

Food literacy amongst young adults in Sweden

*A study on how knowledge, behaviour and emotions affect
household food waste*

By: Alessandra Petri Cortés

Supervisor: Ekaterina Tarasova

Södertörn University | School of Natural Sciences, Technology and Environmental Studies

Bachelor's thesis Environmental Studies 15 Credits

Environment and Development Bachelor's programme



Abstract

One third of all the food that is produced and edible around the world gets thrown away (WWF, 2014). Households are the main source of food waste according to the Swedish National Food Agency, each year a person throws a total of 33 kilograms of food and drinks in their homes (Livsmedelsverket, 2023). The purpose of this study is to contribute with knowledge about the level of food literacy amongst young adults in Sweden and how it affects their food waste management. A descriptive survey was used by the author as the data collection method to gather general information about what the individuals directly know and how they feel and behave regarding food waste. The results show that the city-based young adults in the Stockholm region indicate certain aspects of food literacy but that there are still improvements to be made. Indicators showing self-perceived food knowledge and positive emotions and attitudes regarding pro-environmental behaviour were found, but indicators of food literacy behaviour were not as substantial. Overall, the findings of this study suggest that young adults face significant challenges with regard to acquiring and using food literacy and that improvement needs to be made in the school education programmes and more engagement in the home for they are environments where the people get introduced for the first time to cooking and food waste management.

Table of content

1. INTRODUCTION	4
2. PROBLEM	6
3. PURPOSE	7
4. RESEARCH QUESTIONS	7
5. CONCEPTUAL FRAMEWORK	8
5.1 FOOD LITERACY.....	8
5.2 PRO-ENVIRONMENTAL BEHAVIOUR (PEB)	11
5.3 INFORMATION AND MEDIA	12
5.4 WHAT CLASSIFIES YOUNG ADULTS?	12
6. METHOD	13
6.1 METHODOLOGICAL APPROACH	13
6.2 DATA COLLECTION	15
6.3 METHOD FOR DATA ANALYSIS	16
6.4 DISCUSSION METHOD	17
7. RESULTS	18
7.1 SOCIODEMOGRAPHIC FACTORS	18
7.2 FOOD WASTE BEHAVIOUR	19
7.3 FOOD WASTE AND KNOWLEDGE.....	24
7.4 EMOTIONS AND ATTITUDES	24
8. ANALYSIS	25
9. CONCLUSION	28
10. DISCUSSION	29
11. LIST OF REFERENCES	32
12. APPENDIX	38

1. Introduction

One third of all the food that is produced and edible around the world gets thrown away (WWF, 2014). This has an enormous impact on the environment since a third of the resources consumed for producing food go to waste (WWF, 2014). There is no universal definition of food loss or food waste (Chaboud and Daviron, 2017) and the causes and effects of these are different across countries and along the different stages of the products value chain. The term food loss refers to the food that is lost between the production of the food product and the moment the food is purchased by a final consumer (WWF, 2014). When it reaches the consumer, their decisions and behaviour constitute the food waste (FAO, 2019). Households are the main source of food waste according to the Swedish National Food Agency, each year a person throws a total of 33 kilograms of food and drinks in their homes (Livsmedelsverket, 2023). “Food waste” is the term this paper will be referring to since it will focus on the food waste from the household of young adult consumers. Food production is a resource heavy industry due to its intensive use of soil, water and land. These resource consumptions are big contributors to climate change through high carbon emissions, biodiversity loss, soil erosion, nutrient deficit amongst other things (International Resource Panel, 2017). An effective way to fight climate change is to diminish food loss and waste worldwide, that is why the United Nations has set as a UN Sustainable Development Goal to reduce the global food waste by 50% in 2030 (UNDP, 2015). As the Brundtland report said, sustainability is obtained when we meet the present needs without compromising the ability of future generations to do the same (United Nations, 2023). The issue is that in order to begin to carry this through, today's younger generations need to be introduced to clear and understandable information that lead to effective decisions on how to confront the present environmental problems. Issues such as mass consumption is a main driver of climate change for its immense use of resources, this makes it especially important to make sure that the younger generations make more conscious purchases that are less wasteful (Haanpää, 2017). Strategies that focus on educating children to value nature itself, like for example Eco Friends in Sweden aim to inspire students from a young age to be active and involved citizens that understand how their actions and resource use affect the environment (von Essen, 2020). In recent decades the level of environmental consciousness has increased but in order to fight climate change there is a need for faster and sometimes radical changes in people's individual and collective behaviours. This transition has been noticed amongst the younger European generations who indicate implementing environmental and social thinking in their consumption behaviour

(Haanpää, 2017). One example is a trend of increased efforts to avoid food waste (Neergaard and Ravnbøl, 2019). Consumer food waste is caused by spoilage of food from bad planning or excess in purchases and in the case of young consumers it becomes amplified by the fact that they are associated with impulsive behaviour and spontaneity (Nikolaus, Nickols-Richardson and Ellison, 2018 p. 71). That young adults are more prone to these impulsive behaviours shows the importance of understanding the underlying reasons for their poor planning so in order to improve it there is need for better adapted strategies.

In order for policy makers to create new strategies there is a need to understand how the current state of the population's food literacy is. Sweden, as most countries, have used food literacy as a concept to help research nutritional and health habits of populations (Bailey, Drummond and Ward, 2019; Krause et al., 2016; Gunnarsson and Schåman, 2018). However, there are studies that show an evident “de-skilling” of fundamental food planning and preparation (Colatruglio and Slater, 2016; Cullen et al., 2015; Nomura, 2020) this has made food literacy an important concept worth researching further on its own in order to address those issues. In Sweden in particular, there is no sufficient research on the national level of food literacy without the nutritional and health aspects, there is an absence particularly in terms of how food literacy affects their household food consumption and food waste management. In this study, the term food literacy will be used as a framework to conceptualise three indicators: knowledge, behaviours and emotions regarding household food waste. By using these 3 indicators we can further understand how food literacy plays a role in their food waste. It is believed that a good education is the base to formulate the right attitudes and skills regarding food from a young age (Nomura, 2020). Projects set in motion by FAO aim to educate children to value and respect the importance of food and agriculture due to its disconnection in recent years (ibid). The youth, as much as the rest of the population, need to value food and change their attitudes and behaviour in order to reduce food waste (ibid). Food illiteracy has also shown to be a contributor to food waste (Silva et al., 2023; Qusted et al., 2013; Farr-Wharton et al. 2014; Nomura 2020) which is one of the reasons for why this study focuses on proficiencies such as cooking skills, knowledge on food durability and good food-storing. Consumption of processed and fast foods with poorer dietary quality are associated with obesity and poorer cooking skills (Adams et al., 2015) while they are very common and increasingly available in developed countries (Ferdman, 2015). The lack of food skills in young adults and its dependency of pre-cooked meals is

worrisome for this population group and can have consequences if not educated properly (Pepetone et al., 2021).

Sweden is proven to be one of the most environmentally friendly countries in the world with an EPI (Environmental Performance Index) score of 72.2 indicated by the level of air pollution, ecosystem vitality amongst other environmental impacts (World Population Review, 2021). This type of measurement does not reflect the level of environmental engagement of its population, young people in Sweden feel that climate change is the third most important social issue where 97% of the young women believe that it is important to live an environmentally friendly lifestyle (WWF Sverige, 2018). Young adults have shown to have more knowledge about climate change compared to other age groups, which is partly due to their high access and use of social media where they constantly receive news and information about global issues (Neergaard and Ravnbøl, 2019). In the Scandinavian countries research surveys have gathered the attitudes of the youth regarding their perception of the future and the majority are pessimistic, this is not very surprising since today's generation are not only confronting the climate crisis but also difficulties in the job and housing market (Norstat, 2020). Understanding the problems of food waste and exhibiting environmental consciousness is a positive characteristic amongst young adults but this awareness becomes insignificant when combined with the lack in skills on navigating the foodscape (Adams et al., 2015; Pepetone et al., 2021). This is particularly interesting to focus on since this generation shows the right attitudes and disposition for change but need food skills education in order to match with their interest.

2. Problem

As mentioned, populations are becoming “de-skilled” in terms of food preparation and food planning, this is an effect of the complexities of the current food systems and peoples lifestyles. Food preparation, conservation, storage, durability and edibility are basic skills that every individual should be taught in order to plan, manage and eat food to meet their needs. The bad food habits of young people are linked to the increase in consumption of pre-cooked and restaurant meals (Colatruglio and Slater, 2016; Ferdmad, 2015; Pelletier and Laska, 2012; Pepetone et al., 2021). If improving and promoting food literacy amongst people is shown to reduce their environmental footprint by reducing food waste, (Silva et al., 2023; Qusted et al., 2013; Farr-Wharton et al. 2014; Nomura, 2020) then it is relevant to gather

data on young adults' food literacy in Sweden as a way to implement future solutions to minimise their food waste. If the challenge of educating the population in the coming years is not handled properly the level of food illiteracy will have a great impact on the environment and the present foodscape (Silva et al., 2023). It is important for the coming generations to be taught and receive the necessary tools and information on how to manage food consumption within sustainable ecological limits.

3. Purpose

The purpose of this study is to contribute with knowledge about the level of food literacy amongst young adults in Sweden. Food literacy is the ability to plan, prepare and eat food to meet our needs (Vidgen and Gallegos, 2014, p.54). Previous research shows how high individual food literacy leads to a reduced food waste in the household (Silva et al., 2023; Quested et al., 2013; Farr-Wharton et al. 2014; Nomura, 2020). By asking the population group, in this case young adults, about their behaviour, knowledge and emotions regarding food conservation, cooking, storage, durability, we can learn about the causes of food waste in the household. This information can be used mainly by policy makers in the Swedish food and political system. The results of this study aim to show which indicators of food literacy the young adults possess by analysing their food waste behaviour, knowledge and emotions. A limitation for this study is that it has used a purposive sampling method that aimed to sample young adults that cook. This is of importance for this study since the purpose is to focus on household decision makers, such as deciding whether to use certain products for cooking or determine if they need to be thrown away.

4. Research questions

- *Which food literacy indicators are present amongst young adults in Sweden. How do these indicators influence their food waste management?*

5. Conceptual framework

5.1 Food literacy

Literacy is the ability that people have to use information to carry out their daily lives (Gillis, 2016 p. 85-101). The term literacy is constantly being challenged, that is why “food literacy” (FL) hasn't yet received a universal definition (Cullen et al., 2015; Truman, Lane and Elliott, 2017). In a way, FL has become a subcategory of health and nutrition literacy considering that all of the existing definitions of FL have integrated nutrition education, improved nutrition abilities and cooking skills (Hernandez et al., 2021). Vidgen and Gallegos have defined food literacy as “*a collection of inter-related knowledge, skills and behaviours required to plan, manage, select, prepare and eat food to meet needs and determine intake*” (Vidgen and Gallegos, 2014, p.54).

In 2017, a group of academics published a literature review of 38 different researches on the definition of “food literacy” and came to the conclusion that even though there are very broad and deep meanings to FL there are 6 common themes in all the approaches (Truman, Lane and Elliott, 2017). The topics include knowledge, emotions, skills/behaviours, health/food choices, culture and the food system. In this study we will focus on researching the knowledge, emotions and behaviours that young adults have attached to food waste. Food literacy is the concept that will be used as the framework to help interpret the empirical observations of the data. To clarify, this conceptual framework will be used with limitations made to fit the current issue. Due to practical and sensibility reasons some of the previously named indicators of food literacy will not be used for this study. Food systems is an indicator that can not be assessed in this study due to the research being focused in a urban area of Stockholm region which has the same food system throughout. Health choices could be used for a deeper analysis on young adults' consumption behaviour in Sweden, but due to the current state of the research field a limitation had to be made to only focus on food literacy to contribute to knowledge outside of the nutritional and health framework. Cultural indicator would have been an interesting aspect due to its effect on food waste but had to be put aside for it is a complex subject that requires more time to be analysed and would be handled better in an interview-based study for it is a sensible and personal matter.

The review gathers the common definitions of the chosen indicators, **knowledge** is referred to as the ability to seek and understand information about food. **Behaviours** and skills are defined as the physical actions or abilities involving food; and **emotions** include the influence of attitudes and motivations (Truman, Lane and Elliott, 2017). The term food choices won't be included in this study but will form part of knowledge and behaviour for they are actions associated with informed choices (ibid), that could eventually lead to high or low food waste. Some examples of abilities that contribute to food literacy include having the behaviour to choose and plan meals, understanding how to correctly store food, knowing how to prepare food and having the cooking skills to implement it (Velardo, 2015). Knowing how to handle and use cooking equipment together with good hygiene practices is also important from both food and health literacy perspectives (Velardo, 2015). It is also important to have in mind that being food literate is not just about the cooking skills but also means having the knowledge about food safety for example to identify unsafe/spoiled food (Truman, Lane and Elliott, 2017). Even the World Health Organization sees the importance of educating and empowering the consumer to improve food safety and to eradicate all foodborne diseases (World Health Organization, 2022). 40% of food-borne diseases occur in the home (FAO/WHO, 2002). This supports the reason for why the study partly inquires about the participants' fear of food poisoning from the food they eat at home. This is thought to reflect the level of trust they have on expiration dates of foods or on themselves to determine a food's durability. In fact, a study revealed that older consumers showed more scepticism to manufacturers expiration dates and therefore they based their food quality decision on their own intuition and sensory judgement (Melbye, Onozaka and Hansen, 2016).

Knowledge, behaviour and emotions

Knowing how to properly store food, its durability, preparation, etc is considered food literacy but the transition from the knowledge into the practice is of great importance in the field of food literacy (Velardo, 2015). Knowledgeable individuals with practical skills can meet other limiting factors such as time scarcity, costs and work/life balance (ibid). Women, including young adults, have been primarily responsible for cooking and meal preparation in the household that is why they have shown to be the part of the population that have greater knowledge about food handling and greater confidence compared to men (Health Canada, 2020). The young adults' food habits have been associated with poor dietary quality such as high consumption of fast-food, take-away, pre-packaged or restaurant foods (Pelletier and Laska, 2012, Colatruglio and Slater, 2016). The excessive amount of easily attainable

processed foods leads to individuals not relying on their personal cooking skills or no inclination to develop such knowledge (Vidgen and Gallegos, 2014; Velardo, 2015). Lack of knowledge about food's edibility, treatment and preservation has been shown by studies to be amongst the main causes of food waste in households (Nomura, 2020). That is why policies and programmes are being set in motion to improve food literacy which is achieved by “re-skilling” individuals on how to choose; plan and manage; prepare and eat food; and they believe that by increasing understanding and knowledge we will prevent and reduce food waste (Nomura, 2020; Cullen et al., 2015; Colatruglio and Slater, 2016). In Sweden, the national school board (Skolverket) has implemented in schools a subject called “home economics”, which is believed to be a very important tool to improve food literacy (Skolverket, 2011). A study done amongst students in 9th grade in Sweden shows the lack of food hygiene knowledge, one out of five didn't know that chicken needs to be cooked through (Koffmar, 2017). This is a clear example on how important good food, health and nutrition education is when growing up and that home economics lessons are a good environment to improve food literacy.

Food experts have discussed how planning and management skills are part of the components that form food literacy, planning includes making time for food and eating; having a plan to cook and eat; and having the skills to make the expected outcome possible (Vidgen and Gallegos, 2014). Food literate people are considered to have certain food related behaviours such as organisation, preparation behaviour, purchase and meal planning. Not pursuing these behaviours have shown to be amongst the most frequent reasons that cause food waste (Romani et al., 2018). Young adults show lack of food preparation and meal planning skills due to their minimal participation in food related activities when growing up (Colatruglio and Slater, 2016). Simple meal planning steps such as looking in your food storage what you have and writing a shopping list it's a process that is proven to help individuals reduce their household food waste (Jörissen, Priefer and Bräutigam, 2015).

Being a “foodie” and exploring new flavours could lead to reduced food waste, for young people taste itself is an important food factor and therefore has an effect on food waste (Lorenz, Hartmann and Langen, 2017; Lorenz et al., 2017). The same way as the emotional relationship that every individual has with food is shaped by personal interests, priorities and the surrounding food environments (Colatruglio and Slater, 2016). An important aspect of food literacy is to have a positive and healthy relationship with food, it has been shown by

previous studies that emotions and habits are important determinants in food waste behaviour (Russell et al., 2017).

5.2 Pro-environmental behaviour (PEB)

Due to climate change it is important that food literacy is achieved from an environmental perspective, individuals need to learn not only how to plan, manage and eat food to meet our needs but also the environment which is only reached by a sustainable use of resources. One of the ways to do it is to not exhibit wasteful behaviours and to dispose of food waste correctly. That is why this study will take into consideration how certain aspects of pro-environmental behaviour (PEB) have effects on the individual's food literacy. PEB refers to all behaviour that somehow benefits the environment and sustainable development (Jagers and Matti, 2020, p135). People can exhibit pro-environmental behaviour on purpose or unconsciously, for example avoiding throwing food can be motivated by different reasons such as money, time saving, morals, habits or for environmental reasons. To exhibit pro environmental behaviour it's important to mention that there has to be research that proves that said behaviours are environmentally friendly. In this case we know from previous research that actively lowering the amounts of food waste in the households will be considered as PEB (Scherhauser et al., 2018; World Wildlife Fund, 2023; Naturvårdsverket, n.d).

Being a food literate individual doesn't always imply being a pro-environmental person, neither do all food literate people behave the same way and this is due to the differences in individual personal context. The *attitudinal factors* help us understand why people make the choices they make which are usually based on values, beliefs and norms (Jagers and Matti, 2020; Stern, 2000). Values can be explained as the “personal cost and benefit of a particular action” (Stern, 2020) while norms are what guides a person to do the things they believe are right and if they don't they will feel the effects of what's called cognitive dissonance (Jagers and Matti, 2020 p. 144; Stern, 2000). *Personal capabilities* include what Stern (2000) calls “the knowledge and skills for particular actions” (ex. Cooking skills or knowledge for food durability); capabilities for meal-plannings; availability of time to act; general capabilities and resources such as literacy, money and social status and power” (Stern, 2000). Lastly, *habits and routines* also have value in this research field because to change behaviour it is necessary to break old habits (Stern, 2000). The home is an environment where individuals

are more in control which is a prominent place for young people to reflect on their behaviour and change or establish new habits and routines (Haanpää, 2017).

5.3 Information and media

To decide whether food is edible we can partly use our sensory receptors but most people make use of the information available on food packaging such as expiration date or its durability. Governments and private companies play a big role when informing their citizens about the risks involving food consumption and conservation. In Sweden the producer decides the best before date and the expiration date of their certain food product, there is no general law on labelling a food's durability (Livsmedelsverket, 2021). According to the Swedish Food Agency the *best-before date* has to do with how long the product maintains its quality, such as flavour, colour, crispiness, etc. while the *expiration date* applies to the products that became hazardous to health after said date (Livsmedelsverket, 2022). In supermarkets in Sweden we can see the use of a relatively new term *often well after*, which is a label added to the best-before date that provides further information for the consumer to determine a product's edibility (Livsmedelsverket, 2022). This leaves a frame for the consumers to think for themselves and reflect on the food's durability which could help reduce food waste and also food-borne diseases. Non-profit organisations such as EUFIC aim to improve food literacy among young people by making food and health choices more accessible and understandable (EUFIC, 2023). We also need to have in mind that well designed digital technologies could also be an effective tool to inform the consumer, since 84% of young adults use social media as their source of information (Auxier and Anderson, 2021).

5.4 What classifies young adults?

There are different perceptions of what young adulthood entails, the WHO broadly defined young people to those between 10 and 24 years old, while the United Nations put the range between 15 and 24 and use the term youth. Depending on the society and time in history young people will be characterised differently. By definition young people are traditionally expected to cultivate an identity and form their own belief system at the same time as gaining independence and autonomy (Higley, 2019). In this study we will mean young adults ranging from ages 18 to 30 as they are in a transitional period in life as well as they haven't in most cases formed a family yet. This is supported by the statistics that in Sweden the average age

of first-time parents was 30 for mothers and 32 for fathers in 2022 (Statistikmyndigheten, 2023). Having children change and reform the routines, beliefs, attitudes and behaviours that were standard in the household for the parents, that is why this study wants to analyse young adults before transitioning into a family household. In Sweden, the average age for moving from the family home is 21,4 years old which is the second youngest in Europe after Finland (Eurostat, 2023). There is consideration that not all people over 30 have formed families the same as not all people under 30 are childless but the latter being the trend in Sweden, it gains importance to add this age group in the study.

6. Method

6.1 Methodological approach

The purpose of this study is to bring forward new knowledge on young adults' food literacy in Sweden and how it affects their food waste management, but due to the resources available for the author, this purpose is not viable. Instead, a more practical approach is taken where the sample population will constitute a smaller local sample, out of the reasonable possibilities. The author chose a quantitative method to carry this out, as it believes it to be a more attractive research design for this study, which will be explained further in the method discussion. In the case of this study, the theoretical framework was converted into a conceptual framework that was used to define the possible variables and to formulate the purpose and research question of the study (Pickard, 2017, p.18). With a clear aim the author chose a descriptive survey as the data collection instrument, the results gathered were analysed and used to answer the research questions, draw conclusions and generalisations based on those findings (Pickard, 2017, p.18, p.112). To answer the research questions the purpose of the survey was to gather the identified indicators of food literacy of the individuals (knowledge, behaviour and emotions) concerning food in the household. By using the survey the author gathered general information about what the individuals directly know and how they feel and behave regarding food waste. To execute the research within the possibilities, the participants were chosen from Flemingsbergs education and research cluster area, which formed the population sample to be mostly city-based young students and employees from the research facilities, and chances are some respondents from the surrounding residence areas. A total of 55 participants were chosen with purposive sampling, where the researcher judges who seems like a young adult to form part of the study. As

mentioned earlier it is inconceivable to use the Swedish population as a whole (Pickard, 2017, p.111) and therefore this population sample will, to an extent, be representative of student and academic Stockholm region. By gathering the largest number of respondents, within the possibilities, the statistics will offer food informative value for the author to research the aimed population. The responses will give the author the possibility to discuss the relevance of the result to the young adult's population of Sweden. Time scarcity was one of the limitations and therefore electronic surveys was chosen to collect data in a time efficient manner (Jones, Baxter and Khanduja, 2013). The advantages of a survey became more significant since the method for data collection is both personal and electronic (Jones, Baxter and Khanduja, 2013). By using an electronic survey the author avoided any errors in data entry that are usual in personal and telephone surveys (Jones, Baxter and Khanduja, 2013). A colourful poster was created (appendix 2) to encourage and stimulate the participation of the population (ibid), the poster included the QR-code where respondents could scan with their own mobile phones and get directed to the questionnaire on the internet. By letting the respondents answer the questions by themselves on the mobile phones they will not be influenced by voice tones or feel criticised by the amount of food they throw. Letting them respond in their own does not mean the responses are truthful, the presence of other classmates or friends while completing the survey can influence the results. In the case of this study, externalities and/or the influence of societal norms are valuable aspects, for these will not just form the responses of the participants but will also give explanatory value of their behaviours. This is an effect that has to be involved for it is impossible, with the resources available for this study, to gather data in an isolated environment. Through a descriptive survey the author was able to gather data to look for trends and patterns of the individual's food waste and environmental behaviour in the household (Pickard, 2017 p.112). There was no take on opinions on the questions, it was a straightforward yes/no and do/don't type of questionnaire with a combination of measurements (frequency of food waste) and their motives (reasons for food waste). Most questions had alternatives that were expected from the participants as their response but since it is unlikely and ineffective to predict all possible outcomes some of the questions gave the respondent a chance to choose *Other* (Annat) and in the following question write their answer.

6.2 Data collection

With focus on young adults in Sweden the author can gather the result and information needed for policy makers to implement solutions for the future generations to minimise their food waste. In order to gather this data the author developed a self-report questionnaire with 25 questions. These questions were formulated based on the three previously mentioned indicators of food literacy (knowledge, behaviours and emotions) ment to gather the information needed to answer the research question. The questionnaire appeared as the best approach for the author to gain a good general overview of the trends and patterns of the sampled population and it is a quick and cost-effective method compared to interviews. Interviews would have been a good method for complementing and to gain in-depth understanding of the already found respondes (Jones, Baxter and Khanduja, 2013). The chosen participants were asked their age to confirm their validity to be part of the studied population group before answering the questionnaire. The responses were gathered from the 23rd to the 27th of November and the 5 last responses were submitted the coming week meaning that the last recorded answer was the 4th of December at 19:27 PM. They were asked if they had a few minutes available to be part of the study and the ones that agreed got to scan a QR-code with the link to the questionnaire (Appendix 1). A total of 49 respondents answered the questions, where 1 person didn't answer all the questions. Some justifications for the number of responses gathered can be explained by the fact that there was a smaller amount of people than usual in the geographical survey areas during the days dedicated to the gathering of data, which could be due to problems on the public transports and/or that it was exams week where people have less time to answer surveys. The response rate could have been higher if the survey was distributed for additional days. The participants were informed by the author and additionally by the introduction of the questionnaire about the purpose of the study as well as the anonymity of their responses. The author of this study was the one walking around the chosen area to find young adults to give the questionnaire to.

A pilot study was performed with 5 people to receive feedback and locate technical or clarity issues with the survey online, the results indicated that certain questions formulations included assumptions about their behaviour such as *What causes you to throw food?* Took the assumption that they do throw food, so the questions were reformulated to *If you throw food, what causes you to throw food* and those questions were adjusted to non-compulsory for those that didn't need to answer the question.

The choice of area for the investigation can be supported by the assumption that most university students move away from their family home when they start to study (Statistiskmyndigheten, 2022) and the probability of academic workers to live in their own household. Young adults was the optimal group because they had started to handle their own household and made decisions on domestic planning and managing. There were cases where respondents still lived in their family home while studying which were also analysed in the results due to the probability that they cook and buy groceries even in the family home. In other cases students might live with other students or with siblings which will also be included in the results. It is important for this study that the respondents to some extent take part in household chores such as cooking, purchasing food and managing food waste for this will reflect the level of food literacy they have. Certain aspects of food literacy are not included in this study as mentioned in the conceptual frameworks for they do not give research value in this study. It is important to give the respondents the exact same questionnaire that gives the study generalizability, for not giving any preferability or to any influencing factors.

The author tried to gather the highest amount of responses, within the available timeframe, for the higher the response rate the greater the study's validity and generalizability. The questions in the survey have been formulated in a clear way for the participants, by avoiding academic language they will create a better understanding of the topic. The author as the “promoter” of the survey showed consideration for the respondents if they don't have enough time to answer all the questions. A limitation that had to be made was to only create the survey in Swedish, this is so the sample population presented will account for city-based young adults that live in the Stockholm region and not exchange students that are studying in the campus for Erasmus or other work related reasons.

6.3 Method for data analysis

The results were analysed through descriptive statistics. This selection survey worked with probability sampling, here each individual in the population has the probability, bigger than 0, to be included in the selection (Körner, Ek and Berg, 1984). For this study the sampled population was formed by a purposive sampling where the participants were selected if they seemed to be young adults. The selection of the participants may have been affected by bias since it was possible that the author unconsciously chose the people that seemed receptive to

participate in the survey. The questions on the distributed survey had different formulations, some questions were of nominal scale such as Yes/No/Maybe answers, others had ordinal variables such as Never/Rarely/Always, but most included various variables with open-ended questions to write their response if it was not included as an option. The responses were compiled in an excel-file to help with the presentation of the data. First, the results on sociodemographic factors are presented in a table (Table 1). The most relevant results on the knowledge, behaviour and emotions chapters were presented in bar diagrams for they showed the result in a clear and understandable way. The results that were analysed by the supported literature and conceptual framework were used to answer the research question and make generalisations based on those findings (Pickard, 2017, p.18, p.112). By showing the results on said indicators, knowledge, behaviour and emotions we can analyse which aspects are missing or are present amongst the city-based young adults' population in the Stockholm region, where the majority are students or academic employees. Combining the conceptual framework with available empiricism can help make sense of the result and find reasoning behind their behaviours.

6.4 Discussion method

The goal of this study was to gather the highest quantities of straight forwards responses of the sample population in order to gather data with statistical value. In the contrary a qualitative method would have included more open-ended questions of more reflective character which would have required more time to analyse and would have been harder to draw any generalization on such a small sample. The bigger the sample the more representative it would have been of the city-based young adults of Stockholm region who are students or academic employees. The population sample of this study is not completely representative of the young adult's population in Sweden, due to the gathering of data being limited to one region of Sweden, which has its own characteristics and it being an academic location. This is shown by the amount of respondents that are students and the possibility that the few workers were employees of the university or the research facilities of the area. Therefore, the result can not be generalised for the young adults population of Sweden as a whole but can still contribute to research for it provides insight on which food literacy indicators they exhibit and how it influences their food waste management in the household. The thesis would have contributed more to the research field if presented with more time to create the survey with a more in-depth questionnaire. The author thought that by minimising

the length of the survey there would be more interested participants which in its turn would have amplified the number of responses.

“Food” for the purpose of this questionnaire will account for any food that either is still edible or has gone bad. The term *råvaror* in this questionnaire will mean completely unused food and partly used foods that haven’t been used at all but have gone bad and been disposed of. *Matrester* will be used to explain food that have been cooked that either have been disposed of after being left on the pans or plates (meal leftovers) and meals that have been stored in the fridge or freezer (leftovers after storing) but have been disposed of for different reasons (time frame has passed or don't feel like eating it anymore) (van Herpen et al., 2019). Food waste/loss has been defined in the questionnaire with the official *matsvinn* definition from the Swedish Food Agency to make sure that the respondents understand the main topic of the survey (Livsmedelsverket). The participants of the survey where informed about the anonymity of the data collection by the author and additionally in the beginning of the questionnaire. They were also informed that their answer will only be used for the purpose of this study and that if they had any thoughts or questions about the study, they could contact the author in the email address added.

7. Results

7.1 Sociodemographic factors

Table 1 shows the sociodemographic information from the respondents. The median age of the population sample is 24 and most of the participants only study (53%). The median household size is 2 adults per household.

Table 1: Sociodemographic information of the sample population. Including sex, age, occupation and number of people in the household.

sociodemographic information	sex	male	27 (55%)
	(n = 49)	female	22 (45%)
	age	median	24

(n = 49)	range	{20,21,22,23,24,25,26,27,28}
occupation	employed	10 (20%)
(n = 49)	study	26 (53%)
	both	12 (24%)
	other	1 (2%)
nr of people in household	median	2
(n = 49)	range	{1,2,3,4,5}

7.2 Food waste behaviour

In figure 1 we can see that the majority, over 50% of the population, cook sometimes or often which is an expected outcome required to examine the participants' food behaviour.

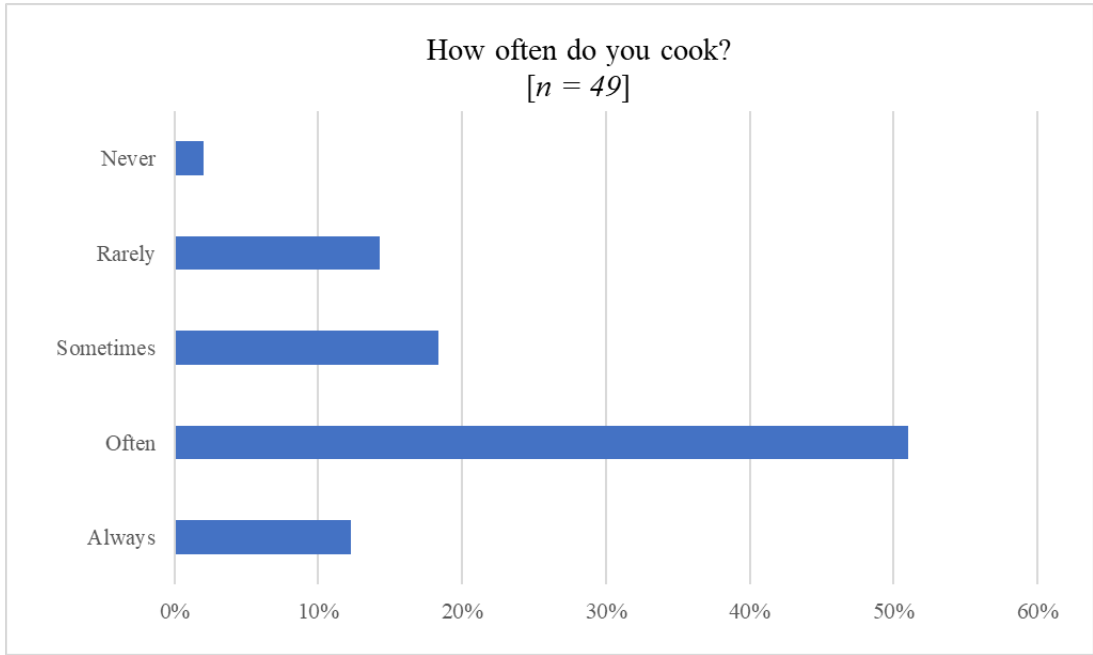


Figure 1: Bar diagram showing the frequency on which the sample population cook, expressed in percentage. Total of 49 respondents.

The first question about food waste in the questionnaire aims to explore what the participants consider is a lot of food waste or no food waste by asking them how much food waste they

have in their household and 43% respondents consider they have *No food waste* and 57% consider they have *moderate to a lot of food waste* in their household. The occurrence of the participants' food waste was expressed in 6 different frequencies *every time I eat food; several times a day; once a day; once a week; once a month* and *never*. As you can see below, in figure 2, the most common was for the participants to throw food once a week (49%). Regarding if they throw their food waste in the compost also reflect their level of food literacy and pro-environmental behaviour, where only 57% claim to throw it in the compost.

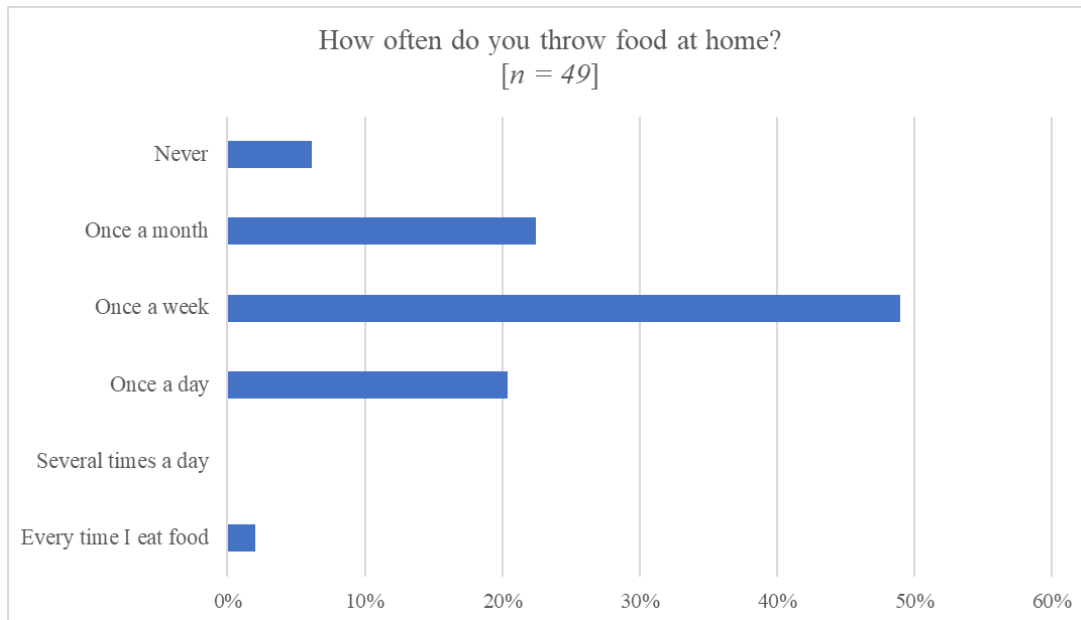


Figure 2: Bar diagram showing the frequency on how often the sample population throws food in their household. Total of 49 respondents.

Figure 3 shows what the young adult population believes causes their food products to go spoiled without them getting used. The two most common answers were that they *forget to use it or its hidden* or *poor meal planning*. The third and fourth most common causes were *buying too much* 14% and that they *feel like cooking something else* 12%. Only a few, 4%, indicated their causation to be *too little to use* meaning that the products they have are in too small quantities to use, same percentage to those that *don't know what to cook with it*.

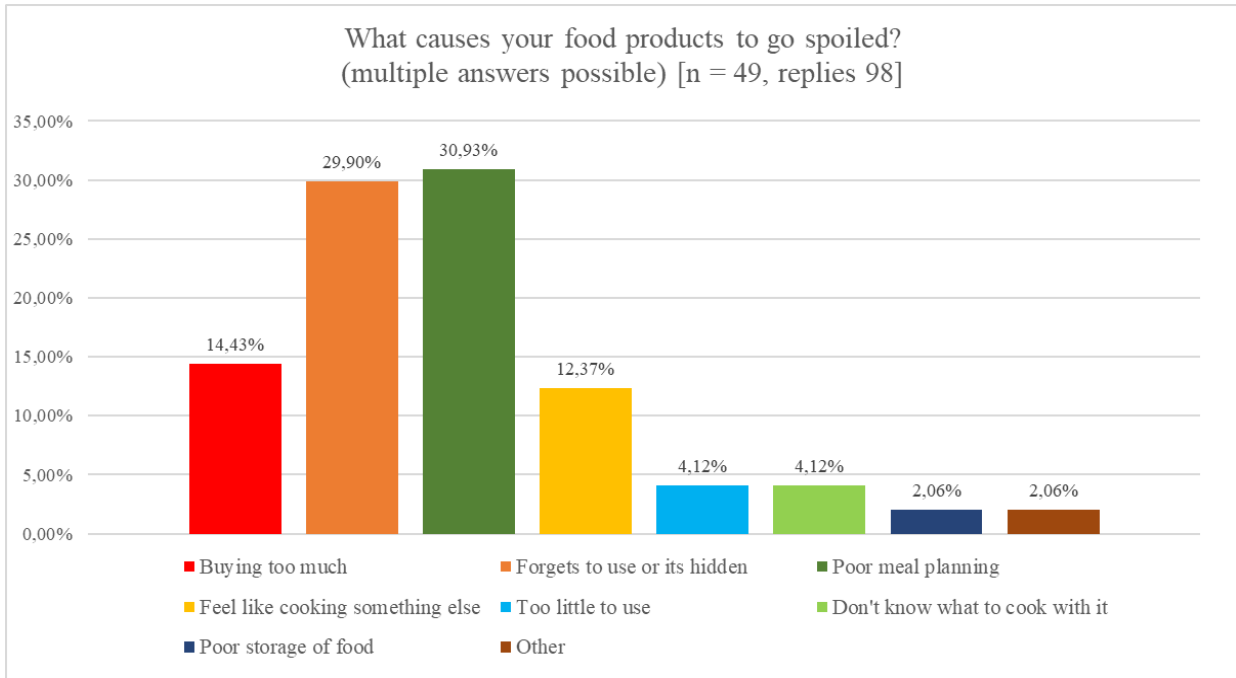


Figure 3: Bar diagram showing the sample populations causes to food waste. Multiple answers possible, total of 98 replies from 49 respondents.

Figure 4 about what causes them to throw away meal leftovers shows that the most common cause (42%) is that they *forget to eat/freeze and gets spoiled* while 20% of the population *left out for too long (after cooking)*. 13% are *not keen to eat the same meal again* and 11% feel that the leftover meals *don't taste as good*. 9% *don't know how long leftovers last in the fridge*. 1% *don't know how to store* and another 1% *do not have a microwave*. The 2 respondents that answered *other* wrote that they “rarely throw food” and “sometimes I cook too much, and I can't eat it up”.

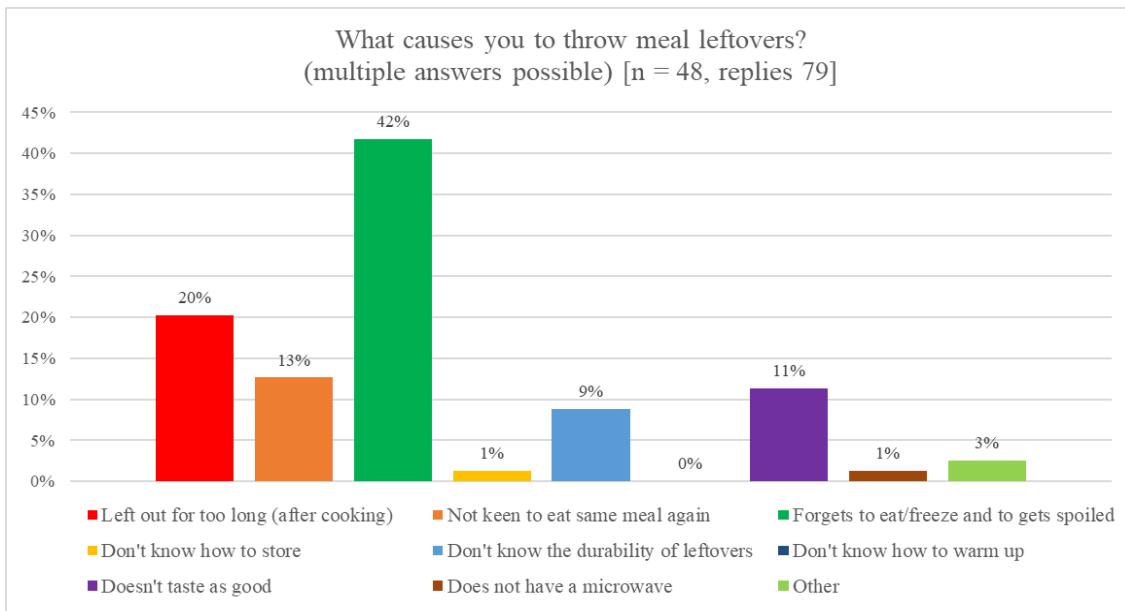


Figure 4: Bar diagram showing the sample populations causes to meal leftover waste. Multiple answers possible, total of 79 replies from 48 respondents.

Figure 5 shows how they make the decision whether the food is spoiled or can still be used. The majority of the respondents, about 52%, say that they both *look at the date but look, smell and taste too* before throwing it away. 4% of the population chose to *ONLY look at expiration date* which means they fully trust the expiration date and that they base their decision to throw the food purely on that. The first column on diagram in figure 5, should show 4% if they actually only looked at the expiration date. Therefore it is an inaccurate representation of the results in question 11 since some respondents chose both *Only look at expiration date* and an additional option. More than 17% of the respondents say they rely on the senses (*look, smell and taste*), amongst other actions, to decide whether the food has to be thrown away but only 8,70% of those only rely on their senses. The third most common action, 16%, was to *search online the durability of the product*. The one person that answered *other* decided to throw food when “it doesn't have any flavour”.

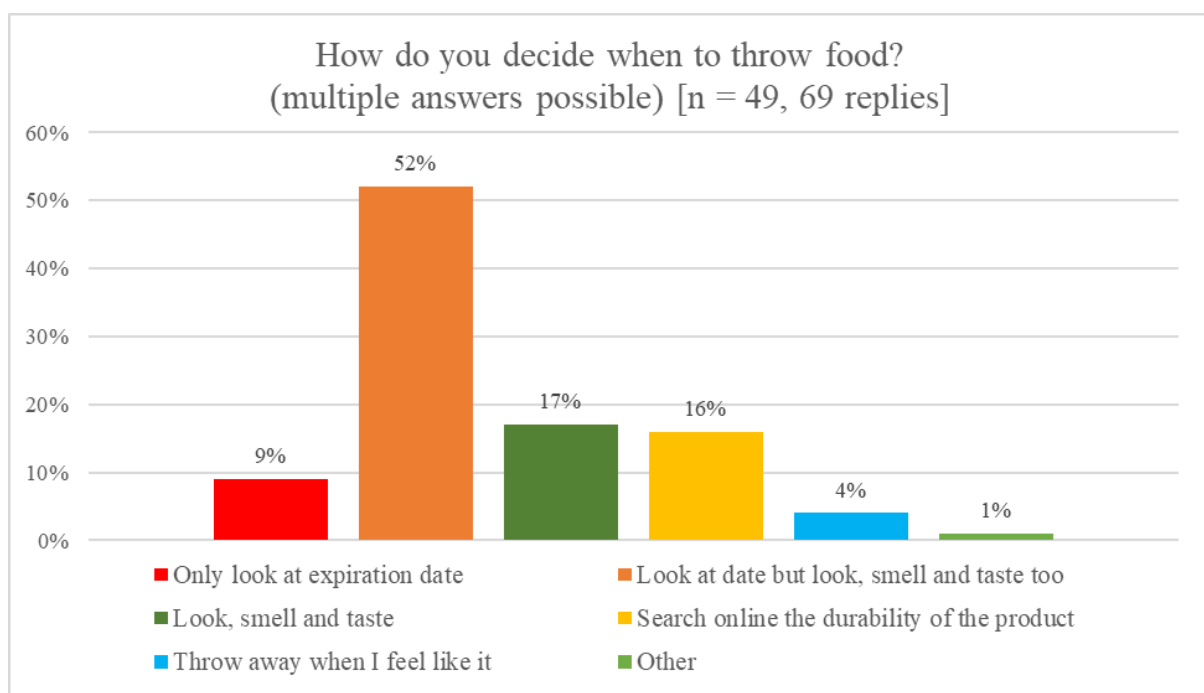


Figure 5: Bar diagram showing what the sample population do to decide when to throw food. Multiple answers possible, total of 69 replies from 49 respondents.

Question 17 aims to make the respondents reflect on their pro-environmental behaviour and it shows that 86% *avoid throwing food* and 14% *don't know or don't avoid throwing food*. Figure 6 shows what the population sample does at home to avoid food waste, the majority 37% answered to *freeze* their food and the second most common answer was to *store the food correctly* 31%. 27% *only buy what they need* and only 3% either *pickle, dry or ferment* their

foods to avoid food waste. The one person that answered *other* wrote that they “try not to cook too much food per meal. To have the alternatives in case I'm not full (fruit and other).

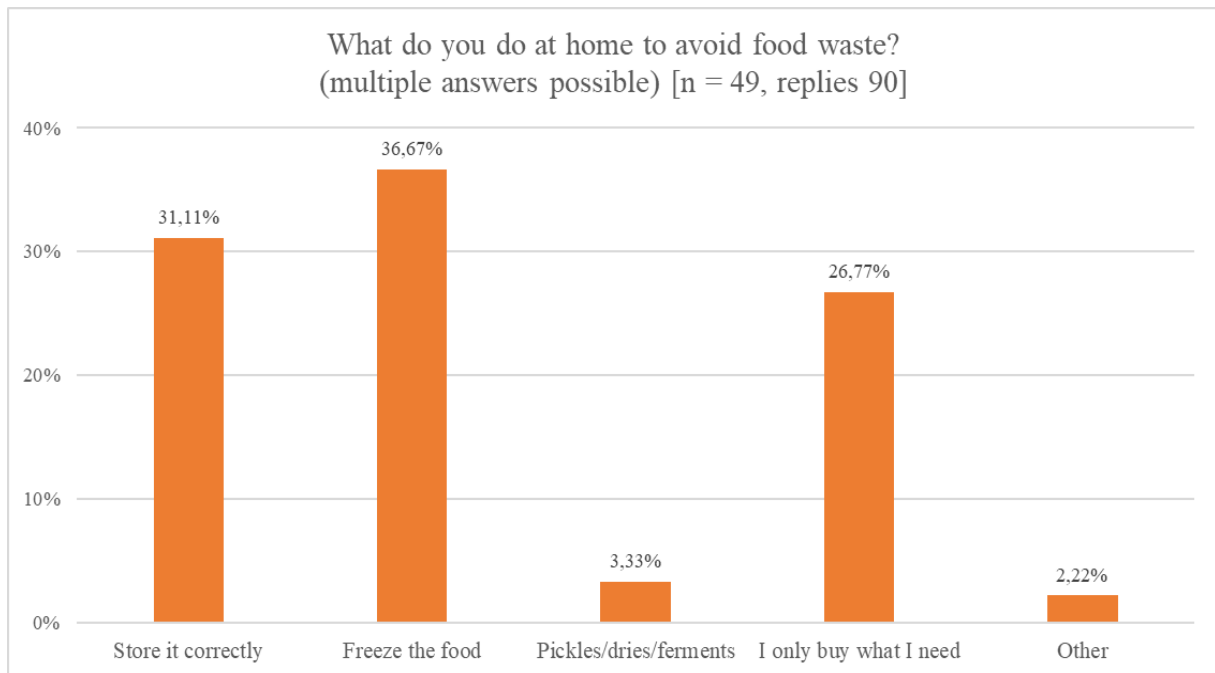


Figure 6: Bar diagram showing what the sample population does to avoid food waste in their household. Multiple answers possible, total of 90 replies from 49 respondents.

Table 2 shows the different reasons why the respondents avoid throwing food. By a small difference the most common reason to not throw food was to save money 28% and only 6% choose it as their only reason. The second most common was for environmental reasons 23% and 22% answered for immoral reasons and 19% believe it's part of their habits. Only 7% feel they save time by not throwing food, the time they have used on purchasing or cooking the food.

Table 2: Reasons for why participants avoid throwing food ranked by order in frequency.

Reasons to avoid throwing food (multiple answers possible)	[n = 49, 124 replies]	Number of respondents that chose only one reason as their motivation
1. Saves money	28%	3
2. Environmental reason	23%	1
3. It's immoral	22%	1
4. It's a habit	19%	3
5. Saves time	7%	1

7.3 Food waste and knowledge

As shown in figure 7, the exact same amount (67%) of the population sample, both consider they have good cooking knowledge and good food conservation knowledge. 33% consider they don't know, or they don't have cooking or food conservation knowledge. 78% say they don't search for tips online, 22% claim that they do or don't know. 73% consider themselves to have knowledge about food durability and while only 26% consider they don't know or don't have food durability knowledge. To summarise the sampled group self-perceive they have a good general level of knowledge regarding food handling.

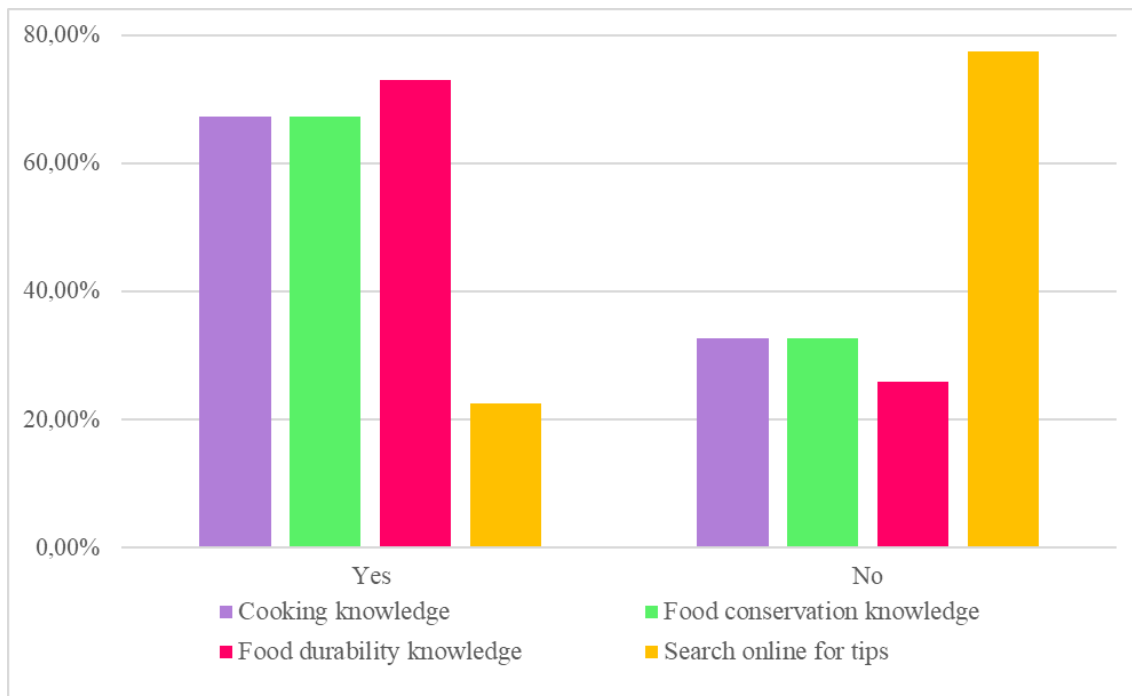


Figure 7: Bar diagram showing the self-perceived knowledge the sample population have regarding cooking knowledge, food conservation knowledge, food durability knowledge and if they search online for tips

7.4 Emotions and attitudes

53% believe it's not okay to throw the food they have on the plate, 43% believe it is okay and 8% don't know if it's okay to throw. Regarding if they feel guilty for throwing food the majority 78% answer they do feel guilty or sad when they threw food. 57% of the population consider themselves environmentally friendly, while 22% don't consider they are and 20% don't know. Their attitudes towards wanting to reduce their food waste is clear where almost every respondent (94%) answered they want to reduce their food waste and 6% don't know if they want to. Only one participant claimed that he doesn't know if throwing food is an environmental problem.

8. Analysis

- *Which food literacy indicators are present amongst young adults in Sweden. How do these indicators influence their food waste management?*

The results of this study show that the young adults in Sweden exhibit certain aspects of food literacy but that there is still improvement to be made in that regard. They show partly knowledge, emotions and behaviour that are expected in a food literate person and these indicators have shown to affect their food waste management in different situations.

Valuing food over taste preferences

Their self reported cooking frequency where the majority, over 50%, claim they cook often shows that they have food preparation behaviour which is a clear first indicator to food literacy. The results of the sample population's behaviours show that there have very different food waste behaviour, almost 50/50, one half think they throw no food waste and the other throw a lot to moderate. This shows that part of the sample does have food waste reducing behaviour. This study found new interesting results regarding their food waste behaviour, the third (13%) and fourth (11%) most common reason for a young adult to throw away meal leftovers was due to not being keen to eat the same thing again and it not tasting as good after storing. In one sense, claims can be made that by deciding to throw away the meal leftovers as a choice the participants indicate having the ability of making informed food choices which is a part of food literacy. In this case basic values need to be influenced towards a more environmentally friendly behaviour (Stern, 2000), where valuing food comes from understanding its origin and the resource use of nature that comes with it. There are already educational programs in Sweden that work with this type of issue by inspiring young students to be involved citizens that understand how their actions and resource use affect the environment (von Essen, 2020). It is important to take into consideration how changes in the foodscape and consumption patterns have made the individual more prone to wasteful behaviour and instead doing what is best for the environment. The results also show that there could be an improvement in the population's cooking skills like for example if they learned how to pickle, dry or ferment their own foods they could further prevent food waste (Nomura, 2020; Cullen et al., 2015; Colatruglio and Slater, 2016). Learning about food conservation could be part of a solution but only if combined with an interest to implement it in their daily cooking. It's important to take into consideration that this sort of process

requires time which could be a limiting factor for some people who then turn to other food conservation techniques such as freezing the food (Velardo, 2015). This is another example of how it is a challenge to combine both the knowledge and attitude together with behaviour.

Knowing but forgetting

The results of the survey show that the majority of the sample population express having knowledge about food durability (73%) and good knowledge about cooking (67%) and food conservation knowledge (67%). These aspects are based on the respondent's self-perception of what a "good" cooking and conservation knowledge entails, no definitions were included for this section for the aim was to show if they feel inclination towards said statement. The low frequency (22%) shown by the respondent about searching online for different food management tips could mean that the respondents feel confident enough of their own knowledge and skills that they don't feel the need to get help by searching online for tips. They show having knowledge about different ways to preserve food waste such as freezing, which are qualities that contribute to food literacy (Velardo, 2015). Knowing is not enough to achieve food literacy since it does not match with the results in behaviour that show their most common reason for food waste is that they forget to freeze it. Why do they forget, is a hindrance worth examining further in future research. Is forgetfulness a result of bad planning? Previous research implies that it is one of the main drivers of food waste (Jörissen, Priefer and Bräutigam, 2015; Romani et al., 2018) or maybe it could be a result from other factors such as time scarcity. The last question on the survey was an optional open-ended question where the participants could write what would make them throw away less food. It is important to ask the individual what they think would help them improve and not just speculate. 6 out of 23 respondents, that chose to answer, know they are bad at planning, they claim that improvement in their meal and purchase planning would help them reduce food waste. As Velardo put it, the problem here is that they might show enough food literacy knowledge but they don't put it into practice (Velardo, 2015) the reasons behind it are important to understand in order to create tools that will improve said behaviour. The answers also reflect what they want those tools to look like, for example more home economics education, smaller packaging in stores, better cooking skills, and raising the moral aspects of food waste by on-hand education.

Food durability

Results show further food literacy knowledge and that is to identify spoiled food. Contrary to question 10 where the respondent is asked whether they have knowledge of food durability, question 11 asks directly how they identify the spoiled food. The result shows that for the most part the sample population look at expiration dates but also look, smell and taste it to determine if the food product is safe to consume. Therefore the majority (52%) determine spoiled food by both trusting the labelling and their own sensory judgement. This question gave the participants the possibility of multiple answers since it is common to determine food edibility in multiple ways and depending on the food product. Of the 6 respondents (12%) that use only their senses to determine the food edibility 5 of them are women. This could be a result of the higher self-confidence that women have shown about cooking compared to men since they are in most cases in charge of food preparation in the household (Health Canada, 2020). Something worth mentioning is that all the participants that are 26 or older have shown to base their decision, on whether food is edible, mainly on their senses but that also look at the expiration date to determine (as a secondary) this could be due to scepticism to food labelling and/or more practice in the kitchen in older adults (Melbye, Onozaka and Hansen, 2016).

Environmentally friendly attitudes and behaviours

The population show clear emotions and attitudes regarding food waste, where the majority want to reduce it and feel guilty when they throw food but only 57% believe they are environmentally friendly. This shows that they have the intentions to reduce food waste but we do not know the reasons behind the reduction, maybe it is for environmental reasons, for money-saving, or clash with personal morals. That is why only approximately half of the population call themselves environmentally friendly, as Jagers and Matti (2020) explain in their book there are people that exhibit pro-environmental behaviour without that being their motivation (Jagers and Matti, 2020, p137). As shown in table 2, only 23% of the population chooses to avoid throwing food for environmental reasons as one of their motivators, which shows that part of the sampled population understand the impact of food waste on the environment and act on said statement. The rest of respondents perhaps also understand the impacts but don't act on it. Only 1 respondent does it only for environmental reasons, this supports the findings of Jagers and Matti (2020) where the smallest percent of the society have pro-environmental behaviour just for that reason. The most common reason was to save money (28%) amongst other things which is a clear example of what Jagers and Matti

(2020) claim that pro-environmental behaviour can be an effect of their reasoning. An interesting finding is that 3 people chose to avoid throwing food simply on it being a habit, this is something that is worth examining further in future research. These people perhaps don't need any other motivation, they probably have been taught to not throw food by their parents, school or society. Another observation is that the population is almost split evenly regarding their emotions towards platewaste, some think it is okay and some don't. Does this have to do with morals, home education, etc? 8% don't know if it's okay to throw away food from the plate which shows that some still lack the knowledge in this regard. Since the percent is too small to the population sample we can not draw any conclusions. Same as just one participant answered that it doesn't know if food waste is an environmental problem. We can not generalise the level of environmental awareness with an insignificant percentage but it shows that some part of the population don't know about the social and environmental impact of food waste.

9. Conclusion

The results of this study show that the city-based young adults in the Stockholm region, who are students or academic employees, exhibit certain aspects of food literacy but that there is still improvement to be made in that regard. They show partly knowledge, emotions and behaviour that are expected in a food literate person and these indicators have shown to affect their food waste management in different situations. They showed knowledge and understanding of food waste as an environmental problem, self-perception of good cooking and conservation knowledge, and how to identify spoiled food. Their behaviour showed that having knowledge is not enough for them to manage a reduction in food waste. This means there is something affecting their intention to reduce food waste. There is a need for tools that help the youth combine their knowledge and behaviours. One of the main causes that continue to emerge is poor planning and management but also their taste preferences which is reflected by their reasons for throwing food. Poor planning is a theme that appears to be a recurring issue due to the inadequate meal and storage planning, there is a need for improvement in this regard due to the main reason being forgetfulness. Their emotions and attitudes are on the right side of food literacy and pro-environmentalism, they show having the intentions to reduce food waste. Overall, the findings of this study suggest that city-based young adults face significant challenges with regard to acquiring and using food literacy and that improvement needs to be made in the school education programmes and more

engagement in the home for they are environments where the people get introduced for the first time to cooking and food waste management.

10. Discussion

Before receiving the responses from the participants, the author thought that sample population got information and searched online for tips through social media due to the high access and use of social media that they are associated with (Neergaard and Ravnbøl, 2019) but the results showed the contrary. Is it because they believe to have enough information and knowledge about cooking? Or maybe it is an effect of the algorithms in social media that only show you what they believe you are more interested in. Algorithms together with misinformation on the internet have complicated the information intake of the population. I believe that there is need for more reliable digital tools to help the populations not only reduce their food waste but also to create a better understanding of food and its origins in order to educate and increase the value that food and nature deserves. Or as Nomura (2020) puts it there is a need for educate children to value and respect food and agriculture due to its disconnection in recent years. I can say first-hand that if they started to search online for tips, they would start receiving information automatically, which is one way to look at the positive side of algorithms, but for that to happen the interest of the population needs to be initiated on their own by showing the intention.

As mentioned in the method this study focused on particular behaviours of the sample population but if the questionnaire would have included more in-depth questions about specific behaviours from the participants, we would have gained a more detailed view of what is limiting the young adults to reduce household food waste at the same time as gaining more understanding on the individuals food literacy. To understand the underlying factors affecting young adults is important to create the necessary tools for improving the food literacy of the population, this is a job better suited for behavioural and social scientist. In this case, we can only presume that the worrisome amount of fast-food, pre-cooked meals and restaurants, that are so attractive and tempting, is affecting the level of food waste and meal preparation in the household. In most cases these types of food contain intense flavouring which they have grown accustomed to and it could be argued that they have developed an appetite for these types of meals which make their own home cooked meals not as interesting or tasty. If they improved their cooking skills, they could learn how to cook these types of

appealing meals that we are so used to seeing and consuming outside of the home in developed countries.

The clear “de-skilling” of cooking and planning that previous research write about can be due to multiple factors, but I believe is big part by the effects of the complex food system. That is why there is a clear need for improvement of people’s food literacy so that the future generations can navigate those difficulties better than the present generation. We are the first generation that have been presented with these issues, we have become attracted by the comfortable and effortless purchases of pre-cooked food instead of making use of our own time and skills. The home is said to be the best environment to learn and try new things, that is why I believe that by engaging children in household cooking and shopping chores they will create a positive relationship with food if presented in a friendly and casual matter.

One of the tools the young adults claimed would help them reduce their food waste was the availability of small food packaging in the grocery stores. Young adults, especially students that live alone, have a lower income than workers, this could lead to them buying products in bulk that are cheaper (price per unit) than the smaller packaging even for one person households. A common issue for small households is that the food they buy gets old before it is fully consumed, that is why small food packages would reduce food waste, but only if the cost of purchase wasn't so high. A possible solution would be educating the consumers on which are the best adapted conservation methods for different types of food products, in order to make them last longer, especially when packaging is larger than desired.

The majority answered that they want to reduce their food waste but it could be argued that the statement is not genuine since their behaviour doesn't reflect that. Having to spend more of their personal or leisure time learning and improving does not outweigh the thought of throwing more food waste. What could be on the way of achieving this pro-environmental behaviour? Is it lack of tools, interest to improve, time, fake interest for the environment? Maybe everybody says they are environmentally friendly to not get criticised by their peers, especially young people who are expected to be the defenders of the environment. The youth today are the ones that will get most affected by climate change in the future that is why it is expected of them to follow pro-environmental behaviour to the detail but it is not that easy. There are a lot of things that get in the way such as priorities, leisure time, maybe wanting to enjoy things as the older generations did before us without feeling remorse. This does not

only refer to food but to all activities and enjoyment, it is complicated today to follow all the recommendations they make for an environmentally friendly lifestyle. A perfect example is how we are recommended to buy and eat ecological products for the dangers of buying commercially grown products that are bad for the health and the environment, but the price is still very high. This becomes a limitation if you don't have the money so instead you are forced to buy unhealthy and probably life risking products, instead of making it more available for the common public. Another example is pre-cooked meals, did these appear in the market because we didn't have enough time to cook? Why did we go that way instead of finding solutions that gave us the time to cook home? There are a lot of positive emotional and nutritional properties with cooking a meal at home for your family. These are both examples of how complicated it is to navigate the present foodscape and food systems, which only become more amplified if the whole population is not properly educated to make the right decision or to think critically.

A recommendation would be that future studies should focus on what is limiting the young adults' pro-environmental behaviour. It's essential to improve it by adding more environmental focused educational programmes in schools and at home, but it is also important to not overwhelm the youth about the importance of making pro-environmental choices for the thought of such complex matter can make oneself believe to be an insignificant driver of change. Furthermore, to research how their environmental concerns are formed by world views and social structures to understand the whole picture of what leads to their choices.

11. List of references

- Adams, J., Goffe, L., Adamson, A.J., Halligan, J., O'Brien, N., Purves, R., Stead, M., Stocken, D. and White, M. (2015). Prevalence and socio-demographic correlates of cooking skills in UK adults: cross-sectional analysis of data from the UK National Diet and Nutrition Survey. *International Journal of Behavioral Nutrition and Physical Activity*, 12(1). doi:<https://doi.org/10.1186/s12966-015-0261-x>.
- Auxier, B. and Anderson, M. (2021). *Social media use in 2021*. [online] Pew Research Center. <https://www.pewresearch.org/internet/2021/04/07/social-media-use-in-2021/>.
- Chaboud, G. and Daviron, B. (2017). Food losses and waste: Navigating the inconsistencies. *Global Food Security*, 12, pp.1–7. doi:<https://doi.org/10.1016/j.gfs.2016.11.004>.
- Colatruglio, S. and Slater, J. (2016). Challenges to acquiring and utilizing food literacy: Perceptions of young Canadian adults. *Canadian Food Studies / La Revue canadienne des études sur l'alimentation*, 3(1), pp.96–118. doi:<https://doi.org/10.15353/cfs-rcea.v3i1.72>.
- Cullen, T., Hatch, J., Martin, W., Higgins, J.W. and Sheppard, R. (2015). Food Literacy: Definition and Framework for Action. *Canadian Journal of Dietetic Practice and Research*, 76(3), pp.140–145. doi:<https://doi.org/10.3148/cjdpr-2015-010>.
- Bailey, C.J., Drummond, M.J. and Ward, P.R. (2019). Food literacy programmes in secondary schools: a systematic literature review and narrative synthesis of quantitative and qualitative evidence. *Public Health Nutrition*, 22(15), pp.2891–2913. doi:<https://doi.org/10.1017/s1368980019001666>.
- EUFIC (2023). *EUFIC Launches Food and Health Science Literacy Campaign to Combat Disinformation in the EU*. [online] www.eufic.org. <https://www.eufic.org/en/newsroom/article/eufic-launches-food-and-health-science-literacy-campaign-to-combat-disinformation-in-the-eu>
- Eurostat (2023). *When do young Europeans leave their parental home? - Products Eurostat News - Eurostat*. [online] ec.europa.eu. <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20230904-1>.

FAO (2019). *The state of food and agriculture. 2019, Moving forward on food loss and waste reduction*. Rome, Italy: Food And Agriculture Organization Of The United Nations.

FAO/WHO (2002). *Statistical information on food-borne disease in Europe: Microbiological and chemical hazards. Paper presented at the FAO/WHO Pan-European Conference on Food Safety and Quality, Budapest, Hungary*. [online] www.fao.org.
<https://www.fao.org/3/X6865E/X6865E.htm>

Farr-Wharton, G., Foth, M. and Choi, J.H.-J. (2014). Identifying factors that promote consumer behaviours causing expired domestic food waste. *Journal of Consumer Behaviour*, 13(6), pp.393–402. doi:<https://doi.org/10.1002/cb.1488>.

Ferdman, R.A. (2015). The slow death of the home-cooked meal. *The Washington Post*.
<https://www.washingtonpost.com/news/wonk/wp/2015/03/05/the-slow-death-of-the-home-cooked-meal/>.

Gillis, D.E. (2016). Using a health literacy frame to conceptualize food literacy. In: *Food Literacy: Key concepts for health and education*. Routledge.

Gunnarsson, J. and Schåman, A. (2018). Ett medvetet val? Food literacy som verktyg i hem- och konsumentkunskapsundervisningen. <https://gupea.ub.gu.se/handle/2077/56322>

Haanpää, L. (2017). Youth environmental consciousness in Europe. The influence of psychosocial factors on pro-environmental behaviour. In: *Green European. Environmental Behaviour and Attitudes in Europe in a Historical and Cross-Cultural Comparative Perspective*. Routledge.[https://www.taylorfrancis-com.till.biblextern.sh.se/books/edit/10.4324/9781315648491/green-european-audrone-teleziene-matthias-gross](https://www.taylorfrancis.com/till/biblextern.sh.se/books/edit/10.4324/9781315648491/green-european-audrone-teleziene-matthias-gross).

Health Canada (2020). *Improving Cooking and Food Preparation Skills: A Synthesis of the Evidence to Inform Program and Policy Development - Canada.ca*.
<https://www.canada.ca/en/health-canada/services/publications/food-nutrition/improving-cooking-food-preparation-skills-synthesis-evidence-inform-program-policy-development-2010.html>.

Hernandez, K.J., Gillis, D., Kevany, K. and Kirk, S. (2021). Towards a common understanding of food literacy. *Canadian Food Studies / La Revue canadienne des études sur l'alimentation*, 8(4). doi:<https://doi.org/10.15353/cfs-rcea.v8i4.467>.

Higley, E. (2019). *Defining Young Adulthood*. [online] https://repository.usfca.edu/cgi/viewcontent.cgi?article=1017&context=dnq_qualifying.

International Resource Panel (2017). Food Systems and Natural Resources. www.resourcepanel.org. [online] <https://www.resourcepanel.org/reports/food-systems-and-natural-resources>.

Jagers, S.C. and Matti, S. (2020). *Miljöpolitikens villkor*. Studentlitteratur Ab.

Jones, T., Baxter, M. and Khanduja, V. (2013). A Quick Guide to Survey Research. *The Annals of the Royal College of Surgeons of England*, [online] 95(1), pp.5–7. doi:<https://doi.org/10.1308/003588413X13511609956372>.

Jörissen, J., Priefer, C. and Bräutigam, K.-R. (2015). Food Waste Generation at Household Level: Results of a Survey among Employees of Two European Research Centers in Italy and Germany. *Sustainability*, [online] 7(3), pp.2695–2715. doi:<https://doi.org/10.3390/su7032695>.

Koffmar, L. (2017). *Ungdomar har dåliga kunskaper i livsmedelshygien - Uppsala universitet*. [online] www.uu.se. <https://www.uu.se/nyheter/arkiv/2017-05-29-ungdomar-har-daliga-kunskaper-i-livsmedelshygien>

Körner, S., Ek, L. and Berg, S. (1984). *Deskriptiv statistik*. Second ed. Studentlitteratur.

Krause, C., Sommerhalder, K., Beer-Borst, S. and Abel, T. (2016). Just a subtle difference? Findings from a systematic review on definitions of nutrition literacy and food literacy. *Health Promotion International*, 33(3), p.daw084. <https://doi.org/10.1093/heapro/daw084>

Livsmedelsverket (2021). *Vad betyder datummärkningen?* [online] www.livsmedelsverket.se. https://www.livsmedelsverket.se/livsmedel-och-innehall/text-pa-forpackning-markning/datummarkning#Frivillig_till%C3%A4ggsm%C3%A4rkning_till_datum%C3%A4rkningen_B%C3%A4st_f%C3%B6re_-_ofta_bra_efter

Livsmedelsverket (2022). *Vanliga frågor om datummärkning*. [online] <https://www.livsmedelsverket.se/foretagande-regler-kontroll/regler-for-livsmedelsforetag/information-markning-och-pastaenden/markning-av-fardigforpackade-livsmedel/vanliga-fragor-om-datummarkning>.

Livsmedelsverket (2023). *Fakta om matsvinn*. [online] www.livsmedelsverket.se. <https://www.livsmedelsverket.se/matvanor-halsa--miljo/matsvinn/fakta-om-matsvinn>.

Lorenz, B., Hartmann, M., Hirsch, S., Kanz, O. and Langen, N. (2017). Determinants of Plate Leftovers in One German Catering Company. *Sustainability*, 9(5), p.807. doi:<https://doi.org/10.3390/su9050807>.

Lorenz, B.A.-S., Hartmann, M. and Langen, N. (2017). What makes people leave their food? The interaction of personal and situational factors leading to plate leftovers in canteens. *Appetite*, 116, pp.45–56. doi:<https://doi.org/10.1016/j.appet.2017.04.014>.

Melbye, E.L., Onozaka, Y. and Hansen, H. (2016). Throwing It All Away: Exploring Affluent Consumers' Attitudes Toward Wasting Edible Food. *Journal of Food Products Marketing*, 23(4), pp.416–429. doi:<https://doi.org/10.1080/10454446.2015.1048017>.

Naturvårdsverket (n.d.). *Reduced food waste*. [online] www.naturvardsverket.se. <https://www.naturvardsverket.se/en/international/research/the-environmental-research-fund/closed-calls/reduced-food-waste/>

Neergaard, I.M. and Ravnbøl, K. (2019). *Nordic Youth As Sustainable Changemakers*. Nordic Council of Ministers. doi:<https://doi.org/10.6027/no2019-027>.

Nikolaus, C.J., Nickols-Richardson, S.M. and Ellison, B. (2018). Wasted food: A qualitative study of U.S. young adults' perceptions, beliefs and behaviors. *Appetite*, [online] 130(1), pp.70–78. doi:<https://doi.org/10.1016/j.appet.2018.07.026>.

Nomura, A. (2020). *The Hidden Contribution of Food Literacy to Food Waste Reduction*. [online] repository.kulib.kyoto-u.ac.jp. <https://repository.kulib.kyoto-u.ac.jp/dspace/handle/2433/259081>

Norstat (2020). The Nordic Youth Barometer. [online]
<https://www.ungdomsbarometern.se/wp-content/uploads/2021/02/c-Ungdomsbarometern-2021-UB-Nordic-2020.pdf>.

Pelletier, J.E. and Laska, M.N. (2012). Balancing Healthy Meals and Busy Lives: Associations between Work, School, and Family Responsibilities and Perceived Time Constraints among Young Adults. *Journal of Nutrition Education and Behavior*, 44(6), pp.481–489. doi:<https://doi.org/10.1016/j.jneb.2012.04.001>.

Pepetone, A., Vanderlee, L., White, C.M., Hammond, D. and Kirkpatrick, S.I. (2021). Food insecurity, food skills, health literacy, and food preparation activities among young Canadian adults: A cross-sectional analysis. *Public Health Nutrition*, pp.1–29.
doi:<https://doi.org/10.1017/s1368980021000719>.

Pickard, A.J. (2017). *Research Methods in Information*. Facet.

Quested, T.E., Marsh, E., Stunell, D. and Parry, A.D. (2013). Spaghetti soup: The complex world of food waste behaviours. *Resources, Conservation and Recycling*, 79(79), pp.43–51.
doi:<https://doi.org/10.1016/j.resconrec.2013.04.011>.

Romani, S., Grappi, S., Bagozzi, R.P. and Barone, A.M. (2018). Domestic food practices: A study of food management behaviors and the role of food preparation planning in reducing waste. *Appetite*, 121, pp.215–227. doi:<https://doi.org/10.1016/j.appet.2017.11.093>.

Russell, S.V., Young, C.W., Unsworth, K.L. and Robinson, C. (2017). Bringing habits and emotions into food waste behaviour. *Resources, Conservation and Recycling*, [online] 125(1), pp.107–114. doi:<https://doi.org/10.1016/j.resconrec.2017.06.007>.

Scherhauser, S., Moates, G., Hartikainen, H., Waldron, K. and Obersteiner, G. (2018). Environmental impacts of food waste in Europe. *Waste Management*, [online] 77, pp.98–113.
doi:<https://doi.org/10.1016/j.wasman.2018.04.038>.

Silva, P., Araújo, R., Lopes, F. and Ray, S. (2023). Nutrition and Food Literacy: Framing the Challenges to Health Communication. *Nutrients*, 15(22), pp.4708–4708.
doi:<https://doi.org/10.3390/nu15224708>.

Skolverket (2011). *Kursplan hem- och konsumentkunskap [electronic resource]*.

www.skolverket.se.

Statistikmyndigheten (2023). *Föräldrars ålder i Sverige*. [online] Statistiska Centralbyrån.

<https://www.scb.se/hitta-statistik/sverige-i-siffror/manniskorna-i-sverige/foraldrars-alder-i-sverige/#region>

Statistikmyndigheten (2022). *Fler ungdomar flyttade hemifrån 2020 och 2021*. [online]

Statistiska Centralbyrån. [https://www.scb.se/hitta-statistik/statistik-efter-](https://www.scb.se/hitta-statistik/statistik-efter-amne/befolkning/befolkningsframskrivningar/demografisk-analys/pong/statistiknyhet/ungdomars-flytt-fran-foraldrahemmet-i-coronatider/)

[amne/befolkning/befolkningsframskrivningar/demografisk-](https://www.scb.se/hitta-statistik/statistik-efter-amne/befolkning/befolkningsframskrivningar/demografisk-analys/pong/statistiknyhet/ungdomars-flytt-fran-foraldrahemmet-i-coronatider/)

[analys/pong/statistiknyhet/ungdomars-flytt-fran-foraldrahemmet-i-coronatider/](https://www.scb.se/hitta-statistik/statistik-efter-amne/befolkning/befolkningsframskrivningar/demografisk-analys/pong/statistiknyhet/ungdomars-flytt-fran-foraldrahemmet-i-coronatider/)

Stern, P.C. (2000). New Environmental Theories: Toward a Coherent Theory of

Environmentally Significant Behavior. *Journal of Social Issues*, [online] 56(3), pp.407–424.

<https://spssi.onlinelibrary.wiley.com/doi/abs/10.1111/0022-4537.00175>.

Truman, E., Lane, D. and Elliott, C. (2017). Defining food literacy: A scoping review.

Appetite, 116, pp.365–371. doi:<https://doi.org/10.1016/j.appet.2017.05.007>.

UNDP (2015). *Mål 12: Hållbar konsumtion och produktion - Globala målen*. [online]

Globala målen. <https://www.globalamalen.se/om-globala-malen/mal-12-hallbar-konsumtion-och-produktion/>.

United Nations (2023). Sustainability. *United Nations*. [online]

<https://www.un.org/en/academic-impact/sustainability>.

van Herpen, E., van Geffen, L., Nijenhuis-de Vries, M., Holthuysen, N., van der Lans, I. and

Quested, T. (2019). A validated survey to measure household food waste. *MethodsX*, [online]

6, pp.2767–2775. doi:<https://doi.org/10.1016/j.mex.2019.10.029>.

Velardo, S. (2015). The Nuances of Health Literacy, Nutrition Literacy, and Food Literacy.

Journal of Nutrition Education and Behavior, 47(4), pp.385-389.e1.

doi:<https://doi.org/10.1016/j.jneb.2015.04.328>.

Vidgen, H.A. and Gallegos, D. (2014). Defining food literacy and its components. *Appetite*,

76, pp.50–59. doi:<https://doi.org/10.1016/j.appet.2014.01.010>.

World Health Organization (2022). *WHO global strategy for food safety 2022-2030*. World Health Organization.

World Population Review (2021). *Most Environmentally Friendly Countries 2020*. [online] <https://worldpopulationreview.com/country-rankings/most-environmentally-friendly-countries>.

World Wildlife Fund (2023). *Fight Climate Change by Preventing Food Waste*. [online] World Wildlife Fund. <https://www.worldwildlife.org/stories/fight-climate-change-by-preventing-food-waste>.

WWF (2014). *Food Loss and Waste*. [online] Panda.org. https://wwf.panda.org/discover/our_focus/food_practice/food_loss_and_waste/.

WWF Sverige (2018). *Ny Sifo-undersökning: Unga kvinnor mest oroade och engagerade i klimatfrågan*. [online] Världsnaturfonden WWF. <https://www.wwf.se/nyheter/unga-kvinnor-oroas-och-engageras-mest-i-klimatfragan-2834271/>

12. Appendix

Appendix 1: Questionnaire

Frågor om dina attityder, rutiner, kunskaper och beteende kring mat och matsvinn i hemmet

Definition av matsvinn: Är mat som går bra att äta men av olika anledningar inte äts eller dricks upp (Livsmedelsverket)

Syftet med den här enkäten är att samla material för mitt examensarbete i Miljövetenskap i Södertörn Högskola. Jag vill informera om att dina uppgifter och svar behandlas anonymt och kommer bara användas till studiens syfte.

Författaren till denna studie kan nås via mejl ifall du har några frågor: 20alpe10@sun.se

Avsnitt 1: Fakta om dig själv

1. **Hur gammal är du?**
2. **Vilken kön identifierar du dig med?**
 - Man
 - Kvinna
 - Annat
3. **Vilken sysselsättning har du?**
 - Jobbar

- Studerar
- Annat

4. Hur många bor ni i hushållet? *Skriv hur många barn och vuxna (över 18)*

Avsnitt 2: Dina rutiner och beteende kring mat

5. Hur ofta lagar du mat?

- Alltid
- Oftast
- Ibland
- Sällan
- Aldrig

6. Hur mycket mat tycker du att du slänger hemma?

- Ingenting
- Lagom
- Mycket

7. Hur ofta slänger du mat hemma?

- Varje gång jag äter mat
- Flera gånger om dagen
- En gång per dag
- En gång per vecka
- Aldrig

8. Kastar du matavfall i komposten?

- Ja
- Nej
- Vet inte

9. Har du matsvinn hemma? (definition: Är mat som går bra att äta men av olika anledningar inte äts eller dricks upp)

- Ja
- Nej
- Vet inte

Avsnitt 3: Din kunskap kring mat

10. Anser du att du har kunskaper om hur länge maten håller?

- Ja
- Nej
- Vet inte

11. Om du slänger mat, hur avgör du när det ska slängas? *Fler val är möjliga*

- Kollar bara på datum
- Kollar på datum, tittar, luktar och smakar
- tittar, luktar och smakar
- Söker online om hur länge produkter håller
- Kastar när jag känner för det

- Annat

12. Om du svarade *Annat* i föregående fråga, berätta gärna vad du gör

13. Om du slänger råvaror, vad är det som leder till att dina råvaror blir gamla utan att du använder dem? *Flera val är möjliga*

- Köper för mycket
- Glömmer använda eller ligger gömt
- Dålig planering av måltider (ex. Använder nyare råvaror istället för tidigare köp)
- Blir sugen på att laga annat
- För lite för att använda
- Vet inte vad jag ska laga med det
- Vet inte hur jag ska förvara mat eller dåligt på att förvara mat i rätt förhållanden
- Annat

14. Om du svarade *Annat* i föregående fråga, berätta gärna vad du gör

15. Om du slänger matrester, vad är det som leder till att du kastar matrester/färdiglagad mat? *Flera val är möjliga*

- Ligger ute för länge (efter matlagning)
- Inte sugen att äta samma måltid igen
- Glömmer äta/frysa och hinner bli dåligt
- Vet inte hur jag ska förvara
- Vet inte hur länge matrester håller i kylskåpet
- Vet inte hur jag ska värma upp
- Smakar inte lika bra
- Har inte mikro
- Annat

16. Om du svarade *Annat* i föregående fråga, berätta gärna vad du gör

17. Undviker du att slänga mat?

- Ja
- Nej
- Vet inte

18. Om du undviker, vad gör du hemma för att undvika matsvinn? *Flera val är möjliga*

- Förvarar rätt
- Fryser in mat
- Picklar / torkar / fermenterar
- Köper bara det jag behöver
- Annat

19. Om du valde *Annat* i föregående fråga, berätta vad du gör?

20. Om du undviker att kasta mat, varför undviker du att slänga mat?

- Sparar på pengar
- Sparar på tid
- För miljöns skull
- Det är omoraliskt

- Det är en vana

21. Känner du att du kan laga en måltid utifrån de produkter du har tillgängligt hemma?

- Ja
- Nej
- Vet inte

22. Har du sökt på internet eller på sociala medier efter tips på hur du kan undvika matsvinn hemma?

- Ja
- Nej
- Vet inte

Avsnitt 4: Dina känslor och attityder kring mat

23. Anser du att det är okej att kasta mat som du redan har på tallriken?

- Ja
- Nej
- Vet inte

24. Känner du dåligt samvete eller blir ledsen när du kastar mat?

- Ja
- Nej
- Vet inte

25. Är du ofta rädd av att bli matförgiftad/magsjuk av maten du äter hemma?

- Ja
- Nej
- Vet inte

26. Anser du att kasta mat hemma är ett miljöproblem?

- Ja
- Nej
- Vet inte

27. Anser du dig själv som en miljövänlig person?

- Ja
- Nej
- Vet inte

28. Tycker du att du har goda matlagningskunskaper?

- Ja
- Nej
- Vet inte

29. Tycker du att du har goda matförvaringskunskaper?

- Ja
- Nej
- Vet inte

30. Vill du minska ditt matsvinn?

- Ja
- Nej
- Vet inte

31. Skulle du vilja lära dig hur du kan minska ditt matsvinn?

- Ja
- Nej
- Vet inte

32. Om du vill slänga mindre mat, vad skulle få dig att slänga mindre mat? (några exempel: mindre förpackningar i mataffären, lätt tillgängliga tips på sociala medier, hålla upp mindre portioner, ägna mer tid till matlagning, hemkunskap i skolan) Skriv vad du tror skulle hjälpa

Appendix 2: The poster that was presented to the possible participants which included the QR-code for the questionnaire

