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BARRIERS TO AND MOTIVES BEHIND SUSTAINABLE DIET CHOICES IN GEN Z AND
MILLENNIALS

Bachelor Thesis

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I have written this Bachelor Thesis independently. Any ideas or data taken from other authors or other sources have been fully referenced.

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Introduction

“Nothing will benefit human health and increase chances for survival of life on Earth as much as the evolution to a vegetarian diet.”

- Albert Einstein

In today's world, environmental degradation and climate change constitute a shared discussion of green solutions with a common worry and contemplation on how the future will look like for the current and future generations. We all know that swapping bicycles for fuel combusting cars, opting for a train rather than airplanes, and switching off tap water in between laying toothpaste and brushing our teeth are examples of tiny solutions that could have a significant impact if done on a bigger scale. But apart from the tangible resources we could be reducing, reusing, and recycling, adapting what we eat can have a much more significant impact than most people think. In detail, IPCC (2007) claims that fossil fuel combustion is the leading cause of greenhouse gas (GHG) emissions; however, other sectors, such as food production processes, significantly contribute to climate change, as the research shows (IPCC, 2010; Stefen et al., 2015). To illustrate, only animal agriculture accounts for about a quarter of human-caused GHG emissions (IPCC, 2014; Smith, 2014; Sejian et al., 2015) on its own, while having more GHG emissions than all the transportation means combined (Koneswaran, & Nierenberg, 2008; IPCC, 2016).

In particular, in terms of GHG emissions for each food commodity type, a unique study based in the UK concluded that red meat production emits 17.95 times more GHG emissions than soybeans, 35.9 times more GHG emissions than oats, eight times more GHG emissions than olives, and 24 times more GHG emissions than tomatoes (Scarborough et al., 2014).

Perhaps, it is helpful to mention that even if the fossil fuel emissions were eliminated, global warming indicators would not remain at only 1.5° to 2°C by 2030, as Paris Agreement intends, only due to emissions from animal agriculture (Clark et al., 2020).

In addition to GHG emissions, animal agriculture also has other negative impacts on the different aspects of the environment: research shows that it accounts for 70% of agricultural and three fourth of arable land use (FAO, 2006; Garnett, 2013) while leading to problems such as loss of biodiversity, deforestation, land degradation, and soil erosion (FAO, 2006). Moreover, agriculturally induced deforestation adds an additional 6-17% of GHG emissions to animal agriculture's total share (Garnett, 2013). It is also the main driver of the deforestation in the

Amazon rainforest in Brazil since four-fifth of purposefully deforested areas are turned into pastures for cattle ranching and soya production, which is then used as cattle feed (Veiga, 2003; Nepstad et al., 2009; Garnett, 2013).

In order to meet the goals set in the Paris Agreement, which is maintaining 1.5° to 2°C by 2030, apart from changes in policies, consumer behavior also needs to be redirected towards a more sustainable one, which includes the diet (EAT-Lancet, 2019). In order to do that, incentives related to consumer diet behavior need to be introduced, which could be maintained on a political and economic levels. Examples of these strategies could include seeking international and national commitment towards healthy diets, reorienting agricultural priorities from producing high quantities of food to producing healthy food, halving food losses and waste (EAT-Lancet, 2019).

Because of the abovementioned environmental reasons, there has been an increasing shift towards plant-based alternative meat, dairy, and other animal products; for instance, in the UK, the consumption of plant-based alternatives rose by more than two times during the 2017-2019 period, compared to 2008-2011, while Millenials (age 26-41) were most likely to consume plant-based alternatives compared to other age groups (Scheelbeek et al., 2021). Overall, younger populations under the age of 35 were found to be more likely to have vegetarian or vegan diets (Ipsos, 2018; Scheelbeek et al., 2021). Beneo's (2022) global plant-based survey found that one in four consumers globally self-report to be flexitarian, a diet group that is a driving force behind the demand for plant-based foods. In the UK, various surveys have found that the public's willingness to reduce meat consumption has risen from one-third in 2014 (Fitzpatrick & Dibb, 2014) to two-thirds of the respondents in 2020 (Eating Better, 2020). In Australia, the supply of plant-based alternatives increased by more than four times in the four biggest Australian supermarket chains (Curtain & Grafenauer, 2019). Most of the demand for plant-based alternatives is found to be driven by people following flexitarian (Beneo, 2022), vegan and vegetarian diets (Scheelbeek et al., 2021).

The aim of this work is to find out the motivations behind and barriers to sustainable diet choices of Gen Z and millennial populations. As the diets that reduce meat consumption are considered more sustainable, the author included vegan, vegetarian, and flexitarian diets, along with the omnivorous (meat non-reducing) diet, to bring out the possible barriers and motives for comparing both meat reducing and non-reducing ones.

My research tasks are as follows:

- To explore the key definitions and to present the theoretical framework for the necessity behind sustainable diet choices;
- To give an overview of the previous empirical studies done on motivations behind and barriers to choosing sustainable diets;
- To conduct a survey and to collect data regarding motivations behind and barrier to choosing sustainable diet choices;
- Based on data analysis, to find out the motives behind and barriers to sustainable diet choices in Gen Z and Millennial generations.

Previous studies have demonstrated that consumers opt for sustainable diets for health, environmental and ethical (North et al., 2021; Izmirli & Phillips, 2011) motivations. Even though numerous studies have been implemented in the European Union (Graça, Calheiros, Oliveira, 2015), Australia (Umberger & Malek, 2021), and Eurasia (Izmirli & Phillips, 2011), the motives behind vegan and vegetarian diets have not been researched in Estonia until now. Moreover, only a few studies research vegan, vegetarian (North et al., 2021; Trethewey & Jackson, 2019), and flexitarian diets (Umberger & Malek, 2021; Kemper & White, 2021). In addition, there were no studies found that focused on finding the barriers to and motives behind the diets of both Gen Z and millennial age groups in the academic databases. Even though numerous studies have found the millennials to be perceptive to meat reducing diets (Scheelbeek et al., 2021), there is a lack of studies focusing on the growing adult population of Gen Z, which stands for the age category of ten to twenty-five years old (Dimock, 2019). As the millennials and Gen Z are the two youngest age groups to have the adult community, these age groups also represent the diet choices of the nearest future. Therefore, the author of this work attempts to fill the research gap of motives and barriers behind the sustainable diet choices of Gen Z and millennials.

When it comes to the structure of the theoretical research paper, the paper is divided between two chapters and four subchapters. Subchapter 1.1. will fixate on providing the key definitions related to the topic while unfolding the distinctions through comparisons between definitions in order to have clear theoretical reasoning for the proposed diets. Subchapter 1.2. will spotlight the overview of the main empirical studies, with the objective of Generalizing and differentiating the findings between those studies in order to narrow down a suitable empirical methodology and expectations for the future thesis work.

Chapter 2 will be centered on the empirical research of the study regarding the motives and the barriers, which showcases the constructed survey under a quantitative research strategy that explores the sustainable diets in millennial and Gen Z populations. The survey was created based on the empirical studies and the fifteen found barriers. Chapter 2.1. will present the sample and methodology, while Chapter 2.2. will present the analysis of the empirical research, all the while offering Generalizations about the motives behind and barriers to plant-based diets.

Keywords: vegan, vegetarian, flexitarian, sustainable diet, meat reduction, Gen Z, millennial, barriers, motives.

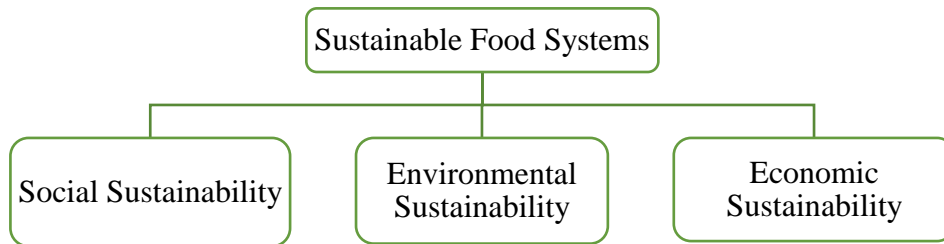
1. Theoretical framework for sustainable diet choice

1.1 Sustainable food choice definitions and theoretical reasoning

Even though the first known use of the word “sustainable” was in 1924 (Merriam Webster, 2021), the concept of sustainability was always linked to having enough resources to pass on to the next Generations. In economic terms, this interpretation shifts into the scarcity of resources; already in the eighteenth century, Thomas Malthus had philosophical yet pessimistic predictions regarding agricultural land not having enough capacity to sustain food crops for the growing populations (as cited in Malthus, 1966). However, the term we use today is associated with “sustainable development,” which was coined in the UN World Commission on Environment and Development (WCED) Brundtland Report in the eighties of the previous century as “development that meets the needs of the present without compromising the ability of future generationsto meet their own needs” (WCED, 1987, p.41). The term has, over time, changed to incorporate three pillars (Kuhlman & Farrington, 2010; Rasmussen & Brown, 2019), which are people, planet, and profit that originate from the triple bottom line concept coined by Elkington (1994) to promote corporate social responsibility in companies (Kuhlman & Farrington, 2010; Rasmussen, & Brown, 2019).

Curiously, the three pillars are persistent in the definition of sustainable food systems as well. Food and Agriculture Organization (FAO) of the United Nations (2018) describes food systems as the complete scope of actors involved in the intertwined processes in production, aggregation, processing, distribution, consumption, and the disposal of food products. FAO (2018) similarly mentions the sustainable food systems in terms of three pillars in the form of economic sustainability, social sustainability, and environmental sustainability. As with WCED’s

(1987) narrative, the definition includes the vision towards ensuring the safety of the future Generations, while carrying the specific economic, social, and environmental bases. FAO's



(2018) work provides a holistic approach including three-fold factors, all the while considering all the actors in the system: firms, farms, and the consumers. The work (FAO, 2018) also mentions that the actors can affect the system individually, and that sustainable food systems offer a bigger picture for all involved, including the policy makers. The brief evolution of the bases for Sustainable Food Systems (FAO, 2018) in relation to Sustainable Development (Kuhlman & Farrington, 2010) is illustrated in Figure 1.

Figure 1. Evolution of the Sustainable Food Systems

Source: Compiled by the author based on Kuhlman & Farrington (2010); Rasmussen, & Brown, (2019); and FAO (2018).

FAO (2017) distinguishes subtle differences in the food and diets. However, despite the increasing efforts towards sustainable food policy recommendations; unfortunately, there is no clear cut, universal definition for sustainable foods (Reisch, Eberle, & Lorek, 2013), nor for sustainable diets (SDC, 2019; FAO, 2017). Table 1 depicts the definitions of “sustainable food” while including the quotations given by non-profit organization Sustainable Development Commission (SDC) in 2005, and Sustain (2013), which is an alliance of organizations for the development of food systems. It should be emphasized; however, that the sustainability of the foods also depends on the fossil fuel combustion during the transportation, the packaging material, and the plastic used, and whether the human resources involved have received the minimum wage, and more (SDC, 2005).

Table 1.

Sustainable Food Definitions

Author	Year	Definition
Sustainable Development Commission (SDC)	2005	<p>“Sustainable Food is food and drink that:</p> <ul style="list-style-type: none"> • Is safe, healthy and nutritious, for consumers in shops, restaurants, schools, hospitals, etc. • Provides a viable livelihood for farmers, processors and retailers, whose employees enjoy a safe and hygienic working environment • Respects biophysical and environmental limits in its production and processing”
Sustain	2013	<p>“sustainable food – in other words, good food - should be produced, processed, bought, sold and eaten in ways that:</p> <ul style="list-style-type: none"> • Provide social benefits, such as safe and nutritious products, and improve people’s experiences of good quality food; • Contribute to thriving local economies that create good jobs and secure livelihoods; • Enhance the health and variety of both plants and animals (and the welfare of farmed and wild creatures), protect natural resources such as water and soil, and help to tackle climate change.” (p. 1)

Source: compiled by the author

The definition for sustainable food systems, as seen above, broadly involve all actors and processes (FAO, 2018), and while it carries importance for policy makers, shareholders, firms, and the consumers, it is Generally focused on the food (FAO, 2017).

However, diet includes the array of foods, chosen specifically by the individuals from those made available to them in the market. “The sum of diets creates the overall food demand that directs food systems. Diets are thus both a result and a driver of food systems” (FAO, 2017, p. 2). Therefore, it is safe to assume that “sustainable diets” are the conscious food choices made by the consumers which, collectively, has the power to affect the demand, while “sustainable foods” are the core of sustainable food systems, which hold a broader concept related to both supply and demand. Table 2 shows the definitions for “sustainable diet” given by SDC (2009), and FAO (2017).

Table 2.

Sustainable Diet Definitions

Name	Year	Definition
Sustainable Development Commission (SDC)	2009	“On the basis of impact, the highest priority for attaining a sustainable diet would be to reduce consumption of meat and dairy products and fatty and sugary foods” (p. 11, 38)
FAO	2017	“A sustainable diet is a diet that contributes to the good nutritional status and long term good health of the individual/community, and that contributes to, and is enabled by, sustainable food systems, thus contributing to long term food security and nutrition.” (p. 3)
EAT-Lancet Commission Report	2019	• “A diet that includes more plant-based foods and fewer animal source foods is healthy, sustainable, and good for both people and planet.”

Source: compiled by the author

As can be seen from the tables above, sustainable diets include more specificity regarding the types of foods, or the characteristics of the foods consumed, especially when it comes to SDC’s (2009) definition. FAO’s definition, in turn, links the concepts of “sustainable diet” and “sustainable food system” together, as the authors see them to be intertwined. When it comes to diet suggestions, consuming less meat and dairy, buying organic products, and opting for free range eggs was mentioned by the authors (SDC, 2009; FAO, 2017). However, it has been noted in both, that the most effective dietary change would include the limitation in the consumption of meat (SDC, 2009; FAO, 2017).

Thus, the author of this work considers it relevant to mention three sustainable diets that reduce the consumption of the animal products, which are flexitarian, vegetarian and vegan diets. Vegan diet excludes products coming from animal origin, which resonates with vegan philosophy for avoidance of needless exploitation of the animals for food, clothing, medicinal or other purposes (Vegan Society, n.d.). Vegetarianism, in the General term, includes dairy, honey, and egg products to the diet, but excludes the consumption of red meat, poultry, or fish (Leitzmann, 2014). Flexitarian diet, while being a subsection of the omnivorous diet, does not abstain from the animal products completely, but rather reduce it to a significant level (EAT Lancet, 2019).

Conversely, omnivorous diet includes animal products, as well as plants. There are, however, meat reducing diets under the omnivorous lifestyle, commonly referred to as flexitarians (EAT Lancet, 2019). Even though the term is quite broad, flexitarians are omnivores

who choose to eat less meat. Umberger and Malek (2021) gave subdivisions to the term as heavy (meat consumed 1-3 times a month), moderate (meat consumed twice a week), and light (meat consumed 4 times a week or more) meat reducers. Based on the environmental justifications provided above, it can be deduced that out of all omnivorous diets, heavily meat reducing flexitarian ones are most environmentally sustainable. Flexitarians, vegetarians, and vegans together make up a “plant-based diet”, as the biggest proportions in those diets include plants, legumes, notes, seeds, beans and more. Even though there are other plant-based meat reducing diets such as pescatarian, pollotarian, and others, for the sake of writing a narrowed down paper, the author will focus on flexitarian, vegan, and vegetarian groups.

Consequently, within the scope of this paper, the sustainable diets to be mentioned will include flexitarian, vegetarian, and vegan diets, as they either reduce, or abstain from meat. Moreover, “meat-reducing” diet will be referred to a flexitarian one, while “meat-abstaining” will be used to refer to vegan and vegetarian diets. Equally important to mention, the author will be using an integrated term of veg*n, which stands for vegan and vegetarian.

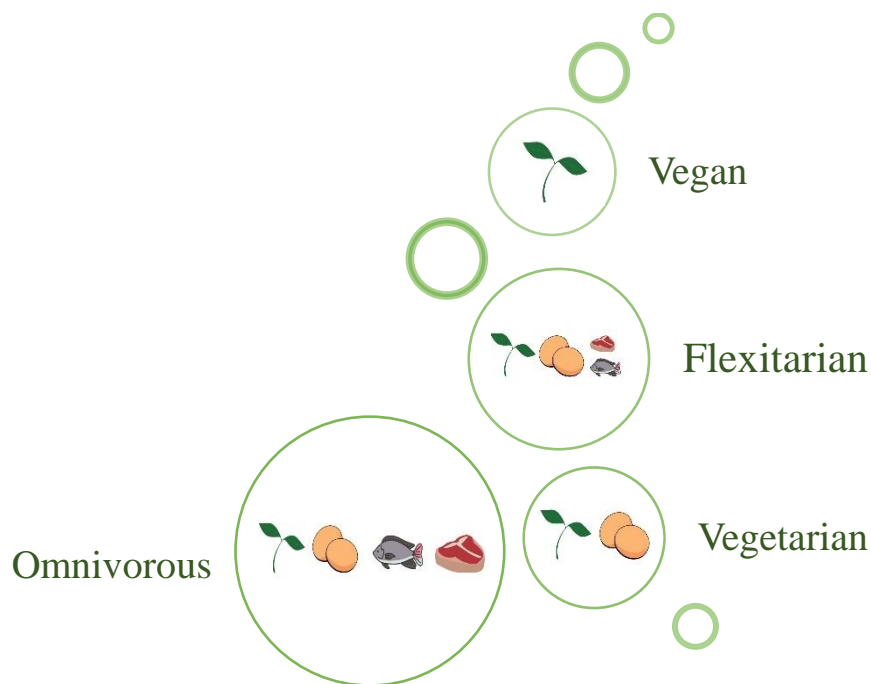


Figure 1. The descriptive depiction of chosen diets.

Source: compiled by the author

The author of this work chooses to analyze the younger generations aged 15-41. This is done for two reasons: globally, research has found that people under 35 years old were more prone

to adopting a vegetarian diet (Ipsos, 2018). Moreover, even if recent research found that 18-35 age group is the one most prone to adopt a flexitarian diet (Bayer, 2019), there still is a lack of research done for the ages 15 to 18. In addition, a German study that targeted vegan population specifically found that respondents aged 20-29 had the biggest share, compared to other age groups (Janssen et al., 2016). As the age groups mentioned for all three diet groups include 18-35, the author decided to choose Gen Z and millennial Generation. In 2022, Gen Z are 10-25 years old, whereas the millennials are 26-41 years old. As Kemper and White (2021) found that going to the university, and moving away from the household can impact the diet changes in the young adults, the author decided to break the Gen Z ages into two categories: 15-20 and 21-25. 15 was chosen as the starting age, as it encompassed the students who were still enrolled in high school. The respondents aged younger than 15 were not considered for the survey, as these young consumers are heavily influenced by the food decisions of their guardians or parents. Since this paper will not be only focusing on motives, but barriers as well, having a representative population in data would be needed. This includes not only plant-based diets, but omnivorous one, too. The paper will try to understand whether an age group that is already prone to adopting plant-based diets have barriers to adopting a meat-abstaining diet, and what the motives behind their existing diets are. This, will in turn shed more lights into patterns that would be meaningful in the research. To conclude, the author will focus on Gen Z aged 15-20 and 21-25, and millennials aged 26-41 in the scope of this study.

To summarize, it can be concluded that meat consumption is not sustainable for the human population. The avoidance of those products resulted in certain diets that aim to reduce the demand, and, thus, the production of the CO₂ intensive products, which include vegan, vegetarian, and flexitarian diets. Since sustainable foods and diets are not defined too easily, the author decided to opt for three meat reducing or abstaining diets such as vegan, vegetarian, and flexitarian. Researching these diets is essential, since due to the environmental reasons presented above, the shift towards more sustainable diets is inevitable if the global warming between 1.5° to 2°C needs to be maintained under the Paris Agreement.

1.2 Overview of empirical studies regarding sustainable diet choice

In order to find corresponding academic articles related to motivations behind diet choices, the author has mainly used Science Direct Database; in addition, the author has found academic journal Science.org extremely useful. The keywords “vegan”, “dietary motivation”,

“meat reduction” were used, which resulted in 355 results in Science Direct. Curiously enough, the period from 2015-2021 presented more than ten studies yearly, growing exponentially from 15 in 2015 to 78 in 2021. Furthermore, the author has also done research on Science Direct database for barriers to following vegan and vegetarian diets by searching with “motivation”, “barrier”, “meat”, and “plant-based” keywords, which resulted in more than 1000 results yearly during the period between 2017 and 2022. The difference between the number of papers written for the second keyword search might be due to the use of keyword “plant-based” which is much General term than “vegan”. Moreover, the increasing number of studies show that the topic has gained more interest in the recent years, as the meat reducing diets have started gaining more attention in the recent years.

Consequently, the studies discussed in this chapter will mainly be the ones written after 2012, either plainly due to higher availability after that year, or high relevance to the topic. The references included in the chosen academic works also shed the light for potential relevant studies. The papers to be discussed were chosen for either having relevance in discussing the motives behind the diets, or for analyzing the younger Generation’s perceptions when it comes to meat reduction diets, while offering useful insight in the methodology that can be used as a guide for this research. A more detailed illustration of the studies can be seen from Appendix A.

It can be noticed that the studies written were primarily researched in developed countries, which may suggest that this topic of meat reducing diets, their motives and barriers is getting more attention in more developed economies. As the country of this research is Estonia, the author deems the findings from the mentioned countries to be relevant in terms of the economies and standards of living. Even though some of these countries are located in other continents with habits, production and consumption patterns, and cultural backgrounds, Finland, Portugal, France and Norway could be considered relevant as they are closely located countries to Estonia in the EU.

Several studies have made research on the motives behind the dietary changes or preferences. Among them, some targeted population following vegan, vegetarian, and omnivore diets (North et al., 2021; Trethewey & Jackson, 2019), while others targeted meat reducing flexitarian population specifically (Umberger, & Malek, 2021; Kemper, & White, 2021). However, it is noteworthy that vegan and vegetarian populations in several studies were too

small to make distinct Generalizations. The research done on the flexitarian diet analyzed the willingness to reduce the meat intake (Umberger, & Malek, 2021; Kemper, & White, 2021).

While mentioning the research done by North et al. (2021), it is essential to note that the qualitative study was specifically focusing on motivations behind meat reducing diets and omnivorous diet. It gave the opportunity to see that all researched dietary groups communicate the same reason of “health and diet”, for example, as one of the main drivers for their dietary choice. Meanwhile, it also showcased that “animal welfare and rights” was the most frequent diet choice reasoning for vegans and vegetarians, alongside with “environmental issues” and “health and diet”, whereas for omnivore group the number one motivation for the diet choice was “taste and enjoyment”. (North et al. 2021) These main three results for opting vegan or vegetarian diets were found by Tretheway and Jackson (2019). It has long been noted by researchers that people who consume vegetarian and vegan diets Generally have less risks of cardiovascular disease, lower cholesterol levels, and less cancer risks (Craig, 2009). Even though vegans are more likely to get less calcium than omnivores, there are no differences in bone fracture risks for omnivores, vegetarians, and vegans who consume the daily necessary amount of calcium per day (Appleby, Allen, Roddam & Key, 2008; Craig, 2009). Moreover, the ethical reasons include choosing not to eat animal products to limit the suffering caused by the intensive farming methods. From Figure 2, we can take a look at the main reasons choosing vegan and vegetarian diets.

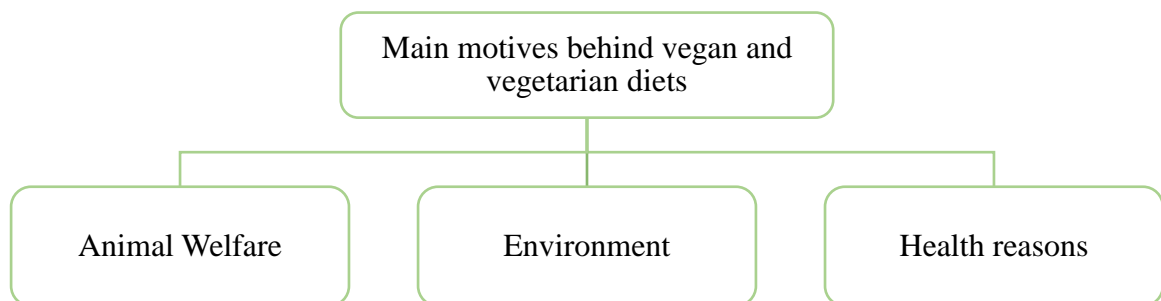


Figure 2. *Main motives for veg*n diets*

Source: North et al., (2021); Trethewey and Jackson (2019)

Contrary to a homogeneous and decisive motive trinity for veg*n diet, the main reasons for having a flexitarian diet included a spectrum of reasons, such as health, animal welfare, price, taste, environmental impact, (Umberger & Malek, 2021; Kemper & White, 2021), weight control, and religion (Umberger & Malek, 2021). That is why the author of this study finds it

reasonable to include flexitarian diets in the research in order to compare and contrast the findings. The visual representation of the motives behind flexitarian diets can also be witnessed in a word cloud of Figure 3.

Since we have seen that the motives behind flexitarians, who reduce their meat consumption but do not abstain from meat, include environmental, and animal welfare motives similar to veg*ns, it is intriguing to research the barriers that stop them from going veg*n. In this



Figure 3. Spectrum of motives behind a flexitarian diet

Source: compiled by the author based on Umberger and Malek (2021)

case, it is also essential to include other dietary groups, such as omnivores and veg*ns in order to compare how these barriers impact the diet choices.

A study done by Trethewey and Jackson (2019) and Graca (2015) among other aspects, had one variable in common: meat paradox. More specifically, the cognitive mechanisms offer mindsets that alleviate conflicting behavior of meat paradox, which appears when the consumer feels uncomfortable when thinking of the meat on their plate as linked to death of animals, or identifying themselves as caring for animals, but not aligning that value when choosing to eat meat (Bastian & Loughnan, 2017). It creates a cognitive bias, or the meat paradox, which was the exact variable researched in the study by Trethewey and Jackson (2019). In the study process, the statements used employed ones related to taste, dependence on meat, the minimization of suffering in animals, the avoidance of the animals' sentience, aversion from the

perception of how meat ends up as dinner, and contradicting statements directly related to the cognitive mechanisms such as “Farm animals do not suffer when being raised and killed for meat” (Trethewey & Jackson, 2019, p.4). In the conclusion of another study, Graça, Calheiros, and Oliveira (2015) grouped the factors into Hedonism, Affinity, Entitlement, and Dependence. It is interesting to note that the study done by Graça, Calheiros, and Oliveira (2015) also looked into the topics of meat paradox and cognitive mechanisms, and dependence on and taste of meat products within the scope of the research done. As Hedonism factor focused on the taste and enjoyment of meat and Affinity factor focused on the General liking towards meat products while having the statements related to meat paradox, the author decided it was a good idea to incorporate perceived dependence on animal products (Graça, Calheiros, & Oliveira, 2015) and entitlement value (Graça, Calheiros, & Oliveira, 2015) as barrier to reducing meat in addition to meat paradox and cognitive mechanisms (Trethewey & Jackson, 2019).

The barriers a Finnish study by Pohjolainen, Vinnari, and Jokinen (2015) found to be significant are meat enjoyment, eating routines, health conceptions, and difficulties in preparing vegetarian foods. The study also found that meat consumption frequency (or the diet choice) positively correlates with the barriers. The author of this paper deemed logical to select established eating routines, the barrier that stood for unwillingness to change the meals that the respondents were used to eating for years. Moreover, the study also found that low social justice values, traditional values, and wealth values were the three significant value domains that acted as barriers, apart from the socio-demographic ones. In detail, the social justice value domain covered topics related to equality between sexes, rights of sexual minorities, individual freedom, and environmental protection. It has been noted that consumers with higher social justice values have been more inclined to reducing meat, while other research found that having conservative views can predict lapses from veg*n diets to meat consumption (Hodson & Earle, 2018); therefore, the author deemed it reasonable to add low social justice values as another barrier. The author of this thesis decided not to use Traditional and Wealth values, but to consider them while targeting the platforms where the survey of this thesis to be shared. These and other barriers with the sources can be found in Table 3.

Table 3.

Barrier to animal products

	Barrier to reducing animal products	Sources
1	Meat paradox & cognitive mechanisms	Trethewey and Jackson (2019)
2	Established eating routines	Pohjolainen, Vinnari & Jokinen 2015
3	Taste and enjoyment of meat	Umberger, 2022; Graça, Calheiros, Oliveira, 2015; Pohjolainen, Vinnari & Jokinen 2015
4	Masculinity	Rothgerber, 2012
5	Anticipation of Social Stigma	Markowski & Roxburgh, 2019
6	Prices of veg*n products compared to animal products	Umberger & Malek, 2021; Kemper & White, 2021
7	Entitlement Value	Graça, Calheiros, Oliveira, 2015
8	Perceived dependence on animal products	Graça, Calheiros, Oliveira, 2015
9	Low Social Justice Values	Pohjolainen, Vinnari & Jokinen 2015
10	Lack of knowledge of plant-based food preparation	Varela, 2022; Pohjolainen, Vinnari & Jokinen 2015
11	Disfavor towards processed plant-based foods	Varela et al., 2022
12	Low Animal Welfare Values	Trethewey & Jackson, (2019) Umberger & Malek, 2021; Kemper & White, 2021
13	Low Environmental Welfare Values	Trethewey & Jackson, (2019) Umberger & Malek, 2021; Kemper & White, 2021
14	Low nutrition skills for veg*n diet	Gallimore, 2015
15	Not many veg*n options at restaurants	Gallimore, 2015

Source: all the sources listed in the table

Apart from being the paper that has been long cited in many works, Rothgerber (2012) study researched the relationship between masculinity and unwillingness to reduce meat. The paper compared the strategies used by female and male counterparts in the process of justifying the meat consumption. As women used indirect and apologetic strategies of dissociation and avoidance, men demonstrated direct and unapologetic strategies within the scope of measured masculinity. Moreover, the study depicted that women chose disassociation of meat from the animals and avoidance of the thoughts related where the meat comes from, whereas men were more likely to promote pro-meat attitudes, use hierarchical and religious justifications, and denial. Therefore, within the scope of this thesis, the author decided to add masculinity as one of the barriers to be researched.

Markowski and Roxburgh (2019) conducted a study related to the stigmatization of vegans by omnivores and vegetarians. In the researched group interviews, vegans were viewed

by omnivores and vegetarians as “attention-seeking”, “pretentious”, “looking down on others”, “annoying”, and “rude”. The study found three ways non-vegans dealt with the social stigma, which include social distancing, behavioral distancing, and anticipating what vegan stigma would be like if they experienced it themselves. The social distancing involved the physical distancing, while behavioral distancing involved vegetarians not eating meat but resuming the consumption of eggs, dairy, etc. This was done to avoid negative social repercussions, and not to be related to vegans. However, when prompted with a question “What difficulties would non-vegans face if they were to transition toward a vegan diet or lifestyle?”, both vegetarians and omnivores noted that those around them would change the attitude towards them, and vegetarians would have harder time regarding undesirable social interactions they already experience (Markowski & Roxburgh, 2019). Interestingly, Gallimore (2015) found similar results regarding the social stigma, but in their study, vegetarians were also among the group that needed to defend the choice of diet all the while being perceived as judgmental by the meat-eating acquaintances. As a result, the author of this paper deemed it valid to include anticipation of social stigma as one of the barriers.

In a study that researched the perception of plant-based foods, Varela et al., (2022) found that the countries researched by them (Norway and France) had varying answers where Norwegian respondents defined convenience and daily practicality of the food they consume, whereas the French respondents outlined taste, pleasure, and the level of processing the plant-based foods have. The participants agreed that the processed plant-based foods were regarded as not the healthiest option which could potentially act as a barrier for going more plant-based, or reducing the meat consumption. Another presented aspect was the General lack of culinary knowledge for preparing foods that did not contain meat or animal products. Therefore, adding disfavor towards processed plant-based foods as a barrier is considered meaningful by the author of this paper.

It is noteworthy to pinpoint that lack of knowledge related to plant-based food preparation has been mentioned by Varela et al. (2022), Pohjolainen, Vinnari, and Jokinen (2015), and Gallimore (2015) studies. Difficulties in the preparation process of vegetarian foods was considered to be meaningful in the analysis done by Pohjolainen, Vinnari, and Jokinen (2015), and the same notion was found by Varela et al. (2022), especially considering the value given to the delicious meals by the French respondents, and the importance to be skilled enough

to not compensate the taste when opting for meatless meals. Gallimore (2015) pointed out that limited vegetarian cooking skills as well as lacking resources for good recipes and lack of variety in the underdeveloped vegetarian cooking skills could be considered as a barrier as well.

Even if the taste and enjoyment is related to meat paradox and the statements related to meat paradox can incorporate the ones relating to taste, because it acted as one of the main motives for omnivore and flexitarian diets (Umberger & Malek, 2022; North et al., 2021), the author deemed to separate the two. Moreover, the studies conducted by Pohjolainen, Vinnari, and Jokinen (2015) and Graça, Calheiros, and Oliveira (2015) employed the taste and enjoyment variable as a barrier for meat reduction. In its logical sense, the author of this paper also deems it to have sense to add taste and enjoyment of meat as another barrier for meat reduction.

In addition, pricing of the foods had double-meaning when it came to its relationship to the consumption of the animal products. In essence, Umberger and Malek (2021) found that price was one of the main three reasons behind a flexitarian diet, which meant that the reduction of meat in one's diet affect the pockets of the consumers positively. However, in the statements given in the Kemper and White (2021) study, the respondents there suggested the pricing of the organic foods to be the barrier in transitioning towards plant-based diets. This prompted an interest in the author to use the pricing as another barrier, all the while keeping in mind to check whether pricing acts as a motive or a barrier during the analysis process of this paper.

Furthermore, the author of this paper deemed it reasonable to add low animal welfare values and low environmental welfare values as the next barrier to reducing meat. This was done by the logic that if high animal welfare and environmental values lead to motivating consumers to adopt vegetarian or vegan diets, as discovered in the studies done by Trethewey and Jackson (2019), Umberger and Malek (2021), and Kemper and White (2021), then the presence of the same values in the lower intensity or the absence thereof should come off as a barrier for going vegetarian or vegan.

Lastly, the study done by Gallimore (2015), suggested that low nutrition knowledge for vegan or vegetarian diets and unavailability of vegan or vegetarian options in the country of residence of the consumers were considered to be some of the barrier to becoming vegetarian. When it comes to the limited nutritional knowledge, it includes the knowledge regarding protein, iron, nutritional adequacy, athletics and physical activity, nutritional myths, and supplements in the vegan and vegetarian diets. Being a vegetarian guest, limited vegetarian options at

restaurants, food sensitivities and budgets were considered while mentioning the possible areas of issue when it comes to eating out as a vegetarian. Moreover, Gallimore (2015) found that meat-eating habits of parents, partners, and friends also tend to significantly affect the vegan or vegetarian dietary choices as barriers.

The author decided to compile the barriers together based on the suitable categories for each barrier. In total, it was logical to introduce four categories related to the barriers, including “Social and/or cognitive barriers”, “Affinity towards animal products”, “Barriers in terms of perceived practicality”, and “Values as barriers”, which can be seen in Figure 4. The author decided to group meat paradox, masculinity and social stigma together under “Social and Cognitive barriers” due to their intrinsic nature related to the cognition. “Affinity towards animal products” included the barriers that gave an acute value to meat and dairy consumption, such as taste and enjoyment, perceived dependence on meat, and disfavor towards plant-based food. In here, the disfavor towards processed plant-based foods was a barrier that stood out, but the author perceived it to be indirectly related to this barrier, as the lack of affinity for plant-based food under this category inclines the consumer not to learn about the nutrition needed for a veg*n diet.

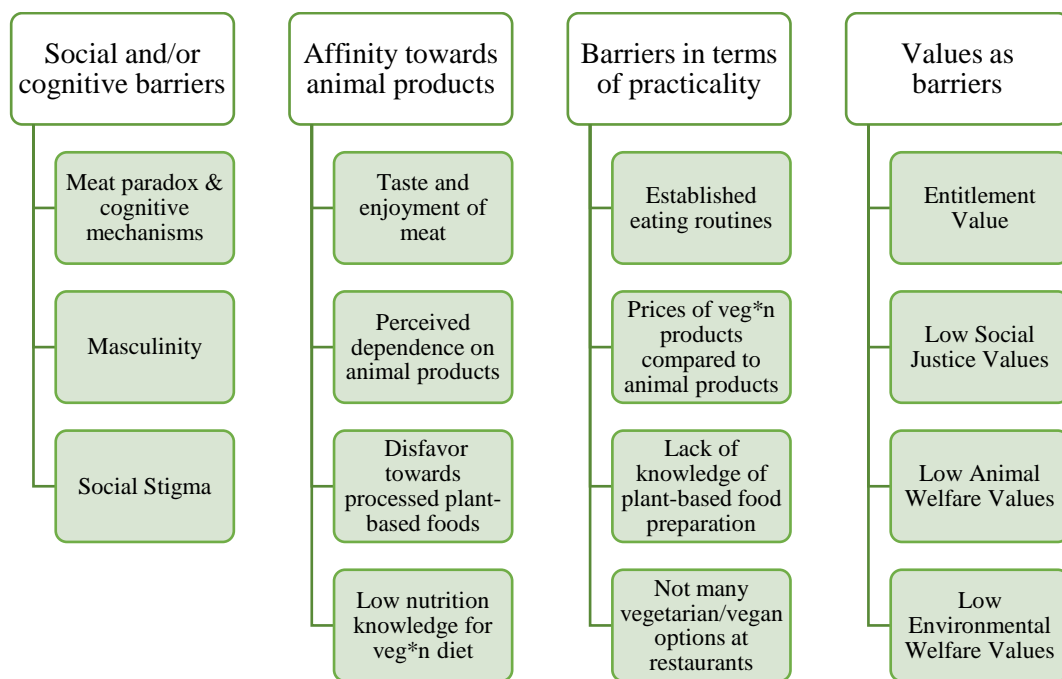


Figure 4. *Categories of Barrier to Likert Scale Questions*

Source: ten empirical studies presented in this chapter

Equally important, the “Barriers in terms of perceived practicality” included the barriers with the focus on the day-to-day activities and (in)convenience the diet changes may bring. On the whole, this category of barriers coherently completed each other. The last but not least, “Values as Barriers” category included all the barriers related to the values, due to their synergy in the concepts implied.

If the topic of socio-demographic is to be discussed, pinpointing the Gender, education level, employment, autonomy of the food decisions, and whether the respondents know veg*ns would be of value. When it comes to vegan, vegetarian, and flexitarian diets, all of the analyzed empirical studies showed a more than half the sample to be female (Trethewey and Jackson, 2019; Umberger and Malek, 2021; Kemper and White; 2021; North et al., 2021). In addition, Pohjolainen, Vinnari, and Jokinen (2015) found that other socio-demographic characteristics of respondents were meaningful: those who did not know any vegetarians, and had lower level of education were more prone to consuming meat. Another assumption that we can include is the autonomy to make food decisions, as the study done by Kemper and White (2021) found that the autonomy of young consumers when it comes to cooking their own meals as part of leaving parental homes impacted young consumers to opt a flexitarian diet. Therefore, the author believes that researching this aspect can be significant within the scope of this study as well.

It is useful to recognize that half of the empirical studies researched used a quantitative method, and most used Likert Scale statements to assess the perceptions of the respondents. The other half of the papers either projective mapping in focus groups, or qualitative interviews. Qualitative papers could dive deep into the topics such as social stigma, autonomy of young people, people’s psychological perceptions of processed foods, and so on. Quantitative papers, on the other hand, presented the methodologies that could research several hypotheses and models to make statistically significant Generalizations. Therefore, the author chose to analyze both quantitative and qualitative empirical studies in order to construct a model that would compile all the necessary barriers and motives into one, and analyze this diverse data with quantitative research. Table 4 depicts the methodologies used specifically in the works that used a quantitative method.

Table 4.

Methodology of the overviewed empirical studies which used quantitative method

Authors	Methods Used	Sample Targeting Methods
Rothgerber, (2012)	Surveys consisting of Likert Scale 1 to 9, quantitative research	Undergraduate students enrolled in a private university were granted an extra credit
Pohjolainen, Vinnari & Jokinen 2015	Surveys consisting of Likert Scale 1 to 5, quantitative research	Nationwide survey that was mailed to a random sample of 4000 Finnish speakers
Graça, Calheiros, Oliveira, 2015	Surveys consisting of Likert Scale 1 to 5, quantitative research	Qualtrics.com internet platform advertised in social media
Trethewey & Jackson, (2019)	Surveys consisting of Likert scale 1 to 6, quantitative research	Snowball method through Facebook groups, and university pages
Umberger, & Malek, (2021)	Survey based quantitative research using latent class cluster analysis	Australian food shoppers were targeted through Dynata online panel provider

Source: compiled by the author

2. The empirical analysis of motives behind and barriers to the sustainable diet choices of the millennial and Gen Z age groups

2.1. The methodology and the sample

The empirical part of this study aims to find the underlying motivations behind and barriers to opting more sustainable vegetarian, vegan and the flexitarian diets. The research was envisioned to have a survey-based, quantitative study, which was witnessed in the studies analyzed in the previous chapters (Graça, Calheiros, Oliveira, 2015; Pohjolainen, Vinnari & Jokinen 2015) that can also be seen from Table ___ of the previous subchapter. Quantitative study is considered to be more suitable while studying larger sample groups to make Generalizations for wider population (Swanson & Holton, 2005), and is more accessible via surveys, rather than interviews. More specifically, the author used Likert scale 1 to 6 statements where 1 stood for “strongly disagree” and 6 stood for “strongly agree” answer choices, as was done by Trethewey and Jackson (2019) to avoid the risk of average answers in the odd number of scales.

The statements encompassing the Likert scales were grouped within six categories: demographics, eating patterns, barriers in terms of practicality, affinity towards animal products, social and cognitive barriers, and values as barriers. The categories related to barriers were based on Figure 4 of the previous subchapter, where the barriers presented by ten empirical studies

were grouped by the author. However, the order of the barrier categories was changed in the form that the barriers in terms of practicality was swapped with the social and cognitive barriers. This was done to make it more cohesive for the respondent, as the first statements related to practicality was more perceivable to the study's nature, whereas social and cognitive barrier included not the most obvious statements for the respondents. The statements that would seem to be the most counterintuitive were presented last, which was the ones related to "social justice barrier" under the "values as barriers category. The author made sure that the survey did not take more than 15 minutes to fill, all the while being smooth to follow through the topics. The survey questions in the order that was presented to the respondent can be found in Appendix B.

The construction of the survey included localization of the similar statements into the Estonian context; for instance, the statement "I love meals with meat." from Graça, Calheiros and Oliveira (2015), was transformed into "Nothing can replace a delicious shashlyk (šašlōkk)".

The construction of the claims was either taken from the surveys done by the empirical studies, composed by the author based on the keywords given in the empirical studies, or taken from web sources. Four questions related to taste and enjoyment, dependence, and entitlement were taken directly from Graça, Calheiros and Oliveira (2015), as all the statements from the study were disclosed word-by-word in the questionnaire. Statements related to cognitive functions were added identically from Trethewey and Jackson (2019) as well; however, the quantitative studies done by Pohjolainen, Vinnari, and Jokinen (2015), and Rothgerber (2012) did not disclose the statements researched in the articles, thus, the author had to make her own statements using the keywords and findings given in the articles. The same was done for the questions coming from the main findings of the previous empirical studies.

Moreover, for the barrier "social justice" that was introduced by Trethewey and Jackson (2019), the author did not find the ready claims in the study. Choosing the statements related to social justice was more challenging, compared to other barriers; therefore, to be on the safe side, the author decided to choose pre-existing statements compiled in the political compass survey, that can be accessed in Euandi2019 (n.d.) voting advice platform funded by the EU. Consequently, three questions were added from Euandi2019 (n.d.) where there are surveys that correspond to every European country's political parties, including Estonia. The survey statements related to "Social-democrat" party was chosen, as it is a center-left political party in Estonia, that could carry the social justice values as a predictor of meat reduction seen in left-

wing parties, as opposed to conservative values (Hodson & Earle, 2018). Namely, the author decided to add three statements where the “Social-democrat” political party has either selected “completely agree”, “neutral”, or “disagree at all”. In detail, the party has completely agreed to “The legalization of same-sex marriage is positive”, was neutral to “Immigrants from outside Europe should be required to accept our culture and values”, and completely disagreed with “The European single currency (the euro) is a bad thing” (Euandi2019, n.d.).

In addition, the survey presented sections related to demographic and eating patterns. Age group, education level, Gender, and employment status, and household status were added to find relationships with the barriers and the background of the respondents. The author also added a question related to the country of residence: 4 responses appeared from people who did not reside in Estonia, which were later removed in the analysis process, as well as the responses from people aged forty-one and older. Moreover, the eating pattern section inquired respondents about the eating diet, meat consumption frequency, likeliness to go vegetarian or vegan, motivation behind the eating diet, autonomy regarding food decisions, and whether they know veg*ns or have them in their friend or family groups. The results for the demographic and eating patterns sections can be explored in detail in Appendix C.

Before conducting the main survey, there was a pilot survey conducted with 4 respondents, who timed their surveys and gave feedback for the improvement of the survey. The average time it took the pilot respondents to take the survey was about 7-15 minutes. Based on the pilot survey, the author made several adjustments. Some of the adjustments included:

- The statements were transformed into positive ones in order to avoid double-negative sentences;
- The sections of the survey turned to be Section 1/5, etc. with a progress bar;
- The visualization of Estonian education system levels was included, so that the respondents could understand the English terms for those Education levels more clearly;
- The sequence of the sections was changed for smoother transitions;
- Three answer options were made available for giving the reasoning behind the diets;
- “Diet” was framed as “food choice” in order to avoid the confusion related to restriction of foods.

The main survey was conducted through Google Forms, due to its convenience to the author, and lasted for a week in April 2022. There were 212 respondents who took the survey,

which resulted in 201 results after the responses from those not residing in Estonia and older than forty-one years old were omitted. This resulted in 70% female, 28% male, and 1% of non-binary population. The author made a draw consisting of one monetary reward to motivate the viewers to take the survey. Participating in a draw was voluntary, and the respondents who wished to take part in it were asked to disclose their e-mail address.

Facebook groups were the major means of spreading the survey. All in all, the author posted the survey in her Facebook and LinkedIn accounts, and Facebook Groups “Märgätud Tallinnas”, “Märgätud Tartus”, “Jah, see on vegan!”, “Foreigners in Tartu”, “Hugo Treffneri Gümnaasium”, “Tartu Kristjan Jaak Petersoni gümnaasium”, Hunting Facebook Group “Eesti Jahiinimesed”, “Barge Friends”, “Kliimastreik Tartus”, “Expats and Foreigners in Estonia”. The reason for the choices behind these particular groups were targeting the Gen Z population, “Jah, see on vegan!” for reaching the vegan, vegetarian, and flexitarian populations, hunting Facebook group for reaching the omnivorous group that the author perceived to include people least interested in reducing meat intake for animal welfare reasons. Moreover, “Expats and Foreigners in Estonia” and “Foreigners in Tartu” were used as platforms with the reasoning that the author could reach English-speaking people with diverse religious backgrounds, to potentially include respondents who abstain from meat for the named purpose. Overall, the author tried to use the platforms with diverse interests in order to get representative data. In total, twenty platforms, including author’s social media, the Reddit and Facebook groups were contacted, from which ten were successful, as the group admins allowed the survey to be posted.

In order to find patterns related to thirty-three statements, which we will also refer to as “variables” from now on, the author decided to conduct factor analysis. As the model itself was developed from the compilation of specific theories, Exploratory Factor Analysis (EFA) was chosen for the research using Stata statistical software. Factor analysis is considered to be useful when there are variables from an exploratory domain, which correlate amongst each other due to unobserved, latent instances (Cudeck, 2000).

Before the Exploratory Factor Analysis in Stata was conducted, the author structured the available data tables related to the diet choice, likelihood to reduce the meat consumption, and the employment status, as the responses resulted in more than fifteen unique values, and had to be categorized manually. The number of observations for the factor analysis was 192 after the

data from respondents who are currently not residing in Estonia and respondents aged 41 and older were removed.

The analysis revealed 5 factors of eigenvalues greater than 1, which was also tested through a scree plot. After retaining those 5 factors, the author conducted rotated factor loadings, and Cronbach's Alpha reliability test. The results found from this process can be seen in Table 5 below. Factors 1 to 3 revealed reliable Cronbach's Alpha scores as they were all higher than 0.70; however, Factors 4 and 5 showed weak Cronbach's Alpha scores as they were both lower than 0.70. One individual alpha suggested that one out of three variables could be dropped to get a higher Cronbach's Alpha in Factor 4, but upon doing so there were only two variables left in Factor 4, which was not enough to compile a factor. Therefore, the author made a decision to use only Factors 1 to 3 for all of the variables presented in the data.

Table 5.

Cronbach's Alpha scores for Factors 1-5 for the initial and second EFA

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Cronbach's Alpha scores for the initial testing	0.92	0.83	0.77	0.67	0.53
Cronbach's Alpha scores for the second testing	0.91	0.73	0.81	omitted	omitted

Source: author's calculations

The second try at the exploratory factor analysis demonstrated eiGenvalues of 9.8 (for factor 1), 1.6 (for factor 2), and 1.3 (for factor 3). Rotated factor loadings displayed 27 variables distributed among three factors; interestingly, 6 variables did not belong in any of the three factors, which meant that these variables would not be considered further along in the analysis. The more detailed illustration for the rotated factor loadings results can be seen in Appendix D. Factor 1 revealed sixteen variables, while Factors 2 and 3 each revealed five.

In order to compare the results given by each factor with socio-demographic results, factor scores were created in Stata to group the variables into the corresponding factors. This meant that sixteen variables were grouped into one variable under the Factor score 1, and five each for Factor scores 2 and 3. This enabled the author to use only one variable consisting of the average of all the barrier statements related the corresponding factor, which could then be compared with other socio-demographic variables (including the eating patterns). As the focus of

this study is related to the eating habits of the Gen Z and millennials, the author started from analyzing the age group categories and eating diets with Factor scores 1, 2 and 3.

In order to do that, one-way ANOVA test was chosen as part of the parametric approach, as the main variable in the testing was numerical (factor score), while the groups to compare were larger than 2 (both age groups and eating diets had more than 2 categories), and the sample size was more than a hundred. However, while conducting one-way ANOVA, the author found the lack of homoGeneity of variances in the comparisons of eating diets with Factor score 2 and 3. The results of unequal variances prompted the author to have an another attempt at checking the means using the Kruskal-Wallis test, which gave a sig-value of $0.00 < 0.05$ for Factor 3 and $0.11 > 0.05$ for Factor 2. This confirmed the results given by one-way ANOVA means for both factor scores: Factor 2 had equal means, and Factor 3 had different means in relation to eating diets groups. The results for homoGeneity of variances done under the one-way ANOVA can be seen in Appendix E.

Moreover, the nominal variables related to the demographic, and eating patterns were analyzed through a proportion test, which resulted in the specific percentages of one variable in accordance with the other. The author used the proportion test to find the proportions of each motive the diet types chose, the proportion of age group categories in the eating diet categories, and the proportion of the eating diets in each Gender. Moreover, the percentage of each education level category was found under the eating diet categories, and the likelihood of going vegetarian in people that have veg*ns in their family and friends were determined using this test, even if the last one included scale variables. It is important to note that during the motive selection process, the choices were not exclusive: the respondents could select 3 main motives at the same time, which means that the percentages of the motives would not add up to a hundred percent. The illustrative results for proportion tests can be found in Appendix F.

2.2 The discussion and the analysis of the results based on the barriers and motives

The author analyzed the demographics, the raw data of which is presented in Appendix E, using the proportion test. In doing so, the author found that females were more likely to adopt a vegan, vegetarian, and a flexitarian diet, which confirms the results of previous studies (North et al., 2021; Trethewey & Jackson, 2019). Moreover, vegans and flexitarians were more witnessed to have a bigger percentage in the 26-41 age group, while vegetarians had more respondents in

the 21-25 age group. Higher education was witnessed among all diet groups, except the vegans, which equally had respondents with secondary and higher education. Moreover, respondents were also more likely to go vegetarian if they had veg*ns in their family; contrarily, just having veg*n acquaintances was not enough to opt for a veg*n diet, which gives more detail to the results found by Pohjolainen, Vinnari and Jokinen (2015). The cross-tables for all the proportions can be seen in Appendix F.

The proportion test revealed expected findings in relation to the motives behind the diets. The cross-tables for all the proportions, including the motives of the eating diets can be seen in Appendix F. In essence, the three main results for following a veg*n diet were health, environment, and animal welfare, as seen in the works by Trethewey and Jackson (2019), and North et al. (2021). What is noteworthy is that contrarily to vegetarians, vegans unanimously opted for animal welfare (100%), which might suggest that the higher the animal values, the less animal products are consumed. Moreover, taste was the fourth motive for both vegans (18%) and vegetarians (26%). Omnivores reported health (87%), taste (84%), price (47%) and weight control (44%) as the main motives, which coincides in the results in terms of health and taste with North et al. (2019). Flexitarians, as expected, showcased a spectrum of motives, which included health (84), environment (59%), taste (41%), animal welfare (36%), price (29%), and weight control (28%), which fully confirmed the findings of Umberger and Malek (2021) study.

Firstly, health was the main motive given by all dietary groups. This result was highly expected, as previous findings suggested that omnivores (Trethewey & Jackson, 2019), flexitarians (Umberger & Malek, 2021), vegetarians and vegans (North et al., 2021) regarded “Health” to be among the highest factors for following a diet. Omnivores may regard the choice for the diet as healthy, for ease in obtaining the protein levels and iron (Gallimore, 2015; North et al., 2021) At the same time, veg*ns, and flexitarians might regard the reasoning behind their choice to be due to low fat and cholesterol levels, etc. (Gallimore, 2015).

Flexitarians, vegetarians and vegans strongly seemed to all agree for the “Environment” as a motive, where veg*ns scored highest (100%), and omnivores scored least (18%). In contrast, “Animal Welfare” gave more distinctive differences among all diet groups, where vegans unilaterally selected this motive as one of the three. As more meat was reduced, the higher the animal welfare motive got, which meant omnivores were least likely to include this motive (6%). What is worth discussing is that based on the results, it can be deducted that veg*ns choose to

follow the diet for animal welfare reasons as the main reason, while flexitarians reduce from meat consumption more for environmental reasons (59%) compared to animal welfare (36%).

Under “Other” category, the respondents filled in their preferable answers, among which were “Routine”, “Mental Health”, “Ease of Cooking”, “Protein absorption”, and “Texture”. There were no differences in means of both “Other” and “Religion” motives, due to small sample sizes. Therefore, the motives found confirmed the findings of the previous empirical studies.

After conducting the factor analysis of the barrier statements, the author decided to name Factor 1 “Cognitive Functions, Values & Habits”, as it included statements related to entitlement, environment and animal welfare values, dependence, meat paradox, taste and enjoyment, social stigma, and three habitual practicality barriers. The result for Factor 1 was varied, yet substantial, as the statements compiled were related to taste, dependence, entitlement, meat paradox, lower regard for animal and environmental welfare were grouped in one factor in the study done by Trethewey and Jackson (2019) as well. What is noteworthy is that Graça, Calheiros, and Oliveira’s (2015) work included four factors: Hedonism (consisting of statements related to taste and enjoyment), Entitlement, Dependence, and Affinity (statements related to cognitive functions and meat paradox), which all appeared in only Factor 1 in this thesis.

Factor 2 revealed statements in the barriers related to masculinity, social stigma, animal welfare, and social justice. Even though the varied barriers in this factor came to be contradicting to the author’s expectations in the first glance, the phrasing of the statements were largely human-centered as was noticed later. Thus, the author decided to name this factor the “Human-centered elements”. It is worth mentioning that out of three statements related to social justice, only one made it to the factors, and it was to Factor 2.

Factor 3 included the statements about practicality and nutrition skills related to vegan and vegetarian diets. The statements themselves had the phrasing related to knowledge and skills; therefore, the author decided to name it as “Know-how elements”. It is necessary to add that one statement from Factor 3 “It is easier to prepare food that has meat, than vegetarian ones” had a higher factor loading value in Factor 1 (0.59) rather than in Factor 3 (0.42). However, since the statement was largely related to Factor 3 in terms of context while not having big difference in the factor loading scores, the author decided to include it to Factor 3, rather than Factor 1.

The author started the process of analyzing the results of means with eating diets first. One-way ANOVA test revealed that in relation to Factor score 1, Cognitive Functions, Values,

and Habits, Omnivores were most likely to agree with the statements related to this factor followed by flexitarians. Vegetarians and vegans were the ones to agree least to the statements, while having overlapping means, which suggests that they answered quite similarly. Figure 5 gives a detailed illustration on the comparison of means between Factors 1-3 and eating diets. These statements related to cognitive functions, values, and habits mainly did not resonate similarly with the eating diets, as the more meat is consumed, the more and cognitive dissonance there is. Moreover, it also explains how vegan and vegetarian diets scored quite similarly, as the values regarding meat consumption align more clearly. This was an expected result, as Trethewey and Jackson (2019) and Graça, Calheiros, Oliveira (2015) study presented similar findings related to the dietary groups and the cognitive functions. One-way ANOVA test results provided with the variance tests, summary of the mean scores by groups, and Bonferroni comparison of scores.



Figure 5. Mean Comparison Scores of Eating Diets with Factors 1-3

Source: author's calculations

Upon conducting the ANOVA with Bonferroni test, the p-values for various combinations of the variables were presented. The significantly different means witnessed from the p-values less than 0.05 that are deemed to be not equal, were put together with a commentary

and means in Table 6 below. For a detailed Bonferroni results with p-values and comparison scores, the reader can refer to Appendix G. As can be witnessed, the results of the omnivorous respondents differed with all of the other diet groups, while answers given by the flexitarians were also significantly different compared to the ones given by vegans.

Table 6.

The p-values, and mean comparisons with comments for Factor 1-3 and Eating Diets

Comparisons	P-value	Comments (means in parenthesis)
Factor 1		
Omnivorous vs flexitarian	0.00 (unequal means)	Omnivorous (0.72) > flexitarian (-0.39)
Omnivorous vs vegetarian	0.00 (unequal means)	Omnivorous (0.72) > vegetarian (-0.89)
Omnivorous vs vegan	0.00 (unequal means)	Omnivorous (0.72) > vegan (-1.12)
Flexitarian vs vegan	0.00 (unequal means)	Flexitarian (-0.39) > vegan (-1.12)
Factor 3		
Omnivorous vs flexitarian	0.01 (unequal means)	Omnivorous (0.33) > flexitarian (-0.15)
Omnivorous vs vegetarian	0.00 (unequal means)	Omnivorous (0.33) > vegetarian (-0.45)
Omnivorous vs vegan	0.00 (unequal means)	Omnivorous (0.33) > vegan (-0.56)

Notes. Only the statistically significant comparison combinations whose p-values showed difference in means were described in the table, which means that among factor 1-3, the combinations shown above are the only ones.

Source: author's calculations

When it comes to Factor score 2 that represented the Human-centered elements, there were no significant differences in the means of omnivorous, flexitarian, vegetarian and vegan, and other diets. This might be due to the fact that Factor 2 has more human-centered values, rather than the diet-centered ones, which makes it more complex to measure within the scope of mentioned barriers. It is noteworthy that quantitative study done by Rothgerber (2012) had found opposite results regarding the masculinity barrier included in this factor. The author believes that masculinity needs more than two variables for measuring the barrier. Moreover, the homogeneity of the means also could be potentially alleviated with a bigger sample size of vegan and vegetarian groups.

Furthermore, for Factor score 3, ANOVA showed that the means were not equal for Factor 3 and eating diet groups. Factor 3 included the means of the statements under the Knowledge elements, and there was a positive relationship with the knowledge of nutritious vegan and vegetarian food preparation and meat reducing diets. Table __ also shows that the responses of people who follow the omnivorous diet were significantly different than flexitarian, vegetarian,

and vegan diets. Again as in Factor 1, Cognitive Functions, Values, and Habits, the answers between flexitarians and vegans differed substantially. It can be deduced that vegetarians take the middle ground between flexitarians and vegans when it comes to the know-how, while agreeing more with vegans when it comes to the cognitive functions, values, and habits. The results align with Pohjolainen, Vinnari, and Jokinen (2015) and Varela et al. (2022) studies as they have also found that meat eaters have lower cooking skills of vegetarian or vegan meals, as opposed to vegetarians or vegans. It is worth mentioning that flexitarians have better self-perception of the mentioned cooking skills than omnivores, while still scoring lower than vegan and vegetarian diets. This is completely logical, and the flexitarians could potentially be transitioning from omnivorous to vegetarian diet, which meant that practice of new recipes gives better cooking and nutrition skills in time.

The author then proceeded with analyzing the means through the results of one-way ANOVA in Factor scores 1-3 with age groups of the respondents. A more detailed description of the comparison means between age groups and Factors 1-3 can be seen in Figure 6.

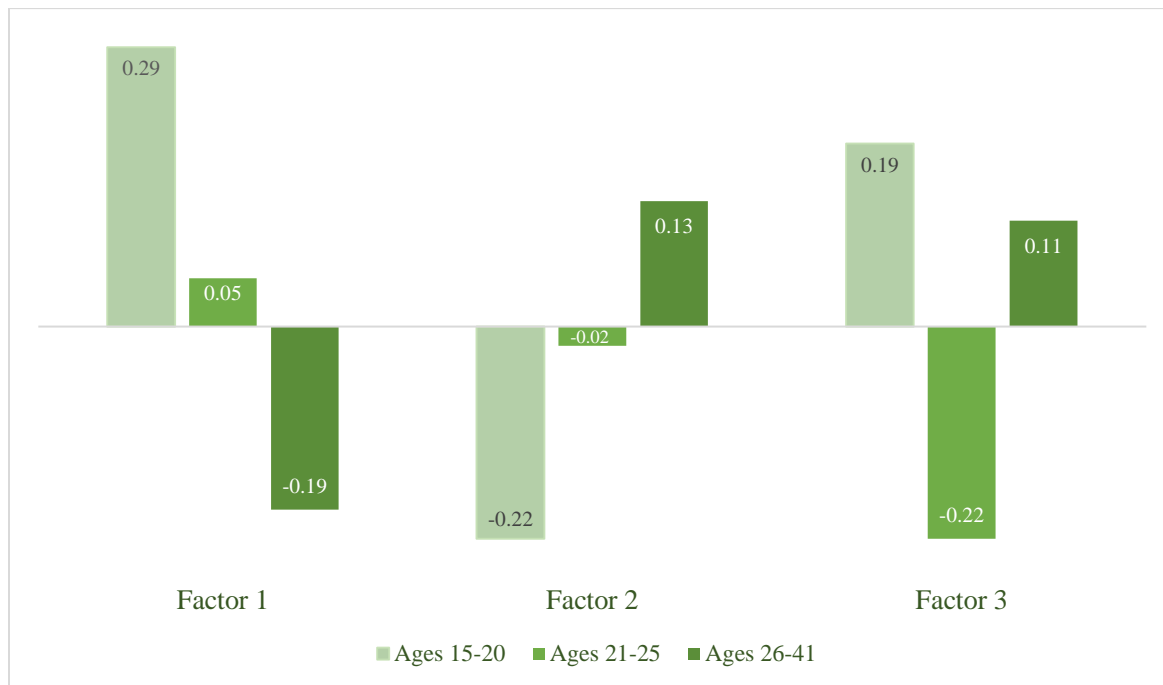


Figure 6. Mean Comparison Scores of Age Groups with Factors 1-3

Source: author's calculations

When looking at ANOVA mean comparisons between age groups and Factor score 1's cognitive functions, values and habits, the author found compelling results: the youngest age

group of 15-20 obtained the highest score, which meant they agreed the most with the statements relating to uniqueness and dependability of meat, etc. The higher the age of the respondents were, the less meat paradox, dependability, etc. could be noted, meaning that age group 26-41 had lowest values related to necessity of meat in the diet. This could potentially mean that the ages 15-20 do not pay as much attention to rethinking the values related to meat as most of them live in their parental homes (as the survey conducted within this research found). However, when the respondents get to the ages 21-25, they become more likely to receive autonomy related to cooking, as there are less people living in parental homes, which gives a higher freedom to experiment with diets. This notion aligns with the results of Kemper and White (2021) study, where the autonomy presented by changing the home of residence to study at the university, or to just live on their own presents an opportunity to reevaluation of diets; and, therefore, the values related to them. The concise description of the comparison with unequal means with the commentary can be seen in Table below. The deeper illustration of the results from Bonferroni test of comparison of scores for Factors 1-3 by age groups can be seen in Appendix G. Even though there was a much higher difference in means of 15-20 and 26-41 age groups, which can be seen from Appendix G, the more descriptive Figure 6 above reveal a slight change in Factor 1 between groups 15-20 and 21-25 worth mentioning due to the fact there is much less age difference between 15-20 and 21-25 age groups than with 26-41.

Table 7

The p-values, and mean comparisons with comments for Factor 1-3 and Age Groups

Comparisons	P-value	Comments (means in parenthesis)
Factor 1		
Ages 26-41 vs ages 15-20	0.03 (unequal means)	Ages 21-25 (0.05) < ages 15-20 (0.29)

Notes. Only the statistically significant comparison combinations whose p-values showed difference in means were described in the table, which means that among factor 1-3, the combinations shown above are the only ones.

Source: author's calculations

When it comes to Factor score 2, there were no significant differences in means, as can be seen from the Table 7 above. As with the eating diets, human-centered values have been more or less equal means among the age groups with relation to Factor score 2. As mentioned before, the author believes a bigger sample size in vegan and vegetarian diets could help alleviate this result.

Factor 3 has presented equal means among age groups; nevertheless, the mean values shown in Figure 6 above suggests that they could be almost considered to be different. The mean value which can also be seen in Figure 6 suggested that the ages 21-25 were found to be most comfortable with cooking nutritious vegan or vegetarian foods, while ages 15-20 and 26-41 were noticed to be least comfortable. Curiously enough, age group 26-41 that put least value to tastes, dependence, and values related to eating meat is among the least skilled to cook vegan or vegetarian foods. The author thinks that this might be due to the fact that during the ages 26-41, consumers do not only prepare food for themselves, but for the others in their nuclear families, which would mean that there is a need for compromise among the family members, and a more meticulous attention in learning the nutrition of vegan or vegetarian foods when cooking for small children. Hence, even though age group 26-41 sees less value in animal products, they still consider cooking vegetarian or vegan meals to be an extra effort.

In order to check the findings related to socio-demographics, the author opted for comparing the means between age groups and the freedom of food choice. In doing so, the author found that respondents aged 21-25 and 26-41 had highest, and almost equal means scores when it comes to making their own decisions, while respondents aged 15-20 had highest scores in not feeling autonomous enough with regard to food decisions. The latter is deemed to be logical, as the respondents aged 15-20 usually live in the parental houses where they have less autonomy; and, thus, less skills related to cooking vegan and vegetarian meals are needed, as it can be assumed that the older family members provide the cooking. This also nicely confirms the studies done by Kemper and White (2021). More details in demographics can be seen in Appendix H.

Moreover, the author decided to analyze the variables related to likelihood to become vegetarian and vegan with the age groups. First, the author took a look at the means related to likelihood to become vegetarian, and did not find any clear differences between the age groups. However, the mean presented by age group 26-41 included the highest mean score (with a small difference) compared to the other groups. When it comes to going vegan, however, the result shifted more towards the age group 21-25, while having the lowest results for the ages 15-20, and overlapping with all groups.

As Pohjolainen, Vinnari, and Jokinen (2015) had found that consumers are more likely to reduce meat consumption if they know vegans or vegetarians, the author decided to check the

likelihood to go vegetarian and vegan with the availability of vegans or vegetarians in one's family. The results revealed that respondents were self-reported to be more likely to go vegan or vegetarian if there are vegans or vegetarians in their families, rather than just knowing vegans or vegetarians. And when there are vegans or vegetarians in their families, they noted to be more likely to become vegetarian than vegan.

To sum it up, cognitive functions, values, habits, and the practical barriers under the know-how elements are the ones found in this research to have significant results. In detail, the findings reveal that there is a relationship between barriers and eating diets: the less meat consumption the diet type entails, the less the diet is perceptive to the mentioned barrier. Moreover, when it comes to motives behind the diets, the less meat was consumed, the more animal welfare, environmental values were noticed. Consequently, the meat reducing flexitarian diet took the "middle ground" between the omnivorous and veg*n diets, with a spectrum of motives. It is safe to assume that when omnivores become flexitarians, their values for the environment, and animal welfare increases. Even though each diet group had distinct differences, there were also similarities between them in terms of the perceptions to barriers: and in most cases, this came to be in the results of flexitarians with veg*ns. Accordingly, that the flexitarian and veg*n diets shared in common evidently affected their results to be closer to veg*ns, than omnivores. Values, beliefs, and habits, and knowledge play a vital role for the adoption of a diet; however, socio-demographic factors such as age and education can also act as a measure for determining the diet groups. Firstly, ages 21-25 (21%) and 26-41 (22%) had high veg*n proportions compared to 8% of global average (Ipsos, 2018), which suggests that Gen Z and Millennials are more prone to adopting veg*n diets compared to other ages. However, this might also be due to the self-selection bias, which implies that when given the freedom, respondents select the surveys they are most interested in, which might result in data to be less representative. Because the older Gen Z (21-25) and millennials ages (26-41) had more proportions of flexitarian, vegetarian, and vegan diet adopters, it is essential to note that autonomy in food choice, and moving out of parental homes can entail more freedom to explore different recipes, diets, values, and beliefs, as presented in Kemper and White (2021). Also, age group 15-20 had highest counts of people living in parental homes and with friends, which can suggest that this period encompasses transition years from parental, to with friends, to living alone in (21-25). Additionally, higher education, and being female was positively linked to meat reducing or

abstaining diets. Moreover, having veg*ns in the family increased the chances of becoming vegetarian.

Conclusion

In the theoretical part of the study, the author brought out the key definitions that are related to the research. In essence, there was a comparison done in relation to the sustainable food and sustainable diets. Food and Agricultural Organization (FAO) of the UN (2017), Sustainable Development Commission (SDC) (2009), EAT-Lancet Commission Reports (2019) and a report introduced by Sustain (2013), gave different definitions for “sustainable food” and “sustainable diet”. The works suggested that “sustainable food” assumes the sustainability criteria needed for farmers, policymakers, organizations, retailers, and employers, whereas “sustainable diet” took the form of consumer’s sustainable choices and behavior. In detail, sustainable diet is the diet that reduces meat consumption, includes more plant-based foods, has good nutritional value for the health of the community and individuals. As need for meat reduction in the day-to-day lives of consumers was mentioned in FAO (2017), SDC (2009), and EAT-Lancet Commission Report (2019) among others, the author decided to focus on the criteria for the sustainable diets to be the meat-reducing or meat-abstaining diets. The author then went on to explain the choice of Gen Z and millennials in the scope of the study, and introduced findings done by Kemper and White (2021), Janssen et al. (2016), Ipsos (2018), and Bayer (2019) which suggested that Gen Z and millennial groups were the ones most likely to reduce or abstain from meat.

The overview of pre-existing studies resulted in realization of main motives behind the sustainable diets, and what could be the potential barriers for adopting a sustainable diet. The three main motives for veg*n diets were found to be health, environment, and animal welfare (Trethewey & Jackson, 2019; North et al., 2021), whereas for a flexitarian diet it was found to include an array of motives, such as weight control, taste, price, animal welfare, environment, health, and more (Umberger & Malek, 2021).

The presented barriers were grouped into four categories: social and cognitive barriers, affinity towards animal products, barriers in terms of practicality, and values as barriers. Moreover, socio-demographic characteristics were found to influence the perception of barriers

and diet choice, such as Gender, education level, freedom to make food decisions, and being acquainted with or having veg*ns in one's family. The author also found that majority of quantitative studies analyzed included Likert scale statements, which is why she decided to also include this methodology in her work.

With regards to the barriers, the empirical part of the paper showcased the survey, which had 212 respondents in total, of which 70% were female and 30% male. The author described the survey construction process, which included the formulation of groups or sections in the survey. Moreover, the analysis methodology was presented: Exploratory Factor Analysis was chosen to group the latent variables together and find patterns among the Likert scale statements. Moreover, Cronbach's Alpha for reliability tests were showcased, which revealed that 2 out of 5 factors did not have a reliable score (under 0.7); consequently, three factors remained in the analysis. Moreover, in order to analyse the nominal variables with scale variables, comparison of means in the form of the one-way ANOVA was introduced. As for the socio-demographic variable comparisons, proportion test was introduced as the methodology. All of these procedures were conducted in Stata software.

The 3 factors that the analysis revealed were named as "Cognitive Functions, Values, and Habits", "Human-centered elements", and "Know-how elements". Based on the results given by one-way ANOVA, omnivores were most likely to be prone to the barriers that the "Cognitive Functions, Values, and Habits" and "Know-how elements" encompassed. "Human-centered elements" did not reveal any differences in means among eating diets. Upon conducting one-way ANOVA test for Factors 1-3 among the age groups, the study revealed that for "Cognitive Functions, Values, and Habits", age groups 26-41 and 15-20 gave significantly different results. This suggested that there was a transition period between these age groups that could influence the cognitive functions of the respondents to be less prone to the barriers related to the "Cognitive Functions, Values, and Habits".

If we talk more about the socio-demographics, the proportion tests revealed that the respondents who followed plant-based diets were: more likely to be female, more likely to be in 21-25 and 26-41 age groups, more likely to have a secondary and higher education levels. Moreover, people who had veg*ns in their family were most likely to become vegetarian. As predicted, the main motives behind the veg*n diets were animal welfare, environment, and health, whereas for omnivores it was health, taste, price, and weight control. Moreover,

flexitarians were found to have selected health, environment, taste, animal welfare, price, and weight control, resulting in a spectrum of motives, rather than a straightforward trinity, which confirmed the findings by Umberger and Malek (2021).

The research could potentially be improved by getting a better representation in the data, as the author suspects there has been self-selection bias among the respondents of the study. This resulted in more than forty percent of the respondents to claim that they could reduce meat consumption for their entire life (Appendix C), which might have altered the data in way. Moreover, selecting more men for the study could also be helpful, as the statements related to masculinity could give more meaningful results.

The author believes that the results obtained from this study could shed light to future studies, namely the barriers related to “Cognitive Functions, Values, and Habits”, and “Know-how elements”. Moreover, the results of this study could be used by the policymakers to influence reduction in meat consumption of the consumers. In addition, researching the Gen Z and millennials could give meaningful results for the potential studies, as the older Gen Z and millennials were indeed found to be more prone to reducing or abstaining from meat.

As the plant-based diets carry the nutrition for good health and can provide food for the humanity within the planetary boundaries (FAO, 2006; EAT-Lancet, 2019), they are the diets of the future, the future which Gen Z and millennials will help to build. Therefore, maybe it is a wise notion to take Dr. Einstein’s advice after all.

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Appendices

Appendix A. The empirical studies used throughout the overview process

	Author, year	Country	The aim of the paper
1	Rothgerber, 2012	U.S.A	“To simply make an informational appeal about the benefits of a vegetarian diet may ignore a primary reason why men eat meat: It makes them feel like real men.”
2	Graça, Calheiros, Oliveira, 2015	Portugal	“this work advances the construct of meat attachment”
3	Gallimore, 2015	Canada	“To gain a deeper understanding of the barriers impeding people who want to become vegetarian, and of the reasons why they are interested”
4	Pohjolainen, Vinnari & Jokinen 2015	Finland	“To analyze the barriers perceived by consumers to lowering their meat consumption levels and adopting a plant-based diet.”
5	Markowski & Roxburgh, 2019	U.S.A	“[To examine] how fear of stigmatization may be a barrier to avoiding meat consumption”
6	Trethewey & Jackson, 2019	Australia	“To determine the differences in animal-welfare, personal-health, and environmental values among meat-eaters, vegetarians, and vegans.”
7	North et al., 2021	Australia	“The aim of this study was to compare the dietary motivations for Australian’s across three dietary patterns; vegan, vegetarian, and omnivore”
8	Umberger & Malek, 2021	Australia	“This study focuses on self-described flexitarian consumers and examines... their willingness to further reduce their consumption of meat.”
9	Kemper & White, 2021	New Zealand	“The research aims to explore young adults’ motivations, strategies and barriers towards flexitarianism.”
10	Varela et al., 2022	France, Norway	“The aim of this work was to better understand the perception of Norwegian and French consumers towards increased utilization of high protein plant-based foods, their underlying attitudes, the barriers... towards a more plant-based diet.”

Appendix B. Survey Questions

The survey is part of the research conducted for the BBA program at the University of Tartu. The survey can also be viewed from <https://forms.gle/PqnPJJvprgpu96c68>.

Questions	Sources for theoretical background
1 Demographics	
What is your Gender?	North et al., 2021; Trethewey and Jackson, 2019; Pohjolainen, Vinnari & Jokinen 2015
What is your age group?	Plant Choices, 2018; North et al., 2021, Pohjolainen, Vinnari & Jokinen 2015
Which is the highest education level you have completed? (Please look at the image below for reference)	Education Estonia, 2022; Trethewey and Jackson, 2019; Pohjolainen, Vinnari & Jokinen 2015
What is your employment status?	Graça, Calheiros, Oliveira, 2015
Do you live with other people?	Pohjolainen, Vinnari & Jokinen 2015
Do you live in Estonia?	Compiled by the author
2 Eating Patterns	
How often do you consume meat? (chicken, beef, pork, seafood)	Umberger & Malek 2021
What is your eating diet (food choice)?	North et al., 2021; Trethewey and Jackson, 2019
Are there any vegetarians or vegans among your friends or/and family?	Pohjolainen, Vinnari & Jokinen 2015
Do you personally know any vegans or vegetarians?	Markowski & Roxburgh, 2019
How likely are you to go vegetarian? (You can leave this question if you are already a vegetarian)	Umberger & Malek 2021;
How likely are you to go vegan? (You can leave this question if you are already vegan)	Umberger & Malek 2021;
How likely are you to reduce meat consumption (beef, chicken, fish, pork)?	Umberger & Malek 2021;
What is the motivation behind your diet (food choice)? (Please select 3 main reasons/motives.)	North et al., 2021; Trethewey and Jackson, 2019; Umberger & Malek 2021; Kemper & White, 2021
In your household, do you make your own food decisions?	Kemper & White, 2021
3 Barriers in terms of practicality	
I surely know how to cook meals with beans, lentils, chickpeas, tofu, quinoa	Varela et al., 2022

It is convenient and fast to cook meals with beans, lentils, chickpeas, tofu, quinoa	Varela et al., 2022
I am familiar with tofu, quinoa and hummus	Varela et al., 2022
Tofu is a dull ingredient for meals	Varela et al., 2022
I prefer consuming foods I'm used to eating	Pohjalainen, 2014
Changing my eating patterns would require too much energy and time	Pohjalainen, 2014
It is convenient to eat out at restaurants, cafes, cafeterias for vegans and vegetarians in Estonia	Gallimore, 2015 adjusted to Estonia
The prices for plant-based foods and vegetables in Estonia are too high for following a vegan or vegetarian diet	Gallimore, 2015 adjusted to Estonia
The plant-based foods and vegetables are commonly available in Estonia for following a vegan or vegetarian diet	Gallimore, 2015 adjusted to Estonia
4 Affinity towards animal products & barriers in terms of health precautions	
To eat meat is one of the good pleasures in life.	Graça, Calheiros, Oliveira, 2015
Nothing can replace a delicious shashlyk (šāšlōkk)	Compiled by the author
The animal-based foods taste better than the processed vegan foods (veggie burger patties, beyond-meat burger patties, vegan schnitzel, vegan ice-cream etc.).	Varela, 2022
It is easier to prepare food that has meat, than vegetarian ones	Varela et al., 2022
Meat is irreplaceable in my diet.	Graça, Calheiros, Oliveira, 2015
Processed vegan foods (veggie burger patties, beyond-meat burger patties, vegan schnitzel, etc.) are natural and healthy	Varela, 2022
I need meat in my diet (food choice) in order to be healthy	Graça, Calheiros, Oliveira, 2015
Learning about healthy nutrition for vegan or vegetarian diet takes too much energy and time	
5 Social and/or cognitive barriers	
According to our position in the food chain, we have the right to eat meat.	Graça, Calheiros, Oliveira, 2015
To eat meat is an unquestionable right of every person	Graça, Calheiros, Oliveira, 2015
Animals are capable of feeling emotions as humans	Trethewey & Jackson, 2019
During the meat production process, the pain of the farmed animals is at minimum	Trethewey & Jackson, 2019
Real men eat meat	Rothberger, 2012
I find vegetarian or vegan men to be less manly	Rothberger, 2012
Vegans often exhibit self-righteous (arrogant) behavior	Markowski & Roxburgh, 2019
Food choices that exclude dairy, eggs, meat, and fish are extreme	Markowski & Roxburgh, 2019

I would approve if my family member or close friend went vegan Markowski & Roxburgh, 2019

6 Values as barriers

I always try to increase my awareness for environmental solutions Trethewey & Jackson, 2021; Kemper & White, 2021

I am ready to change my habits drastically for the environmental reasons Trethewey & Jackson, 2021; Kemper & White, 2021

In meat and dairy farms, animals are always treated humanely Trethewey & Jackson, 2021; Kemper & White, 2021

I am against animal cruelty Trethewey & Jackson, 2021; Kemper & White, 2021

It was a good decision to legalize same-sex partnerships in Estonia EUandi, 2019; Pohjolainen, Vinnari & Jokinen 2015

Immigrants from outside Europe should be required to accept our culture and values EUandi, 2019; Pohjolainen, Vinnari & Jokinen 2015

The European single currency (the euro) is a bad thing EUandi, 2019; Pohjolainen, Vinnari & Jokinen 2015

Appendix C. Demographic and eating patterns of the respondents

Item		Item		Item	
Age Group		Eating Diet		Education Level	
Ages 15-20	21%	Omnivorous	47%	Basic Education	9%
Ages 21-25	38%	Flexitarian	29%	Higher Education	55%
Ages 26-41	41%	Vegetarian	9%	Prefer not to answer	1%
Gender		Vegan		Secondary	29%
Female	70%	Other		Vocational College	4%
Male	28%	Meat Consumption		Household Status	
Other	1%	Frequency			
Female	70%	1-3 days a month or less	8%	I live with my family	54%
Employment Status		1-3 days a week	27%	I live with my friends	16%
Employed	50%	4-6 days a week	17%	I live alone	28%
Employed and student at a higher institution	7%	Daily	26%	Other	1%
Other	4%	Never	20%	Freedom of Cooking Choice	
Student at a higher institution	22%	Willingness to reduce		I decide what I eat	88%
Secondary school student	8%	I could not reduce it at all	17%	Someone else decides what I eat	8%
Unemployed	8%	I could reduce it for about 1 year or less	11%	Other	4%
Veg*ns as acquaintances		I could reduce it for more than 5 years, but not my entire life	2%	Veg*ns in family and friends	
I know veg*ns	91%	I could reduce it for my entire life	48%	I have veg*ns in my family and friends	73%
I don't know any veg*ns	9%	I could reduce my meat consumption for 1-5 years	5%	I don't have veg*ns in my family and friends	26%
		Other	8%		
		Prefer not to answer	8%		

Source: Author's survey

Appendix D. Rotated factor loadings for factors 1-3

Item	Factor loadings		
	1	2	3
Cognitive Functions, Values, and Habits			
○ Tofu is a dull ingredient for meals	0.37		
○ I prefer consuming foods I'm used to eating	0.37		
○ Changing my eating patterns would require too much energy and time	0.39		
○ To eat meat is one of the good pleasures in life	0.82		
○ Nothing can replace a delicious shashlyk (šāšlōkk)	0.71		
○ The animal-based foods taste better than the processed vegan foods.	0.77		
○ Meat is irreplaceable in my diet	0.81		
○ I need meat in my diet (food choice) in order to be healthy	0.72		
○ According to our position in the food chain, we have the right to eat meat	0.82		
○ Animals are capable of feeling emotions as humans*	-0.46		
○ During the meat production process, the pain of the farmed animals is at minimum	0.52	0.39	
○ Food choices that exclude dairy, eggs, and meat are extreme	0.5		
○ I always try to increase my awareness for environmental solutions*	-0.47		
○ I am ready to change my habits drastically for the environmental reasons*	-0.66		
○ I am against animal cruelty*	-0.4		
○ To eat meat is an unquestionable right of every person	0.72		
Humanistic elements			
○ Real men eat meat	0.42	0.65	
○ I find vegetarian or vegan men to be less manly		0.62	
○ I would approve if my family member or close friend went vegan*	0.32	-0.43	
○ In meat and dairy farms, animals are always treated humanely	-0.4	0.6	
○ It was a good decision to legalize same-sex partnerships in Estonia*		-0.6	
Know-how elements			
○ I surely know how to cook meals with beans, lentils, chickpeas, tofu, quinoa*			-0.78
○ It is convenient and fast to cook meals with beans, lentils, chickpeas, tofu, quinoa*			-0.64
○ I am familiar with tofu, quinoa and hummus*			-0.6
○ It is easier to prepare food that has meat, than vegetarian ones	0.59		0.42
○ Learning about healthy nutrition for vegan or vegetarian diet takes too much energy and time	0.36		0.43

Source: Author's calculations

Notes: Asterisk (*) suggests reverse scored items

Appendix E. HomoGeneity of variances for eating diets and age groups.

HomoGeneity of variances (sig values) for Eating Diets and Age Groups among Factors 1-3

	Factor 1 (sig value)	Factor 2 (sig value)	Factor 3 (sig value)
Eating diets	0.08*	0.00	0.00
Age groups	0.80*	0.50*	0.99*

Source: author's calculations

Notes: Sig -values more than 0.05 suggest equal variances between groups, which can also be seen from the marked asterisk (*) after the values.

Appendix G. Bonferroni Test of Comparison of Scores for Factors 1-3 by Eating Diets and Age Groups

Bonferroni Test of Comparison of Scores for Factors 1-3 by Eating Diets				
	Omnivorous	Flexitarian	Vegetarian	Vegan
Flexitarian	0.00 (Factor 1)* 1.00 (Factor 2) 0.01 (Factor 3)*			
Vegetarian	0.00 (Factor 1)* 0.61 (Factor 2) 0.00 (Factor 3)*	0.051 (Factor 1) 1.00 (Factor 2) 1.00 (Factor 3)		
Vegan	0.00 (Factor 1)* 1.00 (Factor 2) 0.00 (Factor 3)*	0.00 (Factor 1)* 1.00 (Factor 2) 0.54 (Factor 3)	1.00 (Factor 1) 1.00 (Factor 2) 1.00 (Factor 3)	
Other	0.00 (Factor 1)* 1.00 (Factor 2) 1.00 (Factor 3)	1.00 (Factor 1) 1.00 (Factor 2) 1.00 (Factor 3)	1.00 (Factor 1) 1.00 (Factor 2) 1.00 (Factor 3)	0.27 (Factor 1) 1.00 (Factor 2) 1.00 (Factor 3)

Source: author's calculations

Notes: P -values less than 0.05 suggest a difference between means of two groups, which can also be seen from the marked asterisk (*) after the values.

Bonferroni Test of Comparison of Scores for Factors 1-3 by Age Groups		
	Ages 15-20	Ages 21-25
Ages 21-25	0.62 (Factor 1) 0.75 (Factor 2) 0.06 (Factor 3)	
Ages 26-41	0.03 (Factor 1) * 0.14 (Factor 2) 1.00 (Factor 3)	0.35 (Factor 1) 0.94 (Factor 2) 0.06 (Factor 3)

Source: author's calculations

Notes: P -values less than 0.05 suggest a difference between means of two groups, which can also be seen from the marked asterisk (*) after the values.

Appendix H. Proportion Test Results

The Proportion of Diet Groups in Age Groups

Age group	Omnivorous	Flexitarian	Vegetarian	Vegan
15 – 20	55%	24%	12%	4%
21 – 25	47%	27%	12%	9%
26 – 41	43%	33%	6%	16%

Source: compiled by the author

The Proportion of Motives in Diet Groups

	Health	Environment	Taste	Animals	Price	Weight control	Religion
Omnivorous	87%	18%	84%	6%	47%	44%	3%
Flexitarian	84%	59%	41%	36%	29%	28%	9%
Vegetarian	84%	74%	26%	89%	11%	5%	5%
Vegan	82%	86%	18%	100%	4%	0%	4%

Source: compiled by the author

The Proportion of Diet Groups in Genders

	Omnivorous	Flexitarian	Vegetarian	Vegan
Female	40%	31%	12%	11%
Male	65%	25%	2%	9%
Other	0%	0%	50%	50%

Source: compiled by the author

The Proportion of Education Levels in Eating Diets

	Basic	Secondary	Higher	Vocational	Not answered
Omnivorous	11%	30%	54%	4%	1%
Flexitarian	12%	17%	64%	3%	3%
Vegetarian	5%	37%	58%	0%	0%
Vegan	0%	45%	45%	9%	0%
Other	12%	50%	25%	12%	0%

Source: compiled by the author

*The Proportion of Likelihood in For Those Who Live with Veg*ns*

	Highly unlikely	Unlikely	Somewhat unlikely	Somewhat likely	Likely	Highly Likely
Yes	52%	78%	77%	74%	71%	86%
No	48%	22%	23%	26%	29%	14%

Source: compiled by the author

Resümee

Bakalaureusetöö pealkirjaga „Z-põlvkonna ja milleniumlaste jätkusuutliku toitumise valikute barjäärid ja motiivid” uurib takistusi ja motiive pooltaimetoidu, taimetoidu ja/või vegantoidu valimisel. Ajal ja ajastul, mil tarbijate seas kasvavad keskkonnamured, on paljud hakanud muutma elustiili ja harjumusi jätkusuutlikumaks, mis hõlmab ka muutusi keskkonnasõbralikumaks tootmiseks.

Üksikasjalikult hakkasid tarbijad loobuma loomse päritoluga toiduainetest tervise, keskkonna ja loomade heaolu põhjustel. See lõputöö keskendus taimetoidule, vegan ja pooltaimetoidule, kui jätkusuutlikele valikutele, kuna need olid peamised liha vähendavad dieedid. Pooltaimetoidu rühm valis keskte omniivoori ja taimetoidu vahel ning võib arvata, et nad valivad potentsiaalselt taimetoidu või vegantoidu kasuks. Üleminek dieetide vahel tõstatab küsimuse, mis ajendab ja lõpetab tarbijat astumaks sammu jätkusuutlikule valikule. Need barjäärid võivad sisaldada igapäevaseid aspekte nagu kokkamine, toodete hinnad väärtuste suhtes ja kognitiivsed funktsioonid. Seoses tarbija vanusega dieet muutub, isegi kui tehtud uuringud on näidanud, et milleniumilapsed (vanuses 26-41) lähevad teiste vanuserühmadega võrreldes tõenäolisemalt taimetoitlasteks ja veganiteks, on uuringus lünk noorema Z-generatsiooni (15-25-aastased ja nooremad) toitumisvalikutes. Enamgi veel, puuduvad uuringud, mis keskendusid noorema põlvkonna barjääridele ja motiividele, tühimikku, mida käesolev bakalaureusetöö püüab täita. Selleks püstitati lõputöö eesmärk välja selgitada Z-põlvkonna ja milleniumlaste jätkusuutlikuma toitumise valiku tagamaid ja takistusi.

See uurimistöö oli küsitlusel põhinev ja selles osales 212 vastajat. Küsitlus hõlmas endas ühest kuueni Likerti skaalat, kus üks tähistas “üldse ei nõustu” ja kuus tähendas “nõustun täielikult”. Väited olid seotud demograafia, söömisharjumuste, praktilisuse barjääride, sotsiaalsete ja kognitiivsete barjääride, väärtuste kui barjääride jpm. Tulemusi analüüsiti Stata tarkvaras, kasutades uuriva teguriga analüüsi meetodit, sealhulgas võrreldi andmeid ühesuunalise ANOVA-ga. Uuriva teguriga analüüs andis tulemuseks kolm olulist tegurit pealkirjadega: "Kognitiivsed funktsioonid, väärtused ja harjumused", "Inimkesksed elemendid", "Oskusteave elemendid". Uuring näitas, et taimetoitluse ja veganluse peamised motiivid olid loomade heaolu, keskkond ja tervis, samas kui kõigesööjate motiivid hõlmasid maitset, hinda ja kaalujälgimist. Pooltaimetoitlaseks muutumise peamised motiivid olid tervis, keskkond, maitse ja loomade heaolu. Samuti selgus uuringust, et vastajad vanuses 21-41 olid rohkem valmis lihatarbimist

vähendama või sellest loobuma. Lisaks, leiti jätkusuutliku toitumise järgijate seas ka muid demograafilisi tunnuseid, nagu naissoost olemine, kesk- või kõrghariduse omamine, töö omamine või ülikoolis õppimine. Selle uuringu sotsiaalsed ja majanduslikud tagajärjed võivad heita valgust poliitikakujundajatele jätkusuutliku toitumise takistustele, motiividele ja sotsiaal-demograafiale, kes on huvitatud ajendama lihatarbimise vähendamisest rahvatervise, keskkonna ja loomade heaolu huvides.

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