groceries, due to tight budgets.

“Not including meat in your diet, also helps with keeping it more affordable.”

An interviewee described her experience in a canteen where hot dogs were sold for €1,50. The price was arguably unethically low. The option for a plantbased hot dog was not there either; would it have been able to have that same price or even lower? Plantbased protein does have a large role in this young adult's diet, but the food environment made the decision to eat meat that day.

The role of price is very important in making decisions on what is eaten. Affordability of plantbased food products is higher than meat products.

“Just making costs equal. I think it's especially at my age, yeah, it's always down to costs, really, unfortunately.”

4.4.2 Restaurants

On average, restaurants are visited monthly or on special occasions, but not that often, due to prices. Outliers are 3 times a week and every week. Nine young adults go more than once a month every three or two weeks. Six are going once a month and six are going less than once a month. The choice of what is eaten is more on the spontaneous side in numbers and made in the restaurant itself.

Plantbased options on a menu are not found in abundance unless the dinner is eaten in a vegetarian or vegan restaurant. Flexitarians who do not eat meat often would rather eat meat

in a restaurant, as the quality is thought to be higher, and it is observed to be more special that way.

“In a restaurant, I eat everything, really, but at home, I mostly eat vegan.”

The budget for going is not very high, and the fanciest restaurants are not within reach or are saved up for when the restaurant can provide a special (gastronomic) experience. Dishes in more regular restaurants could provide more plantbased foods or even meat substitutes when these are of quality mentioned by the one pescetarian in this study.

4.4.3 University, work canteen, or train station

As lunch is often forgotten, the availability of food at the university is necessary and is a good source of lunch or a snack for 11 students. The prices are too high for three students and the options are not plantbased enough is not mentioned by these too. Vegans or vegetarians prepare their meals more often at home from this sample and two do not buy from the university food environments.

“Especially at the university stores, it's really, really expensive, So that's why I only actually buy there once a week at the most, because otherwise it's way too expensive.”

There is division over whether these environments provide enough plantbased options. Train stations are loaded with food options too, and when in a rush or forgetting to prepare meals, this environment is used for pastries and snacks or entire meals. This counts for work canteens too.

4.4.4 Food Advertisement

Advertisements and commercials on television, websites, or the streets do not play a large role in the lives of this group of young adults. However, commercials do not go unnoticed; eight times out of 25 times fast-food brands were mentioned, but this would not be a reason for all eight to buy this type of food.

“ This week I was watching football, and then Burger King had a lot of ads, and they had a very catchy song.”

“I think so, let's see, I remember some Hello Fresh, Thuis Bezorgd, and that sort of thing; I'm not sure they had an influence, because I never really get takeout.”

Five, one fifth, of these young adults did not like commercials at all and would purposely not remember them, or simply not remember them. The ones that did remember, for example, a flying whopper from Burger King, enthusiastically added that there were also vegetarian whoppers now. There was more than one young adult who mentioned this: another one stated:

“Like the new veggie option at Burger King, yeah, like the new veggie burger at Burger King. or like some weird supreme bacon.”

Oatly commercials and other types of new vegan brands and products were remembered by vegetarian and vegan young adults. Promotions for eating less meat and using less dairy, because of animal harm or the environment, played a role in shaping a more plant-based diet, as these were mentioned and thought given to.

4.5 Social information

4.5.1 Social Identity

Acceptance and self-efficacy are found when young adults eat together with friends or partners on the same diet, or when meals are adapted to their dietary preferences. Not all, but 10 of the parents of young adults and other family members adapt to more plant-based diets or have them themselves. Friends, peers, or flat mates tend to talk about foods and what to eat or cook together, which gives them an affiliation. A comparison and modeling of what to eat is not unfamiliar either. For twenty young adults or 80 percent of communicated close friends were having the same diets.

“She was a straight edge vegetarian for two or three years, I think I had a lot of respect for that because I was making exceptions where she was adamantly eating vegetarian.”

“I’ll add my best friend, we also chat about food a lot, like recipes and stuff.”

When living together, the cooking is divided. There is a contrast in norms when eating with parents or family, as more meat is eaten when eating with family members than with friends or peers. The parents have a larger role in deciding what is eaten than the young adults that are living with them or are visiting. 15 times the parents have an omnivore or more regular meat-eating diet than the young adults.

“Yeah, so lunch and dinner are almost always meat, which is a lot different for me because I eat the most meat when I’m back at home with my parents.”

Most of the time, the one who cooks is also the one who decides what is eaten. A lot of the young adults also like to cook by themselves, for other people, or collaboratively.

4.5.2 Social Network

It was mentioned at least nine times that it is encouraging to eat less meat when friends, family, or peers are eating plant-based. Cooking together with roommates can save money and time, in addition to learning recipes or sharing ideas on what to cook.

“One of my roommates is a vegetarian; I'm eating less meat now, I would say, and that is affecting me as well, because if you live with a vegetarian, you just cook vegetarian.”

Close networks of young adults take a low meat or no meat diet into account. This differs per young-adult, the ones that more regularly ate meat became more plant-based, because of their flat mates or friends, while others already had a plant-based diet due to vegetarian or vegan parents. Those who were vegan or vegetarian frequently reported that their diets were considered when they ate with flat mates or friends who were regular meat eaters. Either, by providing a meat-free option for them or by exerting such a strong influence that those they ate with also ate vegan or vegetarian when dining with them.

“She doesn't eat meat every day, I think she's somewhere in the middle, and then another friend is the same, also a bit between a flexitarian and a meat eater.”

A vegan young adult who had a lot of regular meat eaters as friends mentioned that his friends were trying to reduce their meat intake. One young adult did not get positive feedback for being a flexitarian, it was difficult for her close network to keep up with, when she wanted to eat meat or not, and as a result, she is now vegetarian to prevent a discussion about it. Another young adult explained experiencing stress from his vegan and vegetarian housemates as he would not know how to cook those types of dishes. It is undeniably an extra effort to change food habits.

For the young adults that are living together, they mostly have the same diet as their partner. By compromising or already having the same diet to begin with.

“I guess my girlfriend is for sure the most important person that I share food habits with, because I live with her.”

Vegan interviewees have the least similar eaters in their network, but their close network does adapt to their preferences when eating together or, when the social situation on holidays or celebrations restrains them from following their diet, they adapt. Vegetarians experience that too.

4.5.3 Education

Professors and teachers played a role in dietary choices, as 24 out of 25 of the young adults in this study have a background in environmental science. The consequences of meat consumption and the methods of production were discussed in lectures and among peers. That portrays how significant it can be to be aware of and have knowledge about the consumption of meat to decrease the amount of meat that is eaten.

Even though it can be understood that a study that is related to decreasing environmental impact is chosen because it fits the motives and values a young adult had before choosing an environmental study. Almost a third, eight out of 25 young adults, mentioned studying more specifically on the sustainability of diets.

“ I think that studying changed me completely, my way of thinking, and my approach to my relationship with food.”

“ and also because in my course we talked a lot about environmental impact.”

4.5.4 Culture

Dutch culture is described as more plant-based in comparison with Muslim cultures and African and southern European countries. They are described as being more heavily invested in meat. To change these would not be easy, and campaigns were considered by young adults to change these slowly. Cultural habits and celebrations often go along with eating meat.

“Yeah, yeah, my parents have a heavily meat-based diet because that's our culture.”

4.5.5 Social media

Social media is arguably a social platform, as it is recommended by other people and comes from a world that is created by other people.

Young-adults tend to search for plantbased recipes online through YouTube and Instagram. It provides inspiration and cooking skills when they need them.

Influencers could get plant-based diets out of niches, which one of the young adults thought of as a good idea.

“Via YouTube or Instagram, I follow a few pages that are food related for inspiration.”

“No, well, yeah, on YouTube, I sometimes watch some chefs experiment with, um, vegetarian or vegan dishes.”

A young-adult mentioned being influenced to become vegan in her teenage years and finding herself in a bit of a vegan-cult that she grew out of, as it did not work for her body and she did not feel well enough to continue eating vegan, but that social media played a role in this for her. The interviewed vegans do use social media to connect with other vegans and inspire their food choices and lifestyle accordingly. Animal welfare is a concern for the young adults with a vegan diet that were interviewed. The given causes are, among others, media content that portrays the practices of mass meat production.

Another young adult stated that an influencer told people that they were missing parts of life if they did not eat meat. One of the young adults deleted Instagram, and 24 percent, six students of this sample does not follow any food related content. More than half of the sample, 56 percent, 14 of the young adults use social media as an inspiration for recipes and cooking skills.

4.5.6 Life transitions

Maintaining a plant-based diet is an actual transition for former regular meat-eaters, 23 young adults have been more regular meat-eaters during their lives, either before or after maintaining a more plant-based diet. Two former vegan young adults did not stay vegan, because it could not be combined with their lifestyles. Maintaining a diet that is entirely plant-based is nevertheless difficult.

“I was a vegetarian a few years ago, I tried that out for two to three years, and then switched over to flexitarian.”

“I was still in school and I was already vegetarian, and there are a lot of people who would always, you know, be a bit anti veggie and I'd be like, let me just be as valuable.”

When moving out of their parents' house, students choose their own preferred diets and make this work with flat mates or friends. The life transition of no longer living with parents created an opportunity for a decrease in meat consumption for most young adults. Anyhow, one young adult experienced the opposite, which is an interesting observation as his parents were vegetarians. The opportunity to eat more meat when moving out was taken, but later, this decreased again. Overall, with age, these young adults developed a more plant-based diet and encountered more plant-based young adults after moving out.

“When I went to university, I met a lot of people who were vegetarian or vegan, and that also showed me that it is really possible to eat vegetarian.”

“I think since starting my bachelor's I have become more flexitarian.”

Parents and friends in high school, before moving out, had a big role in the former diet of young adults when these changed after moving out. A vegetarian and a vegan do confirm a distaste for meat or a bit of disgust after restricting it, which is in line with previous literature on differences with meat-invested diets (Ruby, 2012; De Boer et al., 2007). The fact that a transition to more plant-based diets is cheaper is mentioned too, as budgets become smaller when adolescents become students. Barriers to becoming more plant-based are found in life transitions too, as food origin is researched more. Despite this, the opportunity in a life transition is bigger to reduce meat in this sample than the other way around.

“When you go fully vegan, you're also not allowed to eat certain kinds of chips, for example, because they contain some kind of protein powder that's also derived from animals.”

“You would want to get more vegan in the future, or yeah, I think, I want that, but I think I only want that when, like, the world is more used to it and when it's easier to do so.”

4.6 Strategies

4.6.1 Change intent around plantbased foods

Two young adults revealed it can be seen as uncool to eat more plantbased. Especially tofu sounds boring or not flavorful. Thereby it was indicated by more young adults that in fancy restaurants or at high dining occasions, it is less frequently a plantbased meal that is served. Plant-based diets are more affordable than meat. Plantbased could get a broader audience by being fancier and equally or more readily available than meat or fish.

“Like nothing that was remotely fancy was vegetarian.”

The way information on plant-based diets is provided and the social surroundings of young adults play a role in this too. The intent or stigma that a plant-based diet can have is seen as negative, but is changing. In contrast, more plant-based young adults did describe tofu as a good substitute as it has valuable nutritional properties for a more active plant-based lifestyle. Knowledge of plantbased meals, that are prepared with flavors and cooking techniques on how to make vegetables just as tasty and nutritionally rich, as their own dish, can be increased to make dishes without meat of a higher status. It does not always have to be difficult to eat more plantbased:

“You can always get a pizza, you know, or pasta that won't contain meat, maybe that's also why those are my favorites.”

Eating together with people that do eat meat very frequently and sharing knowledge on a plant-based diet is found to be persuasive and effective in close networks of vegetarians and vegans, which has the potential to reduce meat consumption for larger groups in society. However, Meadows in 2008 explains that changing intent is difficult and a deeper leverage point for system change.

4.6.2 Better plantbased options

The vegan young adults in this study did not find that plantbased food needed to resemble cheese or meat from animals. It can be another plant protein rich product, that is new and used in a new way as an addition to a meal. More plantbased unique products are thought of as a way of eating more plant-based.

“Sometimes you can get vegan burgers made of chickpeas and lentils, and so on. I think they appeal to me more as alternatives than purely processed alternatives.”

For example, when it comes to changing diets to become vegan, young adults do think about this, but as the options seem limited for a vegan diet and it is not mainstream. Meat substitutes can be served in restaurants to make them more available. At the same time, the quality and status of the meat substitutes can be improved.

When meat or cheese substitutes are bought, young adults are critical, the taste is not good enough, vegetables should be eaten if you want to stay away from meat and not processed foods.

*“If you want to keep plantbased cheese it should taste like cheese, also with the structure, because that's quite difficult to do. But right now, it's kind of ****.”*

“I want to try veganism at some point, but I truly believe that to do that you need to master fermentation. Otherwise, the stuff is not flavorful or tasty, so that might not be my thing.”

Thereby, Substitutes are too processed and do not taste the way meat would. The quality of products is important and depends on the dish that is made. The quality-to-price ratio is perceived as low.

There are very good recipes without any meat or meat substitute. If meat substitutes are used, the ingredients should be disclosed upfront, as substitutes are not necessarily animal product free. Substitutes made of milk substances and eggs can still contribute to mass dairy production, with possibly unethical practices. To achieve a shift towards more plant proteins, meat can be replaced by meat-imitating plantbased alternatives, whose production has a lower environmental impact than that of traditional meat production and requires less land and water (Coucke et al., 2022). More and better meat substitutes make consumers compare products, and that is an incentive to buy a product.

4.6.3 Nudging

The options for plantbased dinners can be increased or promoted better. This was not only found in literature:

“No, they don't; it should be the default, if you really want meat, you can choose, but it should be on a lower shelf; meat should be the exception.”

“The placement within stores, placing vegetarian options nearer to the front door, I mean nudging.”

The long-term effects of nudging have not been researched yet for plantbased alternatives, as found by Coucke et al., in 2022. Nudging is done to increase the health and wellbeing of people. It is found to be effective and does not necessarily take away the aspect of having a free choice (Vlaev et al., 2016). Flexitarian young adults did indicate that the options for plantbased or meat were already quite equal in supermarkets, as there were numerous shelves of plantbased alternatives to meat. The vegan young adults that participated in this study really knew what they would want to see changed in the current food environment.

For vegetarians and flexitarians, this was less specific on what should be changed, more on how they saw how the current food environments are established now and the differences in these in different parts of the Netherlands in comparison to Utrecht or Amsterdam. The meat aisle is bigger in places where there is more demand for it.

4.6.4 Demand decrease

The earlier discussed role of food environments can decrease customer and young-adult demand for meat. A decrease in meat demand can stimulate production in a more animal friendly and environmentally conscious way. Young adults in Utrecht with roots in other countries, would emphasize that the Netherlands is really a country where plantbased options are more represented than in other countries already. In other countries, there is a heavier meat culture, and to change that would be more drastic than it is in the Netherlands, according to the young adults who grew up outside the Netherlands.

The mass production of meat in the Netherlands is partly an export product, namely within Europe (Janiuk et al., 2015), which is why it is important that lowering the consumption of meat can cross borders.

“Customer demand is a great one, but yeah, that's something that just has to grow and has to be noticed, because if they don't notice that there is a huge demand for it, they'll never make it, even if someone forces them to.”

“Here, the demand from customers or guests is higher than it is in Den Bosch. So I guess that's the reason.”

This is a perfect example of why consumers play a large role in what is served, produced, and grown. Lowering meat consumption is therefore a good strategy to reduce the mass production of animals and the nitrogen and carbon footprint that is paired with that. Income and availability of products play a role in what is eaten, which is why governmental instruments on the price and provision of food are asked for. A decrease in demand as the bottom-up strategy and the public and private sectors can regulate top-down.

4.6.5 Subsidies, taxes, and price

Price or affordability plays a large role and can be used to reduce meat consumption. Subsidies for more sustainable plantbased alternatives and taxes on unsustainably produced meat can be implemented by the government or regulators. When meat substitutes are equally affordable as meat, that can increase a flexitarian diet for most people. Organic meat can be served in restaurants and have a higher price to make it more special. Young adults made fair comparisons in their answers on observations in the food environments they encountered: When the same price is offered for two options, of which one is more eco-conscious, that would be an easier decision, than when the price for an alternative is higher or qualitatively less.

“If the government is going to subsidize meat, why not just subsidize a plant-based diet, to make that much more affordable for people? I think that would make the change quicker.”

“There are still people that eat meat every day, I think it's good to get taxes, so that people realize that it's only for special days and not every day.”

7. Discussion

7.1 Scientific implications

The findings of this research show that the understanding food system transitions requires detailed understanding of the social, non-social factors that influence young people and how these interact with their internal motivations and values. The hypothesis underneath figure 2 can be accepted motives and values, non-social and social information do influence the dietary outcome of young adults.

That social information has a big yellow arrow in the conceptual framework in figure 2 is true, however for this sample, it was discovered that plant-based diets had a stronger ability to impact their surroundings than vice versa. When eating together with more plant-based diets that is the preferred option in this sample. As an addition to the existing literature, social media has an influence in shaping young-adults' diets as well as food advertisement promoting plantbased foods. Food advertisements that encourage plant-based diets can have an influence when their own motives and values are in line with the content.

Positively new recipes were found on social media, as was support for values and motives that were not found in direct social environments for vegans and vegetarians. Negatively, there is a risk of disinformation and the formation of stronger beliefs about one's own preferences (Tucker et al., 2018), which can make eating together with different diets more of a challenge but can have a positive outcome for meat reduction and the transition towards more plant-based diets, when recipes and cooking skills are transferred.

Food environments in general are found to have room for improvement including the meat alternatives that are offered. Accomodation and affordability of meat alternatives are found to be low. Plant-based diets are nevertheless more affordable for students as meats have a higher price than fruits and vegetables.

Restaurants that are not inherently plantbased can offer more plant-based options and supermarkets can make the balance towards plantbased options better.

Life transition can be windows of change towards plant-based diets as was found by van der Berg et al., 2022 in this sample it was found that young-adults can transition both ways plant-based. The number of young adults decreasing their meat intake has the upper hand, which is favorable for the protein transition.

7.2 Societal implications

The findings highlight interventions focused on sustainable diets in young people should focus on better plantbased options, nudging and demand for meat decrease. These are design change level leverage points, whereas price is more of a shallow leverage point and changing intent can be difficult, but can be aimed at (Meadows., 2008).

There is a contradiction between wanting plantbased foods to be the cheaper option and making them more available and having a better status, which is why a fancy meat substitute can arguably make plant-based eating fancier and of higher status next to more attractive and available vegetarian options with a lower price for mainstream consumption. It can be seen as complex to avoid animal products as they are integrated into so many dishes and food products. With other more ethical and lower footprint fish in the sea substitutes or alternatives, the complexity can be decreased (Coucke et al., 2022).

Social information is strong and adaptation from both more plant-based diets and omnivore diets is found. Plant-based diets in this sample do have a strong influence. Adaptation towards more meat-eating diets is found in cultural settings, with parents in restaurants and on festive occasions.

Moreover, religion and culture may have a significant impact on eating habits. For example, eating pork is prohibited for Muslims and Jews, beef is prohibited for Hindus, and certain branches of Buddhism forbid eating any meat at all. This is geographically different and depends on social and non-social information. A protein transition can cross borders and more rural parts of the Netherlands in the future to reduce emission from production and contribute to better distribution of food, that can be researched further how substitutes play a role globally.

7.3 Limitations

The sample requirements are there to be able to make a more justified results section on what these young adults experience regarding their food choices, it does make this study unable to generalize to other groups of society. Further research can contribute to a more global perspective by interviewing other groups in society or a larger sample group with a survey.

For current diets it is limiting that good definitions of vegetarians and flexitarians are missing. In this study a self-professed vegetarian young adult answered an amount of meat per week in grams that was higher than the answer of the average flexitarian that was interviewed. This illustrates the difficulty of diet labels, as these are not well defined in literature and were not defined beforehand in this research. Self-identification and the amount of meat eaten per week made it possible to have categorization as in the current diet section of the results. In further research these can be more defined, with more insight.

One of the interviewees has been a vegetarian his whole life, which means he has not eaten any meat since birth, but he does eat eggs and dairy products. He acknowledges that cutting out those products would be hard in combination with being healthy, as he works out. Besides that, price and availability play a role.

It is hard to say where the boundary is between being healthy and not consuming any animal products at all. Considering iron uptake from plantbased sources, vitamin B12, and calcium without animal products. That depends on so many factors, for example, age, body weight, height, etc. Other fields of study can provide more information on this.

The vegetarian and vegan interviewees in this study did provide perception into how their diets are shaped and how health plays a part of their diet to be able to have a sustainable diet as stated by the FAO these are healthy, have a low environmental impact, are affordable, and are culturally acceptable.

Food environments play a big role in what is eaten and are formed by demand, as described by the sample in this case study. This was found by Milfont & Markowitz in 2016 on sustainable consumption too, it can be further researched to determine how strongly the formation of food environments is shaped by demand and what the availability criteria are for supermarkets and other food environments.

8. Conclusion

25 young-adults were interviewed to contribute to more sustainable diets and accelerate the protein transition towards more plantbased protein. Current policy measures and previous research acknowledge the role of social and non-social information in the formation of dietary choices, but young adults are often not considered, whereas it is the future generation of grown-ups that is researched more. By finding the mental models of these adolescents regarding their diets and the environment, strategies to transform the dairy and meat regime can be found by answering the following main research question:

- 1. What is the role of social and non-social information in determining the dietary outcomes of young adults in Utrecht around the protein transition?*

The educational background of 96 percent of the young adults in this case study has a focus on sustainability, and the awareness of environmental degradation in the sample is high. Proteins are an important part of an active lifestyle, these are therefore actively substituted in plant-based diets and eating the right amount of nutrients can be a challenge when eating fully vegan or vegetarian diets.

More readily available and reasonably priced plantbased prepared foods that could replace meat can have an impact on consumption habits. Especially when food is forgotten in a rush or there is limited time to prepare meals beforehand. Restaurants are an environment where, on average, more meat is eaten, except when a young adult is inherently plant-based, or the restaurant is a plantbased oriented one.

Opportunities for more plant-based diets are increased by vegetarian or vegan only restaurants and the development of meat substitutes, which can be developed even further as demand increases and the environmental footprint decreases.

Food advertisements do not go unnoticed, but do not have a large role in current diets, as these are not seen as influential, unless they correlate with one's own motives, values, or

current diet preferences. Campaigns for eating less meat were mentioned as a reason to decrease the consumption of meat.

Social media is frequently used for recipes and inspiration by young adults. Regulations pertaining to media promotion, information, and education can be required. Influencing content makers can make a difference towards more plant-based diets by promoting this. Affiliation, modeling, habits, and close networks are more decisive factors in current diets, in comparison to motives and values related to the environment and animal welfare. Plant-based eating young adults have an influence on the diets of their close networks as they adapt to them, and vice versa depending on the occasion and self-identity in context with who is eaten.

The division between promotion and preventative motives is found to be low, as these young adults mostly strive for change, power, and achievement, but do find security and conformity when eating more plantbased food to not harm the environment or adapting to their social environment.

In general, it is expected that the successful blending of many strategies, including changing intent, nudging, an abundance of improved plantbased options, demand decrease, and price policies, will result in the most efficient and long-lasting changes towards more plant-based diets, making a transition to plant proteins more feasible in the future to decrease environmental pressure related to animal products.

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Appendix 1 Interview Guide

Interview

Questions are categorized per research question, indicated with a., b., c., d., and e.

- a. How are current diets of young adults in Utrecht shaped?
- b. What motivations and values do young adults in Utrecht have for their current diet?
- c. What is the role of non-social information in the diets of young adults in Utrecht?
- d. What is the role of social information in the diets of young adults in Utrecht?
- e. What are strategies to decrease meat consumption in the diets of young adults in Utrecht?

Introduction

Hi! Thank you so much for agreeing to an interview and signing the consent file as discussed. It will be around one hour or less and the recording will start now.

0) What is your study background?

0.1) What is your age?

- a. 1) What meals do you eat on a regular basis?
Can you briefly explain what this usually entails?

a 1.1) Do you maintain a certain diet?

Explain:

From regular meat eater, flexitarian, vegetarian, pescetarian or vegan

Which one would suit the most?

a. 1.2) How much meat do you eat per week?

b. 1.3) Does health play a role in your current diet?

b 1.4) Do you have a different diet in different seasons, (winter, summer, spring and autumn)?

b 1.5) Do you maintain your diet when on a holiday or vacation?

c. 2) Where do you purchase your food and why?

c. 2.1) Do you buy food in public places? (Probe: Think of work, the university, train station)

c. 2.2) Does price play a role when you buy food?

c&d) Do you make use of a meal plan or service?

d. 3) Can you list 10 or fewer important people in your network? (Pen and paper)

d. 3.1) Can you add their diets? (explain options from carnivore to vegan)

d. 4) How often do you eat together with these people?

d. 4.1) Who is the one that likes to be the cook?

d. 4.2) Who decides what is eaten or is that the same person?

c&d 5) Do you go to restaurants?

c&d 5.1) What kind of restaurants?

c&d 5.2) How often?

c&d 5.3) Do you know beforehand what you will eat or do you decide on it when you are there?

c&d 5.4) Do you get take out?

c&d) How often and what type of meals do you order?

c&b 6) Do you look at commercials that are food related?
Which ones?

c&b 6) Do you follow social media pages that are food related?

b. and d 7) How has your diet changed over time?

b. and d 7.1) What caused this?

b&d. 8) What or who influenced your current diet the most?

d. 9) Did someone outside your family or friend group have an influence on your diet, like a doctor or medical figure?

b. 10) Do you have ethical reasons for what you eat?

b. 10.1) Do you think of animal welfare?

b. 11) Do you think of the environment when you make choices on what you eat?

b. 11.1) If yes, which one is more important to you and why?

b. 11.2) If not, why not?

e. 12) Would there be room for change in your diet?

e. 12.1) If yes, what would you change?

e. 12.2) If not, why not?

Explain:

Conformity, security, and tradition are values that induce more prevention motives, while hedonism, power, and achievement are values that induce promotion-oriented motives.

b 13) Which one resonates more with you and why?

e 14) Do you think current food environments where you buy foods in public like restaurants, university and supermarkets provide enough plantbased options if you would want that?

e 14.1) How could that improve?

Interview table

#RQ	Question(s)	Explanation
	<p>What is your study background?</p> <p>What is your age?</p>	<p>Introduction questions on age and study background, to confirm the fit with the sample and to be able to inform a type of bias more concretely.</p>
1a&b	<p>What meals do you eat on a regular basis?</p> <p>Can you briefly explain what this usually entails?</p> <p>Do you maintain a certain diet?</p> <p>From carnivore, omnivore, flexitarian, vegetarian, pescetarian or vegan</p> <p>Which one would suit the most?</p> <p>How much meat do you eat per week?</p> <p>Does health play a role in your current diet?</p> <p>Do you have a different diet in different seasons, (winter, summer, spring, and autumn)?</p> <p>Do you maintain your diet when on a holiday or vacation?</p>	<p>The shape of current diets of young adults in Utrecht. To answer RQ 1a. Health plays a role next to environmental motives and other motives. Moreover, health is considered a sustainable motive in literature.</p> <p>For the first question, interviewees elaborated on what their meals usually entail, which contributes to the young adults' current diets and corresponding habits. Thereby, probing on what this usually entails when interviewees do not elaborate on this.</p> <p>The questions holidays are there as no meat and dairy options are not always available on a holiday. It makes interviewees more nuanced about their diet and shows how strict or flexible they are about their food choices, which is good information as opportunities and social and non-social information roles surfaced in these answers too.</p>
2c&d	<p>Where do you purchase your food and why?</p> <p>Do you buy food in other public places? (Probe: Think of work, the university, train station)</p> <p>Does price play a role when you buy food?</p>	<p>The role of non-social information</p> <p>These questions provided answers to research question c and a bit of d as going to restaurants is often</p>

	<p>Do you use a meal plan or service? (Explain that is a delivery service or a meal plan provided by a company like hello fresh)</p> <p>Do you go to restaurants?</p> <p>What kind of restaurants?</p> <p>How often?</p> <p>Do you know beforehand what you will eat, or do you decide on it when you are there?</p> <p>Do you get takeout?</p> <p>How often and what type of meals do you order?</p> <p>Do you see commercials that are food related? Which ones? (think of television, online or street advertisement)</p>	<p>in a social context, and interviewees elaborate on who they go with, which is why jumping back and forth between social and non-social information in the current interview structure gave more in depth answers, because after they explain their close network, this often becomes part of their answers in the next questions.</p>
3d	<p>Can you list 10 or fewer important people in your network?</p> <p>Can you add their diets? (Mention options from carnivore to vegan)</p> <p>How often do you eat together with these people?</p> <p>Who is the one that likes to be the cook?</p> <p>Who decides what is eaten or is that the same person?</p> <p>Do you follow social media pages that are food related or look at recipe books?</p>	<p>The role of social information</p> <p>To answer question d of this research.</p> <p>Diets can be quite the same or different, and the cooks' diet and the one that decides can have a big influence on what is eaten.</p>
4b	<p>Do you have ethical reasons for what you eat?</p> <p>Do you think of animal welfare?</p> <p>Do you think of the environment when you make choices on what you eat?</p> <p>Explain: Conformity, security, and tradition are values that induce more prevention motives, while hedonism, power and achievement are values that induce promotion-oriented motives.</p>	<p>Motives and values regarding interviewees and the environment.</p> <p>The value question tests Schwartz and de Boer's theory on how the values correspond with different types of diets.</p>

	Which one resonates more with you and why?	
5e	<p>Would there be room for change in your diet? If yes, what would you change? If not, why not?</p> <p>Do you think current food environments where you buy foods in public like restaurants, university and supermarkets provide enough plantbased options if you would want that?</p> <p>How could that improve?</p>	<p>Strategies for change to answer research question e</p> <p>To see their opportunities for change and drive if there are any.</p> <p>The last question gives an idea on improvements in non-social information and plantbased options and what is expected from young-adults</p>

Appendix 2 Codes

Initial codes

The following initial codes are created from the theoretical framework and concepts to shape theory partly deductively.

Behavior

- Capabilities
- Opportunities
- Motives

Prevention motives (security, tradition, conformity)

Promotion motives (hedonism, power, and achievement)

Values

- Animal welfare
- Environment
- Universalism

Current diet

Habits

Life style

Life transition

Health reasons

- Meat is perceived as healthy.
- Protein rich foods are perceived as healthy.

Food environments:

- Price (Subsidies, taxes, discounts)
- Availability (the adequacy of the supply of healthy food; number of places to buy produce).
- Access (location of the food supply and ease of getting to that location).
- Affordability (food prices and people's perceptions of worth relative to the cost).
- Accommodation (how well local food sources accept and adapt to residents' needs).
- Acceptability (depends on whether supply meets personal standards).
- Supermarkets
- Restaurants
- University (canteens or supermarkets).
- Work canteen
- Trainstation

Social Identity:

- Affiliation
- Acceptance
- Self-esteem
- Norms
- Comparison
- Status
- Modeling
- Support
- Culture

- Strategies
- Dietary change

Additional Codes

The following codes emerged from the open coding of interviews and test interviews.

The codes are mainly descriptive. Cooking division is a process code and In Vivo coding on actions or perspectives can be done within codes.

Food environment

- market

Current diet

- amount of meat per week
- Seasonal differences (in Summer, Spring, Autumn or Winter)
- Vacation or holiday diet
- Diet label

- Doctor or medical advice

Values→ Environment

- Local
- Seasonal
- Certificates

Social Network

- Family
- Friends
- Peers
- House mates
- Partner

Eating together

- Cooking division
- Cooking decision

Take out

- frequency of getting take out
- type of meals

Food advertisement

- Social media

Life transition

- dietary change

Appendix 3 Consent From

INFORMED CONSENT FORM for interviews

In this study we want to learn about Dietary Choice, how this is related to personal motives, values, and the role of social and non-social information towards the current protein transition. Participation in this interview is voluntary and you can quit the interview at any time without giving a reason and without penalty. Your answers to the questions will be used for my research results. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act). Please respond to the questions honestly and feel free to say or write anything you like.

Everything you say or write will be confidential, and anonymous. This means that we do not ask for your name, and no one will know which respondent said what.

I confirm that:

- I am satisfied with the received information about the research;
- I have no further questions about the research at this moment;
- I had the opportunity to think carefully about participating in the study.
- I will give an honest answer to the questions asked.

I agree that:

- the data to be collected will be obtained and stored for scientific purposes.
- the collected, completely anonymous, research data can be shared and re-used by scientists to answer other research questions.

I understand that:

- I have the right to see the research report afterwards.

Do you agree to participate? Yes No

Information sheet

Introduction

You are invited to take part in this study on 6-2-2023. The purpose of the study is to learn about dietary choice and the role of non-social and social information around the protein transition. The study is conducted by Laura van der Hoeven who is a student in the Msc programme Sustainable Business and Innovation at the Department of Sustainable Development, Utrecht University. The study is supervised by Brian Dermody.

Participation

Your participation in this interview is completely voluntary. You can quit at any time without providing any reason and without any penalty. Your contribution to the study is very valuable to us and we greatly appreciate your time taken to complete this interview. We estimate that it will take approximately 50 minutes to complete the interview. The questions will be read out to you by the interviewer. Some of the questions require little time to complete, while other questions might need more careful consideration. Please feel free to skip questions you do not feel comfortable answering. You can also ask the interviewer to clarify or explain questions you find unclear before providing an answer. Your answers will be noted by the interviewer in an answer template. The data you provide will be used for writing a Master thesis report and may be used for other scientific purposes such as a publication in a scientific journal or presentation at academic conferences. Only patterns in the data will be reported through these outlets. Your individual responses will not be presented or published.

Data protection

The interview is also audio taped for transcription purposes. The audio recordings will be available to the Master student and academic supervisors. We will process your data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

[Audio recordings will be deleted when data collection is finalized and all interviews have been transcribed.]

Everything you say in this interview will be confidential and completely anonymous. This means that we will not ask for your name, date of birth, or other personal information that can be traced to you by us or a third party]. We will process your data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act)]
